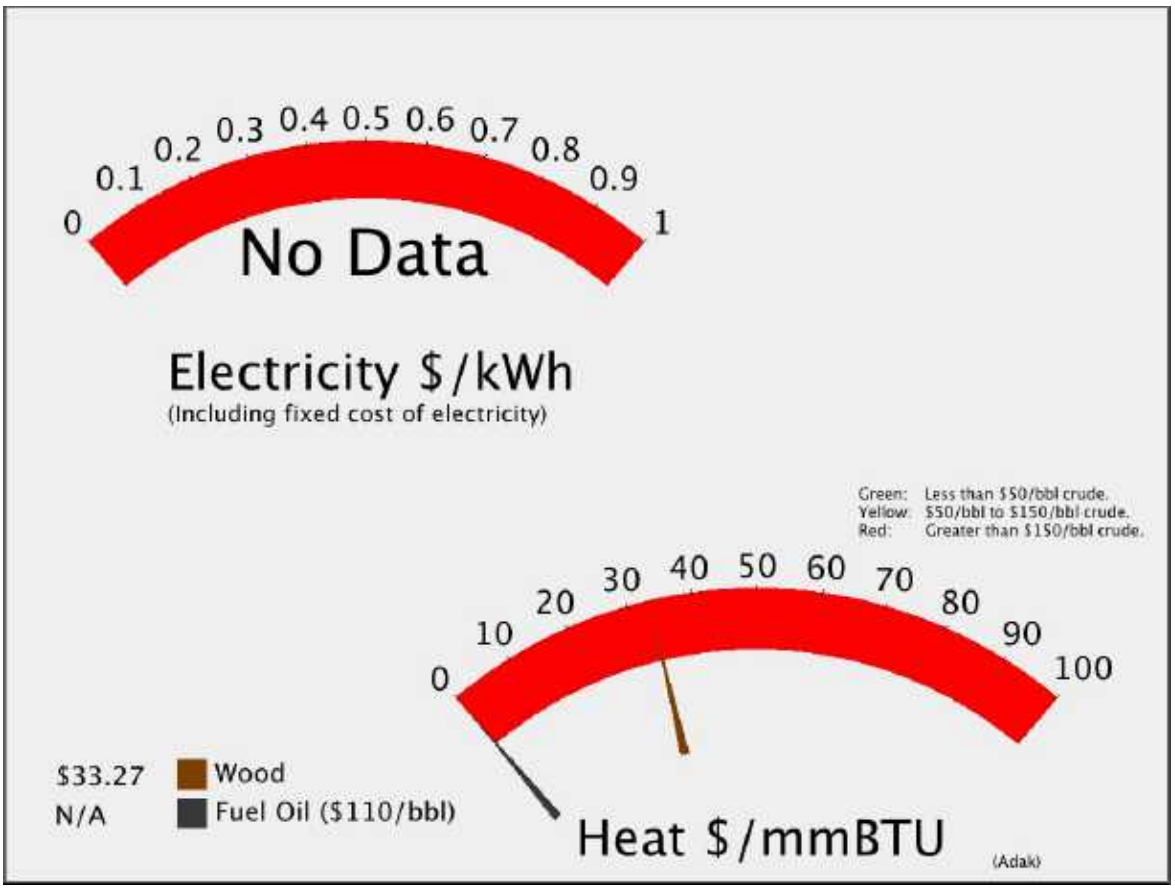
Adak

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	136
Transportation	Per capita		
Electricity:	Per capita		



Adak

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 136 LATITUDE: 52d 25m N LONGITUDE: 176d 01m **Unorganized**

LOCATION Adak is located on Kuluk Bay on Adak Island. It lies 1,300 miles southwest of Anchorage and 350 miles west of Unalaska/Dutch Harbor, in the Aleutian Island Chain. Flight time to Anchorage is three hours. Adak is the southern-most community in Alaska, on the latitude of Vancouver Island in Canada.

ECONOMY A land exchange between Aleut Corp., the U.S. Navy, and the Department of the Interior has transferred most of the naval facilities to the Aleut Corp. A portion of the Island remains within the National Maritime National Wildlife Refuge, managed by U.S. Fish & Wildlife. Adak currently provides a fueling port and crew transfer facility for foreign fishing fleets -- an airport, docks, housing facilities, restaurant, grocery and ship supply store are available. Contractors are performing an environmental clean-up. Norquest-Adak Seafood Co. processes Pacific cod, pollock, mackerel, halibut, albacore and brown king crab. Four residents hold commercial fishing permits, primarily for groundfish.

HISTORY The Aleutian Islands were historically occupied by the Unangas. The once heavily-populated island was eventually abandoned in the early 1800s as the Aleutian Island hunters followed the Russian fur trade eastward, and famine set in on the Andreanof Island group. However, they continued to actively hunt and fish around the island over the years, until World War II broke out. Adak Army installations allowed U.S. forces to mount a successful offensive against the Japanese-held islands of Kiska and Attu. After the War, Adak was developed as a Naval Air Station, playing an important role during the Cold War as a submarine surveillance center. Large earthquakes rocked the Island in 1957, 1964 and 1977. At its peak, the station housed 6,000 naval personnel and their families. In 1994, severe cut-backs occurred, and family housing and schools were closed. The station officially closed on March 31, 1997, and currently houses civilians. The Aleut Corporation acquired Adak's facilities under a land transfer agreement, pending with the Department of the Interior and the U.S. Navy/Department of Defense. Properties are currently under lease. About 30 families with children relocated to Adak in September 1998, most of them Aleut Corp. shareholders, and a school was reopened. Aleut Corp. is currently developing Adak as a commercial center. The community formed a Second Class City government in April 2001.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**
kW-hr/year **619147**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **5.98** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,438,000**		
Annual Capital	**$163,872**	$0.26	$77.55
Annual OM	**$29,048**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$192,920**	$0.31	**$91.30**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **201**
kW-hr/year **1200000**
Site **Unnamed Stream #1**
Study plan effort **reconnaissance**
Plant Factor **50** %
Penetration **1.00**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,375,000**		
Annual Capital	**$131,171**	$0.11	$32.03
Annual OM	**$90,000**	$0.08	$21.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$221,171**	$0.18	**$54.00**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **303**
kW-hr/year **1500000**
Site **Unnamed Stream #2**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **1.00**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$4,432,500**		
Annual Capital	**$172,271**	$0.11	$33.65
Annual OM	**$90,000**	$0.06	$17.58
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$262,271**	$0.17	**$51.23**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **192**

kW-hr/year **1000000**

Site **Unnamed Stream #3**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **1.00**

			Heat Cost $/MMBtu :
Capital cost	**$3,982,500**	per kW-hr	
Annual Capital	**$154,782**	$0.15	$45.35
Annual OM	**$78,750**	$0.08	$23.07
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$233,532**	$0.23	**$68.42**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Alternative Energy Resources

Geothermal

Installed KW **5000**

kW-hr/year **41610000**

Site Name **Adak**

Project Capatcity

Shallow Resource **0** Feet

Shallow Temp **66.00** C

			Heat Cost $/MMBtu :
Capital cost	**$60,000,000**	per kW-hr	
Annual Capital	**$4,032,942**	$0.10	$28.40
Annual OM	**$1,800,000**	$0.04	$12.67
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$5,832,942**	$0.14	**$41.07**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Adak

Tidal:	SOME POTENTIAL
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

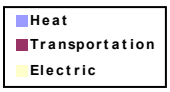
Renewable Fund Project List:

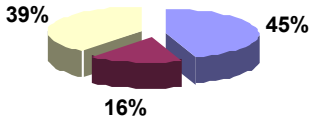
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Adak Diesel Hybrid_TDX Power has been submitted by: TDX Adak Generating, LLC. The total project budget is: $900,000 with $800,000 requested in grant funding and $100,000 as matching funds.

Akiachak

Energy Used





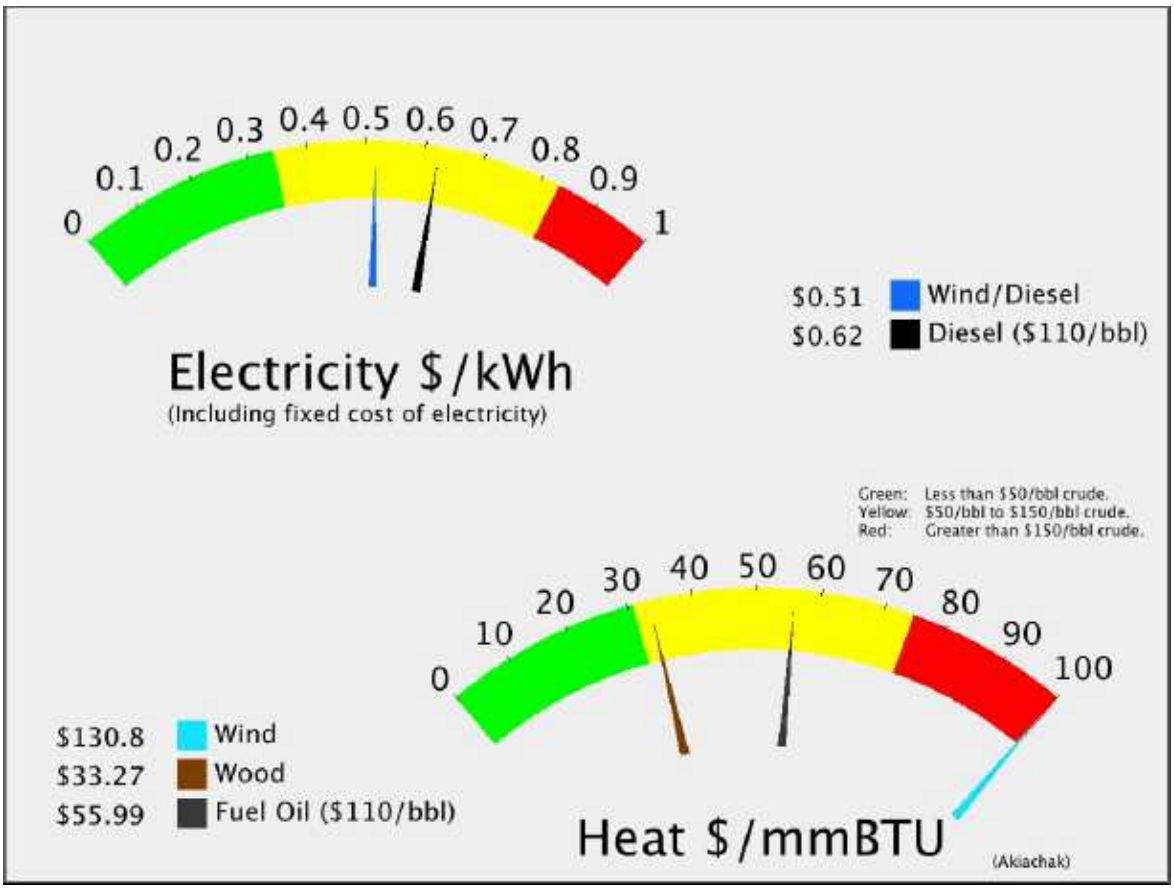
Total: **$3,769** Per capita

Heat **$1,686** Per capita

Transportation **$603** Per capita

Electricity: **$1,480** Per capita

POPULATION: 628



Akiachak

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 628 LATITUDE: 60d 54m N LONGITUDE: 161d 25m **Unorganized**

LOCATION Akiachak is located on the west bank of the Kuskokwim River, on the Yukon-Kuskokwim Delta. It lies 18 miles northeast of Bethel.

ECONOMY The majority of year-round employment in Akiachak is in education and other public services. The Yupiit School District headquarters are located in the community. Residents rely on seasonal employment such as commercial fishing, construction and BLM fire-fighting. 70 residents hold commercial fishing permits, and some work at canneries in Bristol Bay. The community is developing a fish processing facility and freezer. Subsistence activities provide most food sources. Poor fish returns since 1997 have significantly affected the community.

HISTORY The area was used by the Yup'ik Eskimos as a seasonal subsistence site. Called Akiakchagamiut" in the 1890 census the village had a population of 43 at that time. A post office was established in 1934. It incorporated as a second-class city on February 7 1974. The city government was dissolved on January 31 1990 in favor of traditional village council governance."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.19** /kw-hr

Current efficiency	**13.14**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$29,867**
Consumption in 200	**130,191**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$227,122**
Average Load	**170**	kW	NF COE:	**$0.15**	/kw-hr	Current Fuel Costs	**$675,392**
Estimated peak loa	**340.94**	kW	Total	**$0.62**		**Total Electric**	
Average Sales	**1,493,332**	kW-hours				**$932,380**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**171,137**	gal	
Fuel Oil:	**57%**	Estimated heating fuel cost/gallon	**$6.19**		
Wood:	**36%**	$/MMBtu delivered to user	**$56.12**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**20,536**		**$1,058,943**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **61,221** gal Estimated cost **$6.19** **$378,815**

Energy Total **$2,370,138**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **122,236**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$29,867**	$0.02	
New fuel cost	**$634,125**	$0.42	
Avg Non-Fuel Costs:	**$256,988**	$0.15	
New cost of electricity		**$0.54**	per kW-hr

Savings

$40,639

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**19,529**	gal	**$120,837**
Stack Heat	**0**	gal	**$0**

Capital cost	**$477,321**		
Annual ID	**$39,984**		
Annual OM	**$9,546**		
Total Annual costs	**$49,530**		
Heat cost	**$22.95**	$/MMBtu	

Savings

$71,307

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **907550**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.65
Annual OM	**$42,579**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$249,036**	$0.27	**$80.40**
Non-Fuel Costs		$0.17	
Alternative COE:		**$0.45**	
% Community energy		61%	
New Community COE (includes non-fuel and diesel costs)		**$0.50**	

Savings

$179,570

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.4%

Other Resources

Akiachak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

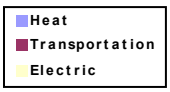
Renewable Fund Project List:

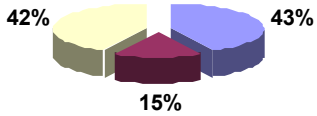
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Akiachak Wind_ANCEC has been submitted by: Akiachak Native Community Electric Company for a Wind Diesel Hybrid project. The total project budget is: $4,500,000 with $4,500,000 requested in grant funding and $600,000 as matching funds.

Akiak

Energy Used





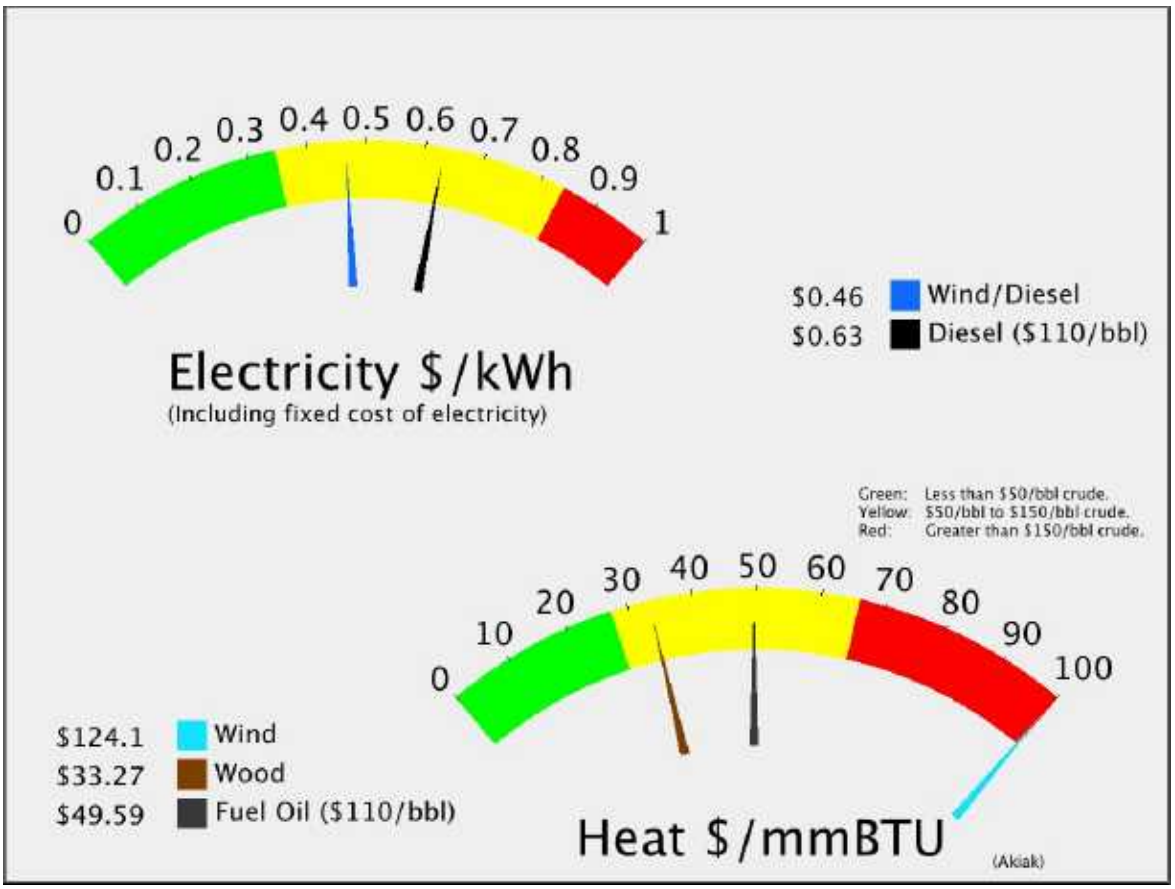
Total: **$3,497** Per capita

Heat **$1,482** Per capita

Transportation **$530** Per capita

Electricity: **$1,485** Per capita

POPULATION: 350



Akiak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 350 LATITUDE: 60d 55m N LONGITUDE: 161d 13m **Unorganized**

LOCATION Akiak is located on the west bank of the Kuskokwim River, 42 air miles northeast of Bethel, on the Yukon-Kuskokwim Delta.

ECONOMY The majority of the year-round employment in Akiak is with the City, schools or other public services. Commercial fishing or BLM fire-fighting also provide seasonal income. 27 residents hold commercial fishing permits. The community is interested in developing a fish processing plant and tourism. Subsistence activities are important to residents. Poor fish returns since 1997 have significantly affected the community.

HISTORY In 1880, the village of Ackiagmute" had a population of 175. The name Akiak means "the other side since this place was a crossing to the Yukon River basin during the winter for area Eskimos. The Akiak post office was established in 1916. A U.S. Public Health Service hospital was built in the 1920s. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.48** /kw-hr

Current efficiency	**12.55**	kW-hr/gal	Fuel COE	**$0.50**	/kw-hr	Estimated Diesel OM	**$16,889**
Consumption in 200	**93,975**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$95,101**
Average Load	**96**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$420,989**
Estimated peak loa	**192.79**	kW	Total	**$0.63**		**Total Electric**	
Average Sales	**844,432**	kW-hours				**$532,979**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**94,677**	gal	
Fuel Oil:	**65%**	Estimated heating fuel cost/gallon	**$5.48**		
Wood:	**35%**	$/MMBtu delivered to user	**$49.70**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,361**		**$518,814**

Transportation (Estimated)

Estimated Diesel:	**33,869**	gal	Estimated cost	**$5.48**	**Total Transportation**
					$185,595

Energy Total **$1,237,388**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Design In Pro**

Acheivable efficiency **14** kW-

New Fuel use **84,221**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.13	/kw-hr
Estimated Diesel OM	**$16,889**	$0.02	
New fuel cost	**$377,295**	$0.45	
Avg Non-Fuel Costs:	**$111,990**	$0.11	
New cost of electricity	**$0.58** per kW-hr		

Savings

($65,203)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**14,096**	gal	**$77,245**
Stack Heat	**0**	gal	**$0**

Capital cost	**$269,910**		
Annual ID	**$22,609**		
Annual OM	**$5,398**		
Total Annual costs	**$28,008**		
Heat cost	**$17.98**	$/MMBtu	

Savings

$49,237

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **671378**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.52
Annual OM	**$31,499**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,370**	$0.29	**$85.26**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.42**	
% Community energy		80%	
New Community COE		**$0.45**	

(includes non-fuel and diesel costs)

Savings

$152,785

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.4%

Other Resources

Akiak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

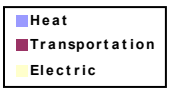
Renewable Fund Project List:

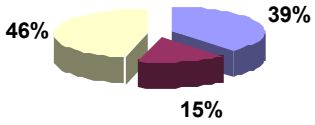
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Akiak Wind has been submitted by: Akiak Power Utilities for a Wind Diesel Hybrid project. The total project budget is: $200,000 with $200,000 requested in grant funding and no matching funds.

Akutan

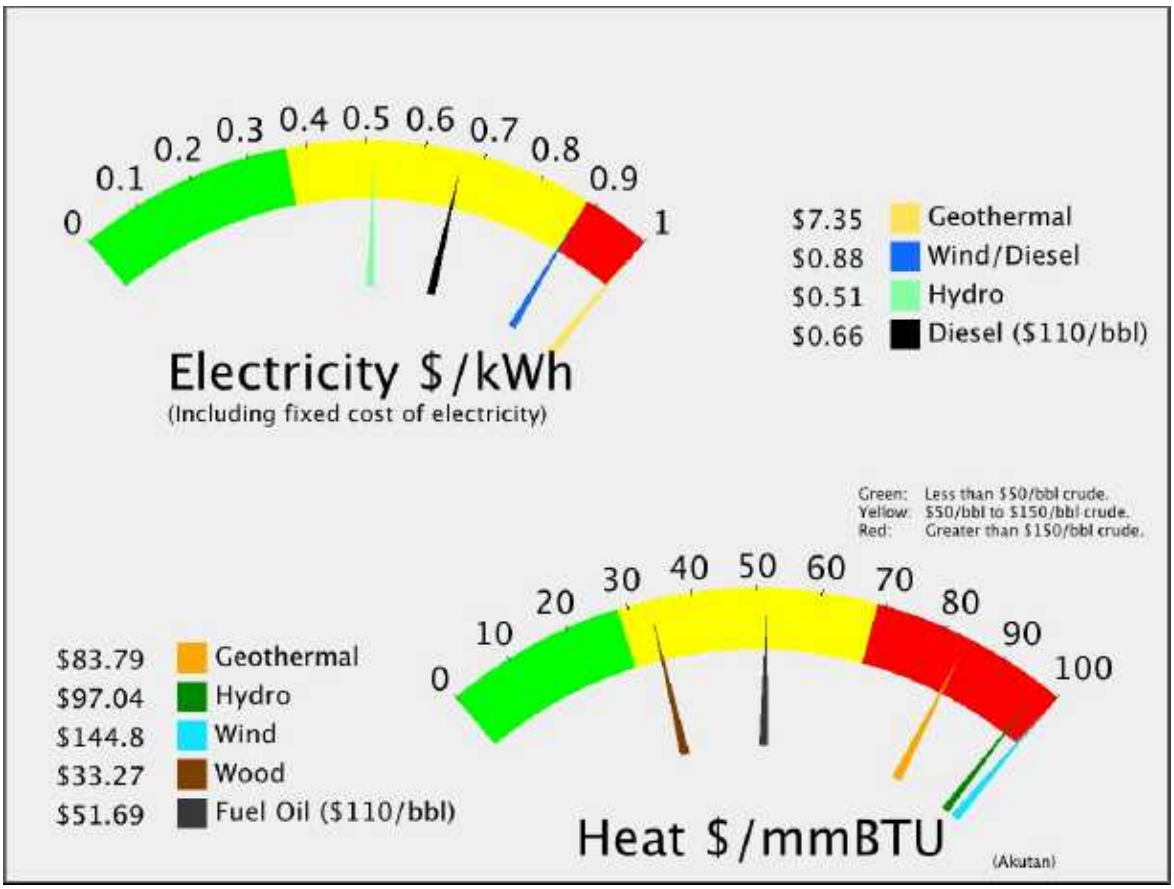
Energy Used





Total:	**$964**	Per capita
Heat	**$372**	Per capita
Transportation	**$147**	Per capita
Electricity:	**$444**	Per capita

POPULATION: 859



Akutan

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 859 LATITUDE: 54d 08m N LONGITUDE: 165d 46m **Aleutians East Borough**

LOCATION Akutan is located on Akutan Island in the eastern Aleutians, one of the Krenitzin Islands of the Fox Island group. It is 35 miles east of Unalaska, and 766 air miles southwest of Anchorage.

ECONOMY Commercial fish processing dominates Akutan's cash-based economy, and many locals are seasonally employed. Trident Seafoods operates a large processing plant west of the City for cod, crab, pollock and fish meal. The population of Akutan can double during processing months. Seven residents hold commercial fishing permits, primarily for halibut and other groundfish. Subsistence foods include seal, salmon, herring, halibut, clams, wild cattle, and game birds.

HISTORY Akutan began in 1878 as a fur storage and trading port for the Western Fur & Trading Company. The company's agent established a commercial cod fishing and processing business that quickly attracted nearby Unangan to the community. A Russian Orthodox church and a school were built in 1878. Alexander Nevsky Chapel was built in 1918 to replace the original structure. The Pacific Whaling Company built a whale processing station across the bay from Akutan in 1912. It was the only whaling station in the Aleutians, and operated until 1939. After the Japanese attacked Unalaska in June 1942, the U.S. government evacuated Akutan residents to the Ketchikan area. The village was re-established in 1944, although many villagers chose not to return. This exposure to the outside world brought many changes to the traditional lifestyle and attitudes of the community. The City was incorporated in 1979.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.71** /kw-hr

Current efficiency	**11.81**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$10,206**
Consumption in 200	**48,913**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$98,502**
Average Load	**58**	kW	NF COE:	**$0.19**	/kw-hr	Current Fuel Costs	**$230,488**
Estimated peak loa	**116.51**	kW	Total	**$0.66**		**Total Electric**	
Average Sales	**510,306**	kW-hours				**$339,196**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**56,012**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.71**		
Wood:	**0%**	$/MMBtu delivered to user	**$51.81**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,721**		**$319,950**

Transportation (Estimated)

Estimated Diesel:	**22,154**	gal	Estimated cost	**$5.71**	**Total Transportation**
					$126,547

Energy Total **$785,693**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **41,267**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$10,206**	$0.02	
New fuel cost	**$194,457**	$0.38	
Avg Non-Fuel Costs:	**$108,708**	$0.19	
New cost of electricity	**$0.55** per kW-hr		

Savings

$35,402

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**7,337**	gal	**$41,910**
Stack Heat	**0**	gal	**$0**

Capital cost	**$163,112**		
Annual ID	**$13,663**		
Annual OM	**$3,262**		
Total Annual costs	**$16,926**		
Heat cost	**$20.88**	$/MMBtu	

Savings

$24,985

Alternative Energy Resources

Hydro

Installed KW **197**
kW-hr/year **566166**
Site **North Creek**
Study plan effort **feasibilty**
Plant Factor **69** %
Penetration **0.52**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,507,920**		
Annual Capital	**$97,472**	$0.17	$50.44
Annual OM	**$55,200**	$0.10	$28.57
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$152,672**	$0.27	**$79.01**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.48**	
% Community energy		111%	
New Community COE		**$0.51**	

(includes non-fuel and diesel costs)

Savings
$186,524

Alternative Energy Resources

Geothermal

Installed KW **6000**
kW-hr/year **49932000**
Site Name **Akutan - Deep**
Project Capatcity **200 MW**
Shallow Resource **0** Feet
Shallow Temp **99.00** C

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$37,500,000**		
Annual Capital	**$2,520,589**	$0.05	$14.79
Annual OM	**$1,125,000**	$0.02	$6.60
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,645,589**	$0.07	**$21.39**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.29**	
% Community energy		9785%	
New Community COE		**$7.36**	

(includes non-fuel and diesel costs)

Savings
($3,306,393)

Alternative Energy Resources

Hydro

Installed KW **209**
kW-hr/year **701186**
Site **Loud Creek**
Study plan effort **feasibility**
Plant Factor **77** %
Penetration **0.54**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,509,760**		
Annual Capital	**$97,543**	$0.14	$40.76
Annual OM	**$55,200**	$0.08	$23.07
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$152,743**	$0.22	**$63.83**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.43**	
% Community energy		137%	
New Community COE		**$0.51**	

(includes non-fuel and diesel costs)

Savings
$186,453

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**
kW-hr/year **1218860**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$4,253,640**		
Annual Capital	**$285,911**	$0.23	$68.73
Annual OM	**$57,184**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$343,096**	$0.28	**$82.48**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.49**	
% Community energy		239%	
New Community COE		**$0.89**	

(includes non-fuel and diesel costs)

Savings
($3,900)

Alternative Energy Resources

Geothermal

Installed KW **5000**
kW-hr/year **41610000**
Site Name **Akutan - Shallow**
Project Capatcity **200 MW**
Shallow Resource **0** Feet
Shallow Temp **99.00** C

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$38,500,000**		
Annual Capital	**$2,587,805**	$0.06	$18.22
Annual OM	**$1,155,000**	$0.03	$8.13
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,742,805**	$0.09	**$26.36**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.30**	
% Community energy		8154%	
New Community COE		**$7.55**	

(includes non-fuel and diesel costs)

Savings
($3,403,609)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	37.9%

Other Resources

Akutan

Tidal: SOME POTENTIAL
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

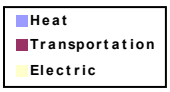
A project titled: Akutan Hydrosystem Repair and Upgrade has been submitted by: City of Akutan for a Hydro project. The total project budget is: $1,795,450 with $1,795,450 requested in grant funding and no matching funds.

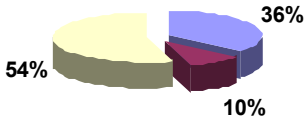
A project titled: Hot Springs Bay Valley_Akutan has been submitted by: City of Akutan for a Geothermal project. The total project budget is: $45,000,000 with $2,995,000 requested in grant funding and no matching funds.

A project titled: Loud Creek Hydro_Akutan has been submitted by: City of Akutan for a Hydro project. The total project budget is not given with $237,772 requested in grant funding and no matching funds.

Alakanuk

Energy Used





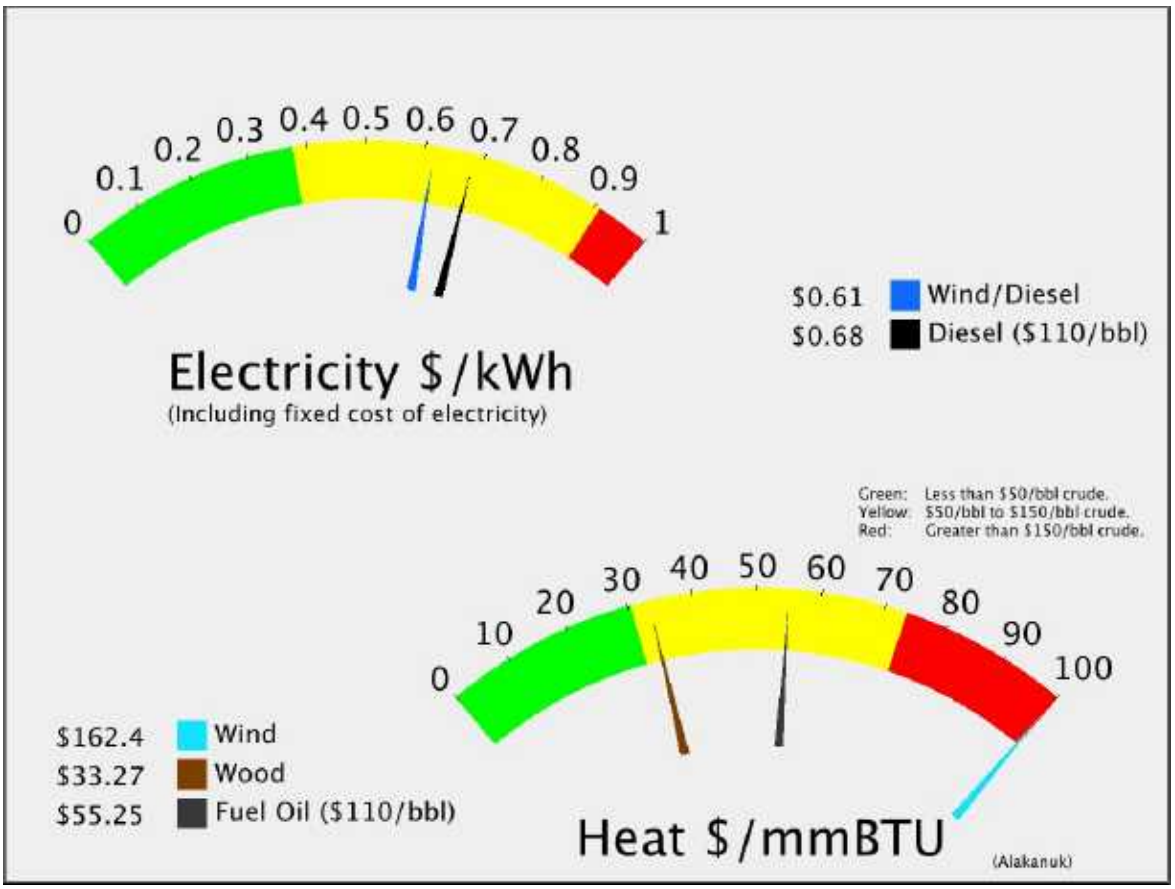
Total: **$3,217** Per capita

Heat **$1,153** Per capita

Transportation **$316** Per capita

Electricity: **$1,747** Per capita

POPULATION: 681



Alakanuk

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 681 LATITUDE: 62d 41m N LONGITUDE: 164d 37m **Unorganized**

LOCATION Alakanuk is located at the east entrance of Alakanuk Pass, the major southern channel of the Yukon River, 15 miles from the Bering Sea. It is part of the Yukon Delta National Wildlife Refuge. It lies 8 miles southwest of Emmonak, approximately 162 air miles northwest of Bethel. It is the longest village on the lower Yukon - the development stretches over a 3 mile area along the Pass. Approximately 25 homes along the bank are being threatened by erosion.

ECONOMY Alakanuk experiences a seasonal economy. 76 residents hold commercial fishing permits. Many have gill net permits, and set net fishermen sell their salmon to Seattle fish buyers. Poor fish returns since 1998 have significantly affected the community. Government employment and retail businesses provide limited year-round employment. Salmon, beluga whale, seal, moose and rabbit provide food sources. Some residents trap. Many residents travel to Emmonak to shop and attend social events and basketball tournaments.

HISTORY Alakanuk is a Yup'ik word meaning wrong way aptly applied to a village on this maze of watercourses. The village was first reported by G.R. Putnam of the U.S. Coast & Geodetic Survey in 1899. It was originally settled by a Yup'ik shaman named Anguksuar and his family. A Catholic mission school was built near the village. A post office was established in 1946. In 1948, the school was relocated to St. Mary's, and many families moved from the old school site to Alakanuk. It incorporated as a second-class city in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.11** /kw-hr

Current efficiency	**13.53**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$34,107**
Consumption in 200	**134,627**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$443,394**
Average Load	**195**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$687,338**
Estimated peak loa	**389.35**	kW	Total	**$0.68**		**Total Electric**	
Average Sales	**1,705,363**	kW-hours				**$1,164,840**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**128,631**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$6.11**		
Wood:	**4%**	$/MMBtu delivered to user	**$55.38**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**15,436**		**$785,357**

Transportation (Estimated)

Estimated Diesel:	**35,247**	gal	Estimated cost	**$6.11**	**Total Transportation**
					$215,202

Energy Total **$2,165,399**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **130,135**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.15	/kw-hr
Estimated Diesel OM	**$34,107**	$0.02	
New fuel cost	**$664,407**	$0.39	
Avg Non-Fuel Costs:	**$477,502**	$0.26	
New cost of electricity	**$0.79** per kW-hr		

Savings

($228,368)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Plant

			Value
Water Jacket	**20,194**	gal	**$123,295**
Stack Heat	**0**	gal	**$0**

Capital cost	**$545,093**		
Annual ID	**$45,661**		
Annual OM	**$10,902**		
Total Annual costs	**$56,562**		
Heat cost	**$25.35**	$/MMBtu	

Savings

$66,732

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **907550**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.65
Annual OM	**$42,579**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$249,036**	$0.27	**$80.40**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.55**	
% Community energy		53%	
New Community COE (includes non-fuel and diesel costs)		**$0.60**	

Savings

$134,903

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	16.5%

Other Resources

Alakanuk

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Aleknagik

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	237
Transportation	Per capita		
Electricity:	Per capita		

Aleknagik

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 237 LATITUDE: 59d 17m N LONGITUDE: 158d 36m **Unorganized**

LOCATION Aleknagik is located at the head of Wood River on the southeast end of Lake Aleknagik, 16 miles northwest of Dillingham.

ECONOMY Many residents participate in commercial and subsistence activities on the Bristol Bay coast during the summer. 33 residents hold commercial fishing permits. Trapping is also an important means of income. Most families depend to some extent on subsistence activities to supplement their livelihoods. Salmon, freshwater fish, moose, caribou, and berries are harvested. Poor fish returns and prices since 1997 have significantly affected the community.

HISTORY Wood River and Aleknagik Lake have been used historically as summer fish camps. Aleknagik means "Wrong Way Home," because Natives returning to their homes along the Nushagak River would sometimes become lost in the fog and find themselves swept up the Wood River with the tide, inadvertently arriving at Aleknagik Lake. The 1929 U.S. Census found 55 people living in the "Wood River village" area to the south. During 1930, there were five families living on the shores of the lake year-round, the Waskeys. Polleys, Hansons, Yakos, and Smiths. A log cabin territorial school was built on the south shore of the lake in 1933, and Josie Waskey was the first teacher. Attracted by the school, other facilities, and plentiful fish, game and timber, a number of families from Goodnews, Togiak, and Kulukak area relocated to Aleknagik. A post office was established in 1937. A two-story framed school with a teacher apartment was constructed in 1938. By 1939, Aleknagik had 78 residents, over 30 buildings, and a small sawmill. In the late 1940s, a Seventh-Day Adventist Mission and School was established on the north shore. During the 1950s, a Moravian Church and a Russian Orthodox Church were built in Aleknagik and over 35 families lived along the lake. In 1959, the state constructed a 25-mile road connecting the south shore to Dillingham. The road was passable only during the summer months, until the late 1980s, when it was upgraded and maintained year-round. The City was incorporated in 1973. Over 24 additional square miles were annexed to the City in April 2000.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **200865**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.34	$98.93
Annual OM	**$9,424**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,247**	$0.38	**$112.68**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Aleknagik

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

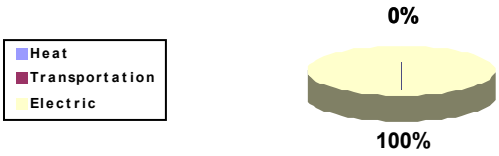
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Elva Hydropower Construction has been submitted by: Nushagak Electric & Telephone Cooperative, Inc for a Hydro project.

Allakaket

Energy Used



Total:

Per capita

Heat

Per capita

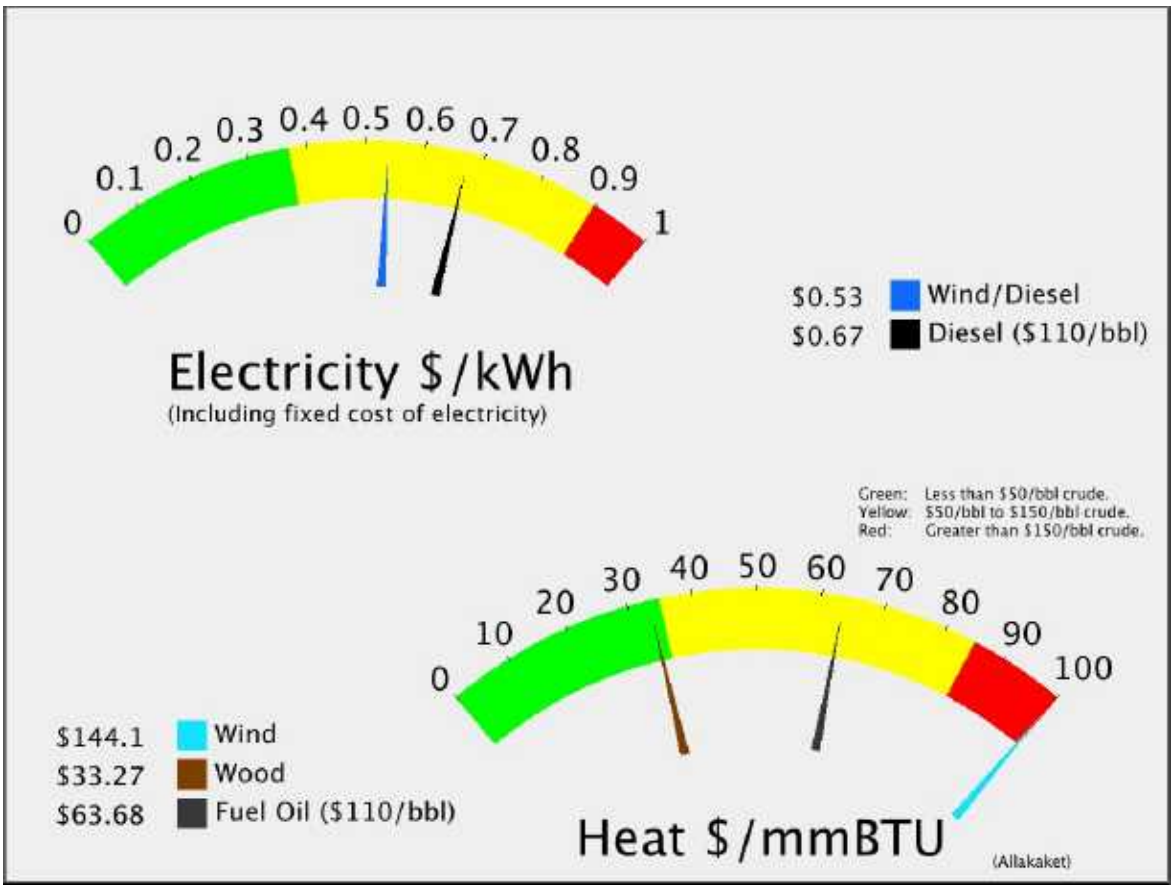
POPULATION: 95

Transportation

Per capita

Electricity: **$2,536**

Per capita



Allakaket

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 95 LATITUDE: 66d 34m N LONGITUDE: 152d 38m **Unorganized**

LOCATION Allakaket is on the south bank of the Koyukuk River, southwest of its junction with the Alatna River, approximately 190 air miles northwest of Fairbanks and 57 miles upriver from Hughes. The village of Alatna is located directly across the river.

ECONOMY Most cash jobs are part-time or seasonal. The primary year-round employers are the school, City, Tribe and village corporation store. Construction and BLM emergency firefighting provide summer jobs. A few earn income from trapping or selling traditional Native handicrafts. Subsistence is the focus of the local economy. Salmon, whitefish, moose, bear, small game and berries provide most food sources. Caribou are taken when available.

HISTORY Several Native groups have lived in the area, including Koyukon Athabascans and Kobuk, Selawik, and Nunamiut Eskimos from the north and northwest. The Koyukon lived in several camps throughout the year, moving as the seasons changed, following the wild game and fish. The various bands established joint settlements after 1851. The old site of Alatna was a traditional trading center for Athabascans and Eskimos. The first mission on the Koyukuk River, St. John's-in-the-Wilderness Episcopal Mission, was established in 1906. A post office was opened in 1925. In 1938, the name of the community was changed to Allakaket (the old name for the mission), and the name Alatna was assumed by the small Eskimo community across the river. The first public school was established in 1957. A flood caused by ice jamming inundated 85% of the community in the Spring of 1964. In 1975, the community incorporated as a City, including both settlements of Allakaket and Alatna. A clinic and airport were built in 1978. A new school and community roads were built in 1979. In September 1994, flood waters destroyed and swept away nearly all of the community's buildings, homes, and food caches for the winter. Residents rebuilt near the old City site, but some new homes and facilities are now located outside of the incorporated City boundaries. New Allakaket and Alatna are located outside of the City limits.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.04** /kw-hr

Current efficiency	**12.68**	kW-hr/gal	Fuel COE	**$0.50**	/kw-hr	Estimated Diesel OM	**$11,525**
Consumption in 200	**47,908**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$87,784**
Average Load	**66**	kW	NF COE:	**$0.15**	/kw-hr	Current Fuel Costs	**$289,225**
Estimated peak loa	**131.56**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**576,236**	kW-hours				**$388,534**	

Space Heating (Estimated)

2000 Census Data

Fuel Oil:	**63%**
Wood:	**37%**
Electricity:	**0.0%**

2008 Estimated Heating Fuel used: gal

Estimated heating fuel cost/gallon **$7.04**

$/MMBtu delivered to user **$63.83**

Community heat needs in MMBtu

Total Heating Oil

Transportation (Estimated)

Estimated Diesel: gal Estimated cost **$7.04**

Total Transportation

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **43,398**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.02	/kw-hr
Estimated Diesel OM	**$11,525**	$0.02	
New fuel cost	**$261,997**	$0.45	
Avg Non-Fuel Costs:	**$99,309**	$0.15	
New cost of electricity		**$0.62**	per kW-hr

Savings

$16,757

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, School

			Value
Water Jacket	**7,186**	gal	**$50,570**
Stack Heat	**0**	gal	**$0**

Capital cost **$184,185**

Annual ID **$15,429**

Annual OM **$3,684**

Total Annual costs **$19,112**

Heat cost **$24.07** $/MMBtu

Savings

$31,458

Alternative Energy Resources

Wood

Installed KW **80**

kW-hr/year **597362**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **755** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,992,135**	per kW-hr	
Annual Capital	**$133,903**	$0.22	
Annual OM	**$129,192**	$0.22	
Fuel cost:	**$113,233**	$0.19	-90
Total Annual Cost	**$376,328**	$0.63	**$29.76**
Non-Fuel Costs		$0.17	
Alternative COE:		**$0.80**	
% Community energy		104%	
New Community COE		**$0.83**	

(includes non-fuel and diesel costs)

Savings

$12,206

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **433661**

Met Tower? **no**

Homer Data? **yes**

Wind Class **3**

Avg wind speed **6.40** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.27	$79.95
Annual OM	**$20,346**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,678**	$0.32	**$93.70**
Non-Fuel Costs		$0.17	
Alternative COE:		**$0.49**	
% Community energy		75%	
New Community COE		**$0.52**	

(includes non-fuel and diesel costs)

Savings

$87,670

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Allakaket

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

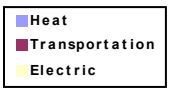
Renewable Fund Project List:

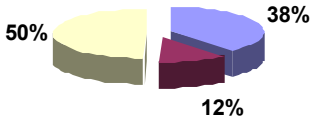
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Alternative Energy Recon_YKSD has been submitted by: Yukon-Koyukuk School District. The total project budget is: $112,000 requested in grant funding and $8,500 as matching funds.

Ambler

Energy Used





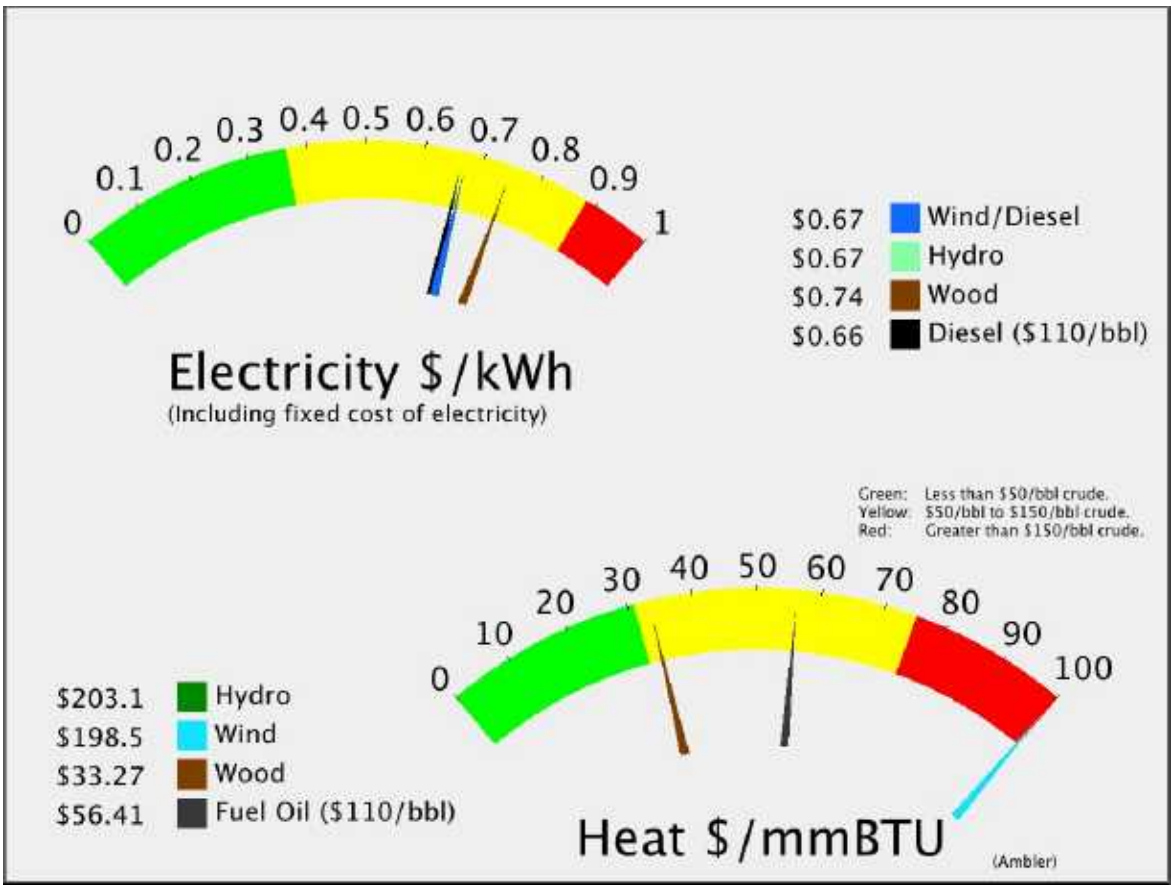
Total: **$6,052** Per capita

Heat **$2,318** Per capita

Transportation **$743** Per capita

Electricity: **$2,991** Per capita

POPULATION: 278



Ambler

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 278 LATITUDE: 67d 05m N LONGITUDE: 157d 52m **Northwest Arctic Borou**

LOCATION Ambler is located on the north bank of the Kobuk River, near the confluence of the Ambler and the Kobuk Rivers. It lies 45 miles north of the Arctic Circle. It is 138 miles northeast of Kotzebue, 30 miles northwest of Kobuk and 30 miles downriver from Shungnak.

ECONOMY Cash employment is limited to the school, City, clinic, and local stores, and some mining occurs. Five residents hold commercial fishing permits. Subsistence is a major part of the local economy. Chum salmon and caribou are the most important food sources. Freshwater fish, moose, bear, and berries are also harvested. Birch baskets, fur pelts, and jade, quartz, bone and ivory carvings are sold in gift shops throughout the state. The community is interested in developing a lapidary facility for local artisans.

HISTORY Ambler is named after Dr. James M. Ambler, U.S. Navy, surgeon on the U.S.S. Jeannette, who perished in 1881 in the Lena River delta while with the Arctic expedition under the command of Lt. Comdr. G.W. DeLong (1879-1880.) Ambler was permanently settled in 1958 when people from Shungnak and Kobuk moved upstream because of the variety of fish, wild game and spruce trees in the area. An archaeological site is located nearby at Onion Portage. A post office was established in 1963. The City was incorporated in 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.23** /kw-hr

Current efficiency	**13.85**	kW-hr/gal	Fuel COE	**$0.38**	/kw-hr	Estimated Diesel OM	**$25,589**
Consumption in 200	**93,867**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$332,654**
Average Load	**146**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$491,244**
Estimated peak loa	**292.11**	kW	Total	**$0.66**		**Total Electric**	
Average Sales	**1,279,439**	kW-hours				**$849,486**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**103,376**	gal	
Fuel Oil:	**52%**	Estimated heating fuel cost/gallon	**$6.23**		
Wood:	**48%**	$/MMBtu delivered to user	**$56.54**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,405**		**$644,382**

Transportation (Estimated)

Estimated Diesel:	**33,137**	gal	Estimated cost	**$6.23**	**Total Transportation**
					$206,559

Energy Total **$1,700,427**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **92,855**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.09	/kw-hr
Estimated Diesel OM	**$25,589**	$0.02	
New fuel cost	**$485,949**	$0.38	
Avg Non-Fuel Costs:	**$358,243**	$0.26	
New cost of electricity		**$0.74**	per kW-hr

Savings

($103,602)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**14,080**	gal	**$87,767**
Stack Heat	**0**	gal	**$0**

Capital cost	**$408,953**		
Annual ID	**$34,257**		
Annual OM	**$8,179**		
Total Annual costs	**$42,436**		
Heat cost	**$27.28**	$/MMBtu	

Savings

$45,331

Alternative Energy Resources

Hydro

Installed KW	**370**
kW-hr/year	**372476**
Site	**Jade Creek**
Study plan effort	**reconnaissance**
Plant Factor	**30** %
Penetration	**0.38**

			Heat Cost $/MMBtu :
Capital cost	**$5,807,420**	per kW-hr	
Annual Capital	**$290,536**	$0.78	$228.54
Annual OM	**$111,200**	$0.30	$87.47
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$401,736**	$1.08	**$316.02**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.36**	
% Community energy		29%	
New Community COE		**$0.67**	

(includes non-fuel and diesel costs)

Savings

($3,445)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**500**
kW-hr/year	**703932**
Met Tower?	**yes**
Homer Data?	**yes**
Wind Class	**4**
Avg wind speed	**3.41** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.35	$102.80
Annual OM	**$33,026**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$279,999**	$0.40	**$116.54**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.68**	
% Community energy		55%	
New Community COE		**$0.66**	

(includes non-fuel and diesel costs)

Savings

$4,331

Alternative Energy Resources

Wood

Installed KW	**159**
kW-hr/year	**1184818**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**1497** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,750,322**	per kW-hr	
Annual Capital	**$184,865**	$0.16	
Annual OM	**$152,418**	$0.13	
Fuel cost:	**$224,589**	$0.19	-90
Total Annual Cost	**$561,872**	$0.47	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.75**	
% Community energy		93%	
New Community COE		**$0.73**	

(includes non-fuel and diesel costs)

Savings

($83,231)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	20.6%

Other Resources

Ambler

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Ambler HR_City of Ambler has been submitted by: City of Ambler for a Heat Recovery project. The total project budget is: $500,000 with $435,000 requested in grant funding and $65,000 as matching funds.

A project titled: Ambler Solar PV Construction has been submitted by: Alaska Village Electric Cooperative for a Solar PV project. The total project budget is: $605,000 with $550,000 requested in grant funding and $55,000 as matching funds.

A project titled: Kobuk River Valley Woody Biomass Feasibility Study has been submitted by: Northwest Inupiat Housing Authority for a Biomass project. The total project budget is: $7,500,000 with $249,500 requested in grant funding and $248,980 as matching funds.

A project titled: Solar & Wind for Ambler has been submitted by: City of Ambler for a Solar & Wind project. The total project budget is: $149,827 with $142,327 requested in grant funding and $7,500 as matching funds.

A project titled: Upper Kobuk Region Hydroelectric Final Design has been submitted by: Alaska Village Electric Cooperative for a Hydro project.

Anaktuvuk Pass

Energy Used

Total:

Per capita

Heat

Per capita

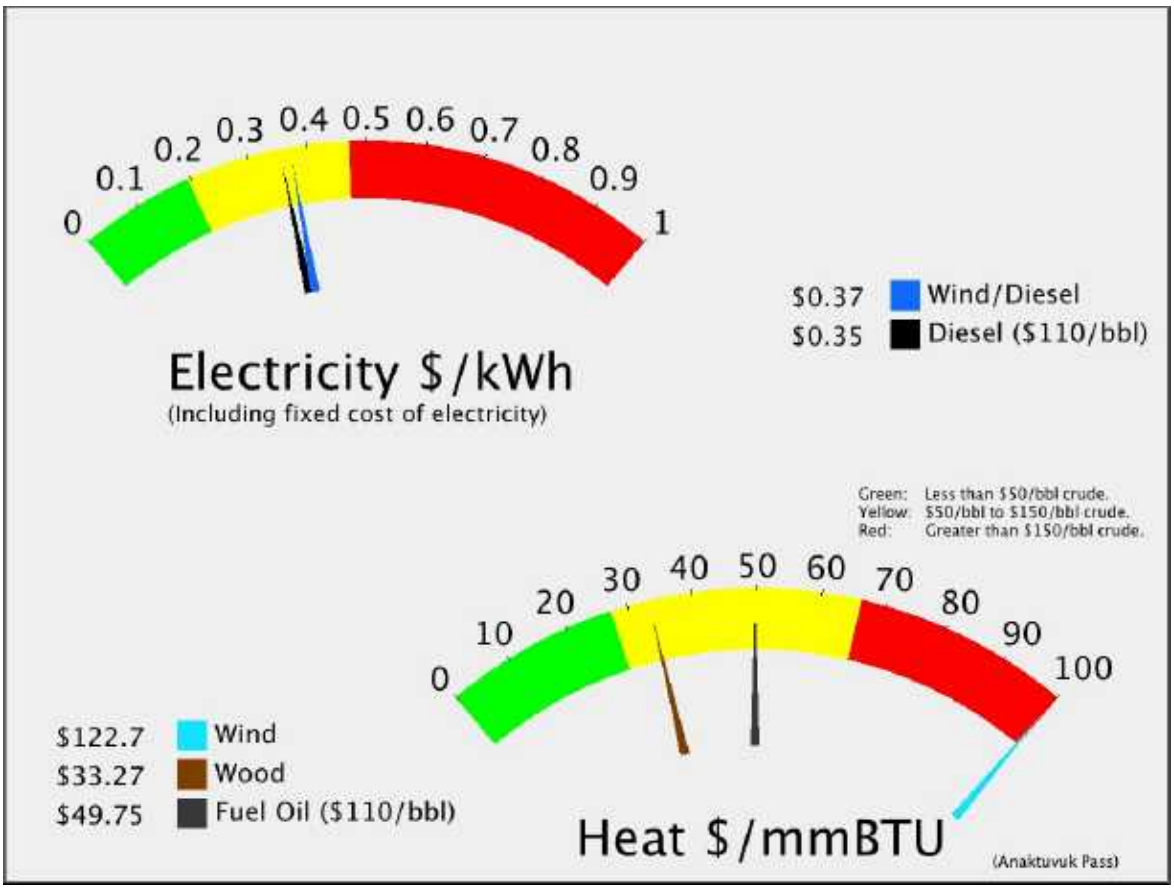
POPULATION: 277

Transportation

Per capita

Electricity: **$3,732**

Per capita



Anaktuvuk Pass

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 277 LATITUDE: 68d 08m N LONGITUDE: 151d 45m **North Slope Borough**

LOCATION Anaktuvuk Pass, at 2,200 feet elevation on the divide between the Anaktuvuk and John Rivers in the central Brooks Range, is the last remaining settlement of the Nunamiut (inland northern Inupiat Eskimo).

ECONOMY Economic and employment opportunities are limited in Anaktuvuk Pass, due to its isolation. Hunting and trapping for the sale of skins, guiding hunters, or making traditional Caribou skin masks or clothing provides income. Some residents have seasonal employment outside of the community. Caribou is the primary source of meat; other subsistence foods include trout, grayling, moose, sheep, brown bear, ptarmigan and water fowl.

HISTORY Nunamiut bands left the Brooks Range and scattered due to the collapse of caribou in 1926-27, and also because of cultural changes brought by the influx of western civilization. In 1938, however, several Nunamiut families left the coast and returned to the mountains at Killik River and Chandler Lake. In 1949, the Chandler Lake group moved to Anaktuvuk Pass (the place of caribou droppings") where they were later joined by the Killik River group. This settlement attracted Nunamiut from many other locations and villagers today lead a somewhat more sedentary lifestyle than in earlier nomadic times. The City was incorporated in 1959. A Presbyterian Church was constructed in 1966."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.28**	kW-hr/gal	Fuel COE	**$0.27**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.50**
Consumption in 200	**192,991**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$64,650**
Average Load	**369**	kW	NF COE:	**$0.07**	/kw-hr	Other Non-Fuel Costs:	**$213,799**
Estimated peak loa	**738.02**	kW	Total	**$0.35**		Current Fuel Costs	**$868,093**
Average Sales	**3,232,518**	kW-hours				**Total Electric**	**$1,146,542**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.50**		
Wood:	**0%**	$/MMBtu delivered to user	**$49.87**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu			

Transportation (Estimated)

Estimated Diesel:	gal	Estimated cost	**$5.50**	**Total Transportation**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$125,000**			
Generator Upgrade		Annual Capital cost	**$10,471**	$0.00	/kw-hr	
Status **Pending**		Estimated Diesel OM	**$64,650**	$0.02		
Acheivable efficiency	**14.8** kW-	New fuel cost	**$781,292**	$0.24		**Savings**
New Fuel use	**173,694**	Avg Non-Fuel Costs:	**$278,449**	$0.07		**$76,330**
		New cost of electricity	**$0.39** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working: **Municipal Services, Fire Station, Sewer Treatment, Storage Bldg.**

			Value
Water Jacket	**28,949**	gal	**$159,163**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,033,225**

Annual ID **$86,550**

Annual OM **$20,664**

Total Annual costs **$107,214**

Heat cost **$33.52** $/MMBtu

Savings

$51,948

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **864331**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **4.19** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.29	$83.72
Annual OM	**$40,551**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$287,524**	$0.33	**$97.47**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.42**	
% Community energy		27%	
New Community COE (includes non-fuel and diesel costs)		**$0.37**	

Savings

($38,126)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Anaktuvuk Pass

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

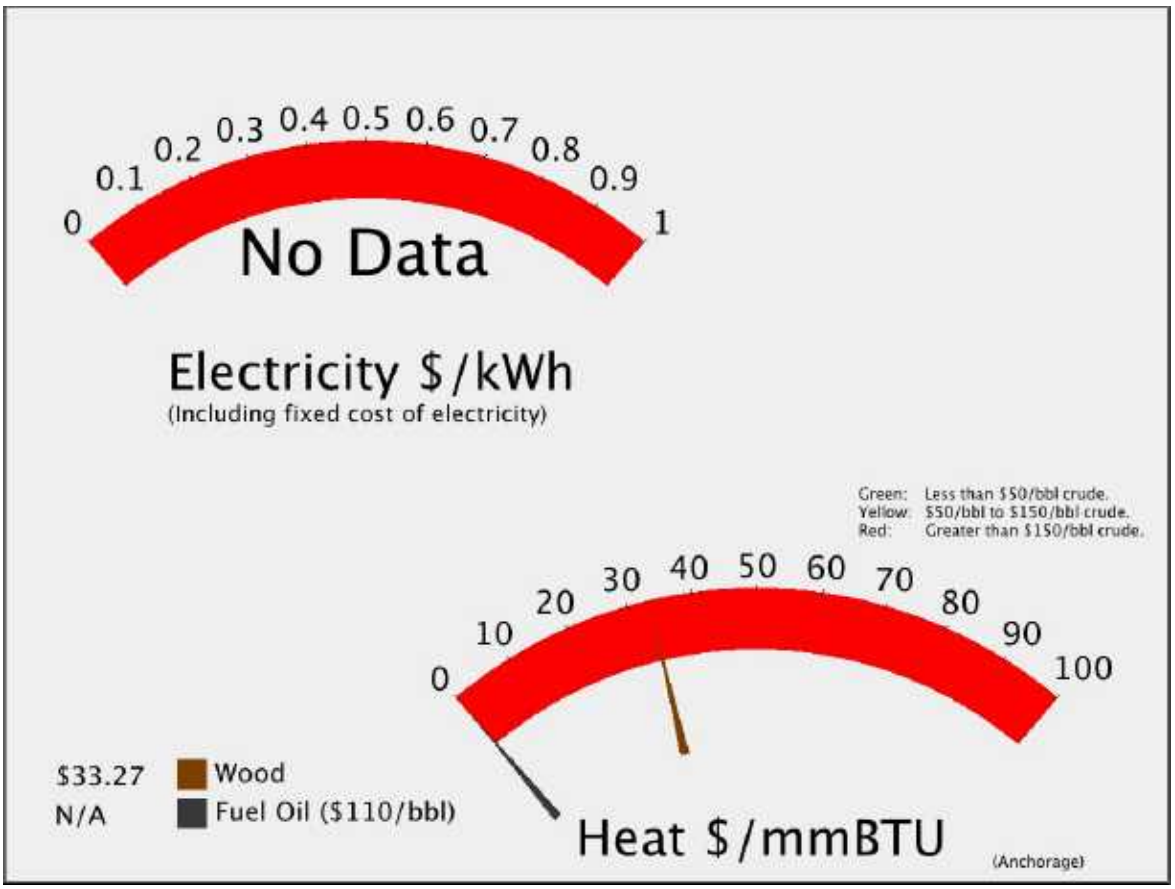
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Anchorage

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	283938
Transportation	Per capita		
Electricity:	Per capita		



Anchorage

Regional Corporation
Cook Inlet Region, Inc.
House
Senate : **J-P**

POPULATION 283938 LATITUDE: 61d 13m N LONGITUDE: 149d 53m **Municipality of Anchora**

LOCATION Anchorage, the most populated municipality in Alaska, is located in southcentral Alaska at the head of Cook Inlet. It is 3 hours' flight time from Seattle.

ECONOMY Anchorage is the center of commerce for the state. Oil and gas industries, finance and real estate, transportation, communications, and government agencies are headquartered in Anchorage. Numerous visitor and tourist facilities and services are available. Over 8,500 military personnel are stationed at Fort Richardson and Elmendorf AFB. Seasonal factors contribute to a fluctuating, though low, unemployment rate. 912 residents hold commercial fishing permits. Most permit-owners fish in Bristol Bay, Kodiak or Cordova.

HISTORY In 1741 Russian sailors led by the Dane Vitus Bering came upon Alaska's mainland. They were followed by British, Spanish and American explorers, including Captain James Cook in 1778. In 1867, Alaska was purchased by the U.S. from Russia. The discovery of gold in 1887 and in the Interior in 1922 sparked development in the area. Construction began in 1914 on a federal railroad from the port of Seward, 126 miles south of Anchorage, through the coal fields of Interior Alaska, to the gold claims near Fairbanks, 358 miles to the north. The midpoint construction headquarters was Anchorage, and by July of 1915, thousands of job seekers and opportunists had poured into the area, living in a tent city on the banks of Ship Creek near the edge of the present downtown. That July produced the Great Anchorage Lot Sale a land auction that shaped the future of the city. Some 655 lots were sold for $148,000 or an average of $225 each. A month later, the town voted to call itself Alaska City, but the Federal government refused to change its name from Anchorage. The City of Anchorage was incorporated on Nov. 23, 1920. From 1939 to 1957, major military impacts and government construction of roads, airports and harbors throughout Alaska contributed to the growth of Anchorage. The Port was completed by the early 1960s. The Greater Anchorage Area Borough was formed on Jan. 1, 1964. The Good Friday earthquake in 1964 destroyed a large part of the city. During the 1970s, the development of the Prudhoe Bay oil fields and the Trans-Alaska Pipeline brought rapid growth to Anchorage; population, office space and housing tripled within a ten-year period. On Sept. 15, 1975, the City and Borough governments were unified, along with the cities of Girdwood and Glen Alps.

Alternative Energy Resources

Geothermal

Installed KW **10000**

kW-hr/year **83220000**

Site Name **Susitna Basin?**

Project Capatcity **200 MW**

Shallow Resource Feet

Shallow Temp **99.00** C

			Heat Cost $/MMBtu :
Capital cost	**$71,000,000**	per kW-hr	
Annual Capital	**$4,772,315**	$0.06	$16.80
Annual OM	**$2,130,000**	$0.03	$7.50
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$6,902,315**	$0.08	**$24.30**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Geothermal

Installed KW **100000**

kW-hr/year **832200000**

Site Name **Mt. Spurr**

Project Capatcity

Shallow Resource Feet

Shallow Temp **0.00** C

			Heat Cost $/MMBtu :
Capital cost	**$302,000,000**	per kW-hr	
Annual Capital	**$20,299,144**	$0.02	$7.15
Annual OM	**$9,060,000**	$0.01	$3.19
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$29,359,144**	$0.04	**$10.34**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Geothermal

Installed KW **10000**

kW-hr/year **83220000**

Site Name **Susitna Basin?**

Project Capatcity

Shallow Resource Feet

Shallow Temp **0.00** C

			Heat Cost $/MMBtu :
Capital cost	**$71,000,000**	per kW-hr	
Annual Capital	**$4,772,315**	$0.06	$16.80
Annual OM	**$2,130,000**	$0.03	$7.50
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$6,902,315**	$0.08	**$24.30**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Geothermal

Installed KW	**100000**			
kW-hr/year	**832200000**			
Site Name	**Mt. Spurr**			
Project Capatcity	**200 MW**			
Shallow Resource		Feet		
Shallow Temp	**99.00**	C		

			Heat Cost $/MMBtu :
Capital cost	**$302,000,000**	per kW-hr	
Annual Capital	**$20,299,144**	$0.02	$7.15
Annual OM	**$9,060,000**	$0.01	$3.19
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$29,359,144**	$0.04	**$10.34**

Non-Fuel Costs

Alternative COE:

% Community energy

Savings

New Community COE

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Anchorage

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	CONFIRMED RESOURCE
Natural Gas:	CONFIRMED RESOURCE
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Anchorage Geothermal District Heating Feasibility Study has been submitted by: Iceland America Energy, Inc. for a Geothermal project. The total project budget is: $1,070,000,000 with $4,047,230 requested in grant funding and $4,295,580 as matching funds.

A project titled: Anchorage Landfill Gas Electricity Construction has been submitted by: Municipality of Anchorage, Solid Waste Services Dept for a Biofuels project. The total project budget is: $7,400,000 with $3,700,000 requested in grant funding and $3,700,000 as matching funds.

A project titled: Anchorage Waste Gasification Feasibility Study has been submitted by: Alaska Recycling Energy, LLC for a Biofuels project. The total project budget is: $200,000,000 with $1,100,000 requested in grant funding and $100,000 as matching funds.

A project titled: Biomass Heat Anchorage_Earth Run Energy has been submitted by: EarthRun Energy for a Biomass project. The total project budget is: $42,000 with $42,000 requested in grant funding and no matching funds.

A project titled: Heat Recovery UMED_MLPUAA has been submitted by: University of Alaska Anchorage (UAA) and Municipal Light & Power (ML&P) for a Heat Recovery project. The total project budget is: $55,000,000 with $35,000,000 requested in grant funding and $20,000,000 as matching funds.

A project titled: Knik Arm CHC_KAPP has been submitted by: KAPP,LLC for a Biomass project. The total project budget is: $40,000,000 with $15,000,000 requested in grant funding and $25,000,000 as matching funds.

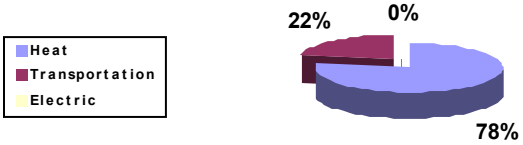
A project titled: Mt. Redoubt/Mt. Spur Geothermal Construction has been submitted by: Cook Inlet Power for a Geothermal project. The total project budget is: $98,150,000 with $950,000 requested in grant funding and $97,200,000 as matching funds.

A project titled: Mt. Spur Resource Assessment_Ormat has been submitted by: Ormat Nevada, Inc for a Geothermal project. The total project budget is: $20,178,927 with $15,700,582 requested in grant funding and $4,478,345 as matching funds.

A project titled: ORPC Cook Inlet Tidal has been submitted by: ORPC Alaska LLC ("ORPC") for a Ocean/River project. The total project budget is: $7,858,177 with $1,787,476 requested in grant funding and $640,825 as matching funds.

Angoon

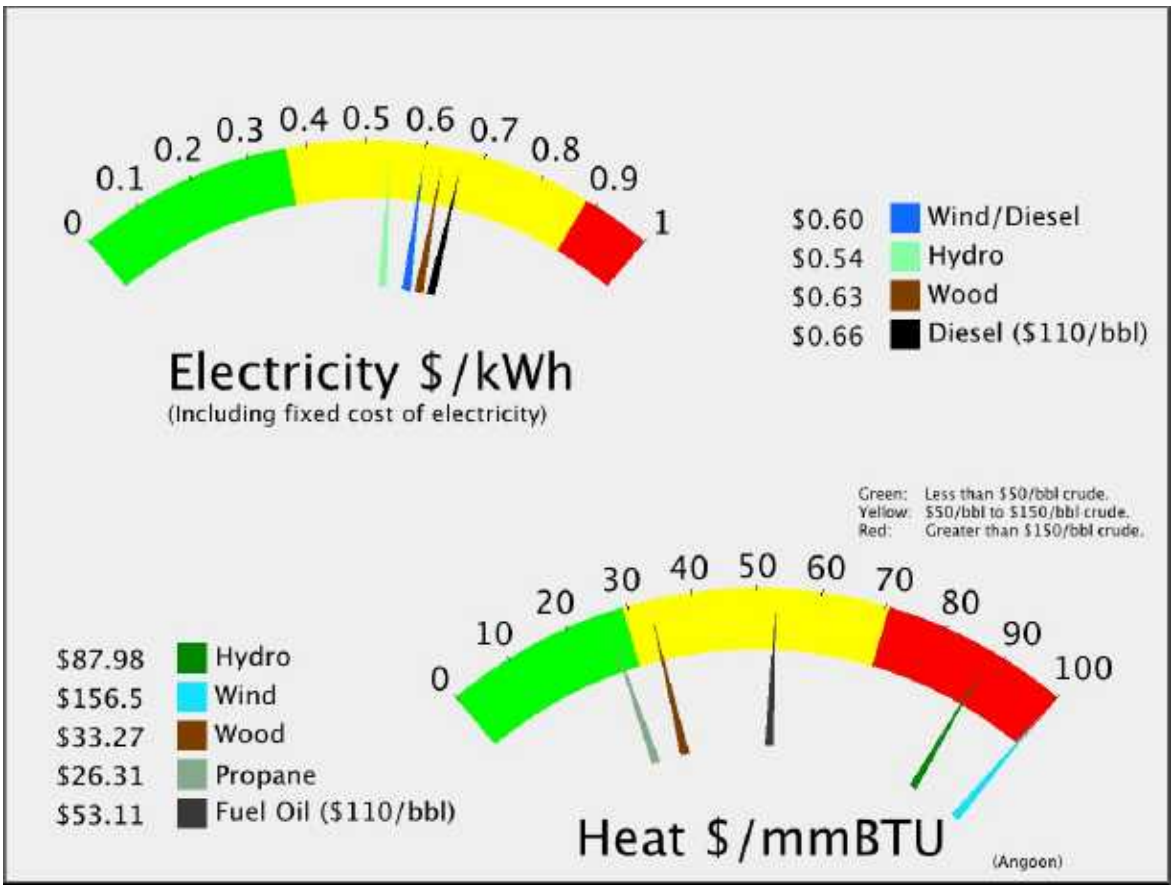
Energy Used



Total:

Per capita

Heat	**$2,129**	Per capita	POPULATION:	478
Transportation	**$612**	Per capita		
Electricity:		Per capita		



Angoon

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 478 LATITUDE: 57d 30m N LONGITUDE: 134d 35m **Unorganized**

LOCATION Angoon is the only permanent settlement on Admiralty Island, located on the southwest coast at Kootznahoo Inlet. Angoon is 55 miles southwest of Juneau and 41 miles northeast of Sitka.

ECONOMY Commercial fishing is a major source of income; 56 residents hold commercial fishing permits, primarily hand-trolling for king and coho salmon. Low salmon prices have affected incomes. A shellfish farm was recently funded by state and federal grants. The Chatham School District is the primary employer. Logging on Prince of Wales Island provide occasional jobs. Subsistence remains an important part of the lifestyle. Local resources include deer, salmon, bear, halibut, shellfish, geese, seaweed and berries.

HISTORY Admiralty Island has long been the home of the Kootznoowoo Tlingit tribe. Kootznoowoo means "fortress of bears." From the 1700s to the mid-1800s, fur trading was the major money-making activity in the area. In 1878, the Northwest Trading Company established a trading post and whaling station on nearby Killisnoo Island and villagers were employed to hunt whales. Whaling, a BIA school and a Russian Orthodox Church attracted many Tlingits to Killisnoo. In 1882, a whaling vessel's harpoon charge accidentally misfired and exploded, killing a Native crewmember - a Tlingit shaman, or medicine man. Villagers demanded payment of 200 blankets to the man's family, as was customary. The Northwest Trading Co. felt threatened and sought assistance from the U.S. Navy at Sitka. The village and a summer camp were subsequently shelled and destroyed by the Navy Cutter U.S.S. Corwin. Native accounts of the attack claim six children died by smoke inhalation. In 1973, Angoon won a $90,000 out-of-court settlement from the Federal government for the 1882 bombardment. Whaling did not last long, and the company switched to herring processing. During this time, many Tlingits moved to Killisnoo for employment at the plant. In 1928, Killisnoo was destroyed by fire, and many Tlingits returned to Angoon. The Angoon post office was established in 1928. A city was formed in 1963. Many summer homes have developed on Killisnoo Island.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.87** /kw-hr

Current efficiency	**13.16**	kW-hr/gal	Fuel COE	**$0.42**	/kw-hr	Estimated Diesel OM	**$34,056**
Consumption in 200	**147,994**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	
Average Load	**194**	kW	NF COE:		/kw-hr	Current Fuel Costs	**$720,568**
Estimated peak loa	**388.76**	kW	Total			**Total Electric**	
Average Sales	**1,702,777**	kW-hours					

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**173,393**	gal	
Fuel Oil:	**78%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**15%**	$/MMBtu delivered to user	**$53.23**		**Total Heating Oil**
Electricity:	**4.1%**	Community heat needs in MMBtu	**20,807**		**$1,017,628**

Transportation (Estimated)

Estimated Diesel: **49,874** gal Estimated cost **$5.87**

Total Transportation

$292,704

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Construction**

Acheivable efficiency **14** kW-

New Fuel use **139,149**

Capital cost **$3,000,000**

Annual Capital cost	**$251,300**	$0.15	/kw-hr
Estimated Diesel OM	**$34,056**	$0.02	
New fuel cost	**$677,503**	$0.40	
Avg Non-Fuel Costs:			
New cost of electricity			per kW-hr

Savings

($208,234)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **N**

BLDGs connected and working:

Elementary and High Schools			Value
Water Jacket	**22,199**	gal	**$130,284**
Stack Heat	**0**	gal	**$0**

Capital cost **$544,266**

Annual ID **$45,591**

Annual OM **$10,885**

Total Annual costs **$56,477**

Heat cost **$23.02** $/MMBtu

Savings

$73,808

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		Capital cost	**$3,071,563**	per kW-hr
kW-hr/year	**834346**		Annual Capital	**$206,457**	$0.25
Met Tower?	**no**		Annual OM	**$39,144**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**4**		Total Annual Cost	**$245,602**	$0.29
Avg wind speed	**7.00**	m/s	Non-Fuel Costs		
			Alternative COE:		
			% Community energy	49%	
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $72.50 | $13.75 | **$86.25**

Savings

Alternative Energy Resources

Hydro

Installed KW	**500**		Capital cost	**$10,206,000**	per kW-hr
kW-hr/year	**3000000**		Annual Capital	**$396,661**	$0.13
Site	**Thayer Creek**		Annual OM	**$115,920**	$0.04
Study plan effort	**reconnaissance**		Fuel cost:	**$0**	$0.00
Plant Factor		%	Total Annual Cost	**$512,581**	$0.17
Penetration	**0.63**		Non-Fuel Costs		
			Alternative COE:		
			% Community energy	176%	
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $38.74 | $11.32 | **$50.06**

Savings

Alternative Energy Resources

Wood

Installed KW	**237**		Capital cost	**$2,354,204**	per kW-hr
kW-hr/year	**1765322**		Annual Capital	**$158,240**	$0.09
Installation Type	**Wood ORC**		Annual OM	**$175,370**	$0.10
Electric Wood cost	**$150/cd**		Fuel cost:	**$334,627**	$0.19
Wood Required	**2231**	Cd/Y	Total Annual Cost	**$668,236**	$0.38
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs		
			Alternative COE:		
			% Community energy	104%	
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	12.3%

Other Resources

Angoon

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

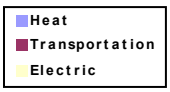
A project titled: Angoon HR_IPEC has been submitted by: Inside Passage Electric Company for a Heat Recovery project. The total project budget is: $617,934 with $545,934 requested in grant funding and $72,000 as matching funds.

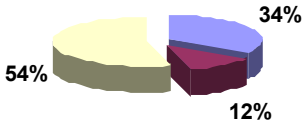
A project titled: Gustavus/Angoon/Wrangell/Nikiski Tidal Feasibility Study has been submitted by: Alaska Tidal Energy Company for a Tidal project.

A project titled: Chuniisax Creek Hydroelectric Construction has been submitted by: City of Atka for a Hydro project. The total project budget is: $2,440,000 with $996,000 requested in grant funding and $1,344,000 as matching funds.

Aniak

Energy Used





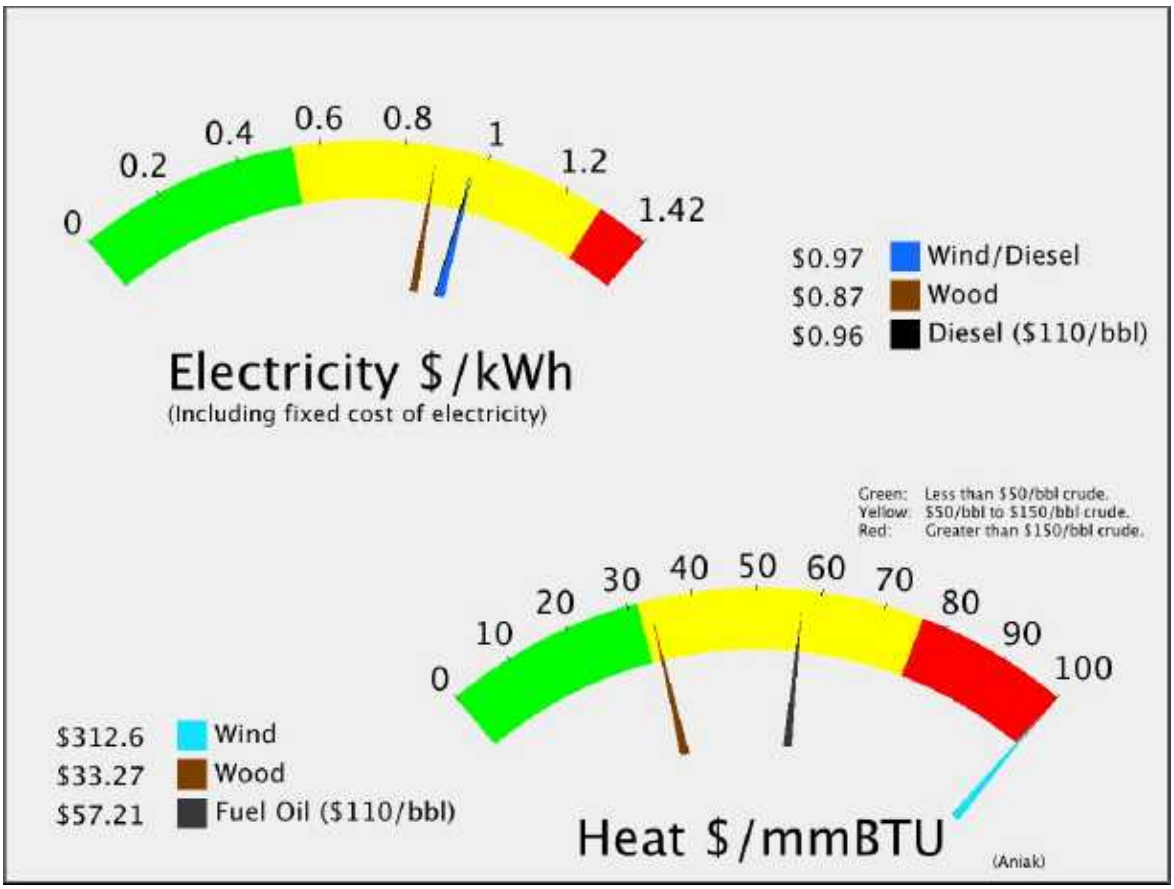
Total: **$7,296** Per capita

Heat **$2,456** Per capita

Transportation **$878** Per capita

Electricity: **$3,962** Per capita

POPULATION: 506



Aniak

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 506 LATITUDE: 61d 34m N LONGITUDE: 159d 31m **Unorganized**

LOCATION Aniak is located on the south bank of the Kuskokwim River at the head of Aniak Slough, 59 miles southeast of Russian Mission in the Yukon-Kuskokwim Delta. It lies 92 air miles northeast of Bethel and 317 miles west of Anchorage.

ECONOMY The economy of Aniak is based on government, transportation and retail services. As the largest city in the area, Aniak is a service hub for surrounding villages. Subsistence activities supplement part-time wage earnings, and some commercial fishing occurs. Poor fish returns since 1997 have affected the community. Fourteen residents hold commercial fishing permits. The School District, Kuskokwim Native Assoc., Bush-Tell Inc., and the Aniak Subregional Clinic provide most year-round employment. Salmon, moose, bear, birds, berries and home gardening provide food sources.

HISTORY Aniak is a Yup'ik word meaning the place where it comes out which refers to the mouth of the Aniak River. This river played a key role in the placer gold rush of 1900-01. In 1914, Tom L. Johnson homesteaded the site and opened a store and post office. The Yup'ik village of Aniak had been abandoned long before this time. Eskimos Willie Pete and Sam Simeon brought their families from Ohagamuit to Aniak, which reestablished the Native community. A Russian-era trader named Semen Lukin is credited with the discovery of gold near Aniak in 1932. A Territorial school opened in 1936. Construction of an airfield began in 1939, followed by the erection of the White Alice radar-relay station in 1956, which closed in 1978. The City was incorporated in 1972.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.32** /kw-hr

Current efficiency	**12.66**	kW-hr/gal	Fuel COE	**$0.49**	/kw-hr	Estimated Diesel OM	**$43,541**
Consumption in 200	**201,797**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$991,774**
Average Load	**249**	kW	NF COE:	**$0.46**	/kw-hr	Current Fuel Costs	**$1,074,004**
Estimated peak loa	**497.05**	kW	Total	**$0.97**		**Total Electric**	
Average Sales	**2,177,070**	kW-hours				**$2,109,320**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**196,528**	gal	
Fuel Oil:	**91%**	Estimated heating fuel cost/gallon	**$6.32**		
Wood:	**7%**	$/MMBtu delivered to user	**$57.34**		**Total Heating Oil**
Electricity:	**1.2%**	Community heat needs in MMBtu	**23,583**		**$1,242,486**

Transportation (Estimated)

Estimated Diesel:	**70,304**	gal	Estimated cost	**$6.32**	**Total Transportation**
					$444,474

Energy Total **$3,796,280**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **182,476**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.00	/kw-hr
Estimated Diesel OM	**$43,541**	$0.02	
New fuel cost	**$971,172**	$0.45	
Avg Non-Fuel Costs:	**$1,035,316**	$0.46	
New cost of electricity	**$0.86** per kW-hr		

Savings

$94,456

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**30,270**	gal	**$191,370**
Stack Heat	**0**	gal	**$0**

Capital cost	**$695,867**		
Annual ID	**$58,290**		
Annual OM	**$13,917**		
Total Annual costs	**$72,208**		
Heat cost	**$21.59**	$/MMBtu	

Savings

$119,162

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **124555**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **3.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.54	$159.54
Annual OM	**$5,844**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$73,667**	$0.59	**$173.29**
Non-Fuel Costs		$0.48	
Alternative COE:		**$1.07**	
% Community energy		6%	
New Community COE		**$0.97**	

(includes non-fuel and diesel costs)

Savings
($9,730)

Alternative Energy Resources

Wood

Installed KW **326**
kW-hr/year **2425575**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **3065** Cd/Y
Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$3,256,574**	per kW-hr	
Annual Capital	**$218,893**	$0.09	
Annual OM	**$201,475**	$0.08	
Fuel cost:	**$459,781**	$0.19	-90
Total Annual Cost	**$880,150**	$0.36	**$29.76**
Non-Fuel Costs		$0.48	
Alternative COE:		**$0.84**	
% Community energy		111%	
New Community COE		**$0.88**	

(includes non-fuel and diesel costs)

Savings
$1,229,170

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	10.8%

Other Resources

Aniak

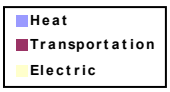
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

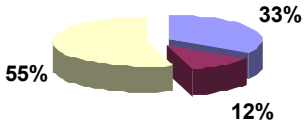
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Anvik

Energy Used





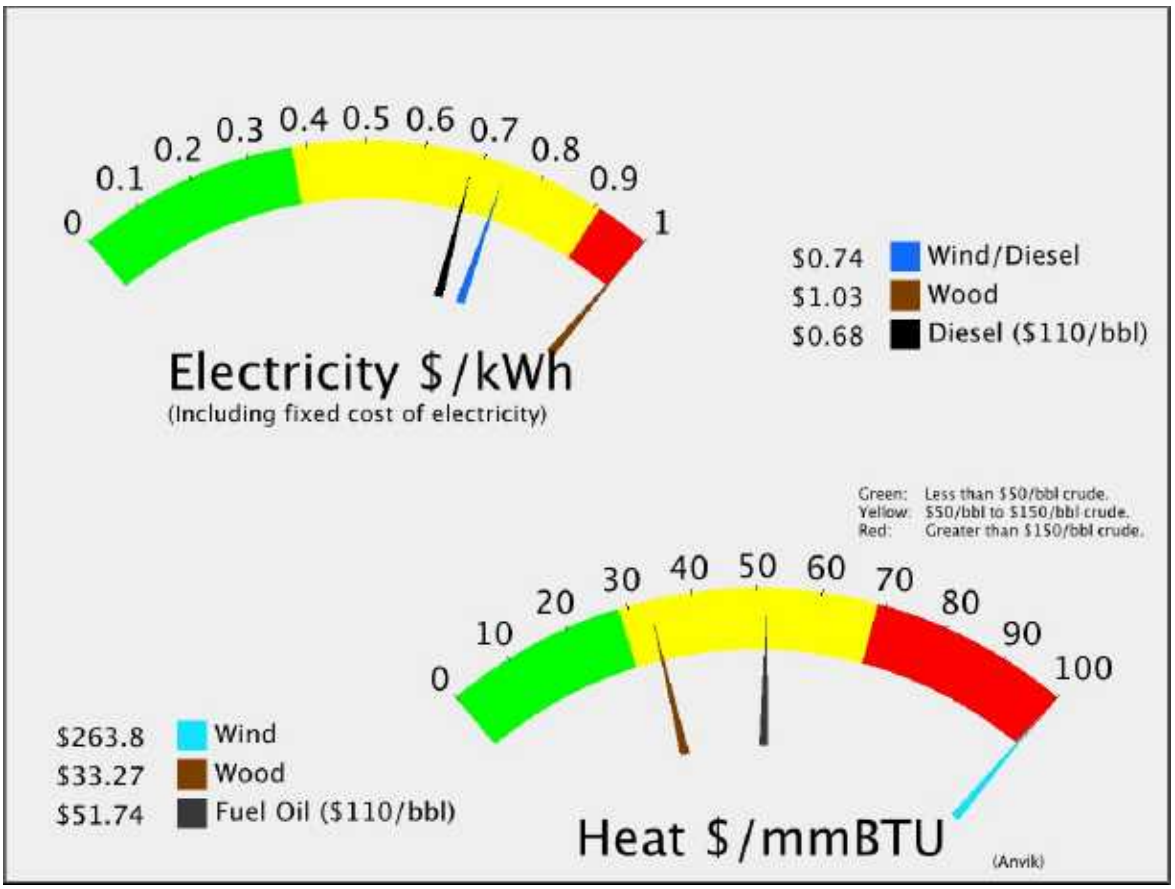
Total: **$5,471** Per capita

Heat **$1,826** Per capita

Transportation **$660** Per capita

Electricity: **$2,985** Per capita

POPULATION: 102



Anvik

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 102 LATITUDE: 62d 39m N LONGITUDE: 160d 12m **Unorganized**

LOCATION Anvik is located in Interior Alaska on the Anvik River, west of the Yukon River, 34 miles north of Holy Cross.

ECONOMY Anvik is characterized by a seasonal economy. Very few year-round wage-earning positions are available. Residents rely heavily on subsistence activities. Fourteen residents hold commercial fishing permits. The City provides services, such as fresh water, to fish processors. Subsistence foods include salmon, moose, black bear, and small game. Several residents trap or make handicrafts, and many families engage in home gardening.

HISTORY Anvik has historically been an Ingalik Indian village. It has been known as American Station, Anvic, Anvick, Anvig, Anvig Station, and Anwig. The Russian Glazanov reported it having 100 people in 1834. Originally it was on other side of the river, to the northeast, at a place called the point. Residents gradually moved across the river with the establishment of an Episcopal mission and school in 1887. A post office opened in 1897. After the flu epidemic of 1918-19, and another in 1927, many orphans became wards of the mission. Some children came from as far away as Fort Yukon. Sternwheelers carried supplies to the village in the early 1920s. Some residents had contracts to cut wood for the sternwheeler's fuel, and fish and furs were sold to traders. The early 1930s brought the first arrival of a plane on skis. The City was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.72** /kw-hr

Current efficiency	**12.04**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$8,833**
Consumption in 200	**37,697**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$114,828**
Average Load	**50**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$177,836**
Estimated peak loa	**100.83**	kW	Total	**$0.68**		**Total Electric**	
Average Sales	**441,645**	kW-hours				**$301,496**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**32,579**	gal	
Fuel Oil:	**87%**	Estimated heating fuel cost/gallon	**$5.72**		
Wood:	**13%**	$/MMBtu delivered to user	**$51.86**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,910**	**$186,272**	

Transportation (Estimated)

Estimated Diesel:	**11,770**	gal	Estimated cost	**$5.72**	**Total Transportation**
					$67,295

Energy Total **$555,063**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **32,407**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.25	/kw-hr
Estimated Diesel OM	**$8,833**	$0.02	
New fuel cost	**$152,879**	$0.35	
Avg Non-Fuel Costs:	**$123,661**	$0.26	
New cost of electricity	**$0.86** per kW-hr		

Savings

($83,940)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**5,655**	gal	**$32,330**
Stack Heat	**0**	gal	**$0**

Capital cost	**$141,165**		
Annual ID	**$11,825**		
Annual OM	**$2,823**		
Total Annual costs	**$14,648**		
Heat cost	**$23.44**	$/MMBtu	

Savings

$17,682

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**100**		
kW-hr/year	**118233**		
Met Tower?	**yes**		
Homer Data?	**yes**		
Wind Class	**6**		
Avg wind speed	**2.84**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.57	$168.08
Annual OM	**$5,547**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$73,370**	$0.62	**$181.82**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.90**	
% Community energy		27%	
New Community COE		**$0.74**	

(includes non-fuel and diesel costs)

Savings

($23,402)

Alternative Energy Resources

Wood

Installed KW	**58**	
kW-hr/year	**428907**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**542**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,874,006**	per kW-hr	
Annual Capital	**$125,963**	$0.29	
Annual OM	**$122,531**	$0.29	
Fuel cost:	**$81,302**	$0.19	-90
Total Annual Cost	**$329,795**	$0.77	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.05**	
% Community energy		97%	
New Community COE		**$1.02**	

(includes non-fuel and diesel costs)

Savings

($148,502)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	65.2%

Other Resources

Anvik

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

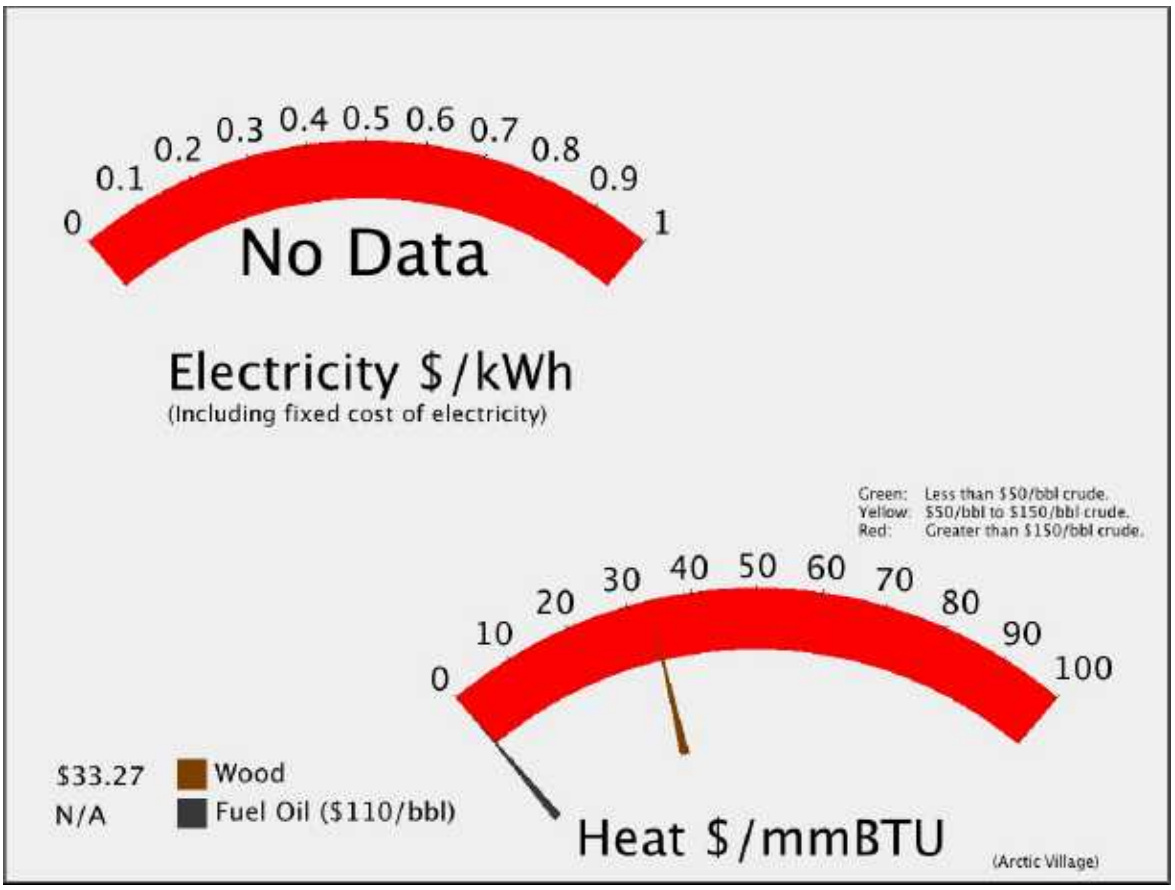
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Arctic Village

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	155
Transportation	Per capita		
Electricity:	Per capita		



Arctic Village

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 155 LATITUDE: 68d 08m N LONGITUDE: 145d 32m **Unorganized**

LOCATION Arctic Village is on the east fork of the Chandalar River, 100 miles north of Fort Yukon and 290 miles north of Fairbanks.

ECONOMY The economy of Arctic Village is subsistence-based. Caribou, moose, sheep, porcupine, rabbit and ptarmigan are hunted. Freshwater fish, waterfowl and berries are also harvested. The school, clinic, village council and stores are the primary employers. Seasonal employment includes construction, fire fighting, guiding and conducting wildlife surveys for the U.S. Fish & Wildlife Service. Some residents trap or sell firewood for income. The Tribe operates the washeteria and clinic.

HISTORY Until the 1950s, the Neets'aii Gwichin ("residents of the north side") lived a highly nomadic life. They traditionally used seasonal camps and semi-permanent settlements, such as Arctic Village, Christian, Venetie and Sheenjak, in pursuit of fish and game. They traded with Inupiat Eskimos on the Arctic coast. There is archaeological evidence that the Arctic Village area was population as early as 4,500 BC. In 1863, Archdeacon McDonald of Fort Yukon observed that the Chandalar Kutchin were important providers of caribou meat for the residents of Ft. Yukon. Reverend Albert Tritt, a Neets'aii Gwich'in born in 1880, wrote that his people led a nomadic life, traveling to the Arctic coast, Rampart, Old Crow, the Coleen River and Fort Yukon in the 1880s and 1890s. With the advent of firearms in the early 1900s, family groups began to gather more permanently at several locations; there was no longer a need to disperse into small groups to hunt caribou. The first permanent resident at the present village site was Chief Christian in 1909. In 1943, the Venetie Indian Reservation was established, due to the efforts of several area villagers to protect their land for subsistence use. The first school was built in 1959. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, Venetie and Arctic Village opted for title to the 1.8 million acres of land in the former Reservation. Residents continue to use the community as a base of operations from which they pursue seasonal subsistence activities.

Alternative Energy Resources

Hydro

Installed KW **141**
kW-hr/year **200000**
Site **Rock Head West Creek**
Study plan effort **reconnaissance**
Plant Factor **21** %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$13,259,280**		
Annual Capital	**$528,518**	$2.64	$774.28
Annual OM	**$50,500**	$0.25	$73.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$579,018**	$2.90	**$848.26**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **115071**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **2**
Avg wind speed **2.77** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.59	$172.69
Annual OM	**$5,399**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$73,222**	$0.64	**$186.44**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Arctic Village

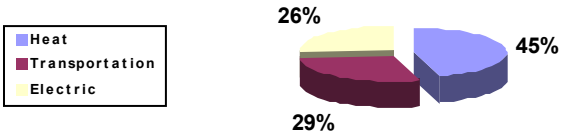
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Atka

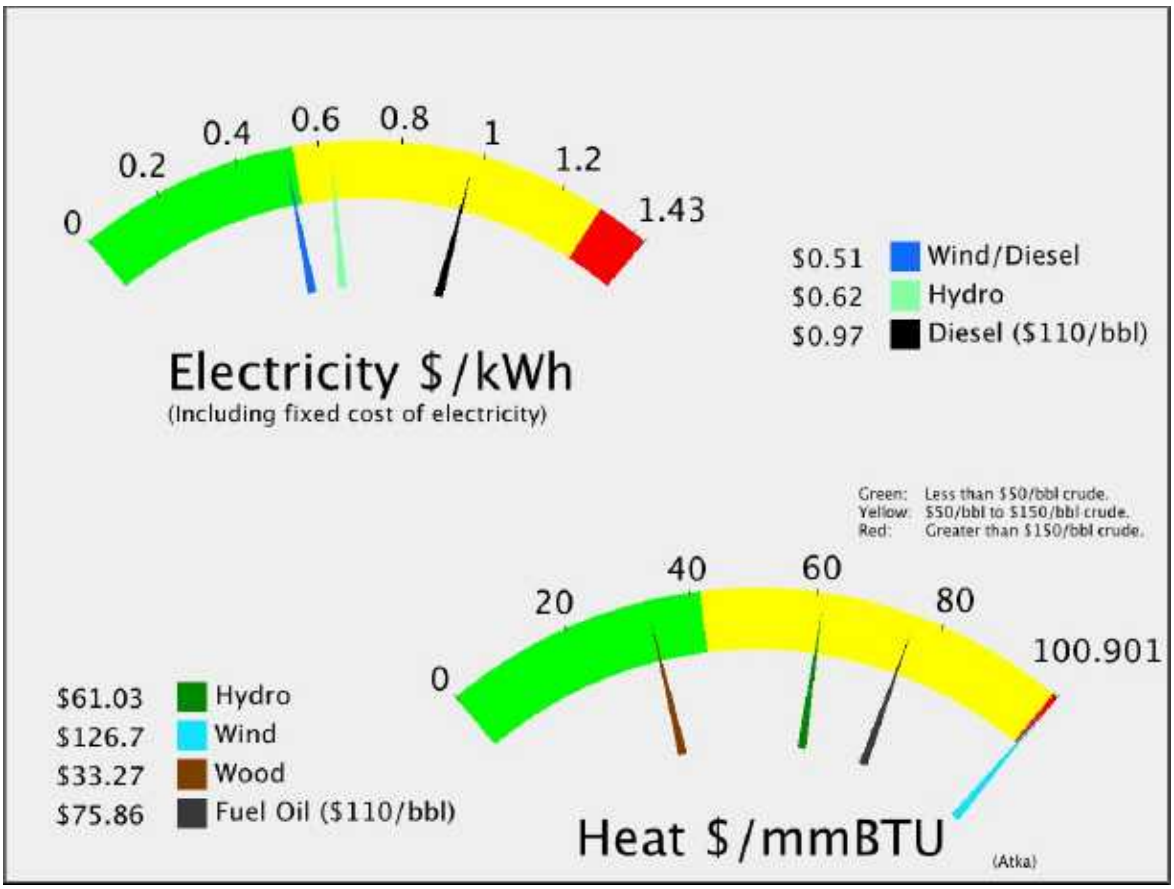
Energy Used



Total: $13,617 Per capita

Heat	**$6,222**	Per capita
Transportation	**$3,898**	Per capita
Electricity:	**$3,498**	Per capita

POPULATION: 74



Atka

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 74 LATITUDE: 52d 12m N LONGITUDE: 174d 12m **Unorganized**

LOCATION Atka is located on Atka Island, 1,200 air miles southwest from Anchorage and 350 miles west of Unalaska.

ECONOMY The economy is based on subsistence living and wages earned from the halibut fishery. A small local fish processing plant, Atka Pride Seafoods, operates seasonally to serve the local fleet. They currently process halibut and black cod. Nine residents hold commercial fishing permits. A number of offshore fish processors carry out crew changes through Atka. Year-round income opportunities in the village are limited to education- and government-related work. A reindeer herd of over 2,500 head provides a source of meat.

HISTORY The island has been occupied by Unangas for at least 2,000 years. Unangas speak the western dialect, known since the Russian era as "Aleuts". Recent archaeological evidence indicates that the present village site may have had human use since prehistoric times. The first contact with Russians occurred in 1747, and Atka became an important trade site and safe harbor for Russians. In 1787 a number of hunters were enslaved and relocated to the Pribilofs to work in the fur seal harvest. The townsite was settled in the 1860s. After the end of the sea otter hunting era in the late 1800s, Atka had no viable cash economy. Reindeer were introduced to the Island in 1914. During the 1920s, Atka became relatively affluent due to fox farming. After the Japanese attacked Unalaska and seized Attu and Kiska in June 1942, the U.S. Government evacuated Atka residents to the Ketchikan area. Atka was burned to the ground to prevent Japanese forces from using it and advancing. The community was rebuilt by the U.S. Navy after the War and residents were allowed to return. Many Attu villagers, released from imprisonment in Japan in 1945, relocated to Atka. This exposure to the outside world brought many changes in the traditional culture and attitudes in the community. The City was incorporated in 1988.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**8.14**	kW-hr/gal	Fuel COE	**$0.88**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$7.38**
Consumption in 200	**38,699**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,461**
Average Load	**37**	kW	NF COE:	**$0.07**	/kw-hr	Other Non-Fuel Costs:	**$24,039**
Estimated peak loa	**73.757**	kW	Total	**$0.98**		Current Fuel Costs	**$285,711**
Average Sales	**323,057**	kW-hours				**Total Electric**	**$316,211**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**54,921**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$8.38**		
Wood:	**6%**	$/MMBtu delivered to user	**$76.03**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,590**		**$460,394**

Transportation (Estimated)

Estimated Diesel:	**34,407**	gal	Estimated cost	**$8.38**	**Total Transportation** **$288,433**

Energy Total **$1,065,038**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$7,500**				
Semiannual Circuit Rider		Annual Capital cost	**$628**	$0.00	/kw-hr		
Status	**Completed**	Estimated Diesel OM	**$6,461**	$0.02			
Acheivable efficiency	**14** kW-	New fuel cost	**$166,078**	$0.51		**Savings**	
New Fuel use	**22,495**	Avg Non-Fuel Costs:	**$30,500**	$0.07		**$119,005**	
		New cost of electricity	**$0.62** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working: **N**

			Value
Water Jacket	**5,805**	gal	**$48,661**
Stack Heat	**0**	gal	**$0**

Capital cost	**$103,260**		
Annual ID	**$8,650**		
Annual OM	**$2,065**		
Total Annual costs	**$10,715**		**Savings**
Heat cost	**$16.71**	$/MMBtu	**$37,947**

Alternative Energy Resources

Hydro

Installed KW **271**

kW-hr/year **416670**

Site **Chuniisax Creek**

Study plan effort **Feasibility**

Plant Factor %

Penetration **0.62**

			Heat Cost $/MMBtu :
Capital cost	**$1,722,931**	per kW-hr	
Annual Capital	**$71,694**	$0.17	$50.41
Annual OM	**$101,250**	$0.24	$71.20
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$172,944**	$0.42	**$121.61**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.51**	
% Community energy		129%	
New Community COE		**$0.63**	

(includes non-fuel and diesel costs)

Savings

$143,267

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **406290**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$85.34
Annual OM	**$19,062**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,394**	$0.34	**$99.08**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.43**	
% Community energy		126%	
New Community COE		**$0.52**	

(includes non-fuel and diesel costs)

Savings

$178,817

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	38.7%

Other Resources

Atka

Tidal: SOME POTENTIAL

Wave: SOME POTENTIAL

Coal Bed Methane:

Natural Gas:

Coal:

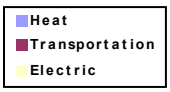
Propane:

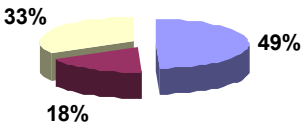
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Atmautluak

Energy Used





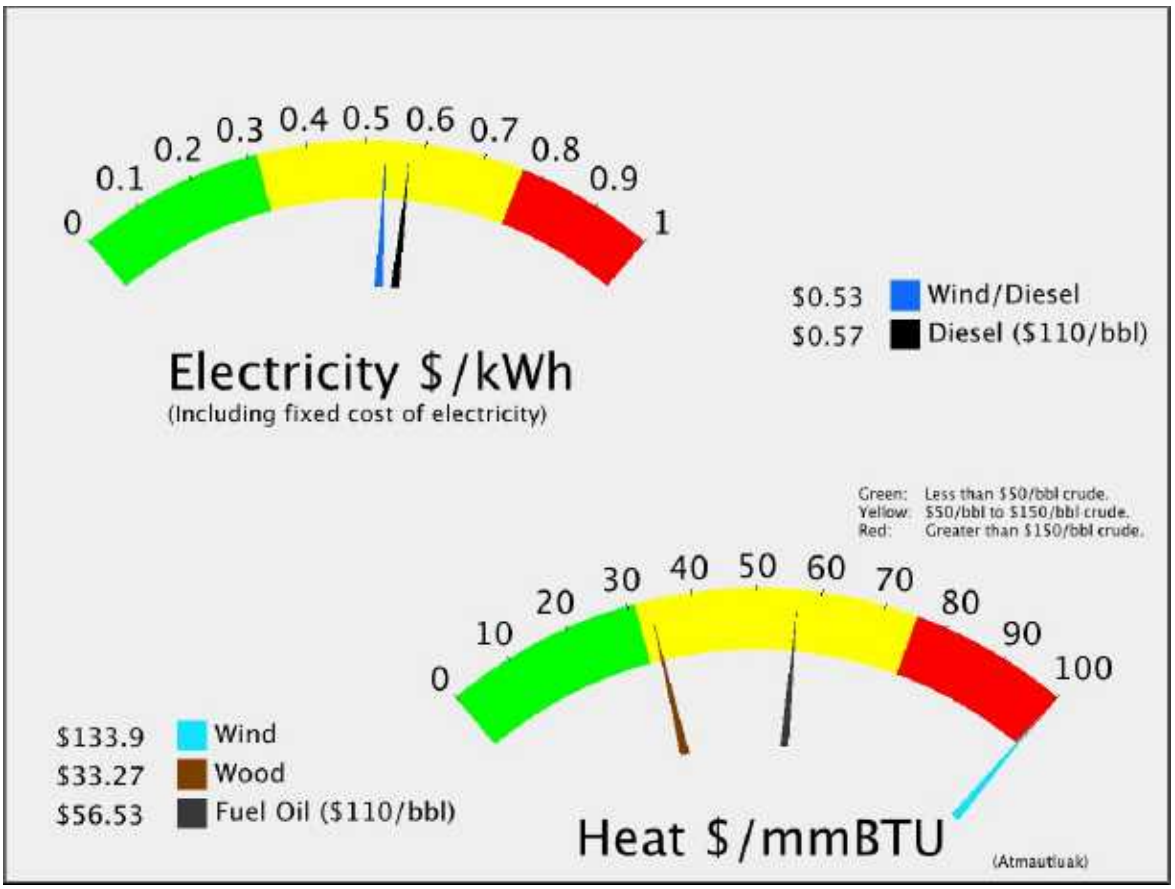
Total: **$3,190** Per capita

Heat **$1,572** Per capita

Transportation **$562** Per capita

Electricity: **$1,055** Per capita

POPULATION: 305



Atmautluak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 305 LATITUDE: 60d 51m N LONGITUDE: 162d 16m **Unorganized**

LOCATION Atmautluak lies on the west bank of the Pitmiktakik River in the Yukon-Kuskokwim delta, 20 miles northwest of Bethel.

ECONOMY The school, retail businesses and the village government provide cash income to supplement the subsistence lifestyle. Thirty-one residents hold commercial fishing permits. Poor fish returns since 1997 have significantly affected the community.

HISTORY Yup'ik Eskimos have inhabited this region for thousands of years due to the area's rich resources, however Atmautluak itself was not settled until the 1960s. People moved to this site on higher ground to avoid flooding and for the rich resources of the area. A City was incorporated in 1976, but it was dissolved on Feb. 7, 1996 in favor of the traditional village council government.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.25** /kw-hr

Current efficiency	**3.80**	kW-hr/gal	Fuel COE	**$0.41**	/kw-hr	Estimated Diesel OM	**$10,753**
Consumption in 200	**41,567**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$79,988**
Average Load	**61**	kW	NF COE:	**$0.15**	/kw-hr	Current Fuel Costs	**$218,081**
Estimated peak loa	**122.75**	kW	Total	**$0.57**		**Total Electric**	
Average Sales	**537,659**	kW-hours				**$308,823**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**76,746**	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$6.25**		
Wood:	**0%**	$/MMBtu delivered to user	**$56.66**		**Total Heating Oil**
Electricity:	**5.2%**	Community heat needs in MMBtu	**9,210**		**$479,395**

Transportation (Estimated)

Estimated Diesel:	**27,454**	gal	Estimated cost	**$6.25**	**Total Transportation**
					$171,494

Energy Total **$959,711**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$10,753**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$59,171**	$0.11		**Savings**
New Fuel use	**11,278**		Avg Non-Fuel Costs:	**$90,741**	$0.15		**$158,911**
			New cost of electricity		**$0.54**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**6,235**	gal	**$38,947**
Stack Heat	**0**	gal	**$0**

Capital cost	**$171,855**		
Annual ID	**$14,396**		
Annual OM	**$3,437**		
Total Annual costs	**$17,833**		**Savings**
Heat cost	**$25.88**	$/MMBtu	**$21,114**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **679248**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.17	
Alternative COE:		**$0.46**	
% Community energy		126%	
New Community COE (includes non-fuel and diesel costs)		**$0.53**	

Savings

$113,083

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	27.7%

Other Resources

Atmautluak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

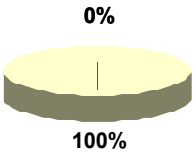
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Atqasuk

Energy Used

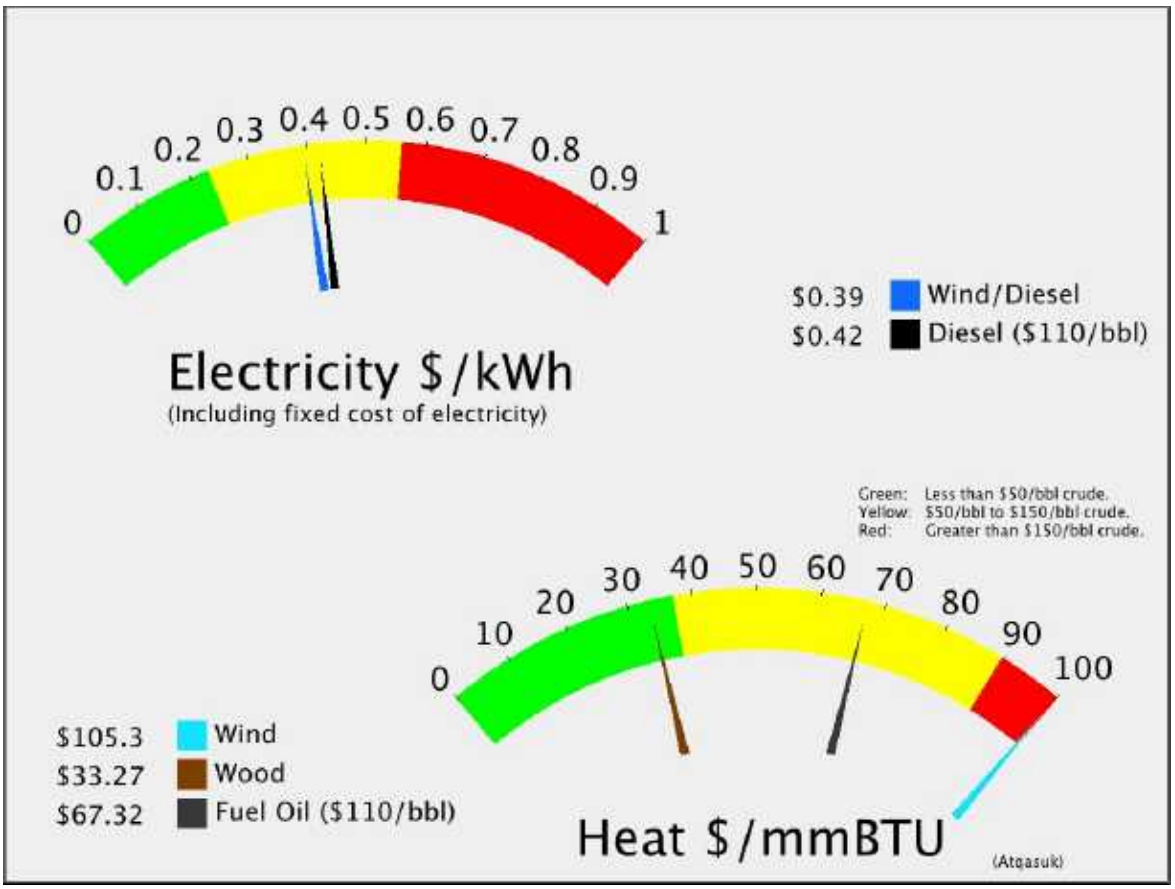


Total: Per capita

Heat Per capita POPULATION: 223

Transportation Per capita

Electricity: **$5,252** Per capita



Atqasuk

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 223 LATITUDE: 70d 28m N LONGITUDE: 157d 24m **North Slope Borough**

LOCATION Atqasuk is located on the Meade River, 60 miles south of Barrow.

ECONOMY Education and other government services provide the majority of full-time employment in Atqasuk. Subsistence activities provide food sources. Grayling, white fish, caribou, geese, ptarmigan, polar bear, seal, walrus and whale are harvested and traded. Residents trap and sell furs to supplement cash income.

HISTORY The area has traditionally been hunted and fished by Inupiat Eskimos. The name means "the place to dig the rock that burns." During World War II, bituminous coal was mined in Atqasuk and freighted to Barrow for use by government and private facilities. The village had a post office from 1951 to 1957 under the name Meade River. There were no people in Atqasuk in 1970, but the community was re-established around 1977, primarily by former residents of Barrow. The City was incorporated in 1982.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.44** /kw-hr

Current efficiency	**14.01**	kW-hr/gal	Fuel COE	**$0.34**	/kw-hr	Estimated Diesel OM	**$56,420**
Consumption in 200	**148,794**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$172,322**
Average Load	**322**	kW	NF COE:	**$0.06**	/kw-hr	Current Fuel Costs	**$958,114**
Estimated peak loa	**644.06**	kW	Total	**$0.42**		**Total Electric**	
Average Sales	**2,821,000**	kW-hours				**$1,186,856**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$7.44**	
Wood:	**0%**	$/MMBtu delivered to user	**$67.47**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$7.44**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **141,291**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.00	/kw-hr
Estimated Diesel OM	**$56,420**	$0.02	
New fuel cost	**$909,804**	$0.32	
Avg Non-Fuel Costs:	**$228,742**	$0.06	
New cost of electricity	**$0.52** per kW-hr		

Savings

$37,839

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**22,319**	gal	**$166,036**
Stack Heat	**0**	gal	**$0**

Capital cost	**$901,689**	
Annual ID	**$75,531**	
Annual OM	**$18,034**	
Total Annual costs	**$93,565**	
Heat cost	**$37.94**	$/MMBtu

Savings

$72,471

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1234167**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.23	$67.88
Annual OM	**$57,903**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$343,814**	$0.28	**$81.62**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.36**	
% Community energy		44%	
New Community COE (includes non-fuel and diesel costs)		**$0.39**	

Savings

$99,994

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Atqasuk

Tidal:	
Wave:	
Coal Bed Methane:	VERY GOOD POTENTIAL
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	CONFIRMED RESOURCE
Propane:	

Renewable Fund Project List:

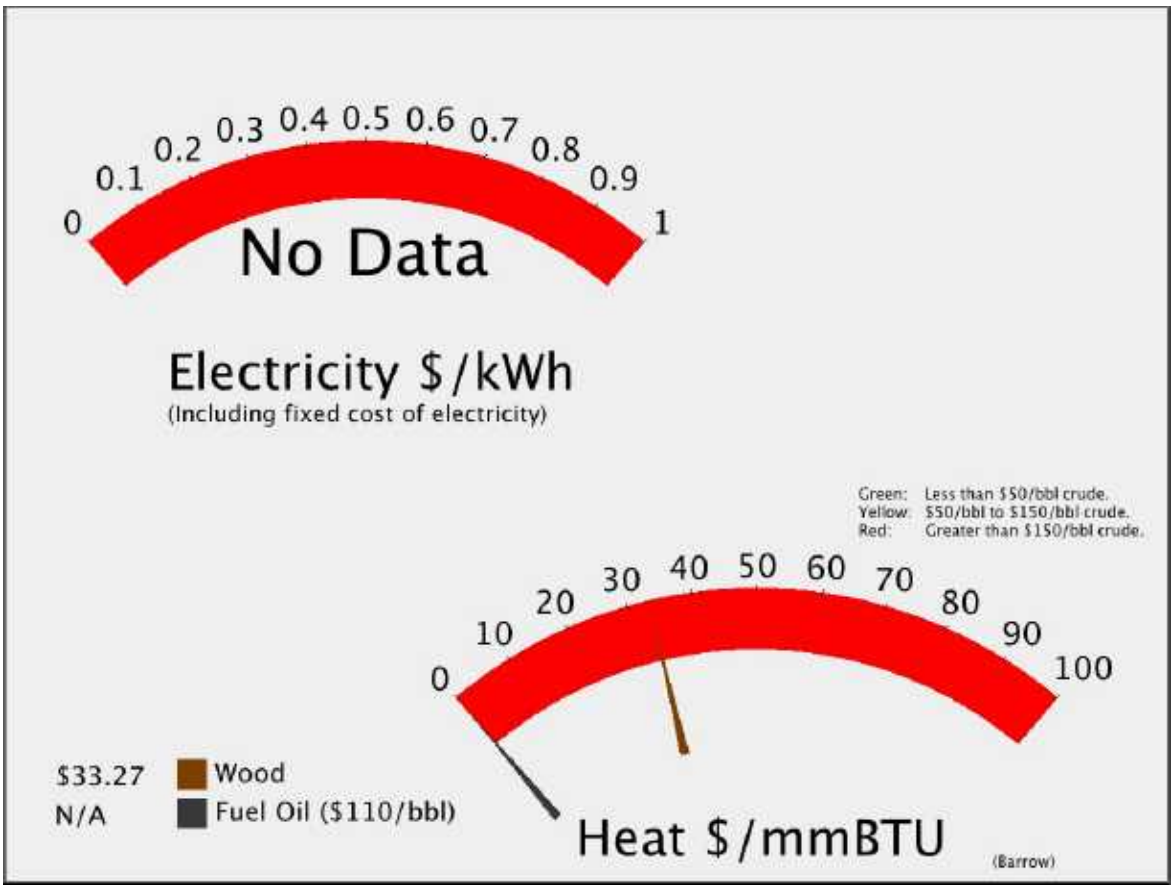
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Barrow_Atqasuk Transmission has been submitted by: North Slope Borough for a Transmission project. The total project budget is: $14,000,000 with $400,000 requested in grant funding and $100,000 as matching funds.

Barrow

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	4054
Transportation	Per capita		
Electricity:	Per capita		



Barrow

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 4054 LATITUDE: 71d 17m N LONGITUDE: 156d 47m **North Slope Borough**

LOCATION Barrow, the northernmost community in North America, is located on the Chukchi Sea coast, 10 miles south of Point Barrow from which it takes its name. It lies 725 air miles from Anchorage.

ECONOMY Barrow is the economic center of the North Slope Borough, the city's primary employer, and numerous businesses provide support services to oil field operations. State and federal agencies also provide employment. The midnight sun has attracted tourism, and arts and crafts provide some cash income. Seven residents hold commercial fishing permits. Many residents rely upon subsistence food sources: whale, seal, polar bear, walrus, duck, caribou and grayling and whitefish are harvested from the coast or nearby rivers and lakes.

HISTORY Archaeological sites in the area indicate habitation from 500 to 900 A.D. Inupiat traditionally depend on subsistence marine mammal hunting, supplemented by inland hunting and fishing. Archaeological remains of sixteen dwelling mounds from the Birnirk culture exist today. Barrow was named for Sir John Barrow, 2nd Secretary of the British Admiralty. Barrow's Eskimo name is known as Ukpeagvik (place where owls are hunted.) In 1881, the U.S. Army established a meteorological and magnetic research station near Barrow. The Cape Smythe Whaling and Trading Station was constructed here in 1893. A Presbyterian Church was established in 1899, and a post office was opened in 1901. Exploration of the Naval Petroleum Reserve Number 4 (now National Petroleum Reserve in Alaska, NPR-A) began in 1946. The Naval Arctic Research Laboratory, 3 miles north of Barrow, soon followed. The City was incorporated in 1958. Formation of the North Slope Borough in 1972, the Arctic Slope Regional Corporation, and construction of the Prudhoe Bay oil fields and Trans-Alaska Pipeline have each contributed to the development of Barrow. Today, tax revenues from the North Slope oil fields fund borough-wide services.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5000**
kW-hr/year **4668831**
Met Tower? **no**
Homer Data? **no**
Wind Class **3**
Avg wind speed **5.82** m/s

			Heat Cost $/MMBtu :
Capital cost	**$23,344,156**	per kW-hr	
Annual Capital	**$1,569,094**	$0.34	$98.47
Annual OM	**$219,045**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,788,139**	$0.38	**$112.22**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Barrow

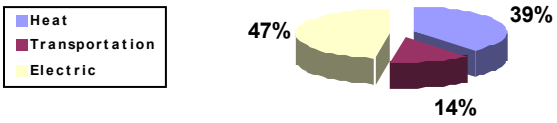
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	CONFIRMED RESOURCE
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Beaver

Energy Used



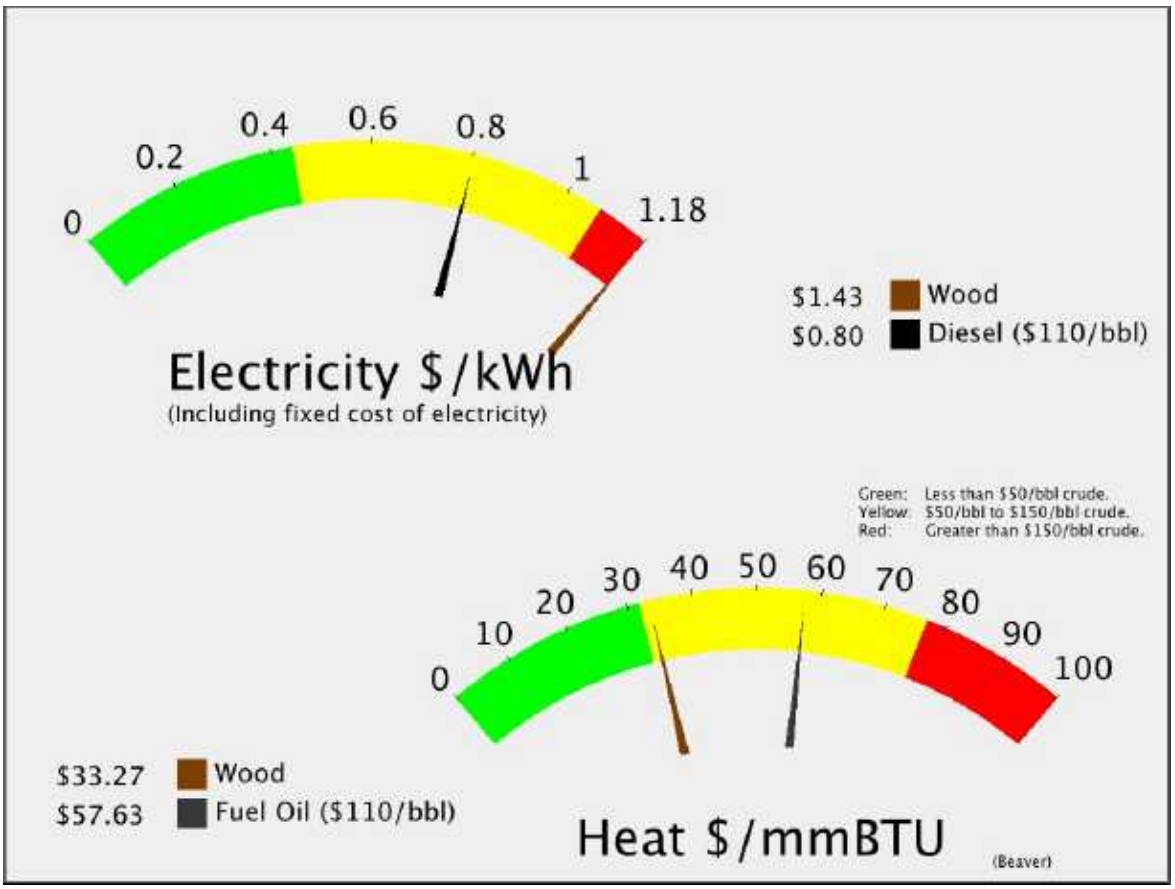
Total: **$5,922** Per capita

Heat **$2,289** Per capita

Transportation **$827** Per capita

Electricity: **$2,806** Per capita

POPULATION: 65



Beaver

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 65 LATITUDE: 66d 21m N LONGITUDE: 147d 23m **Unorganized**

LOCATION Beaver is located on the north bank of the Yukon River, approximately 60 air miles southwest of Fort Yukon and 110 miles north of Fairbanks. It lies in the Yukon Flats National Wildlife Refuge.

ECONOMY Almost all Beaver residents are involved in subsistence activities. Moose, salmon, freshwater fish, bear and waterfowl supply meat. Poor fish returns since 1998 have significantly affected the community. Gardening and berry-picking are popular activities. Most wage employment is at the school, post office, clinic and village council. Seasonal wages are earned through BLM fire fighting, construction jobs, trapping, producing handicrafts or selling cut firewood.

HISTORY Gold discoveries in the Chandalar region in 1907 led to the founding of Beaver. It was established as the Yukon River terminus for miners heading north to the gold fields. The Alaska Road Commission built a trail from Beaver north to Caro on the Chandalar River around 1907. In 1910, Thomas Carter and H.E. Ashelby established a store at Beaver, and three freight companies operated on the trail, commonly known as Government Road. In 1911, about the time the gold rush was over, Frank Yasuda, a Japanese who had traded at Point Barrow and prospected in the Brooks Range, arrived with a group of Eskimos and became a partner in the trading post. They served the remaining mines in the region, supplied riverboats with firewood, and traded with Eskimo and Indian fur trappers. A post office was established in 1913, and a second trading post opened in the early 1920s. The first Beaver school opened in 1928, and an airstrip was built in the 1930s. Beaver's population remained stable from 1950 through the 1970s. In 1974, the village council purchased the local store and set it up as a cooperative, with villagers holding shares of stock.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.37** /kw-hr

Current efficiency	**7.11**	kW-hr/gal	Fuel COE	**$0.68**	/kw-hr	Estimated Diesel OM	**$4,799**
Consumption in 200	**30,560**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$24,194**
Average Load	**27**	kW	NF COE:	**$0.10**	/kw-hr	Current Fuel Costs	**$164,071**
Estimated peak loa	**54.782**	kW	Total	**$0.80**		**Total Electric**	
Average Sales	**239,947**	kW-hours				**$193,063**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**23,357**	gal	
Fuel Oil:	**57%**	Estimated heating fuel cost/gallon	**$6.37**		
Wood:	**43%**	$/MMBtu delivered to user	**$57.77**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,803**		**$148,758**

Transportation (Estimated)

Estimated Diesel:	**8,438**	gal	Estimated cost	**$6.37**	**Total Transportation**
					$53,742

Energy Total **$395,563**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **15,530**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,799**	$0.02	
New fuel cost	**$83,380**	$0.35	
Avg Non-Fuel Costs:	**$28,992**	$0.10	
New cost of electricity	**$0.51** per kW-hr		

Savings

$80,062

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**4,584**	gal	**$29,195**
Stack Heat	**0**	gal	**$0**

Capital cost	**$76,695**		
Annual ID	**$6,425**		
Annual OM	**$1,534**		
Total Annual costs	**$7,958**		
Heat cost	**$15.71**	$/MMBtu	

Savings

$21,236

Alternative Energy Resources

Wood

Installed KW	**50**	
kW-hr/year	**373652**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**472**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,835,199**	per kW-hr	
Annual Capital	**$123,354**	$0.33	
Annual OM	**$120,346**	$0.32	
Fuel cost:	**$70,828**	$0.19	-90
Total Annual Cost	**$314,529**	$0.84	**$29.76**
Non-Fuel Costs		$0.12	
Alternative COE:		**$0.96**	
% Community energy		156%	
New Community COE		**$1.43**	
(includes non-fuel and diesel costs)			

Savings

($121,466)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	91.0%

Other Resources

Beaver

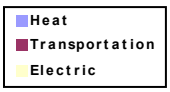
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

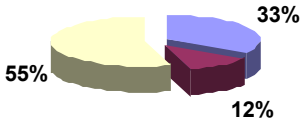
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Bethel

Energy Used





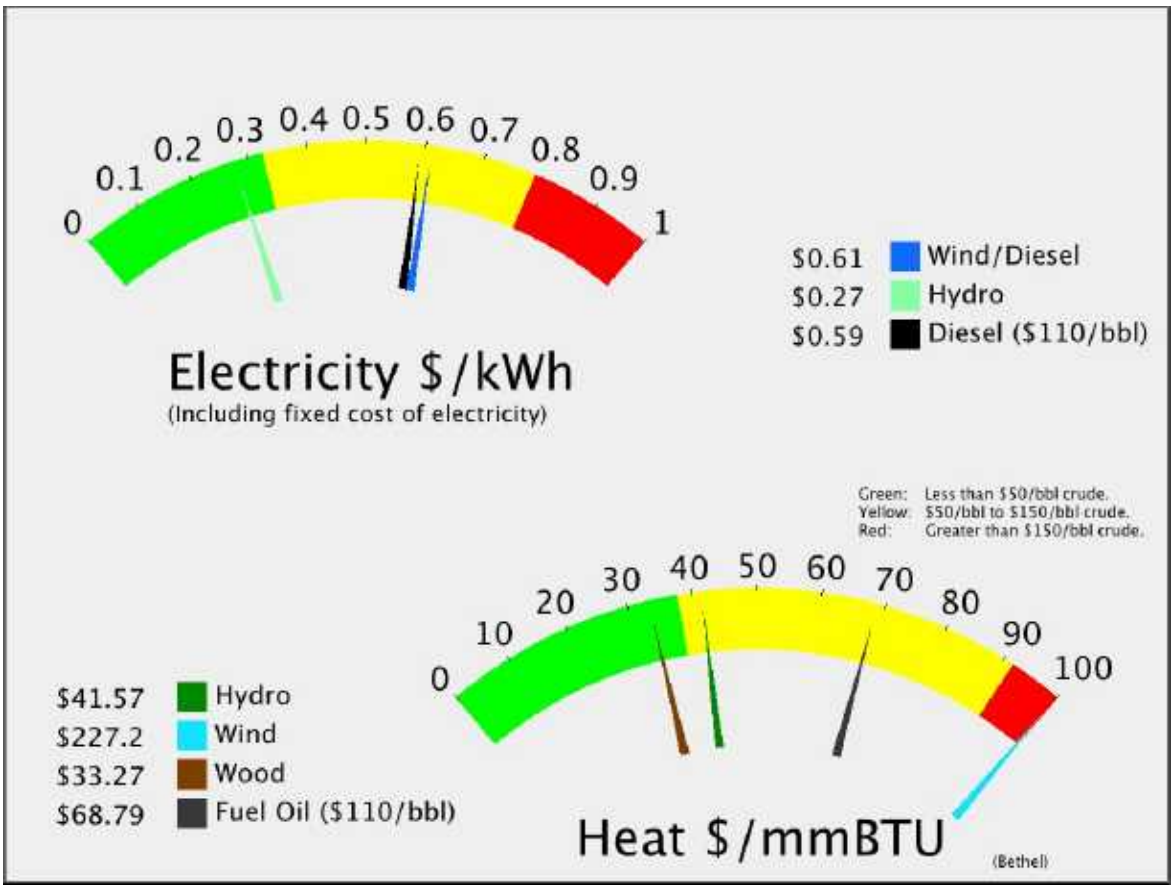
Total: **$7,332** Per capita

Heat **$2,442** Per capita

Transportation **$874** Per capita

Electricity: **$4,017** Per capita

POPULATION: 5653



Bethel

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 5653 LATITUDE: 60d 47m N LONGITUDE: 161d 45m **Unorganized**

LOCATION Bethel is located at the mouth of the Kuskokwim River, 40 miles inland from the Bering Sea. It lies in the Yukon Delta National Wildlife Refuge, 400 air miles west of Anchorage.

ECONOMY Bethel serves as the regional center for 56 villages in the Yukon-Kuskokwim Delta. Food, fuel, transportation, medical care, and other services for the region are provided by Bethel. 50% of the jobs in Bethel are in government positions. Commercial fishing is an important source of income; 200 residents hold commercial fishing permits, primarily for salmon and herring roe net fisheries. Subsistence activities contribute substantially to villager's diets, particularly salmon, freshwater fish, game birds and berries. Poor fish returns since 1997 have significantly affected the community.

HISTORY Bethel was first established by Yup'ik Eskimos who called the village Mumtrekhlogamute meaning Smokehouse People named for the nearby fish smokehouse. There were 41 people in Bethel during the 1880 U.S. Census. At that time, it was an Alaska Commercial Company Trading Post. The Moravian Church established a mission in the area in 1884. The community was moved to its present location due to erosion at the prior site. A post office was opened in 1905. Before long, Bethel was serving as a trading, transportation and distribution center for the region, which attracted Natives from surrounding villages. The City was incorporated in 1957. Over time, federal and state agencies established regional offices in Bethel.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.60** /kw-hr

Current efficiency	**13.68**	kW-hr/gal	Fuel COE	**$0.51**	/kw-hr	Estimated Diesel OM	**$799,105**
Consumption in 200	**3,075,281**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$2,530,895**
Average Load	**4,561**	kW	NF COE:	**$0.06**	/kw-hr	Current Fuel Costs	**$20,301,775**
Estimated peak loa	**9122.2**	kW	Total	**$0.59**		**Total Electric**	
Average Sales	**39,955,247**	kW-hours				**$23,631,775**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,815,943**	gal	
Fuel Oil:	**87%**	Estimated heating fuel cost/gallon	**$7.60**		
Wood:	**1%**	$/MMBtu delivered to user	**$68.95**		**Total Heating Oil**
Electricity:	**5.5%**	Community heat needs in MMBtu	**217,913**		**13,804,071**

Transportation (Estimated)

Estimated Diesel:	**649,616**	gal	Estimated cost	**$7.60**	**Total Transportation**
					$4,938,121

Energy Total **$42,373,967**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**			
#N/A		Annual Capital cost	**$0**	$0.00	/kw-hr	
Status	**NA**	Estimated Diesel OM	**$799,105**	$0.02		
Acheivable efficiency	**14.8** kW-	New fuel cost	**$18,831,562**	$0.47		**Savings**
New Fuel use	**2,852,575**	Avg Non-Fuel Costs:	**$3,330,000**	$0.06		**$1,470,213**
		New cost of electricity	**$0.53** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**461,292**	gal	**$3,506,558**
Stack Heat	**307,528**	gal	**$2,337,706**

Capital cost	**$12,771,083**		
Annual ID	**$1,069,790**		
Annual OM	**$255,422**		
Total Annual costs	**$1,325,212**		**Savings**
Heat cost	**$15.60**	$/MMBtu	**$4,519,052**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**9600**
kW-hr/year	**4105800**
Met Tower?	**no**
Homer Data?	**no**
Wind Class	**5**
Avg wind speed	**6.70** m/s

			Heat Cost $/MMBtu :
Capital cost	**$39,415,684**	per kW-hr	
Annual Capital	**$2,649,353**	$0.65	$189.06
Annual OM	**$192,629**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,841,982**	$0.69	**$202.81**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.78**	
% Community energy		10%	**Savings**
New Community COE		**$0.61**	**($673,531)**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW	**16000**
kW-hr/year	**24095897**
Site	**Chikuminuk Lake**
Study plan effort	**reconnaissance**
Plant Factor	**50** %
Penetration	**0.46**

			Heat Cost $/MMBtu :
Capital cost	**$79,756,000**	per kW-hr	
Annual Capital	**$3,099,756**	$0.13	$37.69
Annual OM	**$579,120**	$0.02	$7.04
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,678,876**	$0.15	**$44.73**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.24**	
% Community energy		60%	**Savings**
New Community COE		**$0.32**	**$11,039,683**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW	**1800**
kW-hr/year	**4700000**
Site	**NYAC Tuluksak River/Slate Cr.**
Study plan effort	**reconnaissance**
Plant Factor	%
Penetration	**0.14**

			Heat Cost $/MMBtu :
Capital cost	**$10,541,654**	per kW-hr	
Annual Capital	**$409,707**	$0.09	$25.54
Annual OM	**$240,406**	$0.05	$14.99
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$650,113**	$0.14	**$40.53**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.22**	
% Community energy		12%	**Savings**
New Community COE		**$0.55**	**$1,832,324**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW **22000**

kW-hr/year **50000000**

Site **Newhalen River**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **0.55**

			Heat Cost $/MMBtu :
Capital cost	**$378,645,160**	per kW-hr	
Annual Capital	**$23,561,665**	$0.47	$138.07
Annual OM	**$423,000**	$0.01	$2.48
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$23,984,665**	$0.48	**$140.55**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.56**	
% Community energy		125%	
New Community COE		**$0.68**	

(includes non-fuel and diesel costs)

Savings

($352,890)

Alternative Energy Resources

Hydro

Installed KW **30000**

kW-hr/year **50000000**

Site **Kisaralik River**

Study plan effort **reconnaissance**

Plant Factor **50** %

Penetration **0.58**

			Heat Cost $/MMBtu :
Capital cost	**$163,798,760**	per kW-hr	
Annual Capital	**$7,281,651**	$0.15	$42.67
Annual OM	**$423,000**	$0.01	$2.48
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$7,704,651**	$0.15	**$45.15**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.24**	
% Community energy		125%	
New Community COE		**$0.28**	

(includes non-fuel and diesel costs)

Savings

$15,927,124

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	1.2%

Other Resources

Bethel

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Bethel Wind Farm Construction (BNC land) has been submitted by: Alaska Wind Power, LLC for a Wind Diesel Hybrid project. The total project budget is: $8,710,000 with $6,960,000 requested in grant funding and $1,750,000 as matching funds.

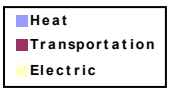
A project titled: Bethel Wind Power x 4 has been submitted by: City of Bethel for a Wind Diesel Hybrid project. The total project budget is: $3,197,986 with $2,598,320 requested in grant funding and $199,889 as matching funds.

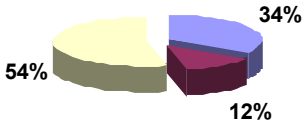
A project titled: Bethel Wind Power x4_City of Bethel has been submitted by: City of Bethel for a Wind Diesel Hybrid project. The total project budget is: $3,197,986 with $2,598,320 requested in grant funding and $599,666 as matching funds.

A project titled: Orutsaramiut Native Council has been submitted by: Orutsaramiut Native Council Incorporated for a Gas project. The total project budget is: $70,200 with $701,700 requested in grant funding and $771,900 as matching funds.

Bettles

Energy Used





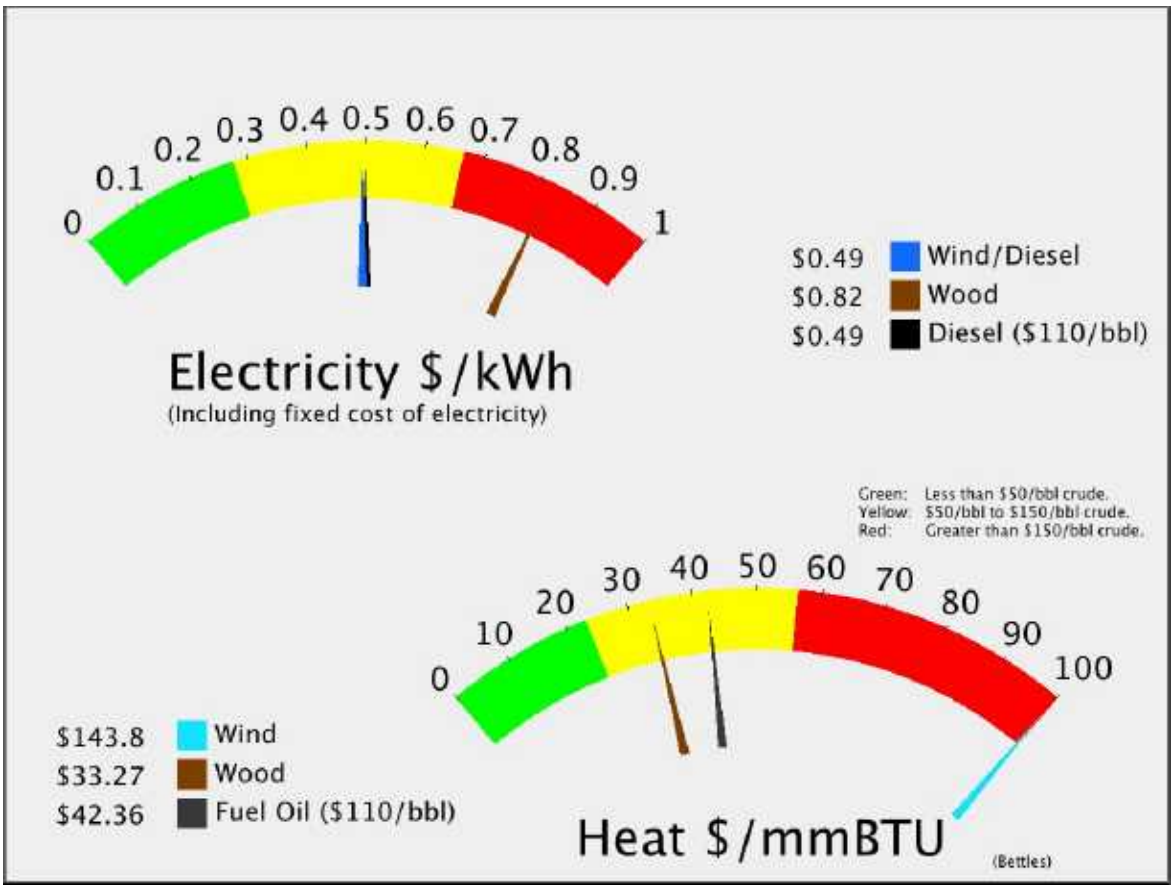
Total: **$9,180** Per capita

Heat **$3,122** Per capita

Transportation **$1,128** Per capita

Electricity: **$4,930** Per capita

POPULATION: 28



Bettles

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 28 LATITUDE: 66d 54m N LONGITUDE: 151d 41m **Unorganized**

LOCATION Bettles is located about 180 air miles and 250 road miles northwest of Fairbanks, adjacent to Evansville. It lies just north of the Kanuti National Wildlife Refuge. Bettles is located on the S.E. bank of the Koyukuk River.

ECONOMY The economy is linked to air transportation, visitor services and government. 100% of the heads of household are employed, most full-time, which is unique for a rural community. The community is accessible by road during winter months, which dramatically reduces the cost of goods and supplies. The FAA, National Park Service, school, Tribe, City, general store and lodging provide year-round employment. During the summer, tourist-oriented businesses and guides for the Brooks Range provide seasonal employment. Subsistence activities are important to the Native residents; subsistence use by the non-Natives is substantially lower. Salmon, moose, bear, caribou and sheep are used.

HISTORY Several Native groups have lived in the area, including Koyukon Athabascans and Kobuk, Selawik, and Nunamiut Eskimos from the north and northwest. The Koyukon lived in several camps throughout the year, moving as the seasons changed, following the wild game and fish. Old Bettles located 6 miles from the present community, was named for Gordon Bettles, who opened a trading post during the 1899 gold rush. Old Bettles was the northern terminal of the Koyukuk River barge line, and a post office operated there from 1901 to 1956. Today, the new site of Bettles is also known as Bettles Field. The Bettles Runway was constructed in 1945 by the U.S. Navy under Navy Contract Noy-12081 with Lytle and Green Construction as contractor. The U.S. Navy used these facilities as a support base for exploring National Petroleum Reserve. Later, the FAA took over the runway and its maintenace. Work opportunities at Bettles Field attracted both Natives and whites to the new airfield. Wilford Evans, Sr. opened a sawmill at the present site of Evansville and built the Bettles Lodge and General Store. A post office was established at the Bettles Lodge in 1950. A school was constructed in 1956. A health clinic opened in 1980. Bettles incorporated as a City during 1985. The City boundaries do not include the village of Evansville.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$3.68** /kw-hr

Current efficiency	**11.83**	kW-hr/gal	Fuel COE	**$0.34**	/kw-hr	Estimated Diesel OM	**$11,426**
Consumption in 200	**52,716**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$79,451**
Average Load	**65**	kW	NF COE:	**$0.14**	/kw-hr	Current Fuel Costs	**$194,084**
Estimated peak loa	**130.44**	kW	Total	**$0.50**		**Total Electric**	
Average Sales	**571,316**	kW-hours				**$284,962**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**18,671**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$4.68**		
Wood:	**0%**	$/MMBtu delivered to user	**$42.46**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,240**		**$87,411**

Transportation (Estimated)

Estimated Diesel:	**6,745**	gal	Estimated cost	**$4.68**	**Total Transportation**
					$31,579

Energy Total **$403,951**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **44,538**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.01	/kw-hr
Estimated Diesel OM	**$11,426**	$0.02	
New fuel cost	**$163,975**	$0.29	
Avg Non-Fuel Costs:	**$90,877**	$0.14	
New cost of electricity	**$0.44** per kW-hr		

Savings

$21,733

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, Local Housing

			Value
Water Jacket	**7,907**	gal	**$37,020**
Stack Heat	**0**	gal	**$0**

Capital cost	**$182,612**		
Annual ID	**$15,297**		
Annual OM	**$3,652**		
Total Annual costs	**$18,949**		
Heat cost	**$21.69**	$/MMBtu	

Savings

$18,071

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**			
kW-hr/year	**415373**			
Met Tower?	**no**			
Homer Data?	**yes**			
Wind Class	**7**			
Avg wind speed	**8.50**	m/s		

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$83.47
Annual OM	**$19,488**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,820**	$0.33	**$97.22**
Non-Fuel Costs		$0.16	
Alternative COE:		**$0.49**	
% Community energy		73%	
New Community COE		**$0.48**	

(includes non-fuel and diesel costs)

Savings

$11,581

Alternative Energy Resources

Wood

Installed KW	**81**	
kW-hr/year	**605434**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**765**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,997,789**	per kW-hr	
Annual Capital	**$134,283**	$0.22	
Annual OM	**$129,511**	$0.21	
Fuel cost:	**$114,763**	$0.19	-90
Total Annual Cost	**$378,557**	$0.63	**$29.76**
Non-Fuel Costs		$0.16	
Alternative COE:		**$0.78**	
% Community energy		106%	
New Community COE		**$0.82**	

(includes non-fuel and diesel costs)

Savings

($93,595)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	113.8%

Other Resources

Bettles

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

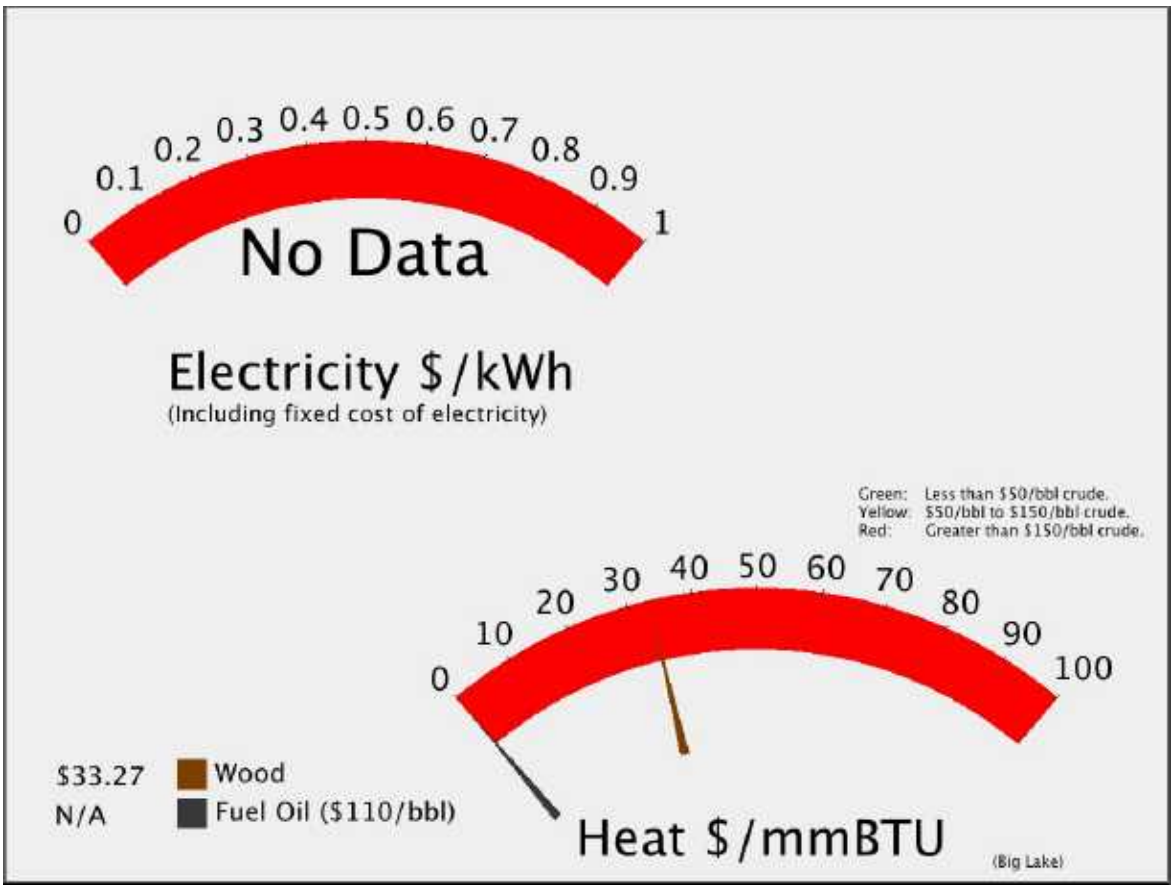
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Big Lake

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	3166
Transportation	Per capita		
Electricity:	Per capita		



Big Lake

Regional Corporation
Cook Inlet Region, Inc.
House 15
Senate : **H**

POPULATION 3166 LATITUDE: 61d 33m N LONGITUDE: 149d 52m **Matanuska-Susitna Bor**

LOCATION Big Lake is a community on the shore of Big Lake, 13 miles southwest of Wasilla, in the Chugach Mountains. It lies adjacent to Houston and Knik-Fairview.

ECONOMY Most residents are employed in Anchorage, Palmer/Wasilla, or at businesses serving the community. There are several lodges on the lake to support summer recreational boating and fishing activities. Unemployment is relatively low. Six residents hold commercial fishing permits.

HISTORY Early inhabitants were the Athabascan Dena'ina Indians. Around 1899, the Boston and Klondike Company made the first sled trail north into the Talkeetna Mountains from Knik via Big Lake. Homesteaders in 1929 and after World War II settled Big Lake. Materials were transported from Pittman railroad station over eleven miles of rough trail. By 1959, a number of lodges and several children's camps were operating on the lake, and at least 300 cottages and camps were owned by individuals. Lake-front lots became accessible in the 1960s and 1970s, with the expansion of roads and power. In June 1996, the "Miller's Reach" wildfire destroyed more than 37,500 acres in the Big Lake and Houston area, including 433 buildings and homes valued at $8.9 million. Low housing costs, the semi-rural lifestyle, and a 45-minute commute to Anchorage have supported growth in the Mat-Su Valley.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Big Lake

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

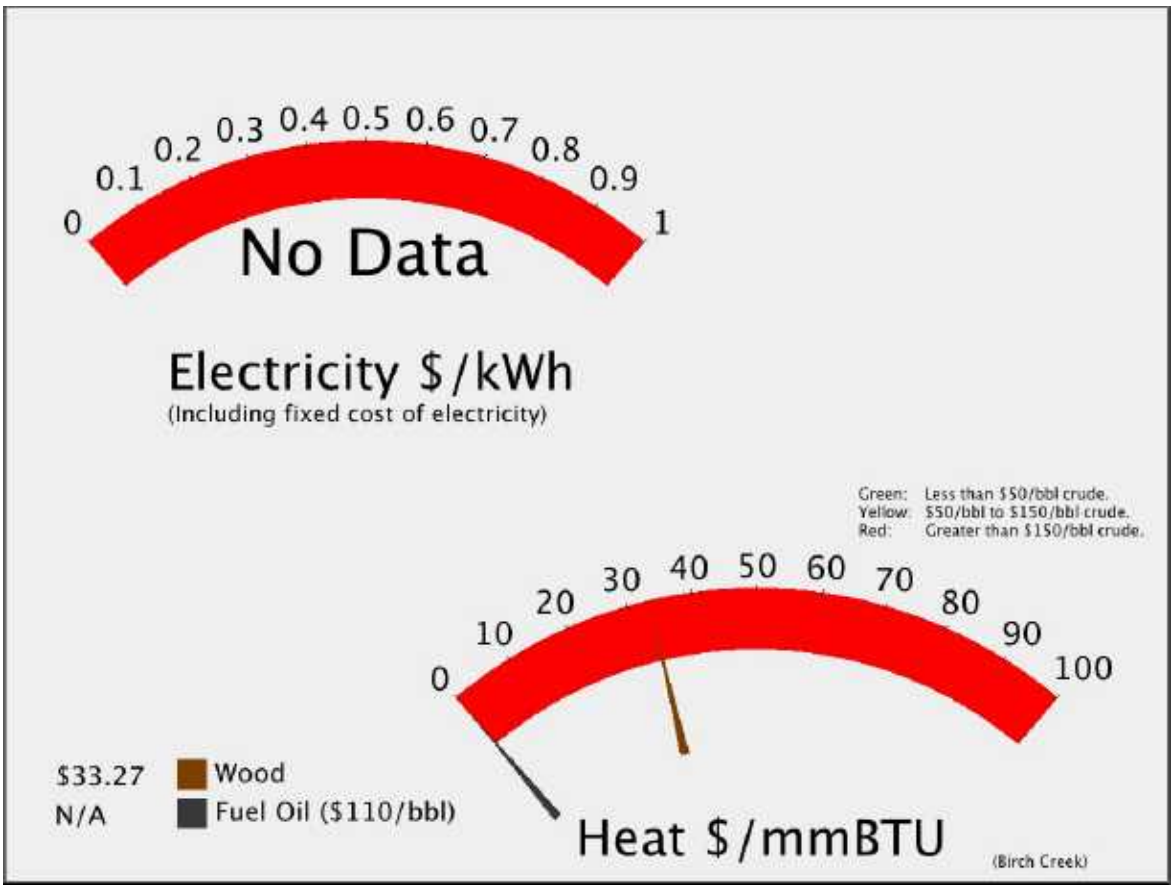
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Birch Creek

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	26
Transportation	Per capita		
Electricity:	Per capita		



Birch Creek

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 26 LATITUDE: 66d 15m N LONGITUDE: 145d 48m **Unorganized**

LOCATION The village is located along Birch Creek, approximately 26 miles southwest of Fort Yukon.

ECONOMY Birch Creek's economy is heavily dependent upon subsistence. Salmon, whitefish, moose, black bear, waterfowl and berries provide most food sources. Wage income opportunities are extremely limited. BLM fire fighting, construction, the school, and the village council provide employment. The community is conducting planning activities to expand the economy to include tourism and merchandising. The Tribe operates the washeteria and electrical service.

HISTORY The Dendu Gwich'in traditionally occupied much of the Yukon Flats south of the Yukon River, including portions of the Crazy and White Mountains. Semi-permanent camps existed near the present village. The first written reference to a settlement in the Birch Creek area was in 1862 by a Fort Yukon clergyman who visited a camp established to provide fish for the Hudson's Bay Company in Ft. Yukon. Some anthropologists believe that this band was annihilated by scarlet fever in the 1880s, but there are ethnographic accounts of the use of this area from 1867 onwards. Birch Creek Jimmy was the founder of Birch Creek, and was Great Chief among the Chiefs in his days. He built a cabin in 1898 at the site of the Hudson's Bay fish camp. Several years later, he was joined by other extended family members. In about 1916, the group moved three miles upstream to the site of the present village. It was used as a seasonal base for harvest activities until the early 1950s, when the establishment of a school encouraged village residents to adopt a less nomadic way of life. The first airstrip was constructed in 1973. The school was closed for the 1999-2000 school year due to insufficient students.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Birch Creek

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

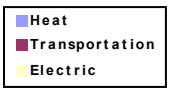
Renewable Fund Project List:

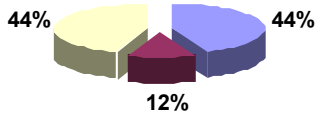
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Birch Creek Solar has been submitted by: Birch Creek Village Council for a Solar project. The total project budget is: $112,200 with $89,600 requested in grant funding and $22,600 as matching funds.

Brevig Mission

Energy Used





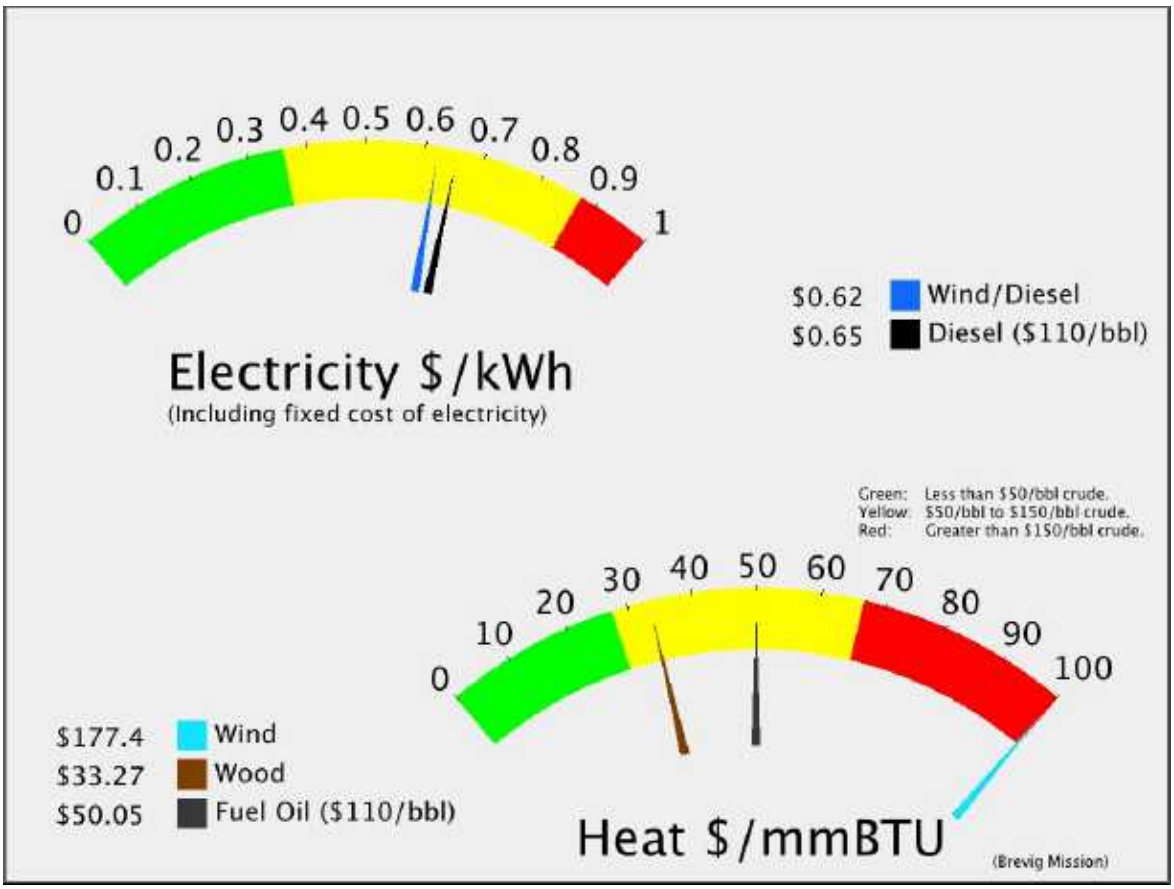
Total: **$4,000** Per capita

Heat **$1,743** Per capita

Transportation **$472** Per capita

Electricity: **$1,785** Per capita

POPULATION: 328



Brevig Mission

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 328 LATITUDE: 65d 20m N LONGITUDE: 166d 29m **Unorganized**

LOCATION Brevig Mission is located at the mouth of Shelman Creek on Port Clarence, 5 miles northwest of Teller and 65 miles northwest of Nome.

ECONOMY The people of Brevig Mission subsist upon fish, moose, reindeer, seal, walrus and beluga whales. The primary employers are the city and school district. Year-round jobs are scarce, unemployment is high, and seasonal jobs in mining and construction are becoming limited due to a depressed minerals market. Arts and crafts provide some cash income.

HISTORY The Kauwerak Eskimos in this area lived in migratory communities in pursuit of hunting and fishing grounds, and traded furs with Siberia, Little Diomede and King Island. They formed alliances with Wales, Little Diomede and others for protection. The "Teller Reindeer Station" opened near this site in 1892; it was operated by the U.S. government until 1900. The Norwegian Rev. Tollef L. Brevig, a pioneer Lutheran missionary, began serving the reindeer station on August 1, 1894, as pastor and teacher to the Laplanders and Eskimos. Rev. Brevig traveled between villages by dog team along the beach, and often performed services in Nome. A Lutheran Mission was constructed at the present site in 1900, and the village became known as "Teller Mission." The mission was given 100 reindeer on a five-year loan from the Government. By 1906, the Government's role had diminished, and the mission became dominant. In 1963, the Brevig Mission post office was established. The City was incorporated in 1969. Reindeer were the economic base of this community until 1974, but the industry has since declined.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.53** /kw-hr

Current efficiency	**13.40**	kW-hr/gal	Fuel COE	**$0.38**	/kw-hr	Estimated Diesel OM	**$17,333**
Consumption in 200	**71,790**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$225,325**
Average Load	**99**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$325,237**
Estimated peak loa	**197.86**	kW	Total	**$0.66**		**Total Electric**	
Average Sales	**866,636**	kW-hours				**$567,896**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**103,400**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**0%**	$/MMBtu delivered to user	**$50.16**		**Total Heating Oil**
Electricity:	**10.1%**	Community heat needs in MMBtu	**12,408**		**$571,842**

Transportation (Estimated)

Estimated Diesel:	**27,979**	gal	Estimated cost	**$5.53**	**Total Transportation** **$154,735**

Energy Total **$1,294,473**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **68,702**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.13	/kw-hr
Estimated Diesel OM	**$17,333**	$0.02	
New fuel cost	**$311,248**	$0.36	
Avg Non-Fuel Costs:	**$242,658**	$0.26	
New cost of electricity	**$0.73** per kW-hr		

Savings

($94,907)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, School

			Value
Water Jacket	**10,769**	gal	**$59,554**
Stack Heat	**0**	gal	**$0**

Capital cost	**$277,007**		
Annual ID	**$23,204**		
Annual OM	**$5,540**		
Total Annual costs	**$28,744**		
Heat cost	**$24.16**	$/MMBtu	

Savings

$30,810

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **587923**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.28	$81.67
Annual OM	**$27,583**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$191,455**	$0.33	**$95.41**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.61**	
% Community energy		68%	
New Community COE		**$0.61**	

(includes non-fuel and diesel costs)

Savings

$40,971

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	20.6%

Other Resources

Brevig Mission

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

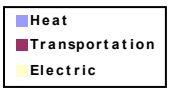
Propane:

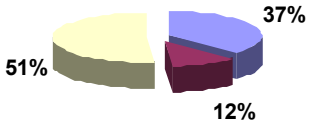
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Buckland

Energy Used





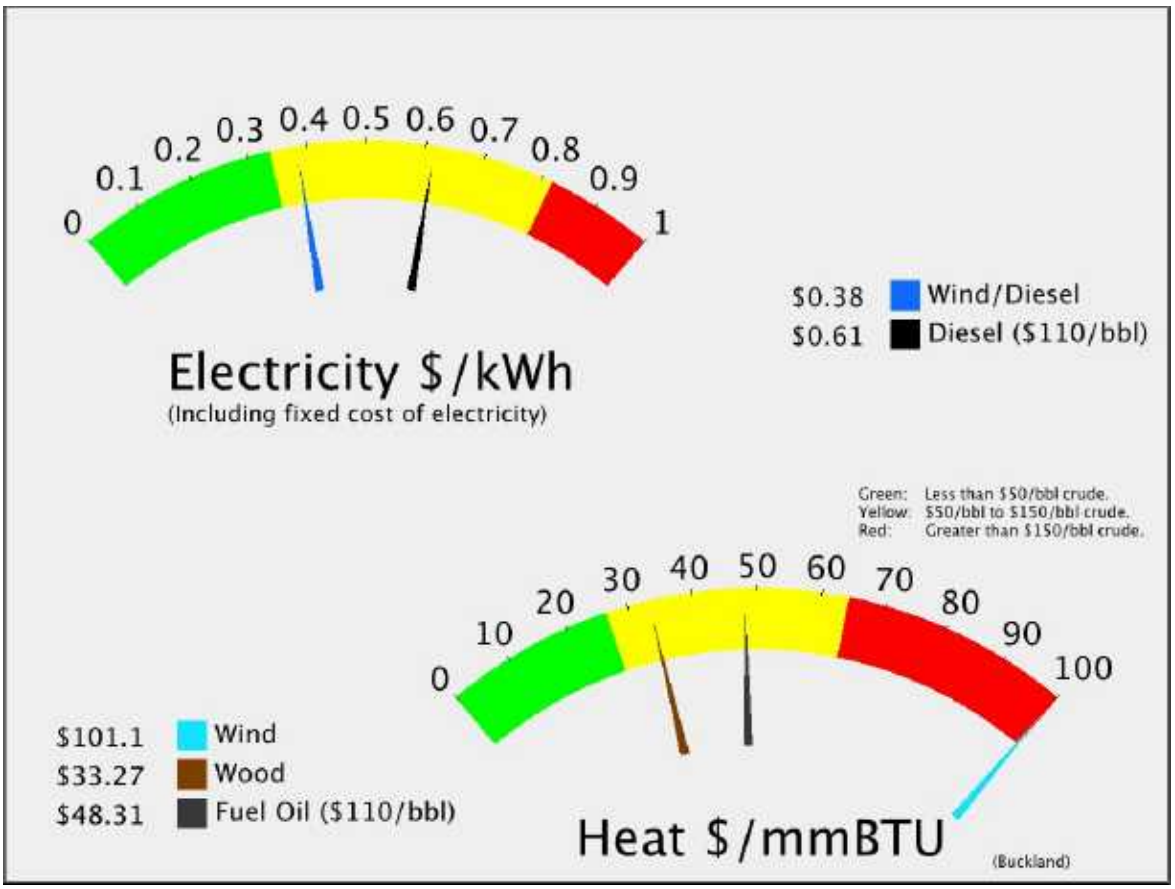
Total: **$3,121** Per capita

Heat **$1,151** Per capita

Transportation **$369** Per capita

Electricity: **$1,601** Per capita

POPULATION: 457



Buckland

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 457 LATITUDE: 65d 59m N LONGITUDE: 161d 08m **Northwest Arctic Borou**

LOCATION Buckland is located on the west bank of the Buckland River, about 75 miles southeast of Kotzebue.

ECONOMY Residents depend on a subsistence lifestyle for most food sources. A herd of more than 2,000 reindeer are managed; workers are paid in meat. Employment is primarily with the school, City, health clinic and stores. Some mining also occurs. One resident holds a commercial fishing permit. The community is interested in developing a Native food products and crafts manufacturing facility to produce reindeer sausage, berry products, labrador tea and ivory and wood carving.

HISTORY The residents have moved from one site to another along the river at least five times in recent memory, to places known as Elephant Point, Old Buckland and New Site. The presence of many fossil finds at Elephant Point indicate prehistoric occupation of the area. The Inupiaq Eskimos depend on reindeer, beluga whale and seal for survival. The City government was incorporated in 1966.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.34** /kw-hr

Current efficiency	**10.12**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Diesel OM	**$22,545**
Consumption in 200	**148,639**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$25,503**
Average Load	**129**	kW	NF COE:	**$0.02**	/kw-hr	Current Fuel Costs	**$644,870**
Estimated peak loa	**257.37**	kW	Total	**$0.61**		**Total Electric**	
Average Sales	**1,127,270**	kW-hours				**$692,918**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**98,537**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.34**		
Wood:	**0%**	$/MMBtu delivered to user	**$48.42**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,824**	**$526,039**	

Transportation (Estimated)

Estimated Diesel:	**31,586**	gal	Estimated cost	**$5.34**	**Total Transportation**
					$168,624

Energy Total **$1,387,581**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **107,425**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$22,545**	$0.02	
New fuel cost	**$466,061**	$0.41	
Avg Non-Fuel Costs:	**$48,048**	$0.02	
New cost of electricity	**$0.35** per kW-hr		

Savings

$178,181

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Washeteria

			Value
Water Jacket	**22,296**	gal	**$119,026**
Stack Heat	**0**	gal	**$0**

Capital cost	**$360,315**		
Annual ID	**$30,182**		
Annual OM	**$7,206**		
Total Annual costs	**$37,389**		
Heat cost	**$15.18**	$/MMBtu	

Savings

$81,638

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **965620**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.26	$74.94
Annual OM	**$45,303**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$292,276**	$0.30	**$88.69**
Non-Fuel Costs		$0.04	
Alternative COE:		**$0.35**	
% Community energy		86%	
New Community COE		**$0.37**	

(includes non-fuel and diesel costs)

Savings

$279,438

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	21.6%

Other Resources

Buckland

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal: CONFIRMED RESOURCE
Propane:

Renewable Fund Project List:

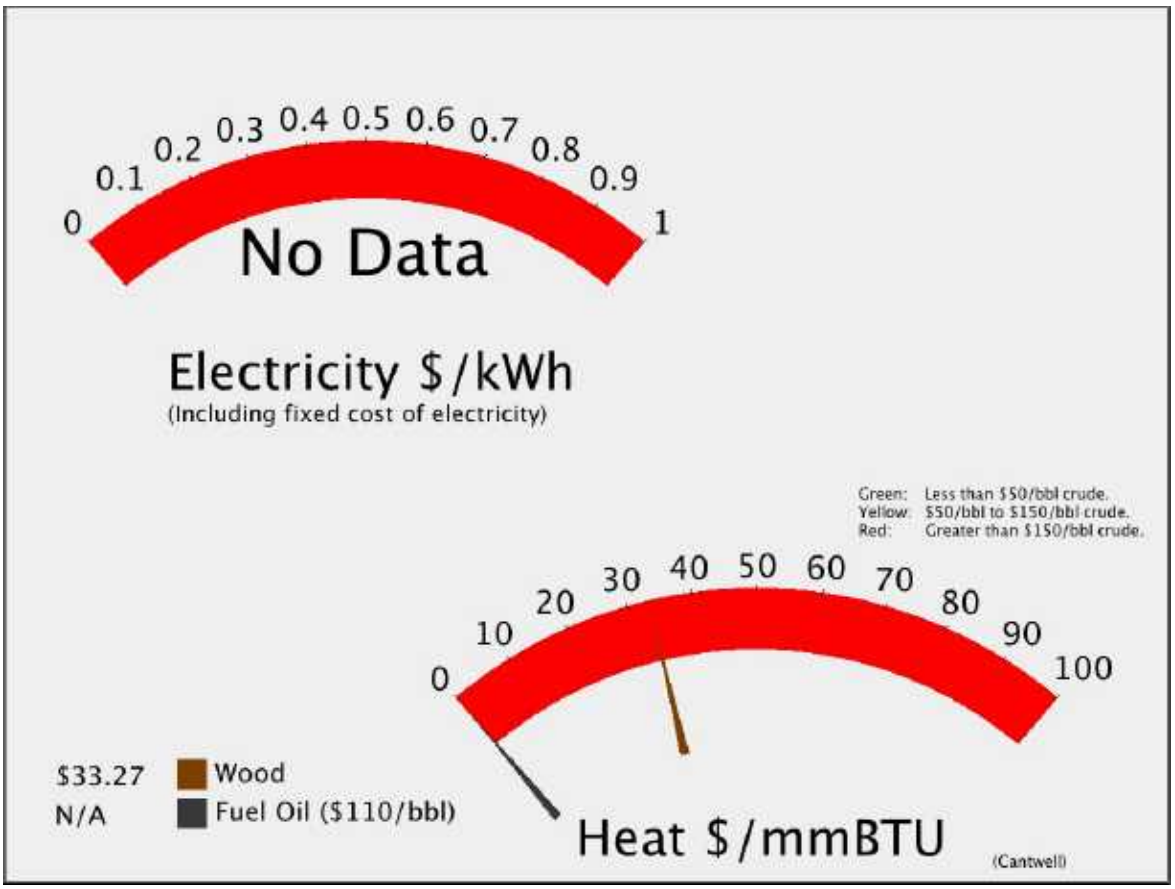
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Buckland/Deering/Noorvik Wind Farm Construction has been submitted by: Northwest Arctic Borough for a Wind Diesel Hybrid project. The total project budget is: $10,921,428 with $10,758,928 requested in grant funding and $162,500 as matching funds.

Cantwell

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	183
Transportation	Per capita		
Electricity:	Per capita		



Cantwell

Regional Corporation
Ahtna, Incorporated
House 8
Senate : **D**

POPULATION 183 LATITUDE: 63d 23m N LONGITUDE: 148d 56m **Denali Borough**

LOCATION Cantwell is located on the George Parks Highway at the west end of the Denali Highway, 211 miles north of Anchorage and 28 miles south of Denali (Mount McKinley) Park. Part of the community is located on the Alaska Railroad. The areas known as Kantishna and Carlo Creek are located nearby.

ECONOMY Cantwell's economy is based on highway tourism and transportation. Part-time seasonal construction jobs also provide income. Most Native residents also depend on subsistence hunting, fishing, trapping and gathering. One resident holds a commercial fishing permit.

HISTORY The Cantwell River was the former name of the Nenana River. The earliest inhabitants of the area were nomadic Indians who trapped, hunted and fished throughout Interior Alaska. Cantwell began as a flag stop on the Alaska Railroad. Oley Nicklie was the first Indian to settle here. When fur prices dropped, he and his two brothers sought work with the railroad.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Cantwell

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

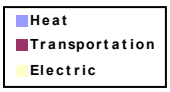
Renewable Fund Project List:

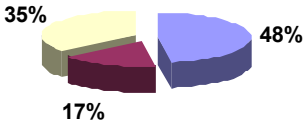
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Jack River Recon_Cantwell has been submitted by: Native Village of Cantwell for a Hydro project. The total project budget is: $200,000 with $194,540 requested in grant funding and $5,460 as matching funds.

Central

Energy Used





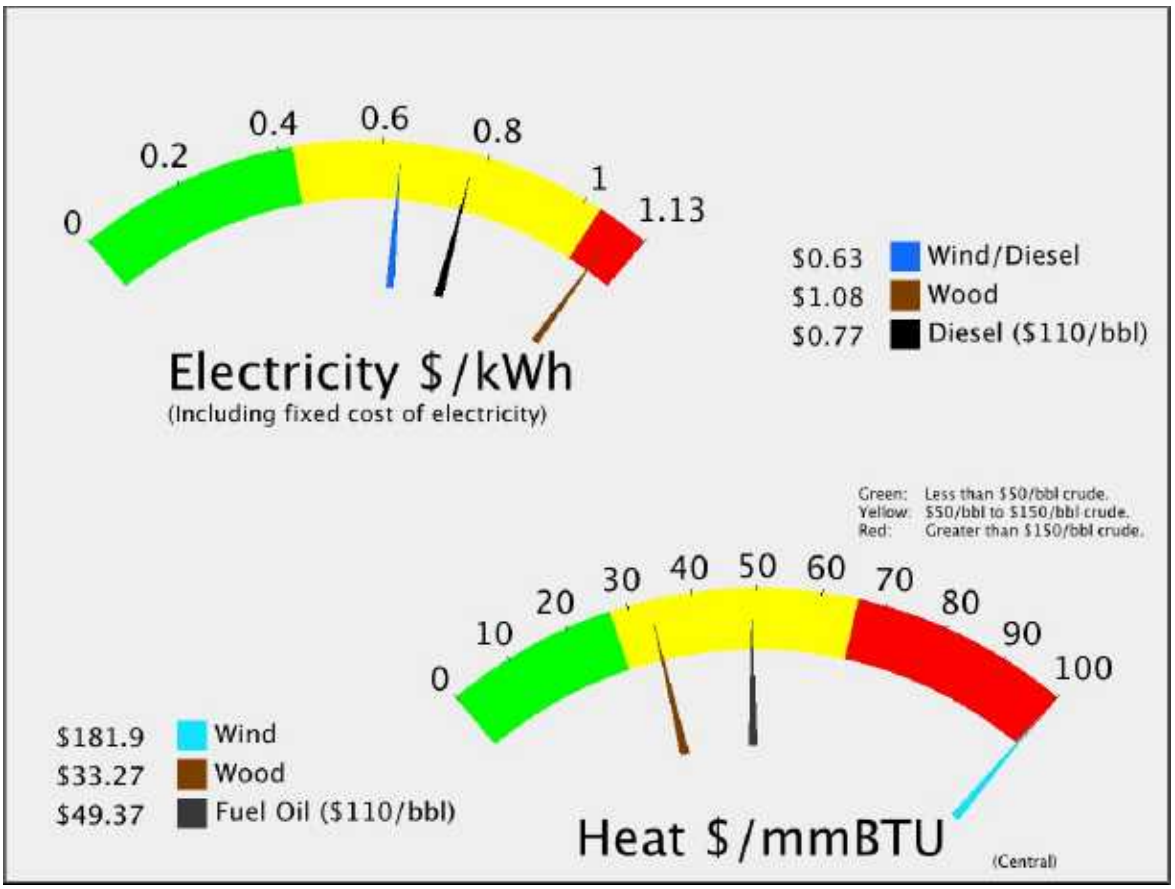
Total: **$9,060** Per capita

Heat **$4,293** Per capita

Transportation **$1,551** Per capita

Electricity: **$3,216** Per capita

POPULATION: 95



Central

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 95 LATITUDE: 65d 34m N LONGITUDE: 144d 48m **Unorganized**

LOCATION Central is located on the Steese Highway about 125 miles northeast of Fairbanks and 28 miles southwest of Circle. Circle Hot Springs is located nearby.

ECONOMY Central has a cash economy based on providing seasonal support for mining operations in the area. The Circle District Museum attracts seasonal visitors, although Circle Hot Springs closed in October 2002. A number of individuals live in the area only seasonally. Subsistence and recreational activities provide food sources for the year-round residents. One resident holds a commercial fishing permit.

HISTORY After discovery of gold in the Circle Mining District in the 1890s, a centrally-located roadhouse was needed between Circle, a supply point on the Yukon, and the mining operations at Mammoth, Mastodon, Preacher and Birch Creeks. Central House, originally built around 1894, was located at the supply trail's crossing of Crooked Creek. It became the center of a small community of miners who settled there and provided food and shelter to travelers and support services to nearby miners. In 1906, the Alaska Road Commission began construction of a wagon road to replace the primitive pack trail from Circle to Birch Creek mining operations. By 1908, construction had reached Central. The original roadhouse burned to the ground and was rebuilt in the mid-1920s. A post office was established in 1925. In 1927, the road link to Fairbanks was completed. The road was named the Steese Highway in honor of General James Steese, former president of the Road Commission. Mining continued until the beginning of World War II. After the war, a few miners returned to Central, but mining declined through the 1950s and 60s. Activity increased again in the mid-1970s with the rise in gold prices. In 1978, the Circle Mining District was the most active in Alaska, with 65 gold mining operations employing over 200 people.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.46** /kw-hr

Current efficiency	**10.60**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Diesel OM	**$8,641**
Consumption in 200	**44,966**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$126,148**
Average Load	**49**	kW	NF COE:	**$0.29**	/kw-hr	Current Fuel Costs	**$200,351**
Estimated peak loa	**98.636**	kW	Total	**$0.78**		**Total Electric**	
Average Sales	**432,028**	kW-hours				**$335,139**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**74,758**	gal	
Fuel Oil:	**58%**	Estimated heating fuel cost/gallon	**$5.46**		
Wood:	**42%**	$/MMBtu delivered to user	**$49.48**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,971**	**$407,852**	

Transportation (Estimated)

Estimated Diesel:	**27,008**	gal	Estimated cost	**$5.46**	**Total Transportation**
					$147,345

Energy Total **$890,337**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **34,047**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.02	/kw-hr
Estimated Diesel OM	**$8,641**	$0.02	
New fuel cost	**$151,702**	$0.35	
Avg Non-Fuel Costs:	**$134,789**	$0.29	
New cost of electricity	**$0.65** per kW-hr		

Savings

$40,272

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**6,745**	gal	**$36,797**
Stack Heat	**0**	gal	**$0**

Capital cost	**$138,091**		
Annual ID	**$11,567**		
Annual OM	**$2,762**		
Total Annual costs	**$14,329**		
Heat cost	**$19.23**	$/MMBtu	

Savings

$22,468

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		
kW-hr/year	**451617**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**4**		
Avg wind speed	**7.00**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.77
Annual OM	**$21,188**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,520**	$0.31	**$90.52**
Non-Fuel Costs		$0.31	
Alternative COE:		**$0.62**	
% Community energy		105%	
New Community COE		**$0.63**	
(includes non-fuel and diesel costs)			

Savings

$195,619

Alternative Energy Resources

Wood

Installed KW	**59**	
kW-hr/year	**436367**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**551**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,879,243**	per kW-hr	
Annual Capital	**$126,315**	$0.29	
Annual OM	**$122,826**	$0.28	
Fuel cost:	**$82,716**	$0.19	-90
Total Annual Cost	**$331,857**	$0.76	**$29.76**
Non-Fuel Costs		$0.31	
Alternative COE:		**$1.07**	
% Community energy		101%	
New Community COE		**$1.08**	
(includes non-fuel and diesel costs)			

Savings

$3,283

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	28.4%

Other Resources

Central

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

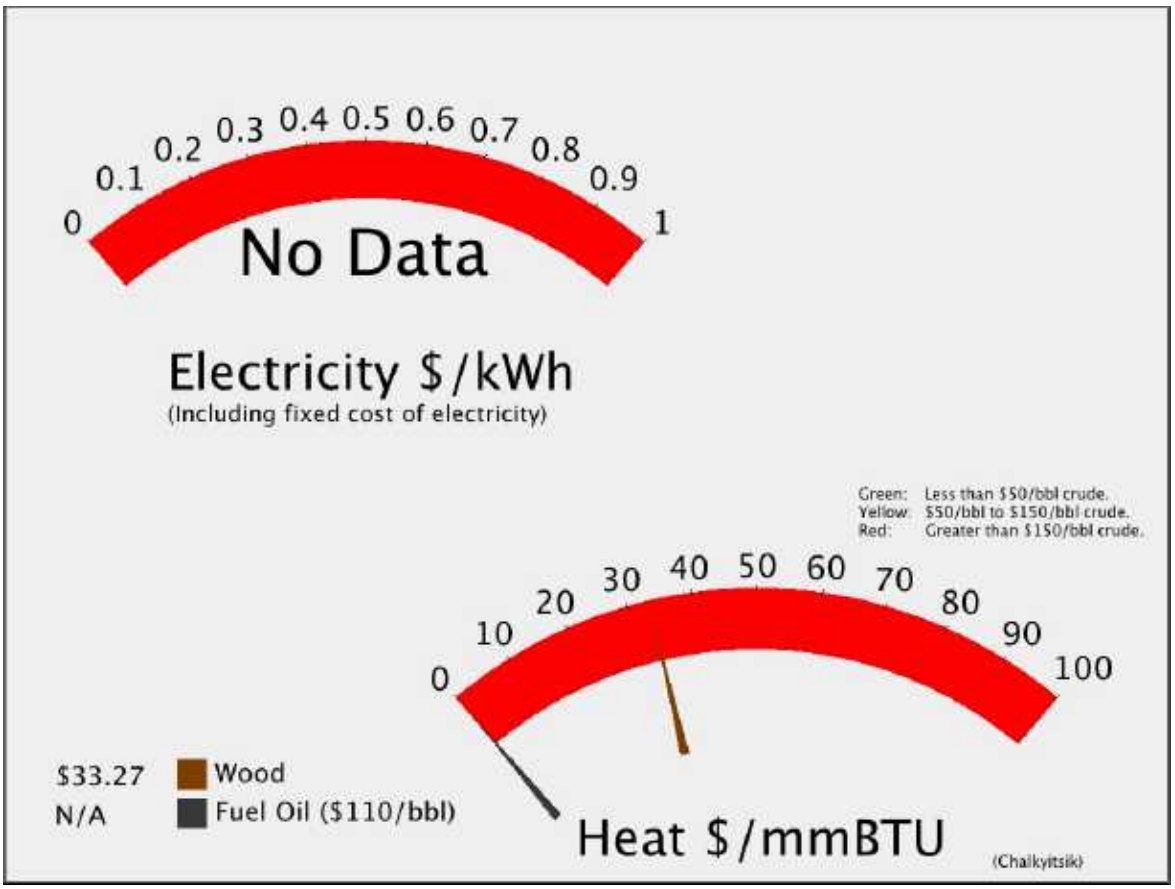
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Chalkyitsik

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	72
Transportation	Per capita		
Electricity:	Per capita		



Chalkyitsik

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 72 LATITUDE: 66d 39m N LONGITUDE: 143d 43m **Unorganized**

LOCATION Chalkyitsik is located on the Black River about 50 miles east of Fort Yukon.

ECONOMY Wage opportunities are limited and primarily part-time with the school district, village council, clinic, or state and federal agencies. Seasonal work is found fire firefighting for the BLM, making sleds and snowshoes, trapping and handicrafts. Subsistence plays an important role in the village economy. Moose, caribou, sheep, salmon and whitefish provide a relatively stable source of food.

HISTORY Chalkyitsik means fish hooking place and has traditionally been an important seasonal fishing site for the Gwich'in. Archaeological excavations in the area reveal use and occupancy of the region as early as 10,000 B.C. Village elders remember a highly nomadic way of life, living at the headwaters of the Black River from autumn to spring, and then floating downriver to fish in summer. Early explorers of the region refer briefly to the Black River Gwich'in Natives. Archdeacon MacDonald encountered them on the Black and Porcupine Rivers, as well as trading and socializing in Fort Yukon and Rampart, on a number of occasions from 1863 to 1868. Around the turn of the century, the Black River band began to settle in Salmon Village, about 70 miles upriver from the present site. The first permanent structure was built there by William Salmon, a Canadian Indian who married a Black River woman. In the late 1930s, a boat bound for Salmon Village with construction materials for a school had to unload at Chalkyitsik because of low water. The site was used as a seasonal fishing camp, and four cabins existed at that time. The decision was made to build the school there, and the Black River people began to settle around the school. By 1969, there were 26 houses, a store, two churches and a community hall in Chalkyitsik.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Chalkyitsik

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

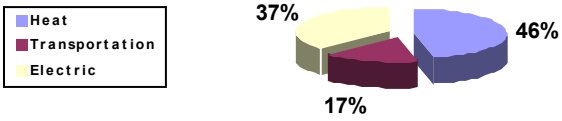
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Chalkyitsik District Heat_Village Council has been submitted by: Chalkyitsik Village Council for a Biomass project. The total project budget is: $1,540,023 with $88,500 requested in grant funding and $20,000 as matching funds.

Chefornak

Energy Used



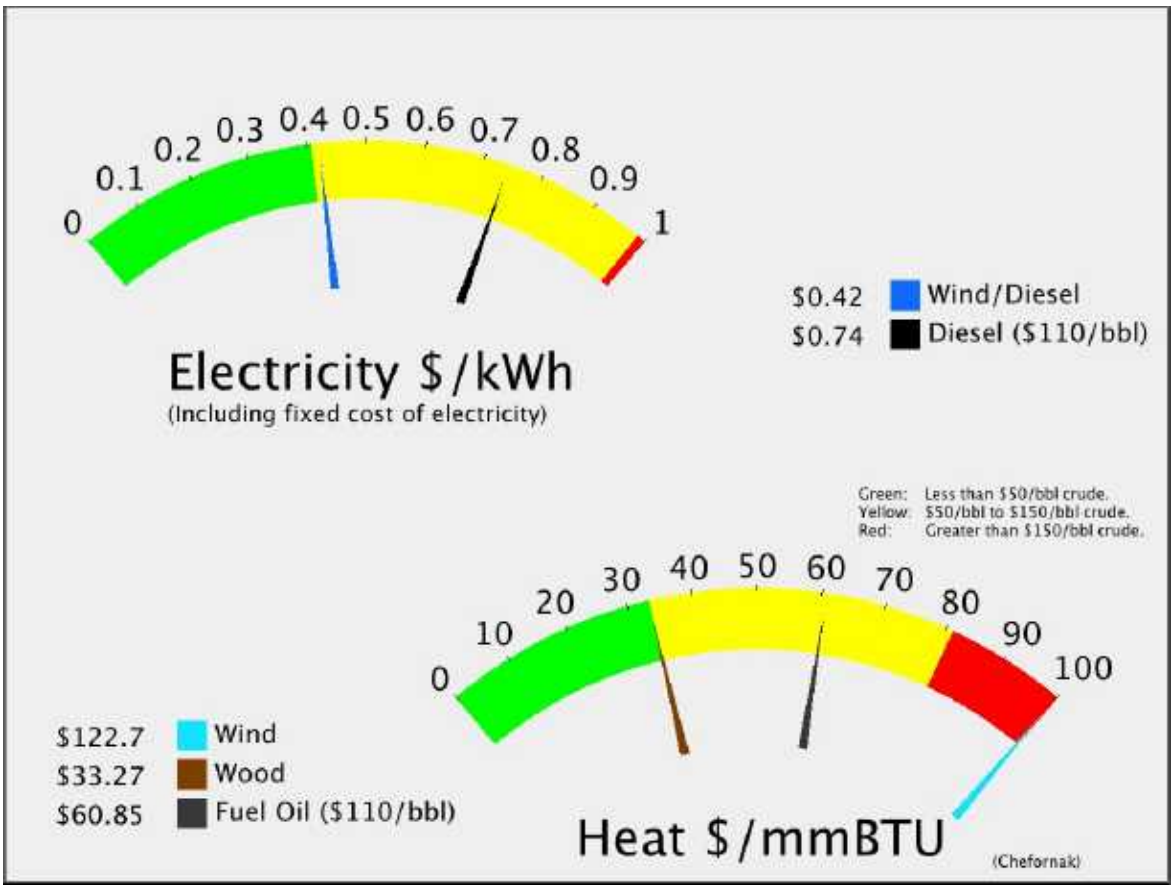
Total: **$3,101** Per capita

Heat **$1,440** Per capita

Transportation **$515** Per capita

Electricity: **$1,145** Per capita

POPULATION: 450



Chefornak

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 450 LATITUDE: 60d 13m N LONGITUDE: 164d 12m **Unorganized**

LOCATION Chefornak is located on the south bank of the Kinia River, at its junction with the Keguk River, in the Yukon-Kuskokwim Delta. The village lies within the Clarence Rhode National Wildlife Refuge, established for migratory waterfowl protection. Chefornak is 98 air miles southwest of Bethel and 490 miles southwest of Anchorage.

ECONOMY Other than government positions, most employment in Chefornak is seasonal, supplemented by subsistence activities. Twenty-seven residents hold commercial fishing permits for herring roe and salmon fisheries. Coastal Villages Seafood, Inc., processes halibut and salmon in Chefornak. Trapping is also a source of income.

HISTORY The area has historically been occupied by Yup'ik Eskimos. In the early 1950s, Alexie Amagiqchik founded a small general store at the site. He had moved from a village on the Bering Sea to the new location one mile inland to escape potential floodwaters. Others from the original village followed and settled in Chefornak. The City was incorporated in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.72** /kw-hr

Current efficiency	**12.29**	kW-hr/gal	Fuel COE	**$0.61**	/kw-hr	Estimated Diesel OM	**$13,649**
Consumption in 200	**72,774**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$75,692**
Average Load	**78**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$416,558**
Estimated peak loa	**155.81**	kW	Total	**$0.74**		**Total Electric**	
Average Sales	**682,445**	kW-hours				**$505,899**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**96,399**	gal	
Fuel Oil:	**96%**	Estimated heating fuel cost/gallon	**$6.72**		
Wood:	**4%**	$/MMBtu delivered to user	**$60.99**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,568**	**$648,186**	

Transportation (Estimated)

Estimated Diesel:	**34,485**	gal	Estimated cost	**$6.72**	**Total Transportation**
					$231,875

Energy Total **$1,385,960**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$13,649**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$365,826**	$0.54		**Savings**
New Fuel use	**63,911**		Avg Non-Fuel Costs:	**$89,341**	$0.11		**$50,732**
			New cost of electricity		**$0.54** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**10,916**	gal	**$73,400**
Stack Heat	**0**	gal	**$0**

Capital cost	**$218,133**		
Annual ID	**$18,272**		
Annual OM	**$4,363**		
Total Annual costs	**$22,635**		**Savings**
Heat cost	**$18.77**	$/MMBtu	**$50,765**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **679248**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.42**	
% Community energy		100%	
New Community COE		**$0.40**	

(includes non-fuel and diesel costs)

Savings

$232,441

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.0%

Other Resources

Chefornak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

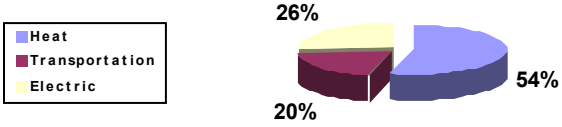
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Chenega Bay

Energy Used



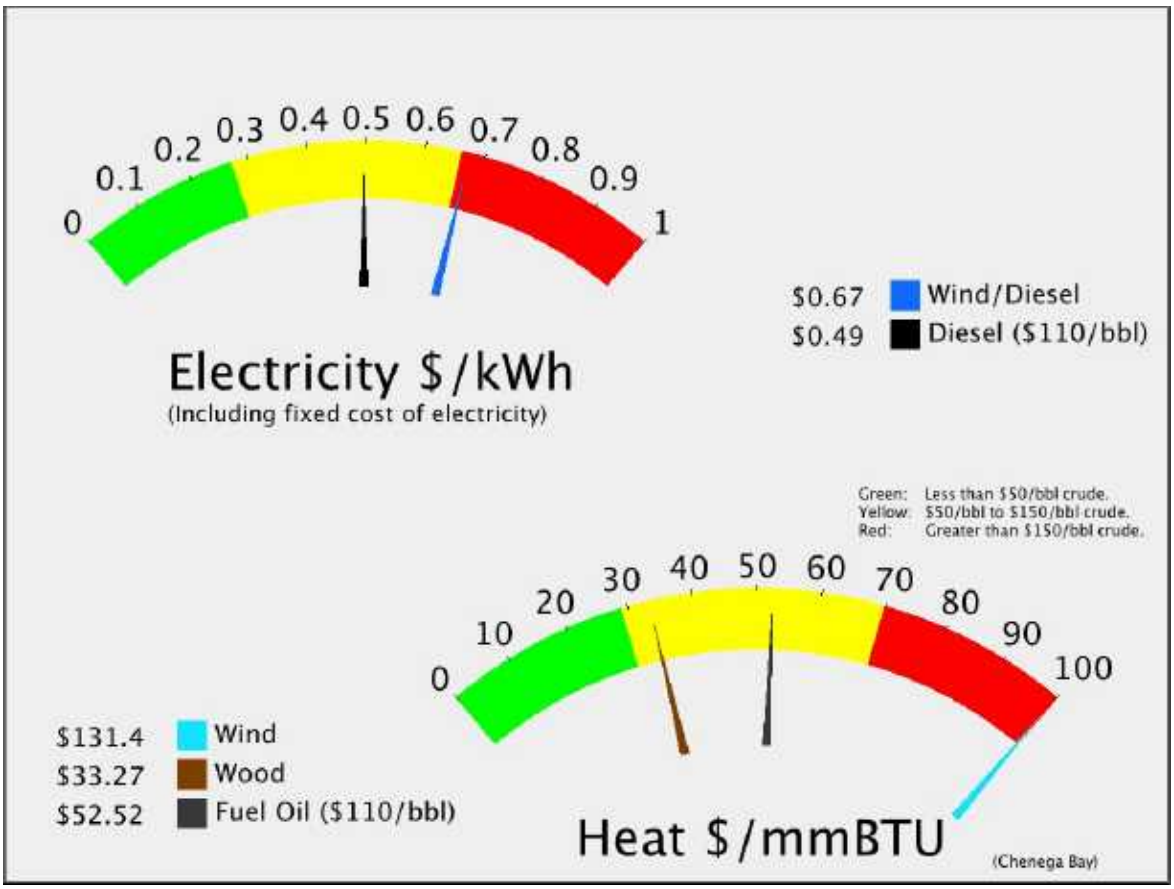
Total: **$5,265** Per capita

Heat **$2,842** Per capita

Transportation **$1,033** Per capita

Electricity: **$1,390** Per capita

POPULATION: 79



Chenega Bay

Regional Corporation
Chugach Alaska Corporation

House 5
Senate : **C**

POPULATION 79 LATITUDE: 60d 06m N LONGITUDE: 147d 57m **Unorganized**

LOCATION Chenega Bay is located on Evans Island at Crab Bay, 42 miles southeast of Whittier in Prince William Sound. It is 104 air miles southeast of Anchorage and 50 miles east of Seward.

ECONOMY Commercial fishing, a small oyster farming operation, and subsistence activities occur in Chenega. Three residents hold commercial fishing permits. Cash employment opportunities are very limited. In recent years, Chenega's population has declined.

HISTORY The name of this Alutiiq village was first reported by Ivan Petroff in the 1880 census. At that time, the village was located on the southern tip of Chenega Island. A post office was established in 1946. The village was destroyed and over half of all residents perished by tsunamis in the Sound after the 1964 earthquake. The village was reestablished twenty years later on Evans Island, at the site of the former Crab Bay herring saltery. In the summer of 1984, 21 homes, an office building, community hall, school, 2 teacher's houses, a church and community store were constructed.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.80** /kw-hr

Current efficiency	**10.76**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$4,721**
Consumption in 200	**19,641**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$17,930**
Average Load	**27**	kW	NF COE:	**$0.08**	/kw-hr	Current Fuel Costs	**$94,359**
Estimated peak loa	**53.892**	kW	Total	**$0.50**		**Total Electric**	
Average Sales	**236,047**	kW-hours				**$117,010**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**38,682**	gal	
Fuel Oil:	**91%**	Estimated heating fuel cost/gallon	**$5.80**		
Wood:	**9%**	$/MMBtu delivered to user	**$52.64**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**4,642**	**$224,518**	

Transportation (Estimated)

Estimated Diesel:	**14,063**	gal	Estimated cost	**$5.80**	**Total Transportation** **$81,623**

Energy Total **$423,151**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$4,721**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$72,532**	$0.31		**Savings**
New Fuel use	**15,098**		Avg Non-Fuel Costs:	**$22,651**	$0.08		**$21,827**
			New cost of electricity		**$0.44** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**2,946**	gal	**$17,100**
Stack Heat	**0**	gal	**$0**

Capital cost	**$75,449**		
Annual ID	**$6,320**		
Annual OM	**$1,509**		
Total Annual costs	**$7,829**		**Savings**
Heat cost	**$24.05**	$/MMBtu	**$9,271**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **387062**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$89.58
Annual OM	**$18,160**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,492**	$0.35	**$103.32**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.45**	
% Community energy		164%	
New Community COE (includes non-fuel and diesel costs)		**$0.67**	

Savings

($19,482)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	54.9%

Other Resources

Chenega Bay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

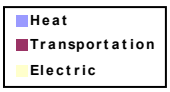
For detailed information, consult the AEA web site. akenergyauthority.org

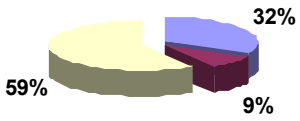
A project titled: Wind Recon_NPRHA has been submitted by: North Pacific Rim Housing Authority for a Wind Diesel Hybrid project. The total project budget is: $313,000 with $30,500 requested in grant funding and $15,000 as matching funds.

A project titled: Alternative Energy Feasibilty_CSD has been submitted by: Chugach School District for an Other project. The total project budget is: $1,380,439 with $1,380,439 requested in grant funding and no matching funds.

Chevak

Energy Used

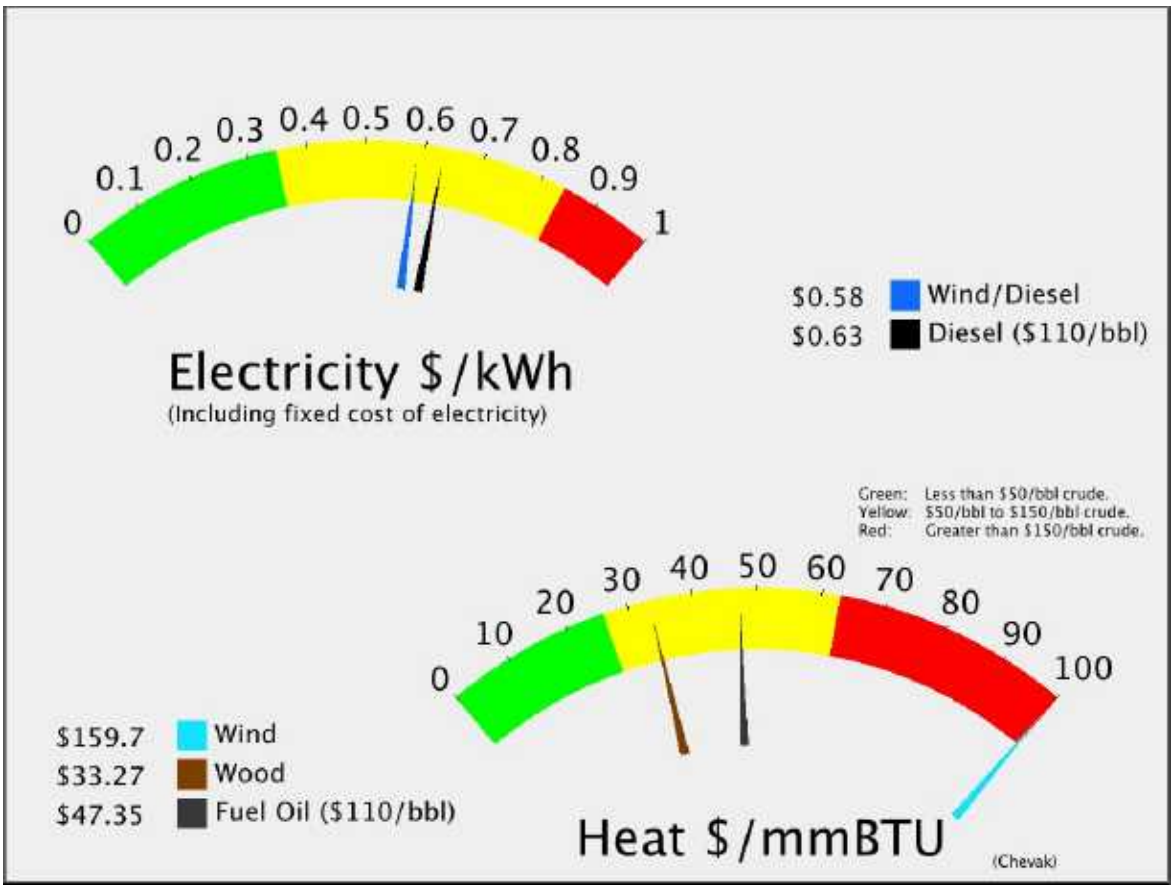




Total: **$2,656** Per capita

Heat	**$853**	Per capita
Transportation	**$234**	Per capita
Electricity:	**$1,569**	Per capita

POPULATION: 942



Chevak

Regional Corporation
Calista Corporation
House 39
Senate : **T**

POPULATION 942 LATITUDE: 61d 31m N LONGITUDE: 165d 35m **Unorganized**

LOCATION Chevak is located on the north bank of the Niglikfak River, 17 miles east of Hooper Bay in the Yukon-Kuskokwim Delta.

ECONOMY Employment in Chevak is at its peak in the summer months and declines to a few full-time positions during winter. Construction projects and BLM fire fighting provide summer employment. Eighteen residents hold commercial fishing permits. Incomes are supplemented by subsistence activities and handicrafts. Salmon, seal, walrus, clams and waterfowl are harvested.

HISTORY Eskimos have inhabited the region for thousands of years. Chevak is also known as New Chevak because residents inhabited another village called Chevak before 1950. "Old" Chevak, on the north bank of the Keoklevik River, 9 miles east of Hooper Bay, was abandoned because of flooding from high storm tides. The name Chevak refers to "a connecting slough," on which "Old" Chevak was situated. The new site was first reported by the U.S. Coast and Geodetic Survey in 1948. A post office was established in 1951. The City government was incorporated in 1967.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.23** /kw-hr

Current efficiency	**12.86**	kW-hr/gal	Fuel COE	**$0.35**	/kw-hr	Estimated Diesel OM	**$44,306**
Consumption in 200	**184,114**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$575,974**
Average Load	**253**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$779,207**
Estimated peak loa	**505.77**	kW	Total	**$0.63**		**Total Electric**	
Average Sales	**2,215,284**	kW-hours				**$1,399,487**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**153,640**	gal	
Fuel Oil:	**96%**	Estimated heating fuel cost/gallon	**$5.23**		
Wood:	**0%**	$/MMBtu delivered to user	**$47.46**		**Total Heating Oil**
Electricity:	**2.4%**	Community heat needs in MMBtu	**18,437**		**$803,876**

Transportation (Estimated)

Estimated Diesel:	**42,100**	gal	Estimated cost	**$5.23**	**Total Transportation**
					$220,276

Energy Total **$2,423,639**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Construction**

Acheivable efficiency **14.8** kW-

New Fuel use **160,496**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.00	/kw-hr
Estimated Diesel OM	**$44,306**	$0.02	
New fuel cost	**$679,250**	$0.31	
Avg Non-Fuel Costs:	**$620,280**	$0.26	
New cost of electricity		**$0.57**	per kW-hr

Savings

$91,581

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**27,617**	gal	**$144,498**
Stack Heat	**0**	gal	**$0**

Capital cost	**$708,082**		
Annual ID	**$59,314**		
Annual OM	**$14,162**		
Total Annual costs	**$73,475**		
Heat cost	**$24.08**	$/MMBtu	

Savings

$71,023

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **1132041**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.22	$63.92
Annual OM	**$53,111**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$300,084**	$0.27	**$77.67**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.55**	
% Community energy		51%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings

$120,722

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	13.8%

Other Resources

Chevak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

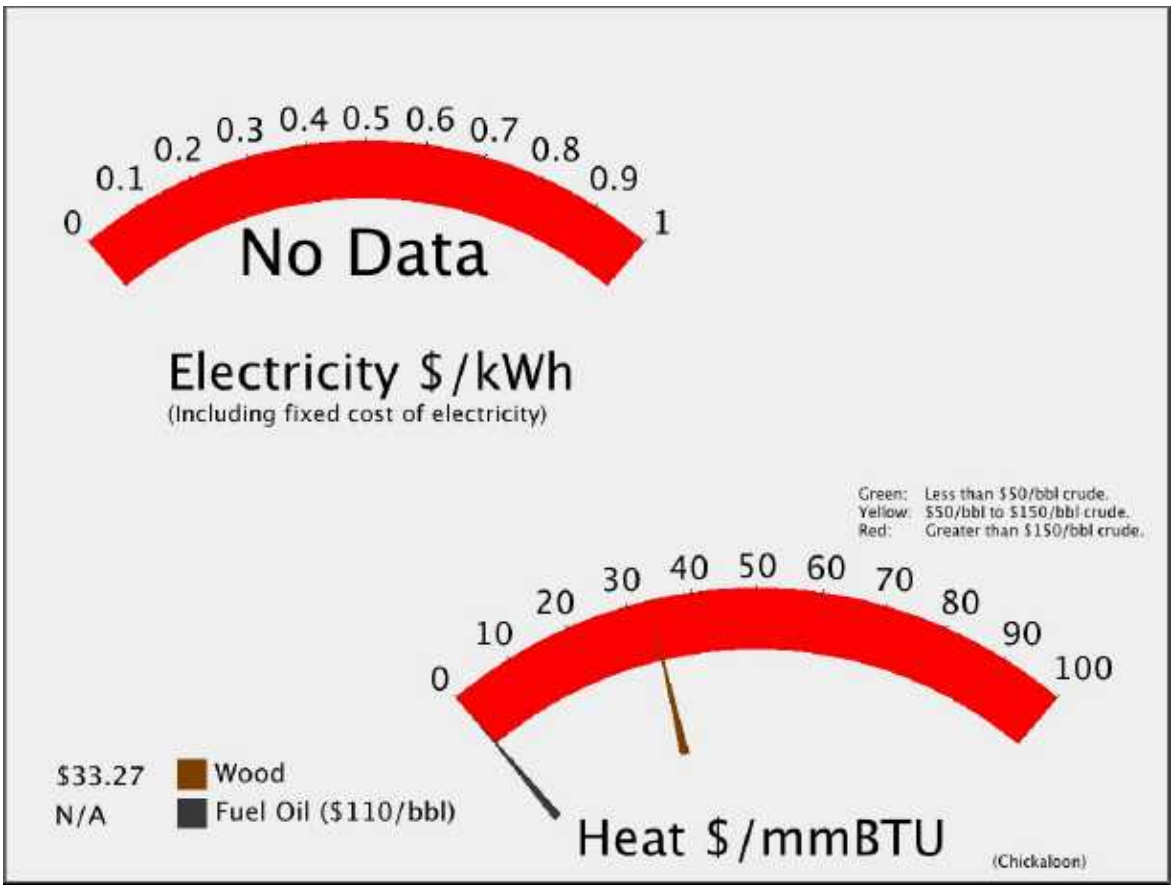
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Chickaloon

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	277
Transportation	Per capita		
Electricity:	Per capita		



Chickaloon

Regional Corporation
Cook Inlet Region, Inc.
House 12
Senate : **F**

POPULATION 277 LATITUDE: 61d 47m N LONGITUDE: 148d 28m **Matanuska-Susitna Bor**

LOCATION The unincorporated community of Chickaloon is located within the Matanuska-Susitna Borough, northeast of the community of Sutton. Its western boundary is in the vicinity of the Kings River (Mile 66.4 on the Glenn Highway) and its eastern boundary is in the vicinity of Purinton Creek. The Talkeetna Mountains lie to the northwest, and the Chugach Mountains and Matanuska River lie to the southeast. The Chickaloon River and the Kings River are the two major tributaries to the Matanuska River. There are several lakes within the area: Fish Lake, Drill Lake, Bonnie Lake, Harrison Lake, and Long Lake.

ECONOMY The King Mountain Lodge, Chickaloon General Store, Chickaloon Post Office, King Mountain Trading Post, and the Castle Mountain Bed and Breakfast serve local residents and travelers. Castle Mountain Outfitters, Nova Riverrunners, and several guides cater to a variety of recreational activities. Chickaloon Woodworks, Charlie-D Construction, and Kindseth Construction are a few of the local contractors. Many residents are employed within the community while some commute to Palmer, Wasilla, or Anchorage for work and others work on the North Slope.

HISTORY Traditionally, Chickaloon territory was a center of trade for copper, sheep, and goats from the north, and salmon, beluga, and fur seals from the south. The Ahtna, and formerly the Dena'ina, Athabascan Indians of Chickaloon traveled extensively within the Copper River and Cook Inlet areas. The Chickaloon River was named after Chief Chiklu, the last Denai'ina chief in this area. What is now the community of Chickaloon was once a primary fishing camp of Chickaloon Village. Nay'dini'aa Na' is the Ahtna name for the original settlement of Chickaloon Village on the north bank above the mouth of the Chickaloon River. An 1898 army exploration party located a vein of high quality coal near the Chickaloon River. The deposits were hard to reach and there was little interest in them until a railroad was built to Interior Alaska. During the winter of 1913-1914, an Alaskan freighter named Jack Dalton used the frozen Matanuska River to haul the first test coal from the Chickaloon coal deposits. When construction of the Alaska Railroad was approved in 1914, the plan included a spur line to the Chickaloon coal field. From 1915 to 1922, the U.S. Navy sponsored a coal mining boom in Chickaloon drainage, which had a negative impact on Chickaloon Village, especially with respect to their once valued fishing camp. At the same time, it provided an opportunity for jobs and the development of Chickaloon. Coal mining also took place in the area around Sutton, at the Wishbone Hill Naval Coal Reserve, Coal Creek and Carbon Creek. Like so many other Alaska mining towns, Chickaloon grew quickly and almost as quickly declined. By 1925, the Navy halted coal development in Chickaloon and the land reverted to public domain and was opened to homesteaders by 1958. Today, local businesses provide employment for community residents and serve the needs of residents and visitors alike. Many Chickaloon Village Tribal members remain in Chickaloon and others live in Sutton and surrounding communities.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Chickaloon

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Chicken

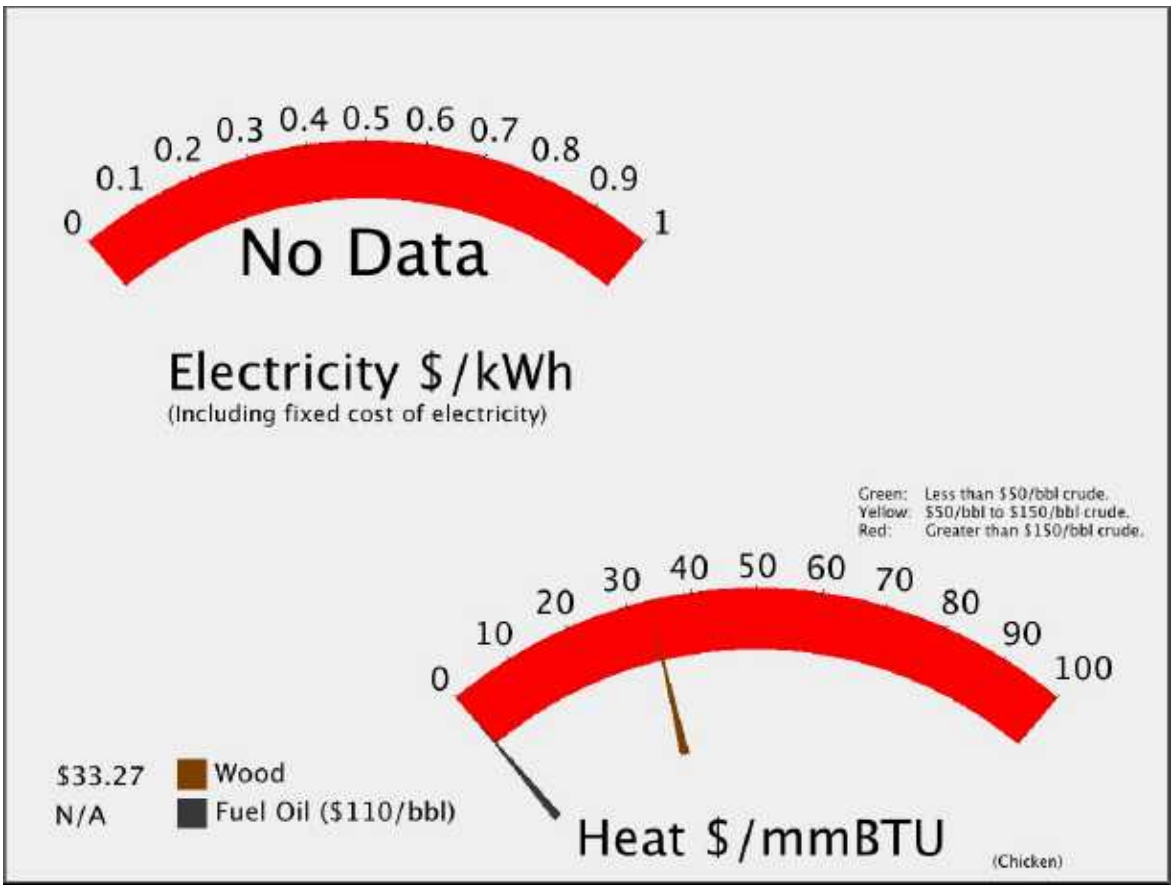
Energy Used

Total: Per capita

Heat Per capita POPULATION: 19

Transportation Per capita

Electricity: Per capita



Chicken

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 19 LATITUDE: 64d 04m N LONGITUDE: 141d 56m **Unorganized**

LOCATION Chicken is located at mile 66 of the Taylor Highway, approximately 100 road miles southwest of Eagle. It lies on the right bank of Chicken Creek, one mile north of Mosquito Fork, in the Fortymile River Basin.

ECONOMY The community depends upon summer visitors for their livelihood, from May to September. The Chicken Creek Saloon, the Original Chicken Gold Camp cafe, Chicken Outpost and Chicken Center serve local residents and visitors. Tours are available through historic Chicken by The Goldpanner. The Original Chicken Gold Camp also provides access to the historic Pedro Dredge. Other than tourism, the economy is still based on gold panning and in the winter, fur trapping.

HISTORY The area has been the historical home to Han Kutchin Indians. Mining began in the area with the discovery of gold on Franklin Gulch, in 1886. In 1896, Bob Mathieson found a major prospect on Upper Chicken Creek, staked his claim and built a cabin. Chicken (a common name for Ptarmigan) grew as a hub of activity for the southern portion of the Fortymile Mining District. 700 miners were thought to be working the area between 1896 and 1898. And although many miners left during the Klondike Gold Rush of 1898, Chicken remained a viable community. A post office was established in 1903 -- the population was around 400. In 1906, Harvey Van Hook built the two-story Chicken Creek Hotel. In 1925, Ann "Tisha" Purdy taught school in the building. From 1946-1953, Molly and Bob McComb used the building as a roadhouse, store and bunkhouse. In 1953, F.E. Company bought the grounds and turned it into a mess hall and bunkhouse for their employees. Approximately a dozen buildings in the historical downtown Chicken are listed on the National Register of Historical Places. The Pedro Dredge, also a National Historic site, originally mined in the Fairbanks area before its move to Chicken in 1959. The dredge is one of the few dredges in the State open to the public.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **207731**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.33	$95.66
Annual OM	**$9,746**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,569**	$0.37	**$109.41**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Chicken

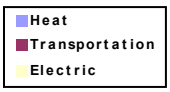
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

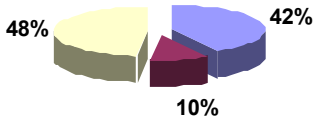
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Chignik

Energy Used





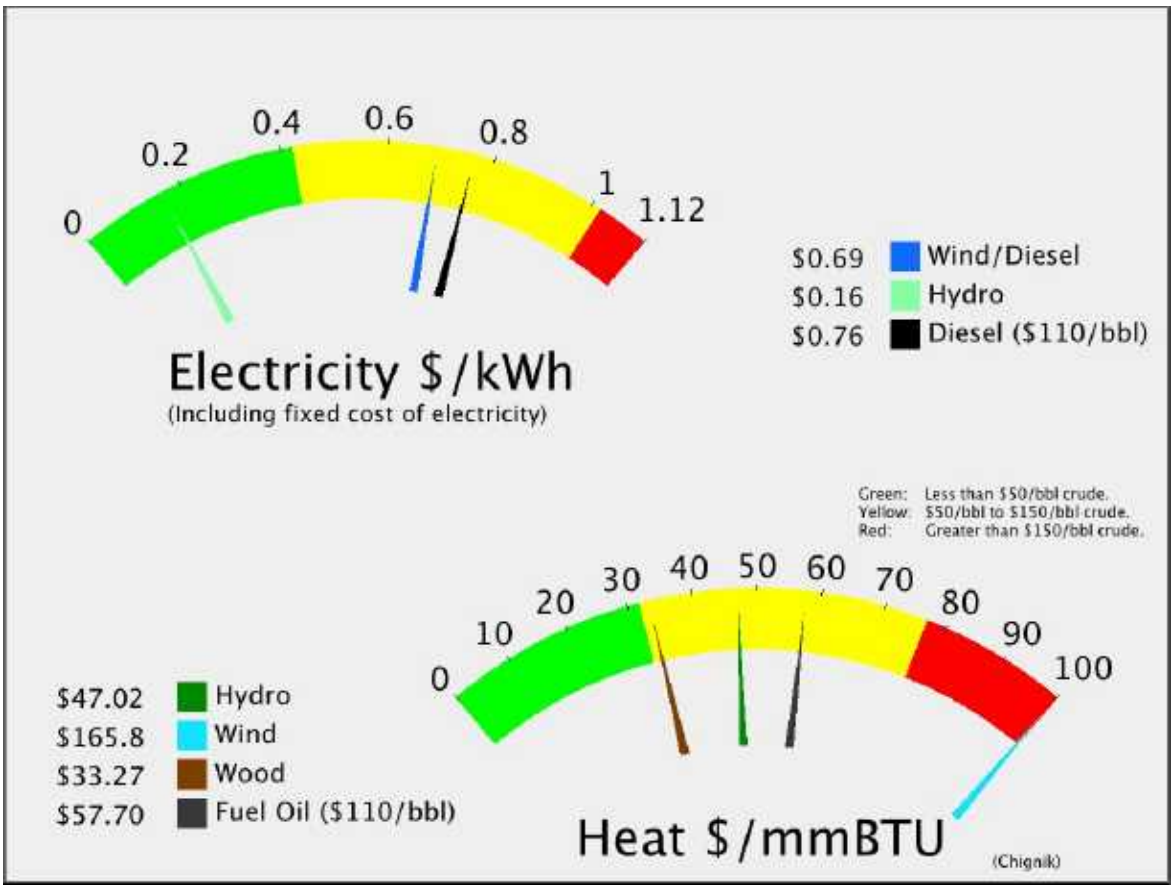
Total: **$9,488** Per capita

Heat **$3,963** Per capita

Transportation **$968** Per capita

Electricity: **$4,557** Per capita

POPULATION: 81



Chignik

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 81 LATITUDE: 56d 18m N LONGITUDE: 158d 24m **Lake & Peninsula Borou**

LOCATION The City of Chignik is located on Anchorage Bay on south shore of the Alaska Peninsula. It lies 450 miles southwest of Anchorage and 260 miles southwest of Kodiak.

ECONOMY As is typical of villages in the region, commercial fishing and subsistence activities are the mainstays of the economy. Sixteen residents hold commercial fishing permits. Two fish processing plants operate in Chignik: Norquest Adak and Trident Seafoods. Salmon, herring roe, halibut, cod and crab are processed here; between 600 to 800 people come to Chignik to fish or work in the plants each summer. Residents depend on subsistence foods, including salmon, trout, crab, clams, caribou and moose.

HISTORY A village called "Kalwak" was originally located here; it was destroyed during the Russian fur boom in the late 1700s. Chignik, meaning "big wind," was established in the late 1800s as a fishing village and cannery. A four-masted sailing ship called the "Star of Alaska" transported workers and supplies between Chignik and San Francisco. Chinese crews from San Francisco traveled to Chignik in early spring to make tin cans for the cannery. Japanese workers followed in mid-June to begin processing. A post office was established in 1901. Coal mining occurred from 1899 to 1915. Chignik became an incorporated City in 1983. Today, two of the historical canneries are still in operation.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.38** /kw-hr

Current efficiency	**9.26**	kW-hr/gal	Fuel COE	**$0.60**	/kw-hr	Estimated Diesel OM	**$10,513**
Consumption in 200	**59,067**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$73,841**
Average Load	**60**	kW	NF COE:	**$0.14**	/kw-hr	Current Fuel Costs	**$317,550**
Estimated peak loa	**120.02**	kW	Total	**$0.76**		**Total Electric**	
Average Sales	**525,673**	kW-hours				**$401,905**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**50,341**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$6.38**		
Wood:	**6%**	$/MMBtu delivered to user	**$57.83**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,041**		**$320,977**

Transportation (Estimated)

Estimated Diesel:	**12,302**	gal	Estimated cost	**$6.38**	**Total Transportation** **$78,438**

Energy Total **$801,319**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Construction**

Acheivable efficiency **14** kW-

New Fuel use **39,075**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.48	/kw-hr
Estimated Diesel OM	**$10,513**	$0.02	
New fuel cost	**$210,070**	$0.40	
Avg Non-Fuel Costs:	**$84,355**	$0.14	
New cost of electricity	**$1.02** per kW-hr		

Savings **($143,820)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**8,860**	gal	**$56,493**
Stack Heat	**0**	gal	**$0**

Capital cost	**$168,023**		
Annual ID	**$14,075**		
Annual OM	**$3,360**		
Total Annual costs	**$17,435**		
Heat cost	**$17.81**	$/MMBtu	

Savings **$39,057**

Alternative Energy Resources

Hydro

Installed KW **60**

kW-hr/year **2012252**

Site **Indian Creek (Upgrade)**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **1.00**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost			
Annual Capital	**$0**	$0.00	$0.00
Annual OM			
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$0**	$0.00	**$0.00**

Non-Fuel Costs	$0.16
Alternative COE:	**$0.16**
% Community energy	383%
New Community COE	**$0.16**

(includes non-fuel and diesel costs)

Savings

$401,905

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**

kW-hr/year **189040**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **4.84** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.36	$105.12
Annual OM	**$8,869**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$76,692**	$0.41	**$118.87**

Non-Fuel Costs	$0.16
Alternative COE:	**$0.57**
% Community energy	36%
New Community COE	**$0.69**

(includes non-fuel and diesel costs)

Savings

$41,277

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	42.2%

Other Resources

Chignik

Tidal:

Wave:

Coal Bed Methane: SOME POTENTIAL

Natural Gas:

Coal: CONFIRMED RESOURCE

Propane:

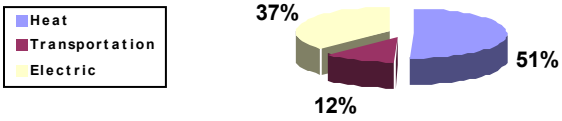
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Indian Creek Hydro Feasibility Study has been submitted by: City Of Chignik for a Hydro project. The total project budget is: $207,500 with $207,500 requested in grant funding and no matching funds.

Chignik Lagoon

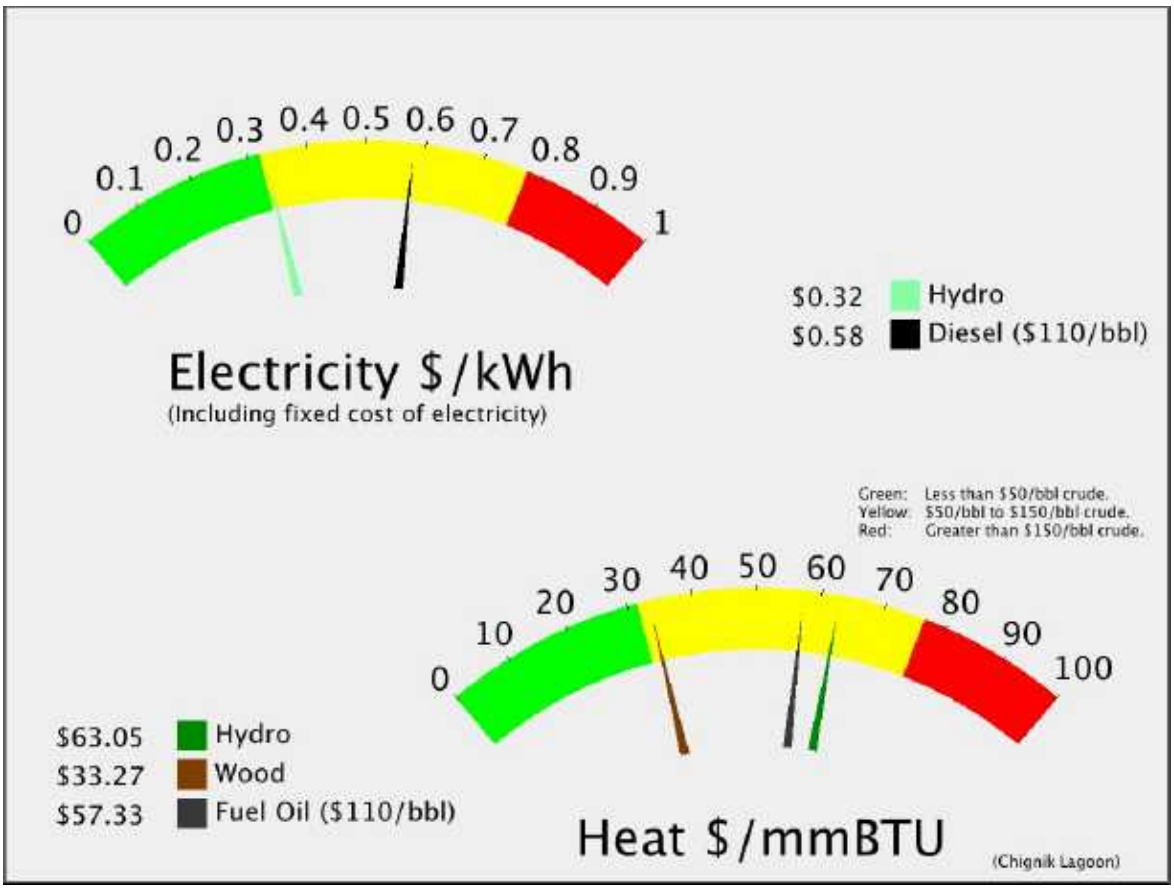
Energy Used



Total: **$9,199** Per capita

Heat	**$4,654**	Per capita
Transportation	**$1,137**	Per capita
Electricity:	**$3,408**	Per capita

POPULATION: 68



Chignik Lagoon

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 68 LATITUDE: 56d 20m N LONGITUDE: 158d 29m **Lake & Peninsula Borou**

LOCATION Chignik Lagoon is located on the south shore of the Alaska Peninsula, 450 miles southwest of Anchorage. It lies 180 air miles south of King Salmon, 8.5 miles west of Chignik and 16 miles east of Chignik Lake.

ECONOMY Fishing is the mainstay of the economy in Chignik Lagoon, and the area serves as a regional fishing center. The economy is dependent on the success of the salmon fleet. 29 residents hold commercial fishing permits. Two on-shore processors operate out of nearby Chignik. The primary year-round employers are the village council, electric plant and school. Subsistence activities significantly contribute to food sources. Salmon, other fish, crab, clams, caribou, moose, ducks and berries are utilized.

HISTORY Chignik Lagoon took its name from its location and proximity to Chignik, meaning "big wind." The people of this area have always been sea-dependent, living on otter, sea lion, porpoise, and whale. During the Russian fur boom from 1767 to 1783, the sea otter population was decimated. This, in addition to disease and warfare, reduced the Native population to less than half its former size. It has developed as a fishing village.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.34** /kw-hr

Current efficiency	**11.50**	kW-hr/gal	Fuel COE	**$0.44**	/kw-hr	Estimated Diesel OM	**$10,070**
Consumption in 200	**41,241**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$62,262**
Average Load	**57**	kW	NF COE:	**$0.12**	/kw-hr	Current Fuel Costs	**$220,037**
Estimated peak loa	**114.95**	kW	Total	**$0.58**		**Total Electric**	
Average Sales	**503,490**	kW-hours				**$292,369**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**49,958**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$6.34**		
Wood:	**0%**	$/MMBtu delivered to user	**$57.46**	**Total Heating Oil**	
Electricity:	**5.7%**	Community heat needs in MMBtu	**5,995**	**$316,505**	

Transportation (Estimated)

Estimated Diesel:	**12,208**	gal	Estimated cost	**$6.34**	**Total Transportation**
					$77,345

Energy Total **$686,220**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **33,874**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.10	/kw-hr
Estimated Diesel OM	**$10,070**	$0.02	
New fuel cost	**$180,729**	$0.36	
Avg Non-Fuel Costs:	**$72,332**	$0.12	
New cost of electricity		**$0.62**	per kW-hr

Savings

($10,952)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**6,186**	gal	**$39,192**
Stack Heat	**0**	gal	**$0**

Capital cost	**$160,933**		
Annual ID	**$13,481**		
Annual OM	**$3,219**		
Total Annual costs	**$16,699**		
Heat cost	**$24.43**	$/MMBtu	

Savings

$22,492

Alternative Energy Resources

Hydro

Installed KW **190**

kW-hr/year **697654**

Site **Packers Creek**

Study plan effort **feasibility**

Plant Factor %

Penetration **0.54**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,802,000**		
Annual Capital	**$72,951**	$0.10	$30.64
Annual OM	**$20,000**	$0.03	$8.40
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$92,951**	$0.13	**$39.04**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.28**	
% Community energy		139%	
New Community COE		**$0.33**	

(includes non-fuel and diesel costs)

Savings

$199,419

Alternative Energy Resources

Hydro

Installed KW **130**

kW-hr/year **216148**

Site **Crazy Creek**

Study plan effort **reconnaissance**

Plant Factor **67** %

Penetration **0.42**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,157,750**		
Annual Capital	**$99,603**	$0.46	$135.02
Annual OM	**$45,000**	$0.21	$61.00
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$144,603**	$0.67	**$196.02**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.81**	
% Community energy		43%	
New Community COE		**$0.51**	

(includes non-fuel and diesel costs)

Savings

$37,369

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	42.5%

Other Resources

Chignik Lagoon

Tidal:

Wave:

Coal Bed Methane: SOME POTENTIAL

Natural Gas:

Coal: CONFIRMED RESOURCE

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

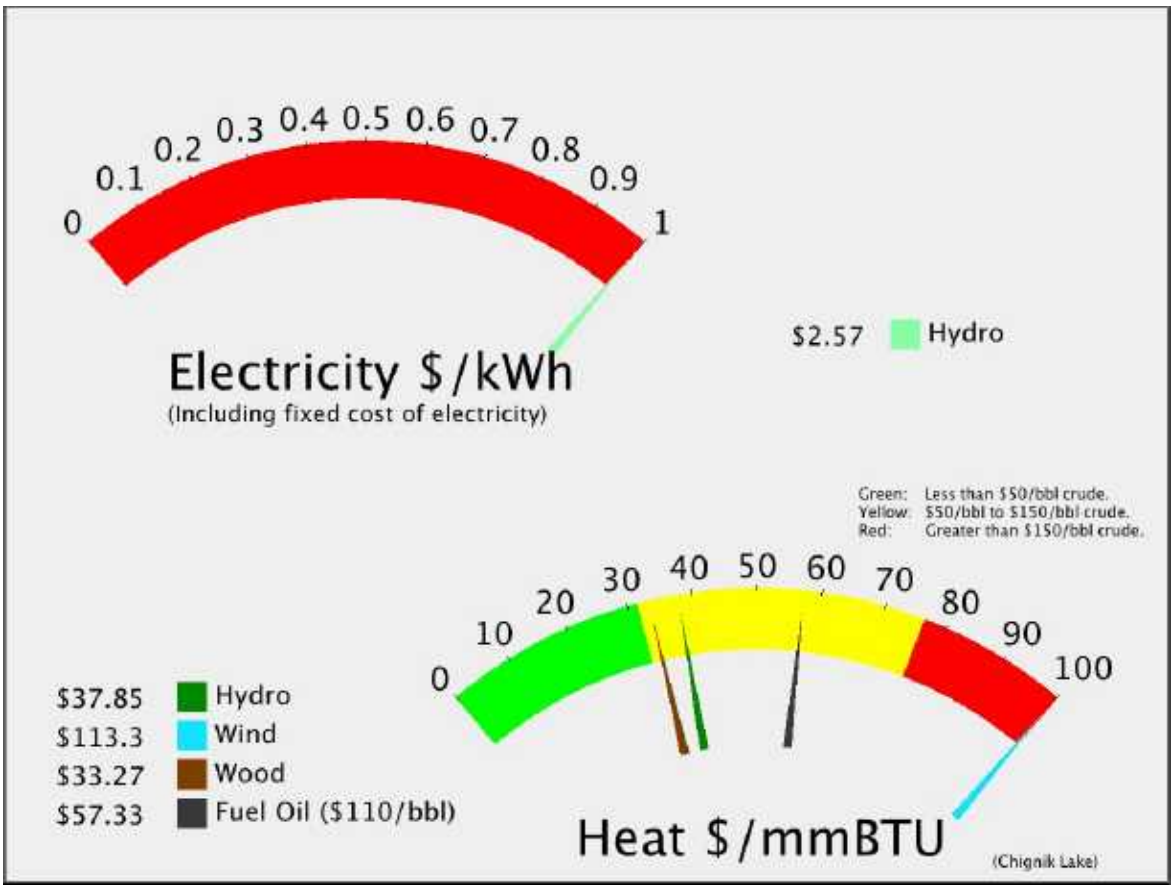
A project titled: Chignik Lagoon Hydroelectric Final Design has been submitted by: Chignik Lagoon Power Utility (CLPU) for a Hydro project. The total project budget is: $1,900,000 with $150,000 requested in grant funding and no matching funds.

A project titled: Packers Creek Hydro_CLPU has been submitted by: Chignik Lagoon Power Company (CLPU) for a Hydro project. The total project budget is: $1,900,000 with $1,750,000 requested in grant funding and no matching funds.

Chignik Lake

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	128
Transportation	Per capita		
Electricity:	Per capita		



Chignik Lake

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 128 LATITUDE: 56d 14m N LONGITUDE: 158d 47m **Lake & Peninsula Borou**

LOCATION Chignik Lake is located on the south side of the Alaska Peninsula next to the body of water of the same name. It lies 13 miles from Chignik, 265 miles southwest of Kodiak and 474 miles southwest of Anchorage.

ECONOMY Fishing is the mainstay of Chignik Lake's economy. Some residents leave the community during summer months to commercial fish, crew or work at the fish processors at Chignik. Eight residents hold commercial fishing permits. The people depend heavily on subsistence hunting and fishing, and utilize salmon, other fish, caribou, moose and seal.

HISTORY The present population traces its roots from the Alutiiq near Illnik and the old village of Kanatag near Becharof Lake. The community was the winter residence of a single family in 1903. Other families moved from surrounding communities in the early 1950s when a school was built.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency		kW-hr/gal	Fuel COE		/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.34**
Consumption in 200		gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$5,140**
Average Load	**29**	kW	NF COE:	**($0.02)**	/kw-hr	Other Non-Fuel Costs:	**($4,332)**
Estimated peak loa	**58.672**	kW	Total			Current Fuel Costs	
Average Sales	**256,983**	kW-hours				**Total Electric**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$6.34**	
Wood:	**0%**	$/MMBtu delivered to user	**$57.46**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$6.34**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$7,500**			
Semiannual Circuit Rider		Annual Capital cost	**$628**	$0.00	/kw-hr	
Status **Completed**		Estimated Diesel OM	**$5,140**	$0.02		**Savings**
Acheivable efficiency	**14** kW-	New fuel cost				
New Fuel use		Avg Non-Fuel Costs:	**$807**	($0.02)		
		New cost of electricity		**$0.39** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**		Capital cost	**$82,141**			
Is it working now? **N**		Annual ID	**$6,881**			
BLDGs connected and working:		Annual OM	**$1,643**			
None		Total Annual costs	**$8,523**			**Savings**
	Value					
Water Jacket	gal	Heat cost	$/MMBtu			
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Hydro

Installed KW **1340**

kW-hr/year **257044**

Site **Cucumber Creek**

Study plan effort **reconnaissance**

Plant Factor **67** %

Penetration **0.81**

			Heat Cost $/MMBtu :
Capital cost	**$14,665,500**	per kW-hr	
Annual Capital	**$615,892**	$2.40	$702.04
Annual OM	**$45,000**	$0.18	$51.29
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$660,892**	$2.57	**$753.34**
Non-Fuel Costs		$0.00	
Alternative COE:		**$2.57**	
% Community energy		100%	**Savings**
New Community COE		**$2.57**	

(includes non-fuel and diesel costs)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**

kW-hr/year **201268**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.34	$98.73
Annual OM	**$9,443**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,266**	$0.38	**$112.48**
Non-Fuel Costs		$0.00	
Alternative COE:		**$0.39**	
% Community energy		78%	**Savings**
New Community COE			

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Chignik Lake

Tidal:	
Wave:	
Coal Bed Methane:	SOME POTENTIAL
Natural Gas:	
Coal:	CONFIRMED RESOURCE
Propane:	

Renewable Fund Project List:

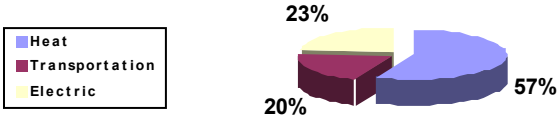
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Chignik Lake Area Wind-Hydro Final Design has been submitted by: Lake and Peninsula Borough for a Hydro project. The total project budget is: $8,150,000 with $375,000 requested in grant funding and $96,000 as matching funds.

A project titled: Chignik Lake CBM_AGE has been submitted by: Alaska Green Energy, LLC (AGE) for a Biofuels The total project budget is: $1,995,000 with $1,995,000 requested in grant funding and no matching funds.

Chistochina

Energy Used



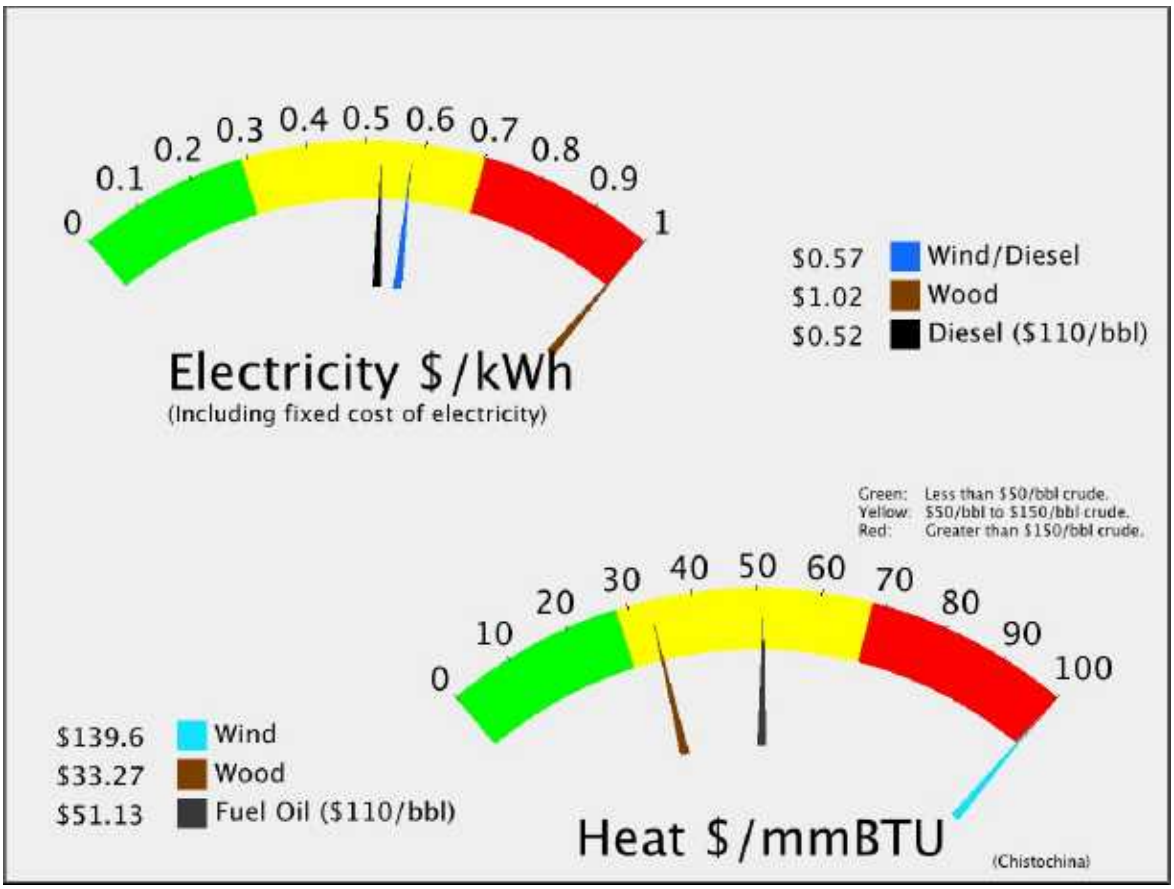
Total: **$7,259** Per capita

Heat **$4,088** Per capita

Transportation **$1,486** Per capita

Electricity: **$1,684** Per capita

POPULATION: 93



Chistochina

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 93 LATITUDE: 62d 34m N LONGITUDE: 144d 40m **Unorganized**

LOCATION Chistochina is located at mile 32.7 on the Tok Cutoff to the Glenn Highway, 42 miles northeast of Glennallen. Sinona Creek, Bolder Creek, Chistochina River and Copper River surround the village.

ECONOMY Subsistence hunting, fishing, trapping and gathering are the basis of the village's economy. Most cash employment is seasonal.

HISTORY Chistochina began as an Ahtna fish camp and a stopover place for traders and trappers. The village access road later became part of the Valdez-Eagle Trail, constructed by miners during the gold rush to the Eagle area in 1897. Chistochina Lodge was built as a roadhouse for prospectors. The Trail was used for construction of U.S. Army Signal Corps telegraph lines from Valdez to Eagle between 1901 and 1904. Gold was mined along the upper Chistochina River and its runoff creeks. The area was settled by homesteaders, although it has remained a traditional Native village.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.51**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.65**
Consumption in 200	**25,965**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,103**
Average Load	**35**	kW	NF COE:	**$0.11**	/kw-hr	Other Non-Fuel Costs:	**$33,801**
Estimated peak loa	**69.674**	kW	Total	**$0.53**		Current Fuel Costs	**$120,745**
Average Sales	**305,171**	kW-hours				**Total Electric**	**$160,650**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**67,291**	gal	
Fuel Oil:	**79%**	Estimated heating fuel cost/gallon	**$5.65**		
Wood:	**12%**	$/MMBtu delivered to user	**$51.25**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,075**		**$380,212**

Transportation (Estimated)

Estimated Diesel:	**24,463**	gal	Estimated cost	**$5.65**	**Total Transportation** **$138,225**

Energy Total **$679,087**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$100,000**			
Powerhouse Upgrade		Annual Capital cost	**$8,377**	$0.03	/kw-hr	
Status	**AP&T**	Estimated Diesel OM	**$6,103**	$0.02		
Acheivable efficiency	**14** kW-	New fuel cost	**$107,921**	$0.35		**Savings**
New Fuel use	**23,207**	Avg Non-Fuel Costs:	**$39,905**	$0.11		**$4,447**
		New cost of electricity	**$0.49** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working: **None**

			Value
Water Jacket	**3,895**	gal	**$22,007**
Stack Heat	**0**	gal	**$0**

Capital cost	**$97,543**		
Annual ID	**$8,171**		
Annual OM	**$1,951**		
Total Annual costs	**$10,122**		**Savings**
Heat cost	**$23.52**	$/MMBtu	**$11,885**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		
kW-hr/year	**396087**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**5**		
Avg wind speed	**7.50**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$87.53
Annual OM	**$18,583**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,915**	$0.35	**$101.28**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.48**	
% Community energy		130%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings

$23,735

Alternative Energy Resources

Wood

Installed KW	**44**	
kW-hr/year	**329957**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**417**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,377,473**	per kW-hr	
Annual Capital	**$92,588**	$0.28	
Annual OM	**$118,619**	$0.36	
Fuel cost:	**$62,545**	$0.19	-90
Total Annual Cost	**$273,752**	$0.83	**$29.76**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.96**	
% Community energy		108%	
New Community COE		**$1.03**	

(includes non-fuel and diesel costs)

Savings

($113,102)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	31.6%

Other Resources

Chistochina

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

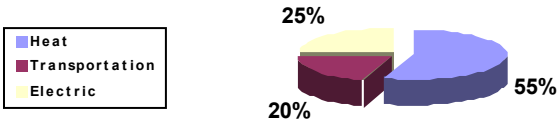
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Chistochina Central Wood Heating Construction has been submitted by: Cheesh'na Tribal Council for a Biomass project. The total project budget is: $839,000 with $827,000 requested in grant funding and $12,000 as matching funds.

Chitina

Energy Used



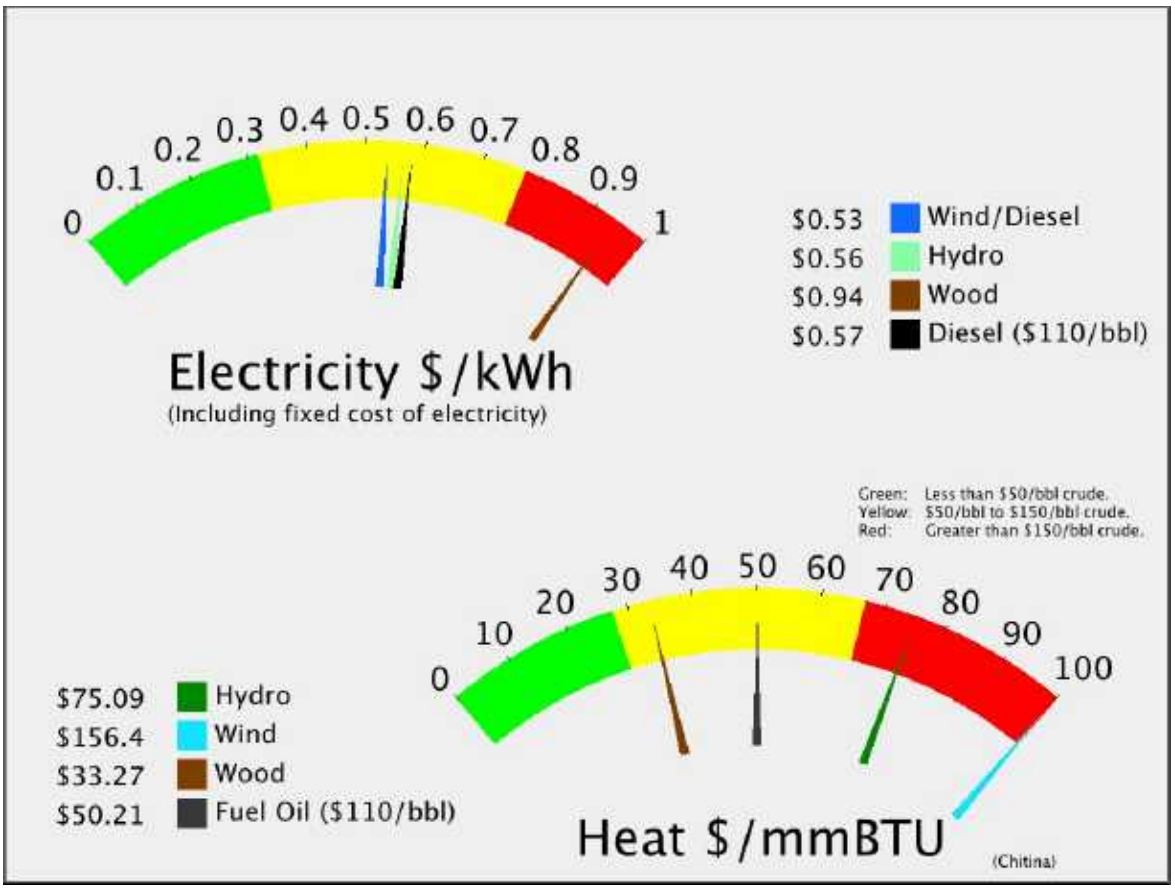
Total: **$7,673** Per capita

Heat **$4,226** Per capita

Transportation **$1,536** Per capita

Electricity: **$1,910** Per capita

POPULATION: 105



Chitina

Regional Corporation
Ahtna, Incorporated

House 6
Senate : **C**

POPULATION 105 LATITUDE: 61d 31m N LONGITUDE: 144d 26m **Unorganized**

LOCATION Chitina is located on the west bank of the Copper River at its confluence with the Chitina River, at mile 34 of the Edgerton Highway, 53 miles southeast of Copper Center. It lies outside the western boundary of the Wrangell-St. Elias National Park and Preserve, 66 miles southeast of Glennallen.

ECONOMY Employment is primarily with the village council, village corporation, or the National Park Service. Many residents are self-employed or work in retail establishments. The summer influx of fishermen, tourists and campers provides some cash income in fish guiding and other services. Two residents hold commercial fishing permits. Many villagers participate in subsistence activities year-round.

HISTORY Athabascan Indians have reportedly occupied this region for the last 5,000 to 7,000 years. Archaeological sites are located to the south and east of Chitina. Chitina was historically a large Native village whose population was slowly decimated by the influx of people, disease and conflicts. Rich copper deposits were discovered at the turn of the century along the northern flanks of the Chitina River valley, bringing a rush of prospectors and homesteaders to the area. The Copper River & Northwestern Railway enabled Chitina to develop into a thriving community by 1914. It had a general store, clothing store, meat market, stables, a tinsmith, five hotels, rooming houses, a pool hall, bars, restaurants, dance halls and a movie theater. Almost all of Chitina was owned by Otto Adrian Nelson, a surveying engineer for the Kennecott Mines. He supplied electric power to all structures with a unique hydroelectric system. After the mines closed in 1938, support activities moved to the Glennallen area, and Chitina became a virtual ghost town with only the Natives and a few non-Natives staying on. In 1963, the Nelson estate was purchased by "Mudhole" Smith, a pioneer bush pilot, who sold off the townsite and buildings.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.55** /kw-hr

Current efficiency	**12.43**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$8,011**
Consumption in 200	**35,028**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$64,568**
Average Load	**46**	kW	NF COE:	**$0.16**	/kw-hr	Current Fuel Costs	**$159,311**
Estimated peak loa	**91.454**	kW	Total	**$0.58**		**Total Electric**	
Average Sales	**400,568**	kW-hours				**$231,890**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**79,983**	gal	
Fuel Oil:	**54%**	Estimated heating fuel cost/gallon	**$5.55**		
Wood:	**38%**	$/MMBtu delivered to user	**$50.32**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,598**		**$443,754**

Transportation (Estimated)

Estimated Diesel:	**29,078**	gal	Estimated cost	**$5.55**	**Total Transportation** **$161,326**

Energy Total **$836,970**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Construction**

Acheivable efficiency **14** kW-

New Fuel use **31,088**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.27	/kw-hr
Estimated Diesel OM	**$8,011**	$0.02	
New fuel cost	**$141,393**	$0.35	
Avg Non-Fuel Costs:	**$72,579**	$0.16	
New cost of electricity	**$0.78** per kW-hr		

Savings **($90,978)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, #2 Diesel Tank

			Value
Water Jacket	**5,254**	gal	**$29,151**
Stack Heat	**0**	gal	**$0**

Capital cost **$128,035**

Annual ID **$10,725**

Annual OM **$2,561**

Total Annual costs **$13,286**

Heat cost **$22.88** $/MMBtu

Savings **$15,865**

Alternative Energy Resources

Wood

Installed KW	**51**	
kW-hr/year	**380482**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**481**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,545,036**	per kW-hr	
Annual Capital	**$103,851**	$0.27	
Annual OM	**$120,616**	$0.32	
Fuel cost:	**$72,122**	$0.19	-90
Total Annual Cost	**$296,590**	$0.78	**$29.76**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.96**	
% Community energy		95%	
New Community COE		**$0.92**	

(includes non-fuel and diesel costs)

Savings

($137,657)

Alternative Energy Resources

Hydro

Installed KW	**300**	
kW-hr/year	**1277383**	
Site	**Fivemile Creek**	
Study plan effort	**reconnaissance**	
Plant Factor		%
Penetration	**0.63**	

			Heat Cost $/MMBtu :
Capital cost	**$2,010,000**	per kW-hr	
Annual Capital	**$78,120**	$0.06	$17.92
Annual OM	**$75,000**	$0.06	$17.20
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$153,120**	$0.12	**$35.12**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.30**	
% Community energy		319%	
New Community COE		**$0.56**	

(includes non-fuel and diesel costs)

Savings

$78,770

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	
kW-hr/year	**387062**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**6**	
Avg wind speed	**8.10**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$89.58
Annual OM	**$18,160**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,492**	$0.35	**$103.32**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.53**	
% Community energy		97%	
New Community COE		**$0.52**	

(includes non-fuel and diesel costs)

Savings

$25,199

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	26.6%

Other Resources

Chitina

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

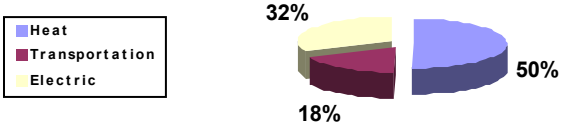
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Fivemile Creek_Chitna Electric has been submitted by: Chitna Electric Inc, (CEI) for a Hydro project. The total project budget is: $4,659,500 with $4,159,500 requested in grant funding and $500,000 as matching funds.

Chuathbaluk

Energy Used



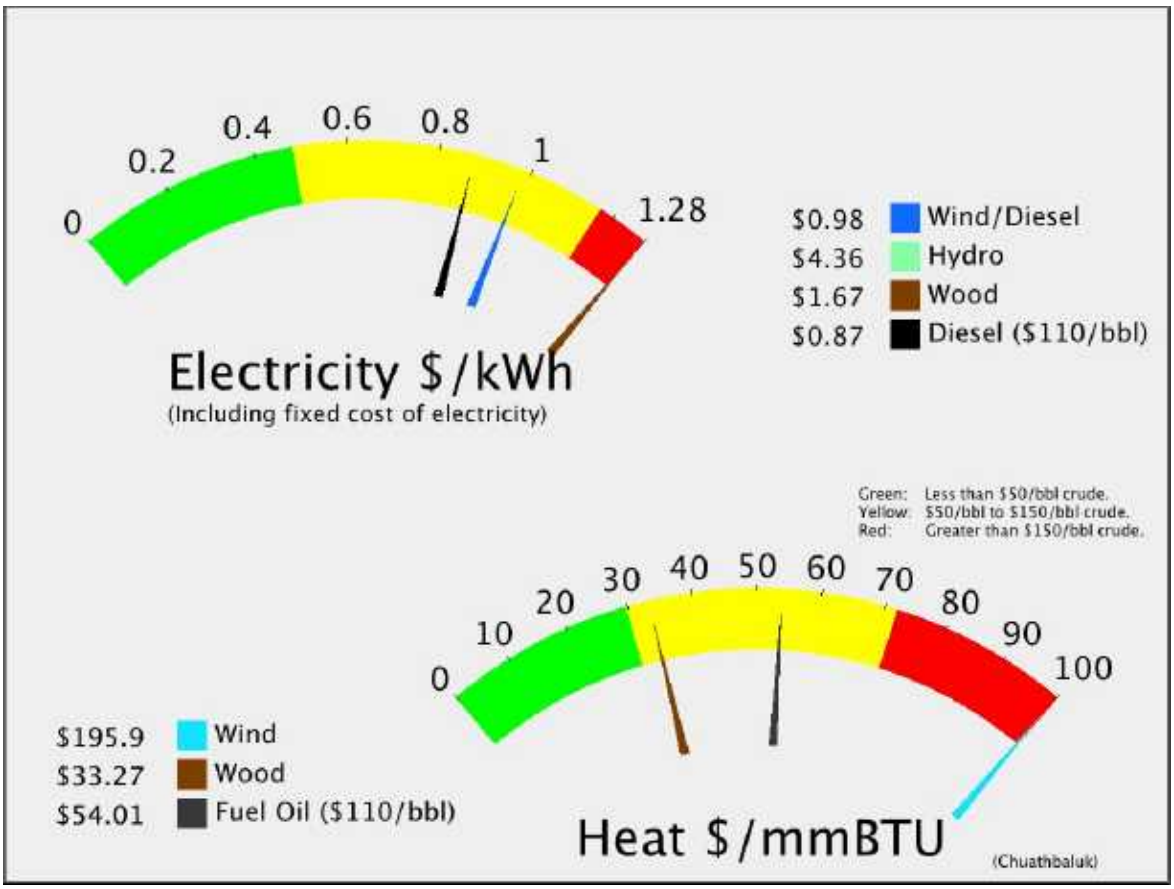
Total: **$6,211** Per capita

Heat **$3,130** Per capita

Transportation **$1,120** Per capita

Electricity: **$1,961** Per capita

POPULATION: 90



Chuathbaluk

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 90 LATITUDE: 61d 34m N LONGITUDE: 159d 13m **Unorganized**

LOCATION Chuathbaluk is located on the north bank of the Kuskokwim River, 11 miles upriver from Aniak in the Kilbuk-Kuskokwim mountains. It is 87 air miles northeast of Bethel and 310 miles west of Anchorage.

ECONOMY Chuathbaluk's economy is heavily dependent on subsistence activities. Employment is primarily through the school, tribal government, City, clinic, or seasonal firefighting for the BLM. One resident holds a commercial fishing permit. Local artisans produce fur garments, beadwork, mukluks, kuspuks and ulus. Salmon, moose, black bear, porcupine and waterfowl are harvested.

HISTORY Chuathbaluk was the site of an Ingalik Indian summer fish camp in the mid-1800s. The village has been known as Chukbak, St. Sergius Mission, Kuskokwim Russian Mission, and Little Russian Mission. The village was often confused with Russian Mission on the Yukon, so in the 1960s the name was changed to Chuathbaluk, which is derived from the Yup'ik word "Curapalek," meaning "the hills where the big blueberries grow." The Russian Orthodox church built the St. Sergius Mission by 1894, and residents of Kukuktuk from 20 miles downriver moved to the mission. Tragically, much of the village was lost in an influenza epidemic in 1900. By 1929, the site was deserted, although Russian Orthodox members continued to hold services at the mission. In 1954, the Sam Phillips family from Crow Village resettled the mission, and were joined later by individuals from Aniak and Crooked Creek. The Church was rebuilt in the late 1950s, and a state school opened in the 1960s. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.97** /kw-hr

Current efficiency	**10.35**	kW-hr/gal	Fuel COE	**$0.52**	/kw-hr	Estimated Diesel OM	**$4,450**
Consumption in 200	**23,198**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$75,256**
Average Load	**25**	kW	NF COE:	**$0.34**	/kw-hr	Current Fuel Costs	**$115,262**
Estimated peak loa	**50.793**	kW	Total	**$0.88**		**Total Electric**	
Average Sales	**222,475**	kW-hours				**$194,968**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**47,195**	gal	
Fuel Oil:	**51%**	Estimated heating fuel cost/gallon	**$5.97**		
Wood:	**49%**	$/MMBtu delivered to user	**$54.14**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,663**	**$281,690**	

Transportation (Estimated)

Estimated Diesel:	**16,883**	gal	Estimated cost	**$5.97**	**Total Transportation**
					$100,769

Energy Total **$577,426**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **17,143**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,450**	$0.02	
New fuel cost	**$85,178**	$0.38	
Avg Non-Fuel Costs:	**$79,706**	$0.34	
New cost of electricity	**$0.72** per kW-hr		

Savings

$29,455

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**3,480**	gal	**$20,769**
Stack Heat	**0**	gal	**$0**

Capital cost	**$71,111**		
Annual ID	**$5,957**		
Annual OM	**$1,422**		
Total Annual costs	**$7,379**		
Heat cost	**$19.19**	$/MMBtu	

Savings

$13,390

Alternative Energy Resources

Wood

Installed KW **36**
kW-hr/year **267747**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **338** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,868,263**		
Annual Capital	**$125,577**	$0.47	
Annual OM	**$116,159**	$0.43	
Fuel cost:	**$50,753**	$0.19	-90
Total Annual Cost	**$292,489**	$1.09	**$29.76**
Non-Fuel Costs		$0.36	
Alternative COE:		**$1.45**	
% Community energy		120%	
New Community COE		**$1.67**	

(includes non-fuel and diesel costs)

Savings
($97,521)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **449143**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.36	
Alternative COE:		**$0.67**	
% Community energy		202%	
New Community COE		**$0.98**	

(includes non-fuel and diesel costs)

Savings
$55,563

Alternative Energy Resources

Hydro

Installed KW **125**
kW-hr/year **641627**
Site **Mission Creek**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.62**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$16,214,031**		
Annual Capital	**$643,621**	$1.00	$293.91
Annual OM	**$247,500**	$0.39	$113.02
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$891,121**	$1.39	**$406.93**
Non-Fuel Costs		$0.36	
Alternative COE:		**$1.75**	
% Community energy		288%	
New Community COE		**$4.36**	

(includes non-fuel and diesel costs)

Savings
($696,154)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	45.0%

Other Resources

Chuathbaluk

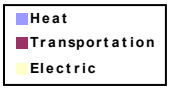
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

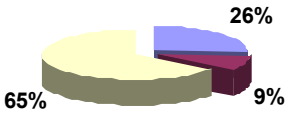
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Circle

Energy Used

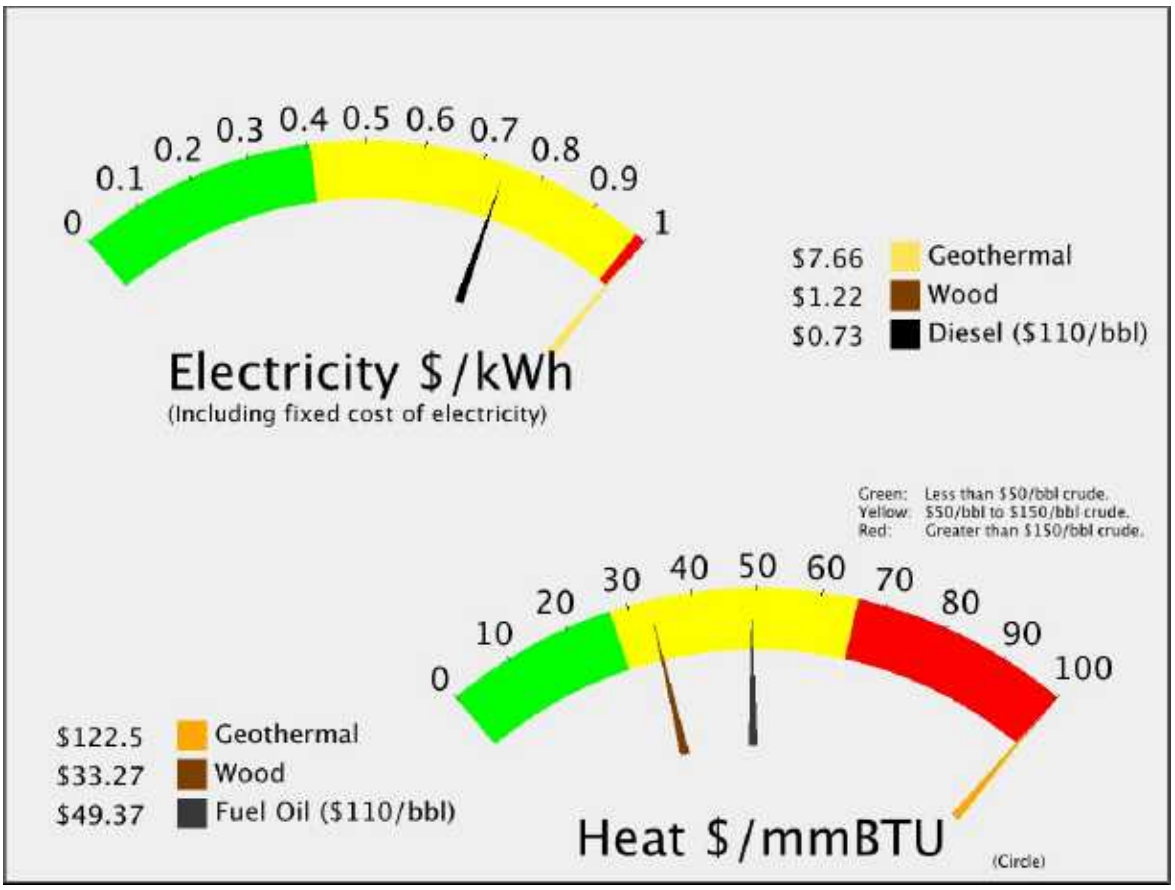




Total: **$3,870** Per capita

Heat	**$998**	Per capita
Transportation	**$361**	Per capita
Electricity:	**$2,511**	Per capita

POPULATION: 102



Circle

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 102 LATITUDE: 65d 49m N LONGITUDE: 144d 03m **Unorganized**

LOCATION Circle is located on the south bank of the Yukon River at the edge of the Yukon Flats, 160 miles northeast of Fairbanks. It is at the eastern end of the Steese Highway.

ECONOMY Recreation attracts visitors to Circle seasonally. Circle Hot Springs was closed in October 2002. Some persons live in the community only during summer months. Major employers include the school, clinic, village corporation, trading post, and post office. A 25-room hotel is under construction. Two residents hold commercial fishing permits. Almost all residents are involved in subsistence. Salmon, freshwater fish, moose and bear are the major sources of meat. Trapping and making of handicrafts contribute to family incomes.

HISTORY Circle (also known as Circle City) was established in 1893 as a supply point for goods shipped up the Yukon River and then overland to the gold mining camps. Early miners believed the town was located on the Arctic Circle, and named it Circle. By 1896, before the Klondike gold rush, Circle was the largest mining town on the Yukon, with a population of 700. It boasted an Alaska Commercial Company store, eight or ten dance halls, an opera house, a library, a school, a hospital, and an Episcopal Church. It had its own newspaper, the Yukon Press, and a number of residential U.S. government officials, including a commissioner, marshal, customs inspector, tax collector and postmaster. The town was virtually emptied after gold discoveries in the Klondike (1897) and Nome (1899). A few hearty miners stayed on in the Birch Creek area, and Circle became a small, stable community that supplied miners in the nearby Mastodon, Mammoth, Deadwood and Circle Creeks. Mining activity continues to this day.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.46** /kw-hr

Current efficiency	**10.64**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Diesel OM	**$6,316**
Consumption in 200	**32,595**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$81,519**
Average Load	**36**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$145,230**
Estimated peak loa	**72.099**	kW	Total	**$0.74**		**Total Electric**	
Average Sales	**315,792**	kW-hours				**$233,065**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**18,660**	gal	
Fuel Oil:	**7%**	Estimated heating fuel cost/gallon	**$5.46**		
Wood:	**93%**	$/MMBtu delivered to user	**$49.48**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,239**		**$101,801**

Transportation (Estimated)

Estimated Diesel: **6,741** gal Estimated cost **$5.46**

Total Transportation **$36,778**

Energy Total **$371,644**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

#N/A

Status **NA**

Acheivable efficiency **14** kW-

New Fuel use **24,782**

Capital cost	**$0**		
Annual Capital cost	**$0**	$0.00	/kw-hr
Estimated Diesel OM	**$6,316**	$0.02	
New fuel cost	**$110,420**	$0.35	
Avg Non-Fuel Costs:	**$87,835**	$0.26	
New cost of electricity		**$0.60**	per kW-hr

Savings **$34,810**

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**4,889**	gal	**$26,674**
Stack Heat	**0**	gal	**$0**

Capital cost	**$100,938**		
Annual ID	**$8,455**		
Annual OM	**$2,019**		
Total Annual costs	**$10,474**		
Heat cost	**$19.39**	$/MMBtu	

Savings **$16,200**

Alternative Energy Resources

Wood

Installed KW	**42**		Capital cost	**$1,794,024**	per kW-hr
kW-hr/year	**315071**		Annual Capital	**$120,587**	$0.38
Installation Type	**Wood ORC**		Annual OM	**$118,030**	$0.37
Electric Wood cost	**$150/cd**		Fuel cost:	**$59,723**	$0.19
Wood Required	**398**	Cd/Y	Total Annual Cost	**$298,340**	$0.95
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs		$0.28
			Alternative COE:		**$1.23**
			% Community energy		100%
			New Community COE		**$1.20**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu : -90

$29.76

Savings

($147,127)

Alternative Energy Resources

Geothermal

Installed KW	**1000**		Capital cost	**$24,000,000**	per kW-hr
kW-hr/year	**8322000**		Annual Capital	**$1,613,177**	$0.19
Site Name	**Circle - Shallow**		Annual OM	**$720,000**	$0.09
Project Capatcity	**1540 lpm**		Fuel cost:	**$0**	$0.00
Shallow Resource	**0**	Feet	Total Annual Cost	**$2,333,177**	$0.28
Shallow Temp	**58.00**	C	Non-Fuel Costs		$0.28
			Alternative COE:		**$0.56**
			% Community energy		2635%
			New Community COE		**$7.67**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu : $56.80 $25.35

$82.15

Savings

($2,100,112)

Alternative Energy Resources

Geothermal

Installed KW	**2000**		Capital cost	**$24,000,000**	per kW-hr
kW-hr/year	**16644000**		Annual Capital	**$1,613,177**	$0.10
Site Name	**Circle - Deep**		Annual OM	**$720,000**	$0.04
Project Capatcity	**1540 lpm**		Fuel cost:	**$0**	$0.00
Shallow Resource	**0**	Feet	Total Annual Cost	**$2,333,177**	$0.14
Shallow Temp	**58.00**	C	Non-Fuel Costs		$0.28
			Alternative COE:		**$0.42**
			% Community energy		5271%
			New Community COE		**$7.67**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu : $28.40 $12.67

$41.07

Savings

($2,100,112)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	113.9%

Other Resources

Circle

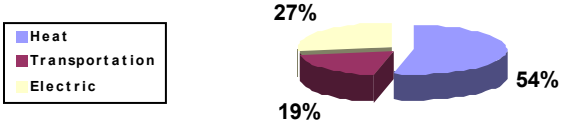
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Coffman Cove

Energy Used



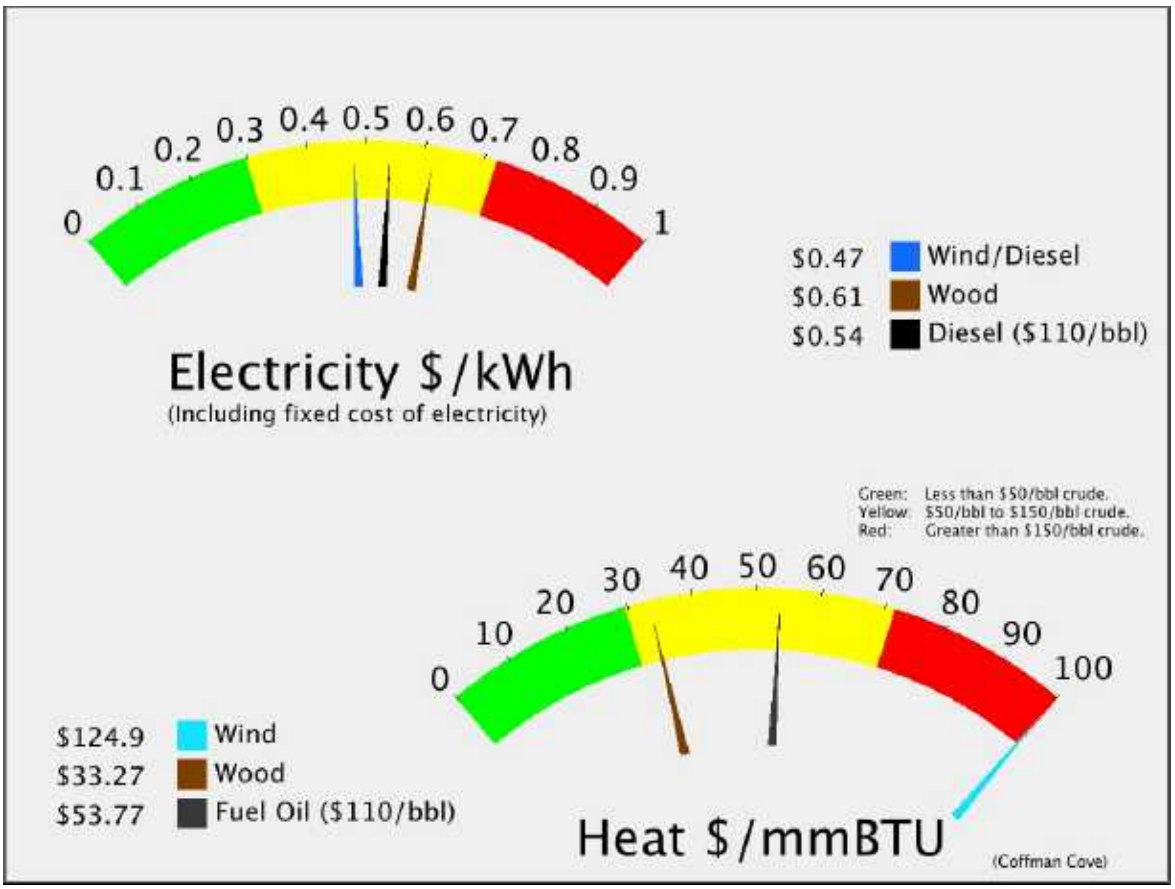
Total: **$9,369** Per capita

Heat **$5,001** Per capita

Transportation **$1,818** Per capita

Electricity: **$2,551** Per capita

POPULATION: 147



Coffman Cove

Regional Corporation
Sealaska Corporation
House 1
Senate : **A**

POPULATION 147 LATITUDE: 56d 01m N LONGITUDE: 132d 50m **Unorganized**

LOCATION Coffman Cove is on the northeast coast of Prince of Wales Island in Southeast Alaska. It lies 73 miles northeast of Ketchikan and 42 miles southeast of Wrangell.

ECONOMY Logging support services and the local school provide the majority of employment. Coffman Cove is one of the major log transfer sites on Prince of Wales Island. Logs are tied together and towed to trans-shipment points for export. Oyster farming also occurs in Coffman Cove. Five residents hold commercial fishing permits. The City is conducting a study of the feasibility of a marine commercial/industrial complex. Recreation includes hunting (bear and deer), fishing, hiking and boating.

HISTORY The site was named in 1886 by Lt. Comdr. A.S. Snow, USN, for Lt. Dewitt Coffman, a member of his party. Coffman Cove was first settled as a logging camp in the 1950s, owned and operated by Mike and Leta Valentine. Land was made available for private ownership through selection under the Alaska Statehood Act. Coffman Cove's pioneer lifestyle and clean, safe environment were featured on ABC's 20/20" program in 1984 prompting a deluge of mail from persons around the country wanting to relocate. The city government was incorporated in 1989."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.22**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.94**
Consumption in 200	**70,038**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$15,445**
Average Load	**88**	kW	NF COE:	**$0.07**	/kw-hr	Other Non-Fuel Costs:	**$56,179**
Estimated peak loa	**176.32**	kW	Total	**$0.54**		Current Fuel Costs	**$346,149**
Average Sales	**772,265**	kW-hours				**Total Electric**	**$417,773**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**123,710**	gal	
Fuel Oil:	**74%**	Estimated heating fuel cost/gallon	**$5.94**		
Wood:	**18%**	$/MMBtu delivered to user	**$53.90**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**14,845**		**$735,123**

Transportation (Estimated)

Estimated Diesel:	**44,969**	gal	Estimated cost	**$5.94**	**Total Transportation** **$267,218**

Energy Total **$1,420,114**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **66,150**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.07	/kw-hr
Estimated Diesel OM	**$15,445**	$0.02	
New fuel cost	**$326,931**	$0.42	
Avg Non-Fuel Costs:	**$71,624**	$0.07	
New cost of electricity	**$0.51** per kW-hr		

Savings **($31,042)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**10,506**	gal	**$62,428**
Stack Heat	**0**	gal	**$0**

Capital cost	**$246,843**		
Annual ID	**$20,677**		
Annual OM	**$4,937**		
Total Annual costs	**$25,614**		
Heat cost	**$22.06**	$/MMBtu	

Savings **$36,814**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		
kW-hr/year	**412669**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**5**		
Avg wind speed	**7.50**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$84.02
Annual OM	**$19,361**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,693**	$0.33	**$97.76**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.43**	
% Community energy		53%	
New Community COE		**$0.47**	

(includes non-fuel and diesel costs)

Savings

$55,533

Alternative Energy Resources

Wood

Installed KW	**103**	
kW-hr/year	**769172**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**972**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,773,716**	per kW-hr	
Annual Capital	**$119,222**	$0.15	
Annual OM	**$135,985**	$0.18	
Fuel cost:	**$145,801**	$0.19	-90
Total Annual Cost	**$401,007**	$0.52	**$29.76**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.61**	
% Community energy		100%	
New Community COE		**$0.59**	

(includes non-fuel and diesel costs)

Savings

($40,788)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	17.2%

Other Resources

Coffman Cove

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

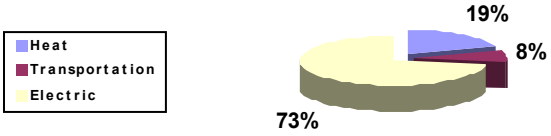
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Coffman Cove Wood Boiler_SEISD has been submitted by: Southeast Island School District for a Biomass project. The total project budget is: $355,056 with $341,056 requested in grant funding and $14,000 as matching funds.

A project titled: Coffman Cove-Naukati Intertie Construction has been submitted by: Alaska Power & Telephone Company for a Transmission project. The total project budget is: $6,155,019 with $3,752,181 requested in grant funding and $2,402,838 as matching funds.

Cold Bay

Energy Used



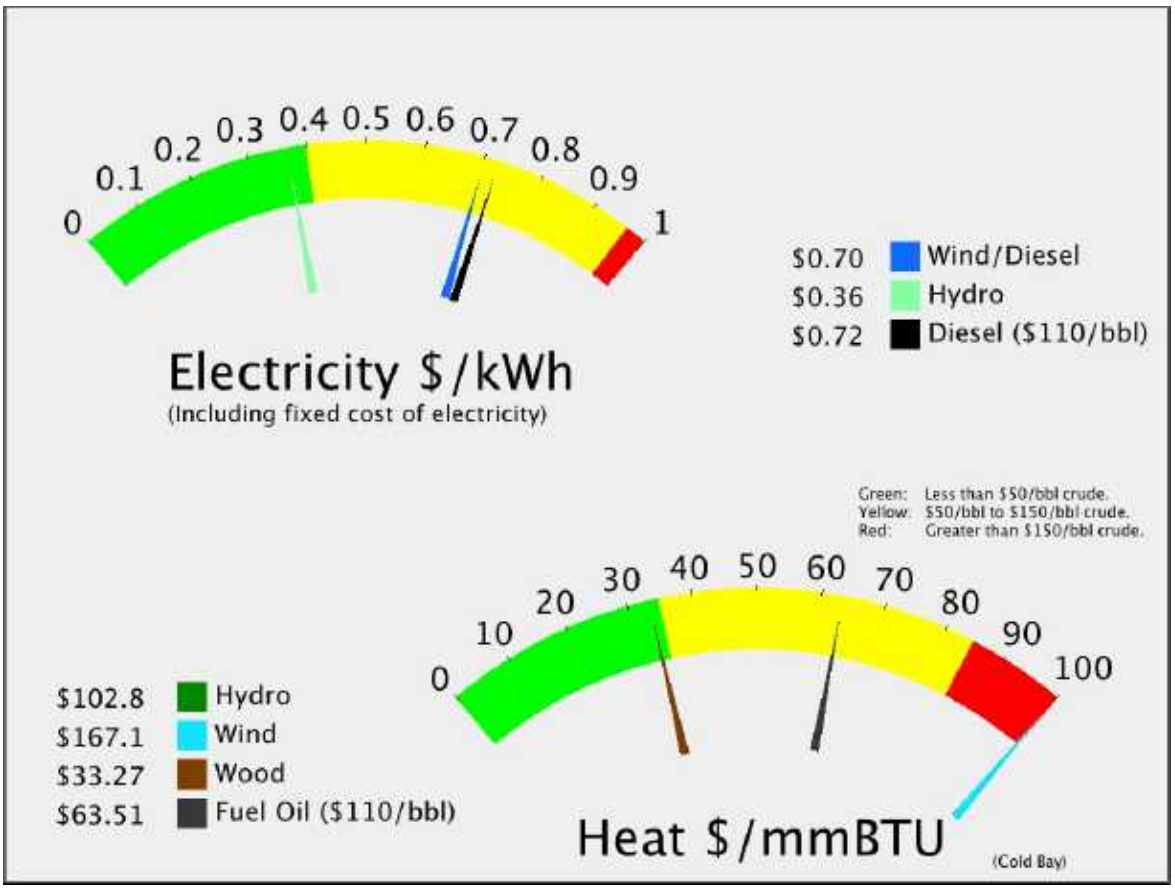
Total: $27,607 Per capita

Heat $5,275 Per capita

Transportation $2,087 Per capita

Electricity: $20,246 Per capita

POPULATION: 72



Cold Bay

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 72 LATITUDE: 55d 12m N LONGITUDE: 162d 42m **Aleutians East Borough**

LOCATION Cold Bay is located in the Izembek National Wildlife Refuge at the western end of the Alaska Peninsula. It lies 634 miles southwest of Anchorage, and 180 miles northeast of Unalaska.

ECONOMY State and federal government and airline support services provide the majority of local employment. Because of its central location and modern airport, Cold Bay serves as the regional center for air transportation on the Alaska Peninsula, and as an international hub for private aircraft. Cold Bay also provides services and fuel for the fishing industry. Two residents hold commercial fishing permits.

HISTORY Archaeological sites dating to the last ice age indicate the area around Cold Bay was once inhabited by a large Native population, and was used by European hunters and trappers throughout the 19th century. Izembeck Lagoon was named in 1827 by Count Feodor Kutke, after Karl Izembeck, a surgeon aboard the sloop "Moller." During World War II, Cold Bay was the site of the strategic air base Fort Randall. At that time, the airport was the largest in the state, with a 10,000' runway. The City was incorporated in 1982.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.02** /kw-hr

Current efficiency	**13.48**	kW-hr/gal	Fuel COE	**$0.49**	/kw-hr	Estimated Diesel OM	**$53,230**
Consumption in 200	**215,392**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$577,850**
Average Load	**304**	kW	NF COE:	**$0.22**	/kw-hr	Current Fuel Costs	**$1,296,294**
Estimated peak loa	**607.65**	kW	Total	**$0.72**		**Total Electric**	
Average Sales	**2,661,519**	kW-hours				**$1,927,374**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**54,119**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$7.02**		
Wood:	**0%**	$/MMBtu delivered to user	**$63.66**		**Total Heating Oil**
Electricity:	**10.0%**	Community heat needs in MMBtu	**6,494**		**$379,826**

Transportation (Estimated)

Estimated Diesel:	**21,405**	gal	Estimated cost	**$7.02**	**Total Transportation**
					$150,229

Energy Total **$2,457,430**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **196,818**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.00	/kw-hr
Estimated Diesel OM	**$53,230**	$0.02	
New fuel cost	**$1,184,510**	$0.45	
Avg Non-Fuel Costs:	**$631,080**	$0.22	
New cost of electricity	**$0.65** per kW-hr		

Savings

$103,407

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**32,309**	gal	**$226,753**
Stack Heat	**0**	gal	**$0**

Capital cost	**$850,714**		
Annual ID	**$71,261**		
Annual OM	**$17,014**		
Total Annual costs	**$88,276**		
Heat cost	**$24.73**	$/MMBtu	

Savings

$138,477

Alternative Energy Resources

Hydro

Installed KW **1720**

kW-hr/year **2547653**

Site **Russell Creek - east branch**

Study plan effort **reconnaissance**

Plant Factor **67** %

Penetration **0.55**

			Heat Cost $/MMBtu :
Capital cost	**$14,647,500**	per kW-hr	
Annual Capital	**$608,634**	$0.24	$70.00
Annual OM	**$157,500**	$0.06	$18.11
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$766,134**	$0.30	**$88.11**

Non-Fuel Costs $0.24

Alternative COE: $0.54

% Community energy 96%

New Community COE **$0.35**

(includes non-fuel and diesel costs)

Savings

$1,001,898

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **413002**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **6.96** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$83.95
Annual OM	**$19,377**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,709**	$0.33	**$97.70**

Non-Fuel Costs $0.24

Alternative COE: $0.57

% Community energy 16%

New Community COE **$0.70**

(includes non-fuel and diesel costs)

Savings

$71,723

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	39.3%

Other Resources

Cold Bay

Tidal:	SOME POTENTIAL
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

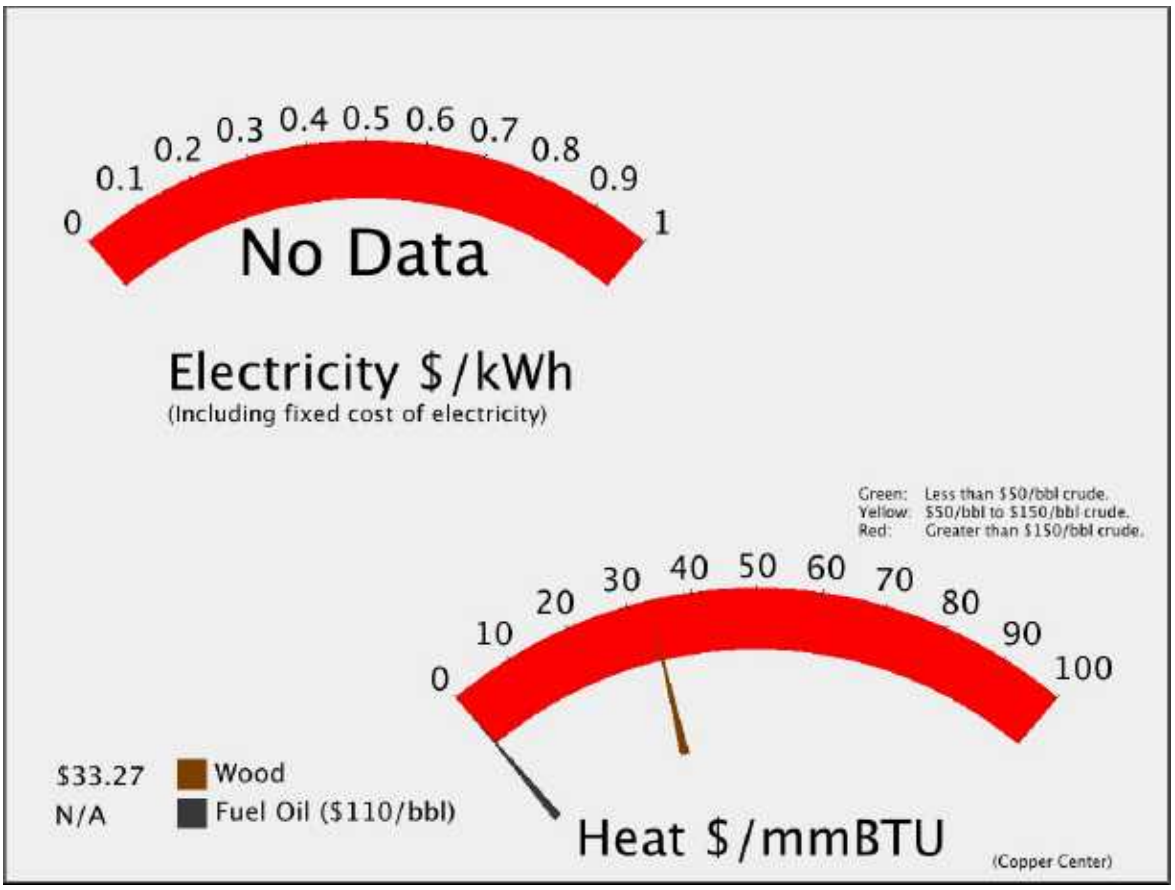
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Copper Center

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	337
Transportation	Per capita		
Electricity:	Per capita		



Copper Center

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 337 LATITUDE: 61d 59m N LONGITUDE: 145d 21m **Unorganized**

LOCATION Copper Center is located along the Richardson Highway between Mileposts 101 and 105. It is on the west bank of the Copper River at the confluence of the Klutina River. It lies just west of the Wrangell-St. Elias National Park.

ECONOMY The economy is based on local services and businesses and highway-related tourism. The National Park Service's Wrangell-St. Elias Visitor Center was completed in 2002. The Copper River Princess Wilderness Lodge was also completed in 2002. Two RV Parks and three river boat charter services operate from Copper Center. Many Native residents depend on subsistence hunting, fishing, trapping and gathering. Eight residents hold commercial fishing permits.

HISTORY The Ahtna people have occupied the Copper River basin for the past 5,000 to 7,000 years. They had summer fish camps at every bend in the river and winter villages throughout the region. Copper Center was a large Ahtna Athabascan village at one time. In 1896, Ringwald Blix built Blix Roadhouse, which was very highly regarded for its outstanding services. The Trail of '98 from Valdez joined with the Eagle Trail to Forty Mile and Dawson. 300 destitute miners spent the winter here, and many died of scurvy. Copper Center became the principal supply center for miners in the Nelchina-Susitna region. A telegraph station and post office were established in 1901. A school was constructed in 1905, which brought a number of Native families to Copper Center. In 1909, it was designated a government agricultural experiment station. In 1932, the original roadhouse was destroyed in order to build the Copper Center Lodge. This lodge is on the National Register of Historic Roadhouses and is now considered the jewel of Alaskan roadhouses. In the late 30s and early 40s, construction of the Richardson and Glenn Highways made the region more accessible. The first church in the Copper River region, the Chapel on the Hill, was built here in 1942 by Vince Joy and U.S. Army volunteers stationed in the area. Mr. Joy built other churches and a bible college in the area over the years.

Alternative Energy Resources

Hydro

Installed KW **2782**
kW-hr/year **5000000**
Site **Klawasi River**
Study plan effort **reconnaissance**
Plant Factor **48** %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$56,127,720**		
Annual Capital	**$2,192,109**	$0.44	$128.46
Annual OM	**$676,902**	$0.14	$39.67
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,869,011**	$0.57	**$168.12**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**
kW-hr/year **787016**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,071,563**		
Annual Capital	**$206,457**	$0.26	$76.86
Annual OM	**$36,924**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$243,381**	$0.31	**$90.61**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Copper Center

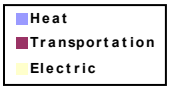
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	SOME POTENTIAL
Coal:	SOME POTENTIAL
Propane:	

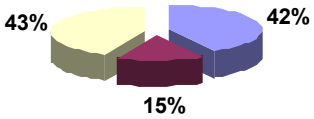
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Cordova

Energy Used





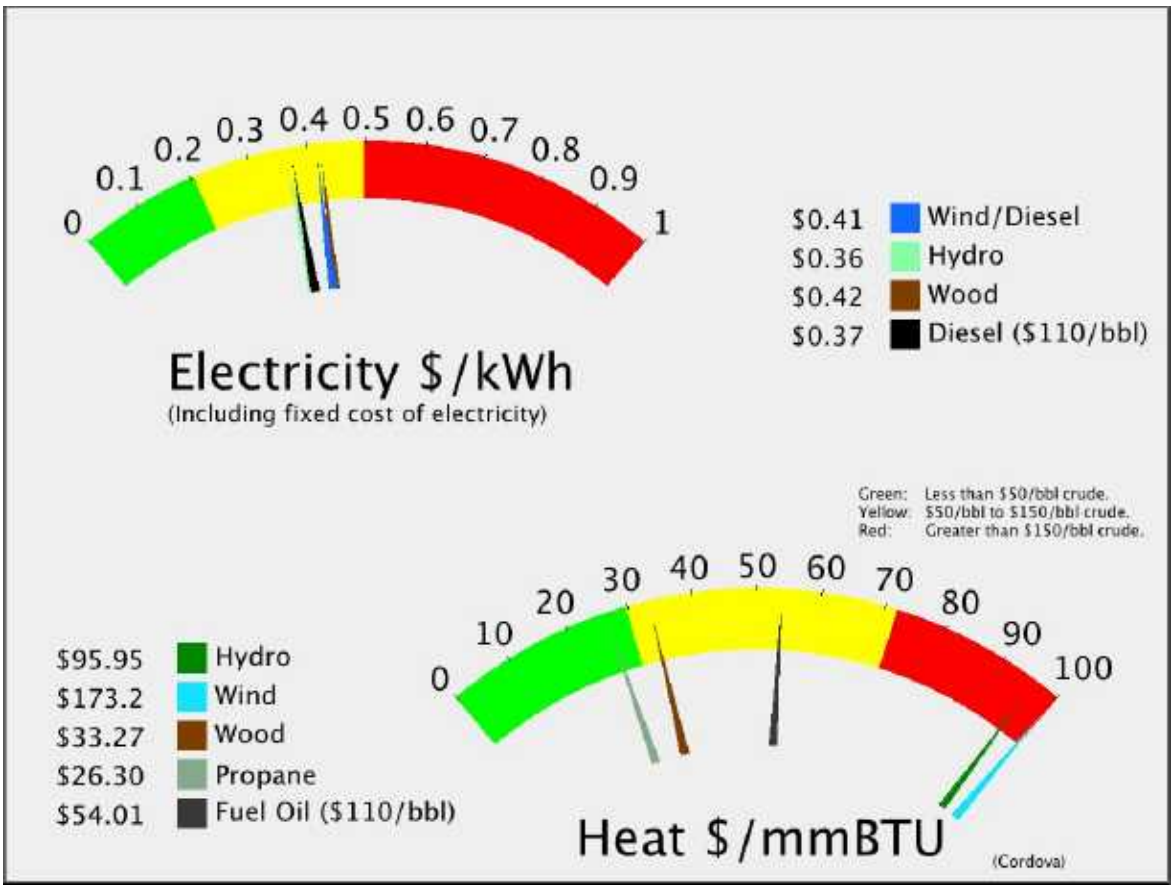
Total: **$8,380** Per capita

Heat **$3,494** Per capita

Transportation **$1,270** Per capita

Electricity: **$3,616** Per capita

POPULATION: 2194



Cordova

Regional Corporation
Chugach Alaska Corporation

House 5
Senate : **C**

POPULATION 2194 LATITUDE: 60d 33m N LONGITUDE: 145d 45m **Unorganized**

LOCATION Cordova is located at the southeastern end of Prince William Sound in the Gulf of Alaska. The community was built on Orca Inlet, at the base of Eyak Mountain. It lies 52 air miles southeast of Valdez and 150 miles southeast of Anchorage.

ECONOMY Cordova supports a large fishing fleet for Prince William Sound and several fish processing plants. 341 residents hold commercial fishing permits, and nearly half of all households have someone working in commercial harvesting or processing. Copper River red salmon, pink salmon, herring, halibut, bottom fish and other fisheries are harvested. Reduced salmon prices have affected the economy. The largest employers are North Pacific Processors, Cordova School District, Cordova Hospital, the City, and the Department of Transportation. The U.S. Forest Service and the U.S. Coast Guard maintain personnel in Cordova.

HISTORY The area has historically been home to the Alutiiq, with the addition of migrating Athabascan and Tlingit natives who called themselves Eyaks. Alaskan Natives of other descents also settled in Cordova. Orca Inlet was originally named "Puerto Cordova" by Don Salvador Fidalgo in 1790. One of the first producing oil fields in Alaska was discovered at Katalla, 47 miles southeast of Cordova, in 1902. The town of Cordova was named in 1906 by Michael Heney, builder of the Copper River and Northwestern Railroad, and the City was formed in 1909. Cordova became the railroad terminus and ocean shipping port for copper ore from the Kennecott Mine up the Copper River. The first trainload of ore was loaded onto the steamship "Northwestern," bound for a smelter in Tacoma, Washington, in April 1911. The Bonanza-Kennecott Mines operated until 1938 and yielded over $200 million in copper, silver and gold. The Katalla oil field produced until 1933, when it was destroyed by fire. Fishing became the economic base in the early 1940s.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.97**	kW-hr/gal	Fuel COE	**$0.18**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.97** /kw-hr
Consumption in 200	**823,119**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$460,780**
Average Load	**2,630**	kW	NF COE:	**$0.17**	/kw-hr	Other Non-Fuel Costs:	**$4,029,935**
Estimated peak loa	**5260.1**	kW	Total	**$0.37**		Current Fuel Costs	**$4,089,420**
Average Sales	**23,039,025**	kW-hours				**Total Electric**	**$8,580,135**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,284,565**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$5.97**		
Wood:	**3%**	$/MMBtu delivered to user	**$54.13**		**Total Heating Oil**
Electricity:	**4.3%**	Community heat needs in MMBtu	**154,148**		**$7,666,542**

Transportation (Estimated)

Estimated Diesel:	**467,000**	gal	Estimated cost	**$5.97**	**Total Transportation** **$2,787,150**

Energy Total **$19,033,828**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
#N/A			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status	**NA**		Estimated Diesel OM	**$460,780**	$0.02		
Acheivable efficiency	**14.8**	kW-	New fuel cost	**$3,873,468**	$0.17		**Savings**
New Fuel use	**779,652**		Avg Non-Fuel Costs:	**$4,490,715**	$0.17		**$215,952**
			New cost of electricity	**$0.53** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**123,468**	gal	**$736,881**
Stack Heat	**82,312**	gal	**$491,254**

Capital cost	**$7,364,072**		
Annual ID	**$616,863**		
Annual OM	**$147,281**		
Total Annual costs	**$764,145**		**Savings**
Heat cost	**$33.61**	$/MMBtu	**$463,990**

Alternative Energy Resources

Wood

Installed KW **1475**

kW-hr/year **10981170**

Installation Type

Electric Wood cost

Wood Required **13877** Cd/Y

Stove Wood cost **150.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,343,658**		
Annual Capital	**$493,609**	$0.04	
Annual OM	**$539,747**	$0.05	
Fuel cost:	**$2,081,542**	$0.19	-90
Total Annual Cost	**$3,114,898**	$0.28	**$29.76**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.48**	
% Community energy		48%	
New Community COE		**$0.41**	

(includes non-fuel and diesel costs)

Savings

($946,385)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5200**

kW-hr/year **4632897**

Met Tower? **no**

Homer Data? **no**

Wind Class **7**

Avg wind speed **3.31** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$24,091,062**		
Annual Capital	**$1,619,298**	$0.35	$102.41
Annual OM	**$217,359**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,836,656**	$0.40	**$116.16**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.59**	
% Community energy		20%	
New Community COE		**$0.41**	

(includes non-fuel and diesel costs)

Savings

($921,402)

Alternative Energy Resources

Hydro

Installed KW **1250**

kW-hr/year **3764000**

Site **Humpback Creek Repairs - Existing**

Study plan effort **final design**

Plant Factor %

Penetration **0.19**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$11,600,000**		
Annual Capital	**$450,840**	$0.12	$35.09
Annual OM	**$79,394**	$0.02	$6.18
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$530,234**	$0.14	**$41.27**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.34**	
% Community energy		16%	
New Community COE		**$0.36**	

(includes non-fuel and diesel costs)

Savings

$244,349

Alternative Energy Resources

Hydro

Installed KW **389**

kW-hr/year **1435000**

Site **Crater Lake**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **0.06**

			Heat Cost $/MMBtu :
Capital cost	**$5,080,000**	per kW-hr	
Annual Capital	**$197,437**	$0.14	$40.31
Annual OM	**$37,338**	$0.03	$7.62
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$234,775**	$0.16	**$47.94**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.36**	
% Community energy		6%	
New Community COE		**$0.37**	

(includes non-fuel and diesel costs)

Savings

$48,672

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	1.7%

Other Resources

Cordova

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane: Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Camp Hill Wind_NVE has been submitted by: Native Village of Eyak for a Wind Diesel Hybrid project. The total project budget is: $8,945,073 with $522,633 requested in grant funding and $29,440 as matching funds.

A project titled: Cordova District Heat_NVE has been submitted by: Native Village of Eyak for a Biomass project. The total project budget is: $1,850,320 with $1,850,320 requested in grant funding and $27,750 as matching funds.

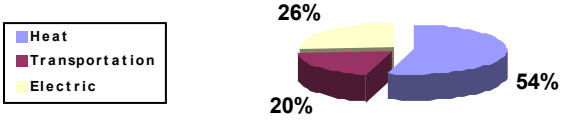
A project titled: Cordova Heat Recovery Construction has been submitted by: Cordova Electric Cooperative for a Heat Recovery project. The total project budget is: $5,260,000 with $1,780,000 requested in grant funding and $3,480,000 as matching funds.

A project titled: Cordova Wood Processing Plant Construction has been submitted by: Native Village of Eyak for a Biomass project. The total project budget is: $628,825 with $364,225 requested in grant funding and $264,600 as matching funds.

A project titled: Humpback Creek Hydroelectric Construction has been submitted by: Cordova Electric Cooperative for a Hydro project. The total project budget is: $11,600,000 with $5,500,000 requested in grant funding and $6,100,000 as matching funds.

Craig

Energy Used



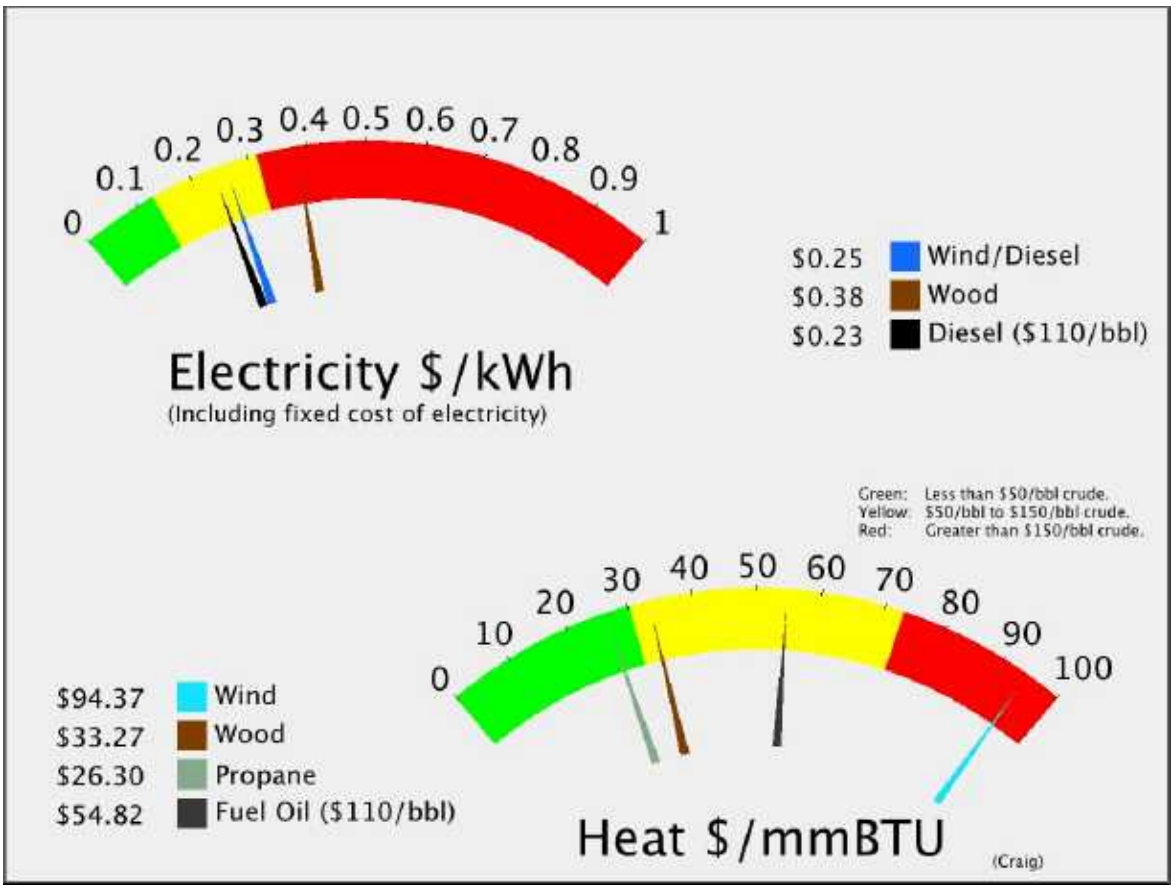
Total: **$6,511** Per capita

Heat **$3,549** Per capita

Transportation **$1,290** Per capita

Electricity: **$1,673** Per capita

POPULATION: 1054



Craig

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 1054 LATITUDE: 55d 28m N LONGITUDE: 133d 09m **Unorganized**

LOCATION Craig is located on a small island off the west coast of Prince of Wales Island, and is connected by a short causeway. It is 31 road miles west of Hollis. It lies 56 air miles northwest of Ketchikan, 750 air miles north of Seattle, and 220 miles south of Juneau.

ECONOMY The economy in Craig is based on the fishing industry, logging support and sawmill operations. A fish buying station and a cold storage plant are located in Craig. The number of residents hold commercial fishing permits is 200. Craig has grown as a service and transportation center for the Prince of Wales Island communities. Shan-Seet Village Corporation timber operations, the Viking Lumber Co. sawmill, fishing, fish processing, government and commercial services provide most employment. Deer, salmon, halibut, shrimp and crab are harvested for recreational or subsistence purposes.

HISTORY The Tlingit and Haida peoples have historically utilized the area around Craig for its rich resources. With the help of local Haidas, a fish saltery was built on nearby Fish Egg Island in 1907 by Craig Miller. Between 1908 and 1911, he constructed the Lyndenburger Packing Company and cold storage plant at the present site of Craig. In 1912, a post office, a school, a sawmill, and a salmon cannery were constructed. The cannery and sawmill peaked during World War I. A city government was formed in 1922. Excellent pink salmon runs contributed to development and growth through the late 1930s -- some families from the Dust Bowl relocated to Craig during this time. During the 1950s, the fishing industry collapsed due to depleted salmon runs. In 1972, Ed Head built a large sawmill six miles from Craig near Klawock, which provided year-round jobs and helped to stabilize the economy. Head Mill was sold in the early 1990s to Viking Lumber.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.06** /kw-hr

Current efficiency	**13.48**	kW-hr/gal	Fuel COE	**$0.17**	/kw-hr	Estimated Diesel OM	**$199,082**
Consumption in 200	**329,025**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$496,807**
Average Load	**1,136**	kW	NF COE:	**$0.05**	/kw-hr	Current Fuel Costs	**$1,664,077**
Estimated peak loa	**2272.6**	kW	Total	**$0.24**		**Total Electric**	
Average Sales	**9,954,101**	kW-hours				**$2,359,966**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**617,445**	gal	
Fuel Oil:	**70%**	Estimated heating fuel cost/gallon	**$6.06**		
Wood:	**10%**	$/MMBtu delivered to user	**$54.94**		**Total Heating Oil**
Electricity:	**4.3%**	Community heat needs in MMBtu	**74,093**		**$3,740,235**

Transportation (Estimated)

Estimated Diesel:	**224,442**	gal	Estimated cost	**$6.06**	**Total Transportation** **$1,359,581**

Energy Total **$7,459,782**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **AP&T**

Acheivable efficiency **14.8** kW-

New Fuel use **300,619**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.00	/kw-hr
Estimated Diesel OM	**$199,082**	$0.02	
New fuel cost	**$1,520,413**	$0.15	
Avg Non-Fuel Costs:	**$695,889**	$0.05	
New cost of electricity	**$0.41** per kW-hr		

Savings **$133,193**

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**49,354**	gal	**$298,965**
Stack Heat	**32,903**	gal	**$199,310**

Capital cost	**$3,181,676**		
Annual ID	**$266,518**		
Annual OM	**$63,634**		
Total Annual costs	**$330,152**		
Heat cost	**$36.32**	$/MMBtu	

Savings **$168,124**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1300**
kW-hr/year **2591520**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,914,104**		
Annual Capital	**$531,952**	$0.21	$60.14
Annual OM	**$121,585**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$653,537**	$0.25	**$73.89**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.32**	
% Community energy		26%	
New Community COE		**$0.25**	

(includes non-fuel and diesel costs)

Savings
($168,488)

Alternative Energy Resources

Wood

Installed KW **1475**
kW-hr/year **10981170**
Installation Type
Electric Wood cost
Wood Required **13877** Cd/Y
Stove Wood cost **150.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,343,658**		
Annual Capital	**$493,609**	$0.04	
Annual OM	**$539,747**	$0.05	
Fuel cost:	**$2,081,542**	$0.19	-90
Total Annual Cost	**$3,114,898**	$0.28	**$29.76**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.35**	
% Community energy		110%	
New Community COE		**$0.38**	

(includes non-fuel and diesel costs)

Savings
($754,932)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	3.4%

Other Resources

Craig

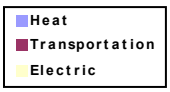
Tidal: SOME POTENTIAL
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane: Propane at $26.30 to end user based on $110/bbl oil

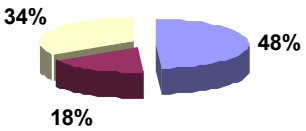
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Crooked Creek

Energy Used





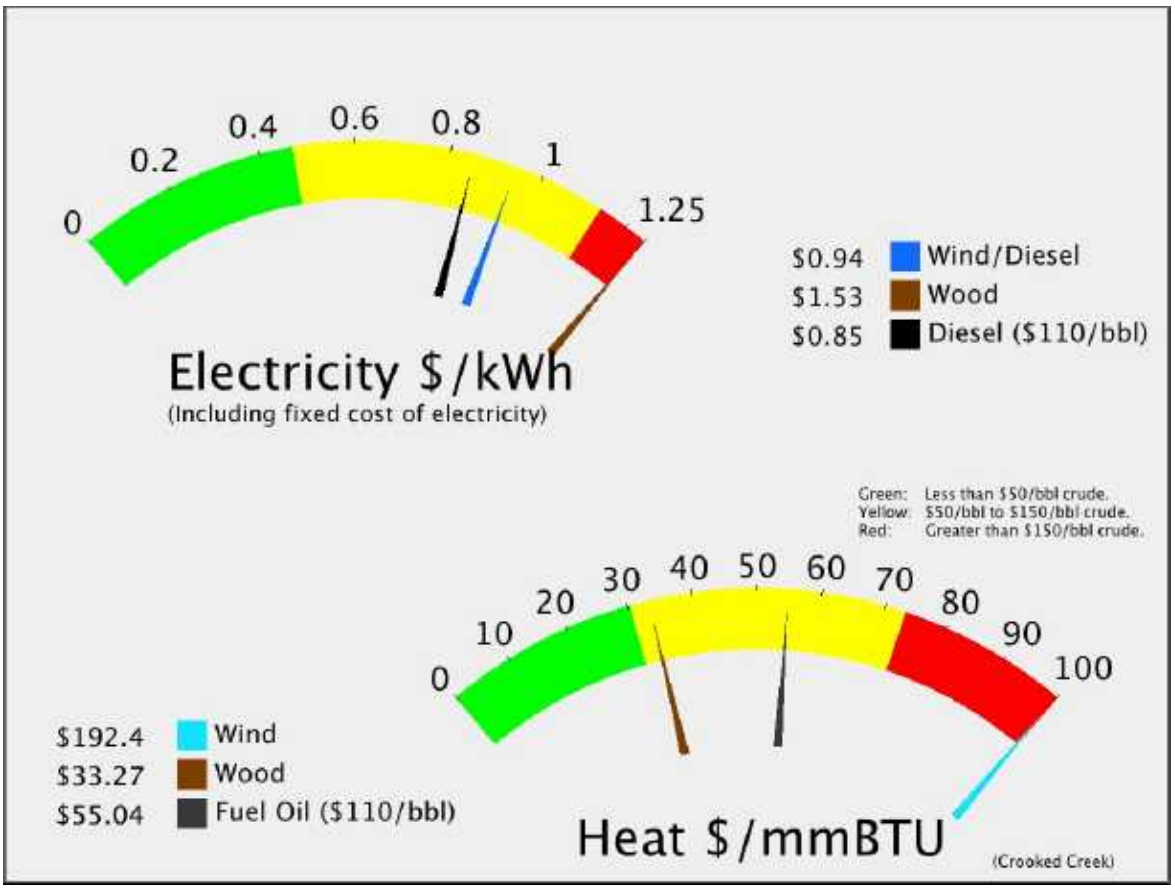
Total: **$4,201** Per capita

Heat **$2,056** Per capita

Transportation **$736** Per capita

Electricity: **$1,409** Per capita

POPULATION: 129



Crooked Creek

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 129 LATITUDE: 61d 52m N LONGITUDE: 158d 06m **Unorganized**

LOCATION Crooked Creek is located on the north bank of the Kuskokwim River at its junction with Crooked Creek. It lies in the Kilbuk-Kuskokwim Mountains 50 miles northeast of Aniak, 141 miles northeast of Bethel, and 275 miles west of Anchorage.

ECONOMY The economy is focused on subsistence activities. Salmon, moose, caribou and water fowl are staples of the diet. There are a few year-round positions at the school and store. Some residents trap and sell pelts. The Calista Corp., Kuskokwim Corp., and Placer Dome U.S. have signed an exploration and mining lease for Donlin Creek, north of Crooked Creek. Placer Dome has a 70% interest and will invest $30 million to conduct a feasibility study and develop a working gold mine by 2007, producing an estimated 600,000 ounces a year.

HISTORY It was first reported in 1844 by the Russian explorer Zagoskin, who recorded the name of the creek as "Kvikchagpak," or "great bend" in Yup'ik, and as "Khottylno," or "sharp turn" in Ingalik Indian. He noted that the site was used as a summer fish camp for the nearby villagers of Kwigiumpainukamuit. In 1909, a permanent settlement was established as a way station for the Flat and Iditarod gold mining camps. The USGS reported it in 1910 as "Portage Village" because it was at the south end of a portage route up Crooked Creek to the placer mines. In 1914, Denis Parent founded a trading post upriver from the creek mouth, in what would become the "upper village" of Crooked Creek. A post office was opened in 1927 and a school was built in 1928. The "lower village" was settled by Eskimos and Ingalik Indians. By the early 1940s, there was a Russian Orthodox Church, St. Nicholas Chapel, and several homes. The upper and lower portions of the village remain today. Gold production continued through the late 1980s, when Western Gold Mining and Exploration went out of business.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.81**	kW-hr/gal	Fuel COE	**$0.51**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.08**
Consumption in 200	**23,260**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$4,662**
Average Load	**27**	kW	NF COE:	**$0.33**	/kw-hr	Other Non-Fuel Costs:	**$76,112**
Estimated peak loa	**53.224**	kW	Total	**$0.85**		Current Fuel Costs	**$118,219**
Average Sales	**233,121**	kW-hours				**Total Electric**	**$198,993**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**43,609**	gal	
Fuel Oil:	**42%**	Estimated heating fuel cost/gallon	**$6.08**		
Wood:	**58%**	$/MMBtu delivered to user	**$55.17**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,233**		**$265,252**

Transportation (Estimated)

Estimated Diesel:	**15,600**	gal	Estimated cost	**$6.08**	**Total Transportation** **$94,888**

Energy Total **$559,133**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **17,963**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,662**	$0.02	
New fuel cost	**$91,299**	$0.39	
Avg Non-Fuel Costs:	**$80,774**	$0.33	
New cost of electricity	**$0.71** per kW-hr		

Savings **$26,292**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Plant

			Value
Water Jacket	**3,489**	gal	**$21,222**
Stack Heat	**0**	gal	**$0**

Capital cost	**$74,514**		
Annual ID	**$6,242**		
Annual OM	**$1,490**		
Total Annual costs	**$7,732**		
Heat cost	**$20.06**	$/MMBtu	

Savings **$13,490**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**
kW-hr/year	**449143**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**7**
Avg wind speed	**8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.35	
Alternative COE:		**$0.66**	
% Community energy		193%	
New Community COE		**$0.94**	
(includes non-fuel and diesel costs)			

Savings

$59,589

Alternative Energy Resources

Wood

Installed KW	**31**
kW-hr/year	**232199**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**293** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,735,718**	per kW-hr	
Annual Capital	**$116,668**	$0.50	
Annual OM	**$114,754**	$0.49	
Fuel cost:	**$44,015**	$0.19	-90
Total Annual Cost	**$275,436**	$1.19	**$29.76**
Non-Fuel Costs		$0.35	
Alternative COE:		**$1.53**	
% Community energy		100%	
New Community COE		**$1.51**	
(includes non-fuel and diesel costs)			

Savings

($153,042)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr
Cords/day:	**1.8**
Hours per year	**6000**
Wood (cordwood or willows)	**$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	48.7%

Other Resources

Crooked Creek

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

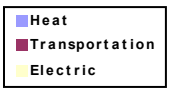
Renewable Fund Project List:

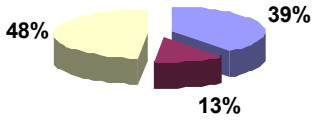
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Crooked Creek Hydro Kinetic has been submitted by: Crooked Creek Traditional Council for an Ocean/River project. The total project budget is: $368,000 with $368,000 requested in grant funding and no matching funds.

Deering

Energy Used





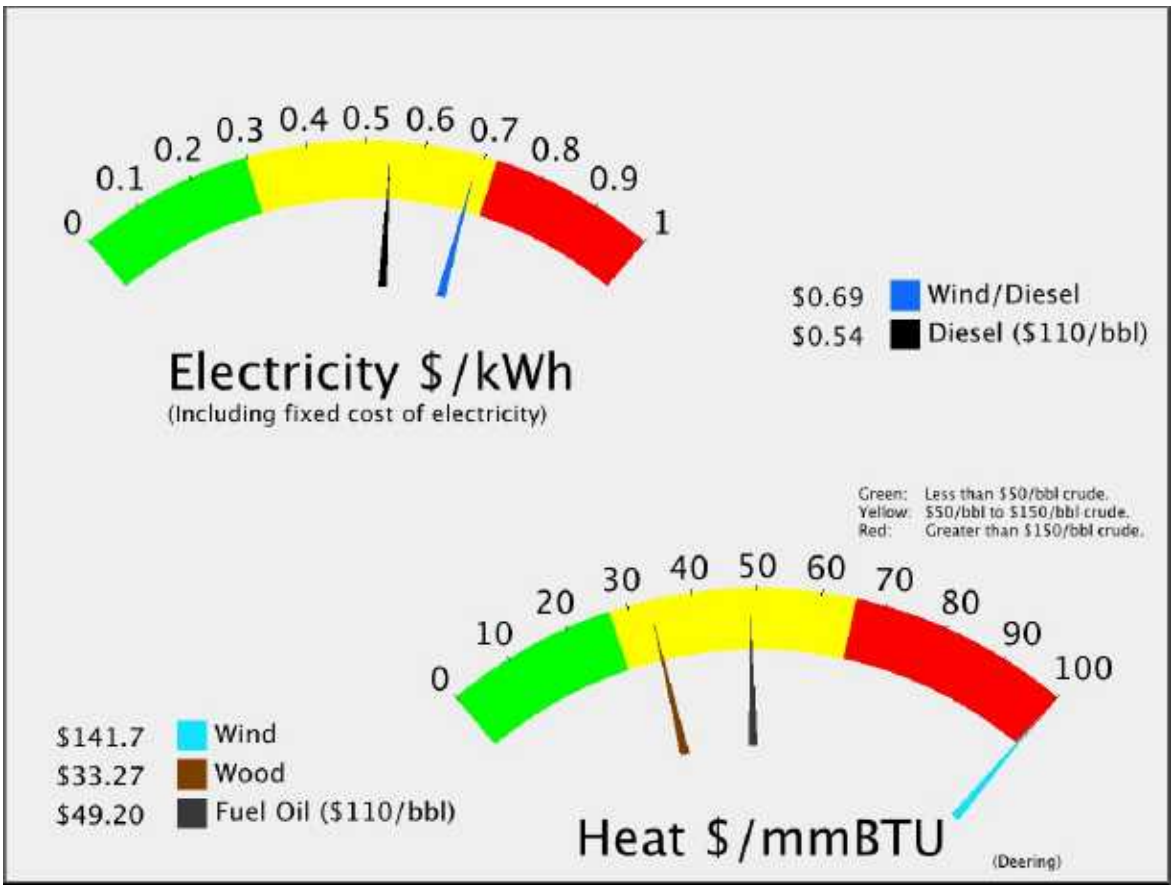
Total: **$5,526** Per capita

Heat **$2,158** Per capita

Transportation **$692** Per capita

Electricity: **$2,677** Per capita

POPULATION: 133



Deering

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 133 LATITUDE: 66d 04m N LONGITUDE: 162d 42m **Northwest Arctic Borou**

LOCATION Deering is located on Kotzebue Sound at the mouth of the Inmachuk River, 57 miles southwest of Kotzebue. It is built on a flat sand and gravel spit 300 feet wide and a half-mile long.

ECONOMY Deering's economy is a mix of cash and subsistence activities. Moose, seal and beluga whale provide most meat sources; pink salmon, tom cod, herring, ptarmigan, rabbit and waterfowl are also utilized. The Karmun-Moto reindeer herd of 1,400 animals provides some local employment. A number of residents earn income from handicrafts and trapping. The village is interested in developing a craft production facility and cultural center to train youth in Native crafts. The school, City, Maniilaq Assoc., stores, and an airline provide the only year-round jobs. Some mining occurs in the Seward Peninsula's interior. Three residents hold commercial fishing permits. The village wants to develop eco-tourism, including a 38-mile road to Inmachuk Springs for tourists.

HISTORY The village was established in 1901 as a supply station for Interior gold mining near the historic Malemiut Eskimo village of Inmachukmiut." The name Deering was probably taken from the 90-ton schooner "Abbey Deering which was in nearby waters around 1900. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.44** /kw-hr

Current efficiency	**12.63**	kW-hr/gal	Fuel COE	**$0.35**	/kw-hr	Estimated Diesel OM	**$13,495**
Consumption in 200	**53,886**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$112,541**
Average Load	**77**	kW	NF COE:	**$0.17**	/kw-hr	Current Fuel Costs	**$239,071**
Estimated peak loa	**154.05**	kW	Total	**$0.54**		**Total Electric**	
Average Sales	**674,760**	kW-hours				**$365,107**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**52,788**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.44**		
Wood:	**0%**	$/MMBtu delivered to user	**$49.31**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,335**	**$286,985**	

Transportation (Estimated)

Estimated Diesel:	**16,921**	gal	Estimated cost	**$5.44**	**Total Transportation**
					$91,994

Energy Total **$744,086**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **48,608**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.16	/kw-hr
Estimated Diesel OM	**$13,495**	$0.02	
New fuel cost	**$215,656**	$0.32	
Avg Non-Fuel Costs:	**$126,036**	$0.17	
New cost of electricity	**$0.67** per kW-hr		

Savings

($85,482)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Plant

			Value
Water Jacket	**8,083**	gal	**$43,943**
Stack Heat	**0**	gal	**$0**

Capital cost	**$215,677**		
Annual ID	**$18,067**		
Annual OM	**$4,314**		
Total Annual costs	**$22,380**		
Heat cost	**$25.06**	$/MMBtu	

Savings

$21,563

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1143593**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **4.93** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.25	$73.25
Annual OM	**$53,653**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$339,565**	$0.30	**$87.00**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.48**	
% Community energy		169%	
New Community COE		**$0.69**	

(includes non-fuel and diesel costs)

Savings

$25,542

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	40.3%

Other Resources

Deering

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal: CONFIRMED RESOURCE

Propane:

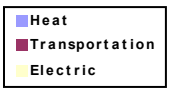
Renewable Fund Project List:

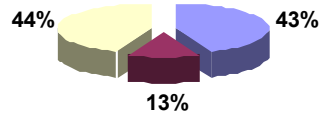
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Buckland/Deering/Noorvik Wind Farm Construction has been submitted by: Northwest Arctic Borough for a Wind Diesel Hybrid project.

Dillingham

Energy Used





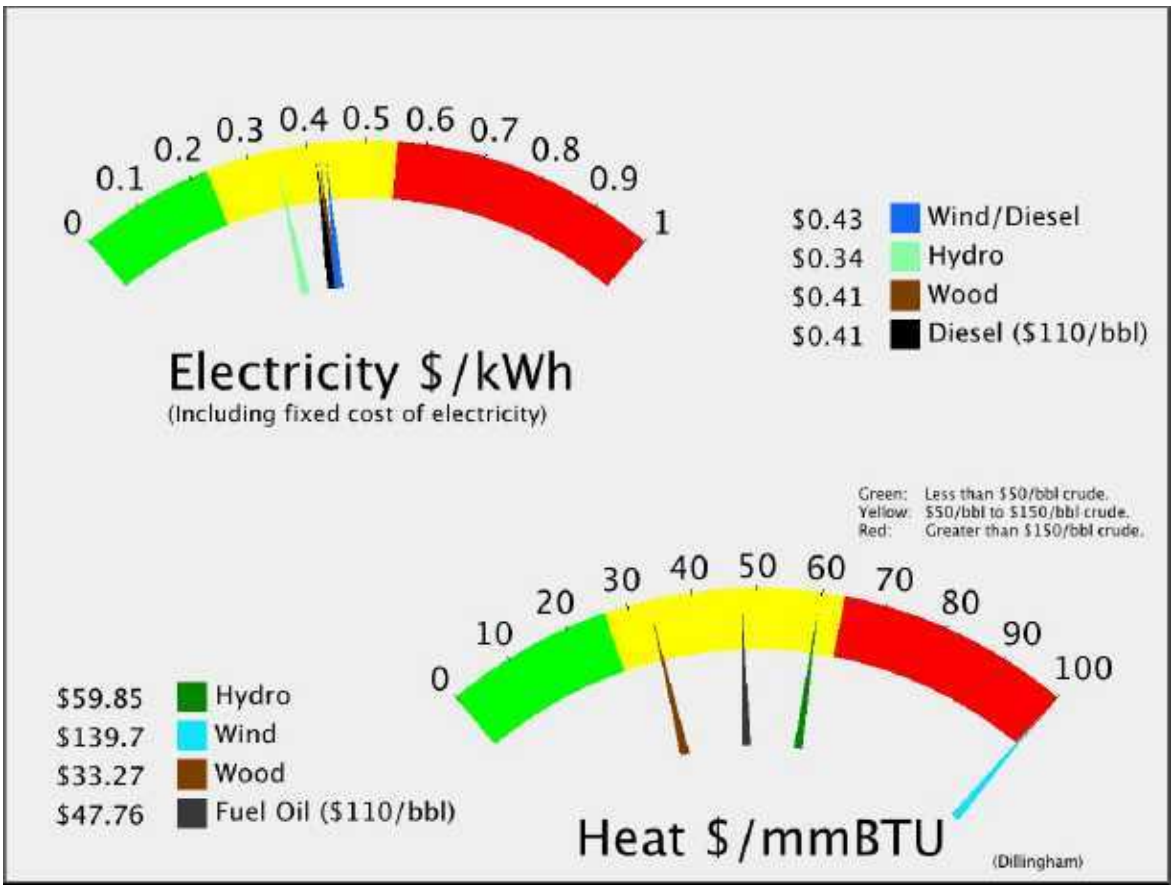
Total: **$6,421** Per capita

Heat **$2,792** Per capita

Transportation **$820** Per capita

Electricity: **$2,810** Per capita

POPULATION: 2405



Dillingham

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 2405 LATITUDE: 59d 02m N LONGITUDE: 158d 27m **Unorganized**

LOCATION Dillingham is located at the extreme northern end of Nushagak Bay in northern Bristol Bay, at the confluence of the Wood and Nushagak Rivers. It lies 327 miles southwest of Anchorage, and is a 6 hour flight from Seattle.

ECONOMY Dillingham is the economic, transportation, and public service center for western Bristol Bay. Commercial fishing, fish processing, cold storage and support of the fishing industry are the primary activities. Icicle, Peter Pan, Trident and Unisea operate fish processing plants in Dillingham. 277 residents hold commercial fishing permits. During spring and summer, the population doubles. The city's role as the regional center for government and services helps to stabilize seasonal employment. Many residents depend on subsistence activities and trapping of beaver, otter, mink, lynx and fox provide cash income. Salmon, grayling, pike, moose, bear, caribou, and berries are harvested.

HISTORY The area around Dillingham was inhabited by both Eskimos and Athabascans and became a trade center when Russians erected the Alexandrovski Redoubt (Post) in 1818. Local Native groups and Natives from the Kuskokwim Region, the Alaska Peninsula and Cook Inlet mixed together as they came to visit or live at the post. The community was known as Nushagak by 1837, when a Russian Orthodox mission was established. In 1881 the U.S. Signal Corps established a meteorological station at Nushagak. In 1884 the first salmon cannery in the Bristol Bay region was constructed by Arctic Packing Co., east of the site of modern-day Dillingham. Ten more were established within the next seventeen years. The post office at Snag Point and town were named after U.S. Senator Paul Dillingham in 1904, who had toured Alaska extensively with his Senate subcommittee during 1903. The 1918-19 influenza epidemic struck the region, and left no more than 500 survivors. A hospital and orphanage were established in Kanakanak after the epidemic, 6 miles from the present-day City Center. The Dillingham townsite was first surveyed in 1947. The City was incorporated in 1963.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.28** /kw-hr

Current efficiency	**15.50**	kW-hr/gal	Fuel COE	**$0.28**	/kw-hr	Estimated Diesel OM	**$347,077**
Consumption in 200	**1,135,544**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$1,984,680**
Average Load	**1,981**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$4,858,198**
Estimated peak loa	**3962.1**	kW	Total	**$0.41**		**Total Electric**	
Average Sales	**17,353,854**	kW-hours				**$7,189,955**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,272,000**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$5.28**		
Wood:	**1%**	$/MMBtu delivered to user	**$47.87**		**Total Heating Oil**
Electricity:	**3.4%**	Community heat needs in MMBtu	**152,640**		**$6,714,000**

Transportation (Estimated)

Estimated Diesel: **373,406** gal Estimated cost **$5.28**

Total Transportation **$1,970,947**

Energy Total **$15,874,902**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed: **#N/A**

Status **NEC**

Acheivable efficiency **14.8** kW-

New Fuel use **1,193,552**

Capital cost	**$0**		
Annual Capital cost	**$0**	$0.00	/kw-hr
Estimated Diesel OM	**$347,077**	$0.02	
New fuel cost	**$5,106,375**	$0.29	
Avg Non-Fuel Costs:	**$2,331,757**	$0.11	
New cost of electricity	**$0.42** per kW-hr		

Savings **($248,177)**

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**170,332**	gal	**$899,061**
Stack Heat	**113,554**	gal	**$599,374**

Capital cost **$5,546,894**

Annual ID **$464,644**

Annual OM **$110,938**

Total Annual costs **$575,582**

Heat cost **$18.35** $/MMBtu

Savings **$922,853**

Alternative Energy Resources

Hydro

Installed KW **2700**
kW-hr/year **6336000**
Site **Grant Lake**
Study plan effort **reconnaissance**
Plant Factor **54** %
Penetration **0.50**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$43,527,600**		
Annual Capital	**$2,170,933**	$0.34	$100.39
Annual OM	**$108,000**	$0.02	$4.99
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,278,933**	$0.36	**$105.39**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.49**	
% Community energy		37%	
New Community COE		**$0.37**	

(includes non-fuel and diesel costs)

Savings
$761,046

Alternative Energy Resources

Hydro

Installed KW **1500**
kW-hr/year **4185000**
Site **Lake Elva**
Study plan effort **feasibility**
Plant Factor %
Penetration **0.50**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$28,350,400**		
Annual Capital	**$1,286,201**	$0.31	$90.05
Annual OM	**$94,000**	$0.02	$6.58
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,380,201**	$0.33	**$96.63**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.46**	
% Community energy		24%	
New Community COE		**$0.38**	

(includes non-fuel and diesel costs)

Savings
$565,036

Alternative Energy Resources

Hydro

Installed KW **12000**
kW-hr/year **17488350**
Site **Chikuminuk Lake**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.56**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$79,756,000**		
Annual Capital	**$3,099,756**	$0.18	$51.93
Annual OM	**$579,120**	$0.03	$9.70
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,678,876**	$0.21	**$61.64**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.34**	
% Community energy		101%	
New Community COE		**$0.35**	

(includes non-fuel and diesel costs)

Savings
$3,511,079

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **4400**
kW-hr/year **4787900**
Met Tower? **no**
Homer Data? **no**
Wind Class **5**
Avg wind speed **5.99** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$21,066,761**		
Annual Capital	**$1,416,017**	$0.30	$86.65
Annual OM	**$224,631**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,640,648**	$0.34	**$100.40**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.48**	
% Community energy		28%	
New Community COE (includes non-fuel and diesel costs)		**$0.43**	

Savings
($204,852)

Alternative Energy Resources

Wood

Installed KW **2388**
kW-hr/year **17781170**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **22470** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$11,546,596**		
Annual Capital	**$776,113**	$0.04	
Annual OM	**$808,605**	$0.05	
Fuel cost:	**$3,370,520**	$0.19	-90
Total Annual Cost	**$4,955,237**	$0.28	**$29.76**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.41**	
% Community energy		102%	
New Community COE (includes non-fuel and diesel costs)		**$0.42**	

Savings
$2,234,718

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat 1.7%

Other Resources

Dillingham

Tidal: SOME POTENTIAL
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas: Basin has industrial-scale exploration potential
Coal:
Propane:

Renewable Fund Project List:

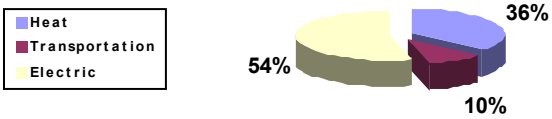
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Elva Hydropower Construction has been submitted by: Nushagak Electric & Telephone Cooperative, Inc for a Hydro project. The total project budget is: $22,000,000 with $10,000,000 requested in grant funding and $12,000,000 as matching funds.

A project titled: Snake Mountain Wind Farm Construction has been submitted by: Bristol Bay Area Health Corporation for a Wind Diesel Hybrid project. The total project budget is: $13,100,000 with $10,100,000 requested in grant funding and $2,800,000 as matching funds.

Diomede

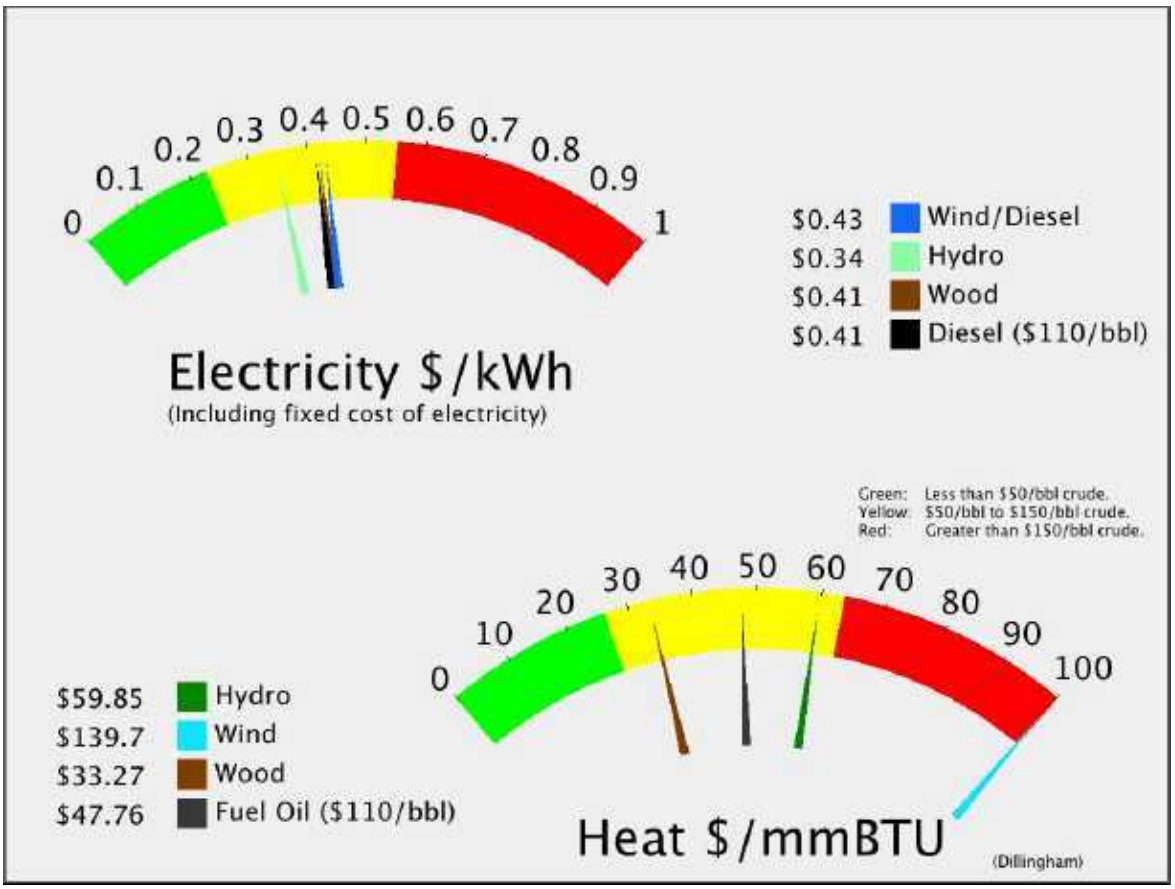
Energy Used



Total: **$5,649** Per capita

Heat	**$2,049**	Per capita
Transportation	**$555**	Per capita
Electricity:	**$3,044**	Per capita

POPULATION: 144



Diomede

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 144 LATITUDE: 65d 47m N LONGITUDE: 169d 00m **Unorganized**

LOCATION Diomede is located on the west coast of Little Diomede Island in the Bering Straits, 135 miles northwest of Nome. It is only 2.5 miles from Big Diomede Island, Russia, and the international boundary lies between the two islands.

ECONOMY Little Diomede villagers depend almost entirely upon a subsistence economy for their livelihood. Employment is limited to the City and school. Seasonal mining, construction and commercial fishing positions have been on the decline. The Diomede people are excellent ivory carvers; the City serves as a wholesale agent for the ivory. Villagers travel to Wales by boat for supplies. Mail is delivered once per week.

HISTORY Early Eskimos on the islands were fearless men of the ice and sea, with an advanced culture practicing elaborate whale hunting ceremonies. They traded with both continents. The islands were named in 1728 by Vitus Bering in honor of Saint Diomede. The 1880 Census counted 40 people, all Ingalikmiut Eskimos, in the village of "Inalet." When the Iron Curtain was formed, Big Diomede became a Soviet military base and all Native residents were moved to mainland Russia. During World War II, Little Diomede residents who strayed into soviet waters were taken captive. The City was incorporated in 1970. Some residents are interested in relocating the village, due to the rocky slopes and harsh storms, lack of useable land for housing construction, and inability to construct a water/sewer system, landfill or airport.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.86** /kw-hr

Current efficiency	**9.35**	kW-hr/gal	Fuel COE	**$0.50**	/kw-hr	Estimated Diesel OM	**$8,626**
Consumption in 200	**43,969**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$167,539**
Average Load	**49**	kW	NF COE:	**$0.39**	/kw-hr	Current Fuel Costs	**$213,527**
Estimated peak loa	**98.465**	kW	Total	**$0.90**		**Total Electric**	
Average Sales	**431,276**	kW-hours				**$389,691**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**50,394**	gal	
Fuel Oil:	**75%**	Estimated heating fuel cost/gallon	**$5.86**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.12**		**Total Heating Oil**
Electricity:	**25.0%**	Community heat needs in MMBtu	**6,047**		**$295,124**

Transportation (Estimated)

Estimated Diesel: **13,636** gal Estimated cost **$5.86**

Total Transportation **$79,858**

Energy Total **$764,673**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **29,380**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$8,626**	$0.02	
New fuel cost	**$142,676**	$0.33	
Avg Non-Fuel Costs:	**$176,164**	$0.39	
New cost of electricity	**$0.76** per kW-hr		

Savings **$70,222**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School, Water Treatment

			Value
Water Jacket	**6,595**	gal	**$38,624**
Stack Heat	**0**	gal	**$0**

Capital cost	**$137,851**		
Annual ID	**$11,547**		
Annual OM	**$2,757**		
Total Annual costs	**$14,304**		
Heat cost	**$19.63**	$/MMBtu	

Savings **$24,320**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **391951**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.46
Annual OM	**$18,389**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,721**	$0.35	**$102.20**
Non-Fuel Costs		$0.41	
Alternative COE:		**$0.76**	
% Community energy		91%	
New Community COE		**$0.75**	

(includes non-fuel and diesel costs)

Savings

$65,172

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	42.2%

Other Resources

Diomede

Tidal: SOME POTENTIAL

Wave: SOME POTENTIAL

Coal Bed Methane:

Natural Gas:

Coal:

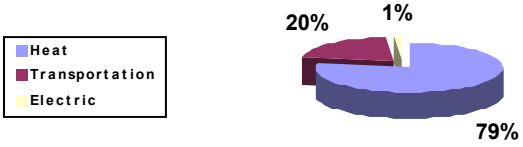
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Dot Lake

Energy Used



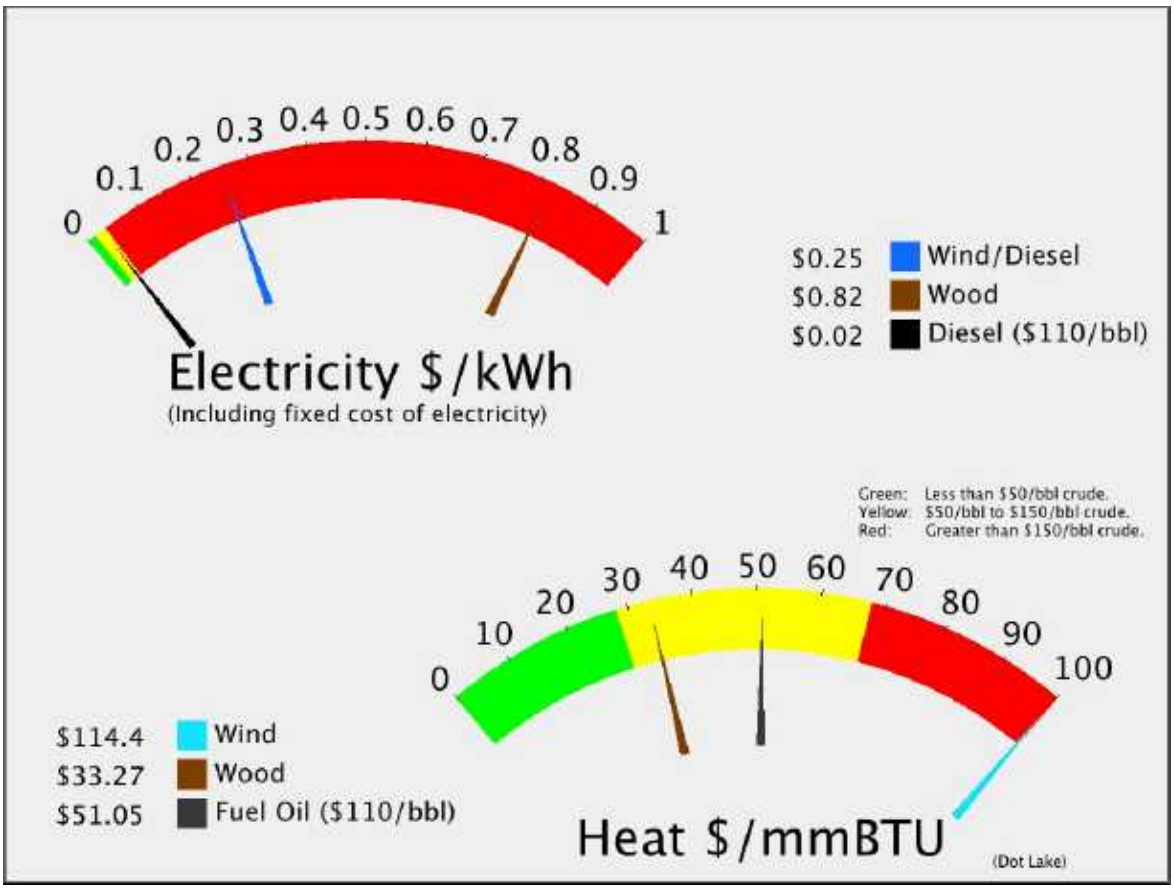
Total: $13,325 Per capita

Heat **$10,441** Per capita

Transportation **$2,706** Per capita

Electricity: **$178** Per capita

POPULATION: 15



Dot Lake

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 15 LATITUDE: 63d 39m N LONGITUDE: 144d 04m **Unorganized**

LOCATION Dot Lake is located on the Alaska Highway, 50 miles northwest of Tok, and 155 road miles southeast of Fairbanks. It lies south of the Tanana River. Dot Lake Village is located nearby.

ECONOMY Employment in the area is limited to the family-owned Dot Lake Lodge. One resident holds a commercial fishing permit.

HISTORY Archaeological evidence at nearby Healy Lake revealed more than 10,000 years of human habitation. Dot Lake was used as a seasonal hunting camp for Athabascans from George Lake and Tanacross. An Indian freight trail ran north to the Yukon River, through Northway, Tetlin, Tanacross and Dot Lake. During construction of the Alaska Highway in 1942-43, a work camp called Sears City occupied Dot Lake's present location. Fred and Jackie Vogle were the first settlers in the area. They received a home site, and by 1949 had constructed a lodge, post office, school, and the Dot Lake Community Chapel. Over the years, additional families homesteaded the area. Over 300 acres have been provided. A licensed children's home was built by the Vogels in 1967, and the present-day Dot Lake Lodge was constructed in 1973. The North Star Children's Home closed in the mid-1990s.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.64** /kw-hr

Current efficiency		kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$6,967**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$2,610**
Average Load	**40**	kW	NF COE:	**$0.01**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**79.538**	kW	Total	**$0.03**		**Total Electric**	
Average Sales	**348,375**	kW-hours					**$9,577**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**27,761**	gal
Fuel Oil:	**82%**	Estimated heating fuel cost/gallon	**$5.64**	
Wood:	**18%**	$/MMBtu delivered to user	**$51.17**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,331**	**$156,610**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **7,195** gal Estimated cost **$5.64** **$40,589**

Energy Total **$206,777**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use

Capital cost **$7,500**

Annual Capital cost **$628** $0.00 /kw-hr

Estimated Diesel OM **$6,967** $0.02

New fuel cost

Avg Non-Fuel Costs: **$9,577** $0.01

New cost of electricity **$0.36** per kW-hr

Savings

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

		Value
Water Jacket	**0** gal	**$0**
Stack Heat	**0** gal	**$0**

Capital cost **$111,353**

Annual ID **$9,328**

Annual OM **$2,227**

Total Annual costs **$11,555**

Heat cost **#Div/0!** $/MMBtu

Savings

($11,555)

Alternative Energy Resources

Wood

Installed KW	**100**	
kW-hr/year	**744600**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**941**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$0**	per kW-hr	
Annual Capital	**$0**	$0.00	
Annual OM	**$135,013**	$0.18	
Fuel cost:	**$141,143**	$0.19	-90
Total Annual Cost	**$276,156**	$0.37	**$29.76**
Non-Fuel Costs		$0.03	
Alternative COE:		**$0.40**	
% Community energy		214%	
New Community COE		**$0.82**	

(includes non-fuel and diesel costs)

Savings

($266,579)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**100**	
kW-hr/year	**214420**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**7**	
Avg wind speed	**7.00**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.32	$92.68
Annual OM	**$10,060**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,883**	$0.36	**$106.42**
Non-Fuel Costs		$0.03	
Alternative COE:		**$0.39**	
% Community energy		62%	
New Community COE		**$0.24**	

(includes non-fuel and diesel costs)

Savings

($73,591)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	76.5%

Other Resources

Dot Lake

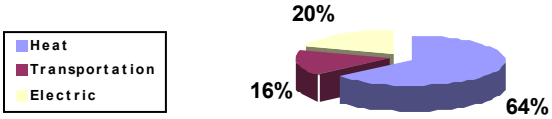
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Eagle

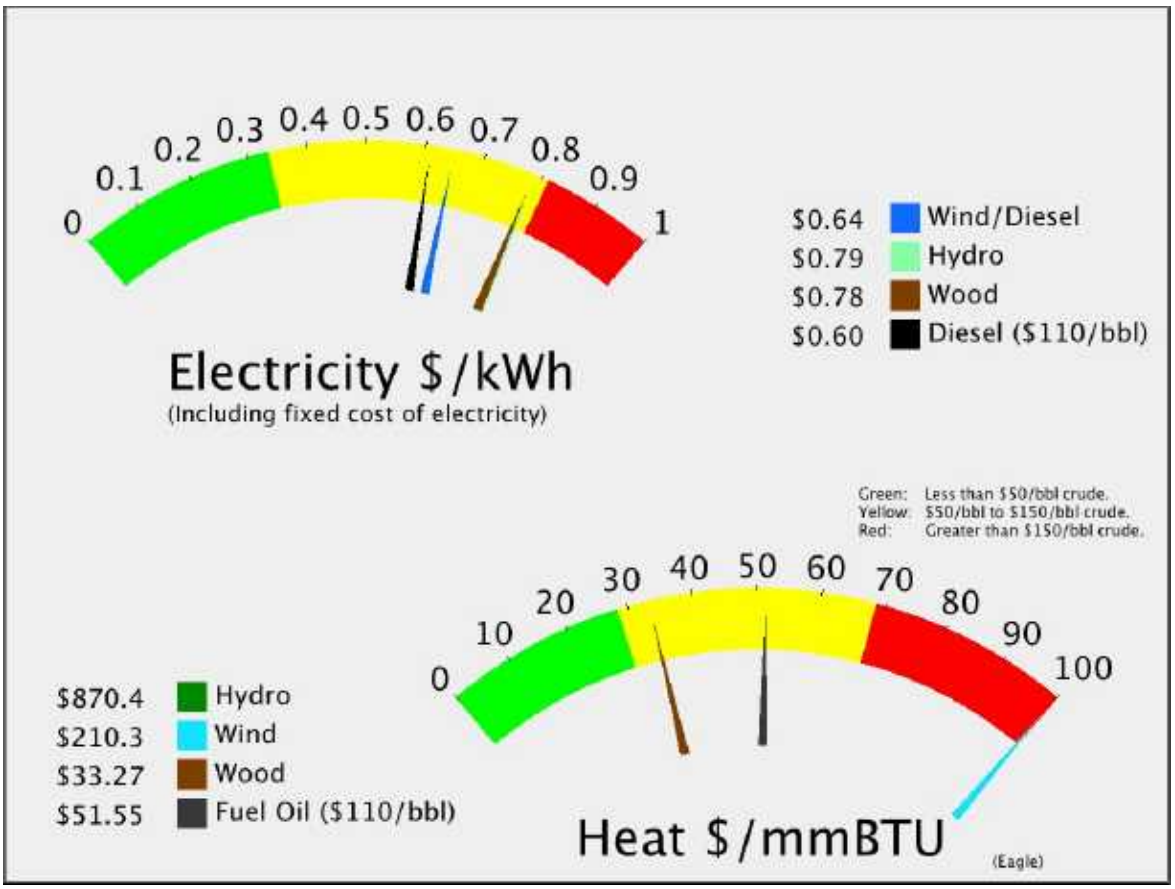
Energy Used



Total: $12,209 Per capita

Heat	**$7,757**	Per capita
Transportation	**$2,010**	Per capita
Electricity:	**$2,442**	Per capita

POPULATION: 110



Eagle

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 110 LATITUDE: 64d 47m N LONGITUDE: 141d 12m **Unorganized**

LOCATION The City of Eagle and Eagle Village are located on the Taylor Highway, 6 miles west of the Alaska-Canadian border. Eagle is on the left bank of the Yukon River at the mouth of Mission Creek. The Yukon-Charley Rivers National Preserve is northwest of the area.

ECONOMY Retail businesses, the school, mining and seasonal employment such as tourism and BLM fire-fighting provide the majority of employment. Year-round earning opportunities are limited. Subsistence activities provide some food sources.

HISTORY The area has been the historical home to Han Kutchin Indians. Established as a log house trading station called "Belle Isle" around 1874, it operated intermittently as a supply and trading center for miners working the upper Yukon and its tributaries. Eagle City was founded in 1897, and was named after the nesting eagles on nearby Eagle Bluff. By 1898, the population had grown to over 1,700. Eagle was the first incorporated city in the Interior, in January 1901. A U.S. Army camp was established in 1899, and Fort Egbert was completed in 1900. The Valdez-Eagle Telegraph line was completed in 1903. By 1910, Fairbanks and Nome gold prospects had lured away many, and the population had declined to 178. Fort Egbert was abandoned in 1911.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.70** /kw-hr

Current efficiency	**13.19**	kW-hr/gal	Fuel COE	**$0.41**	/kw-hr	Estimated Diesel OM	**$13,887**
Consumption in 200	**60,657**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$124,610**
Average Load	**79**	kW	NF COE:	**$0.18**	/kw-hr	Current Fuel Costs	**$284,882**
Estimated peak loa	**158.53**	kW	Total	**$0.61**		**Total Electric**	
Average Sales	**694,353**	kW-hours				**$423,379**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**149,782**	gal	
Fuel Oil:	**74%**	Estimated heating fuel cost/gallon	**$5.70**		
Wood:	**26%**	$/MMBtu delivered to user	**$51.67**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**17,974**		**$853,251**

Transportation (Estimated)

Estimated Diesel:	**38,820**	gal	Estimated cost	**$5.70**	**Total Transportation**
					$221,140

Energy Total **$1,497,769**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **57,149**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.07	/kw-hr
Estimated Diesel OM	**$13,887**	$0.02	
New fuel cost	**$268,405**	$0.39	
Avg Non-Fuel Costs:	**$138,497**	$0.18	
New cost of electricity	**$0.61** per kW-hr		

Savings

($33,784)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**9,099**	gal	**$51,831**
Stack Heat	**0**	gal	**$0**

Capital cost	**$221,939**		
Annual ID	**$18,591**		
Annual OM	**$4,439**		
Total Annual costs	**$23,030**		
Heat cost	**$22.91**	$/MMBtu	

Savings

$28,801

Alternative Energy Resources

Hydro

Installed KW **59**
kW-hr/year **53360**
Site **American Creek**
Study plan effort **reconnaissance**
Plant Factor **40** %
Penetration **0.26**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$10,649,440**		
Annual Capital	**$413,896**	$7.76	$2,272.70
Annual OM	**$159,782**	$2.99	$877.36
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$573,678**	$10.75	**$3,150.07**
Non-Fuel Costs		$0.20	
Alternative COE:		**$10.95**	
% Community energy		8%	
New Community COE		**$0.79**	

(includes non-fuel and diesel costs)

Savings
($124,924)

Alternative Energy Resources

Wood

Installed KW **95**
kW-hr/year **710171**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **897** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,071,089**		
Annual Capital	**$139,210**	$0.20	
Annual OM	**$133,652**	$0.19	
Fuel cost:	**$134,617**	$0.19	-90
Total Annual Cost	**$407,478**	$0.57	**$29.76**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.77**	
% Community energy		102%	
New Community COE		**$0.79**	

(includes non-fuel and diesel costs)

Savings
$15,900

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **250941**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **3.02** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.47	$138.17
Annual OM	**$11,773**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$130,105**	$0.52	**$151.91**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.72**	
% Community energy		36%	
New Community COE		**$0.64**	

(includes non-fuel and diesel costs)

Savings
($22,147)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	14.2%

Other Resources

Eagle

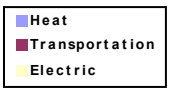
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

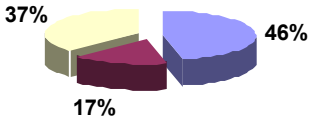
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Eek

Energy Used

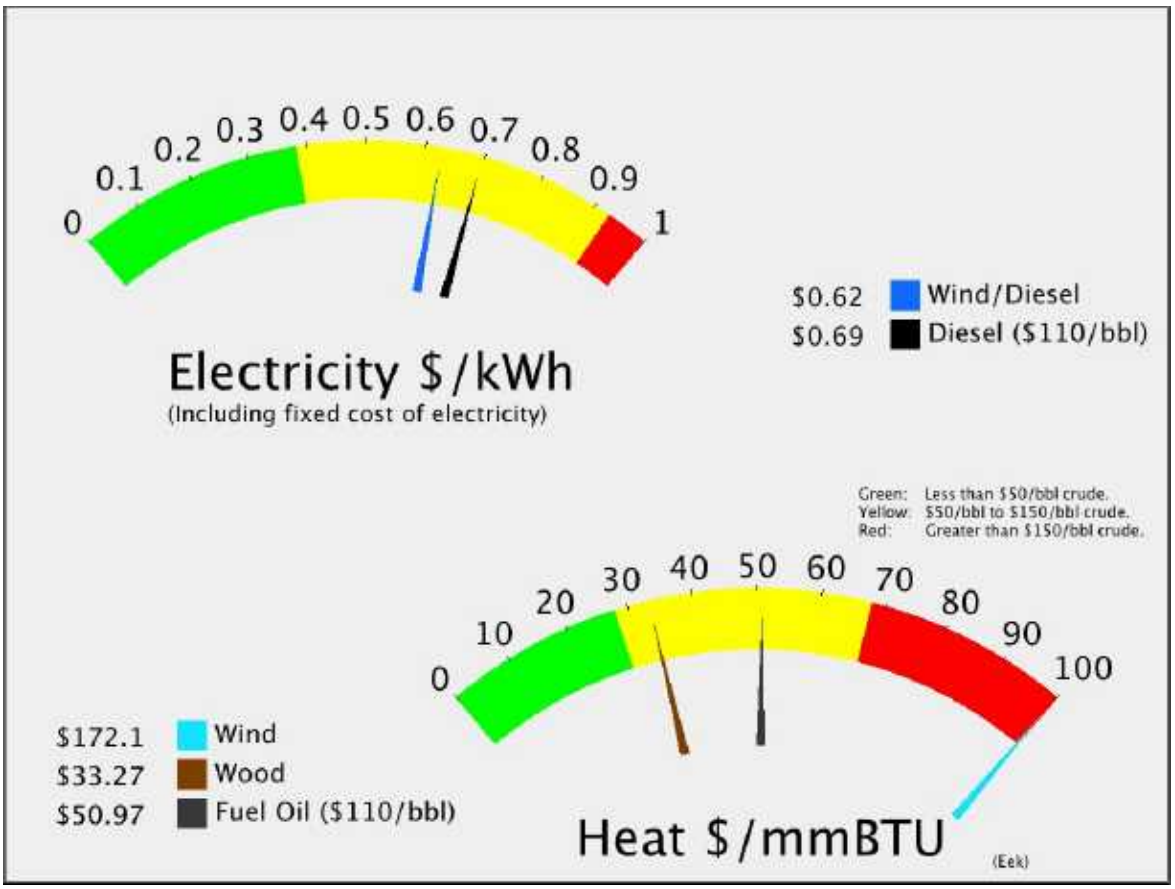




Total: **$4,643** Per capita

Heat	**$2,160**	Per capita
Transportation	**$773**	Per capita
Electricity:	**$1,710**	Per capita

POPULATION: 285



Eek

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 285 LATITUDE: 60d 13m N LONGITUDE: 162d 01m **Unorganized**

LOCATION Eek lies on the south bank of the Eek River, 12 miles east of the mouth of the Kuskokwim River. It is 35 air miles south of Bethel in the Yukon-Kuskokwim Delta, and 420 miles west of Anchorage.

ECONOMY Eek's economy is primarily subsistence- and commercial fishing-based. A few full-time positions are available at the school, City, and village office. All families participate in subsistence fishing; 44 residents hold commercial fishing permits. Poor fish returns and prices in recent years have significantly affected the economy.

HISTORY The village was originally located on the Apokok River, and moved to its present location in the 1930s. Constant flooding and erosion forced a relocation. A BIA school and a Moravian Church were constructed at the new site. A post office was established in 1949. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.63** /kw-hr

Current efficiency	**13.44**	kW-hr/gal	Fuel COE	**$0.42**	/kw-hr	Estimated Diesel OM	**$14,242**
Consumption in 200	**64,071**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$185,145**
Average Load	**81**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$296,796**
Estimated peak loa	**162.58**	kW	Total	**$0.70**		**Total Electric**	
Average Sales	**712,095**	kW-hours				**$496,183**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**109,309**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.63**		
Wood:	**0%**	$/MMBtu delivered to user	**$51.08**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,117**		**$615,664**

Transportation (Estimated)

Estimated Diesel:	**39,103**	gal	Estimated cost	**$5.63**	**Total Transportation**
					$220,241

Energy Total **$1,332,087**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **61,493**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.15	/kw-hr
Estimated Diesel OM	**$14,242**	$0.02	
New fuel cost	**$284,855**	$0.40	
Avg Non-Fuel Costs:	**$199,387**	$0.26	
New cost of electricity	**$0.76** per kW-hr		

Savings

($96,956)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, Mechanics Hut

			Value
Water Jacket	**9,611**	gal	**$54,130**
Stack Heat	**0**	gal	**$0**

Capital cost	**$227,610**		
Annual ID	**$19,066**		
Annual OM	**$4,552**		
Total Annual costs	**$23,618**		
Heat cost	**$22.24**	$/MMBtu	

Savings

$30,512

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **453775**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.41
Annual OM	**$21,289**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,622**	$0.31	**$90.15**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		64%	
New Community COE		**$0.61**	

(includes non-fuel and diesel costs)

Savings

$58,579

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	19.4%

Other Resources

Eek

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

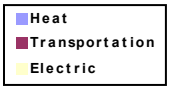
Propane:

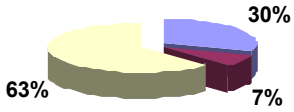
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Egegik

Energy Used





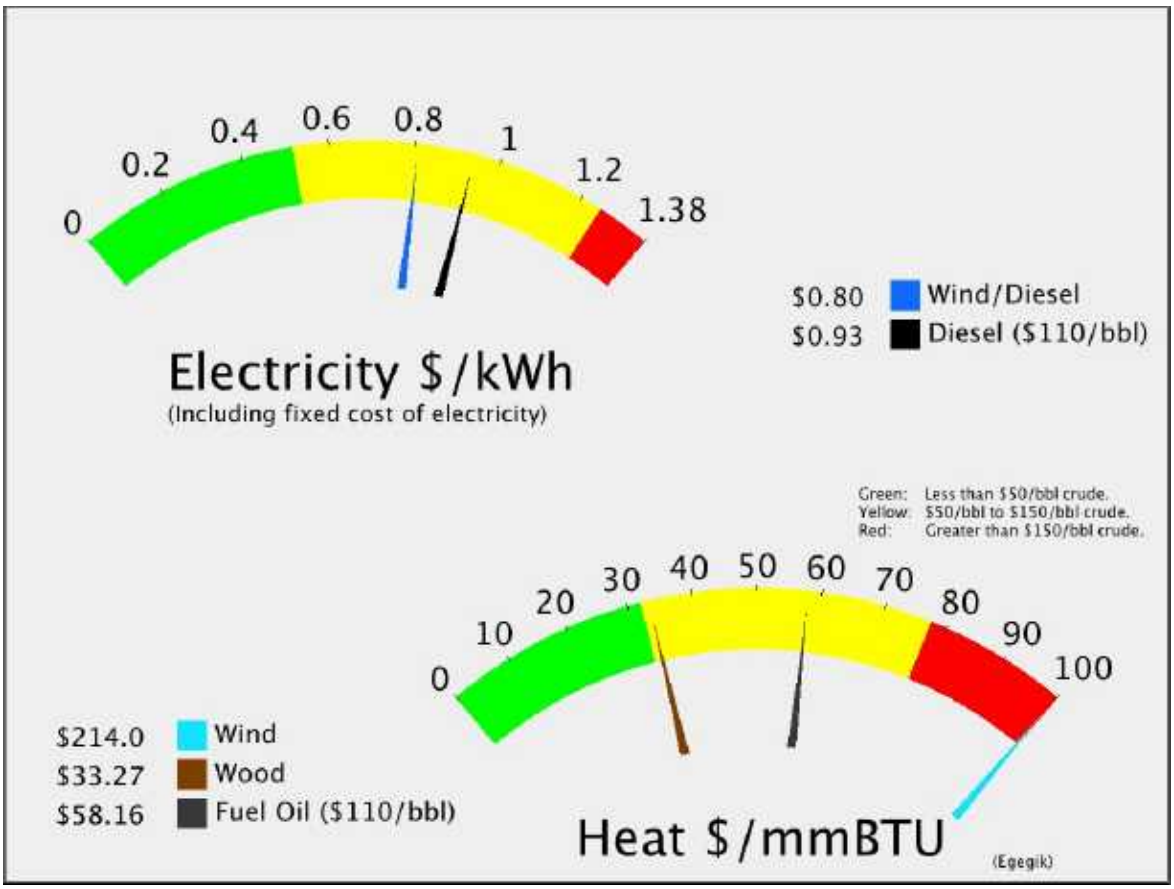
Total: $11,905 Per capita

Heat **$3,609** Per capita

Transportation **$882** Per capita

Electricity: **$7,414** Per capita

POPULATION: 64



Egegik

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 64 LATITUDE: 58d 13m N LONGITUDE: 157d 22m **Lake & Peninsula Borou**

LOCATION Egegik is located on the south bank of the Egegik River on the Alaska Peninsula, 100 miles southwest of Dillingham and 326 air miles southwest of Anchorage.

ECONOMY The economy is based on subsistence harvest, commercial fishing and fish processing. During the commercial fishing season, the population swells by 1,000 to 2,000 fishermen and cannery workers. 45 residents hold commercial fishing permits. Five on-shore processors are located on the Egegik River, three on the north shore and two on the south shore, including Woodbine Alaska Fish Co., Big Creek Fish Co., Clark Fish Co. and Alaska General Seafoods. Numerous floating processors participate in the Egegik fishery. Subsistence hunting and fishing activities are an important part of the lifestyle and local diet. Seal, beluga, salmon, trout, smelt, grayling, clams, moose, bear, caribou, porcupine, waterfowl and ptarmigan are utilized. Locals also gather berries and wild greens each season.

HISTORY According to anthropologists, settlement of the Bristol Bay region first occurred over 6,000 years ago. Yup'ik Eskimos and Athabascan Indians jointly occupied the area. Aleuts arrived in later years. The first recorded contact by non-Natives was with Russian fur traders between 1818 and 1867. The village was reported by Russians as a fish camp called "Igagik" (meaning "throat") in 1876. Local people would travel each year from Kanatak on the Gulf coast through a portage pass to Becharof Lake, and hiked or kayaked on to the Egegik Bay area for summer fish camp. In 1895, an Alaska Packers Association salmon saltery was established at the mouth of Egegik River, and a town developed around the former fish camp. During the influenza outbreaks beginning in 1918, Natives from other villages moved to Egegik in an attempt to isolate themselves from the disease. During World War II, men from Egegik were enlisted to help build the King Salmon airport, with many subsequently serving in Dutch Harbor and elsewhere. Egegik later grew into a major salmon production port. Egegik incorporated as a second-class city in 1995.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.43** /kw-hr

Current efficiency	**9.39**	kW-hr/gal	Fuel COE	**$0.55**	/kw-hr	Estimated Diesel OM	**$12,778**
Consumption in 200	**65,300**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$233,340**
Average Load	**73**	kW	NF COE:	**$0.37**	/kw-hr	Current Fuel Costs	**$354,390**
Estimated peak loa	**145.87**	kW	Total	**$0.94**		**Total Electric**	
Average Sales	**638,911**	kW-hours				**$600,508**	

Space Heating (Estimated)

2000 Census Data

Fuel Oil:	**100%**
Wood:	**0%**
Electricity:	**0.0%**

2008 Estimated Heating Fuel used: **35,939** gal

Estimated heating fuel cost/gallon **$6.43**

$/MMBtu delivered to user **$58.29**

Community heat needs in MMBtu **4,313**

Total Heating Oil

$230,986

Transportation (Estimated)

Estimated Diesel: **8,783** gal Estimated cost **$6.43**

Total Transportation

$56,446

Energy Total **$887,940**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **43,785**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.17	/kw-hr
Estimated Diesel OM	**$12,778**	$0.02	
New fuel cost	**$237,626**	$0.37	
Avg Non-Fuel Costs:	**$246,118**	$0.37	
New cost of electricity	**$0.94** per kW-hr		

Savings

$7,867

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**9,795**	gal	**$62,953**
Stack Heat	**0**	gal	**$0**

Capital cost	**$204,218**		
Annual ID	**$17,107**		
Annual OM	**$4,084**		
Total Annual costs	**$21,191**		
Heat cost	**$19.58**	$/MMBtu	

Savings

$41,762

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **396583**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **5.18** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$87.43
Annual OM	**$18,606**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,938**	$0.35	**$101.17**
Non-Fuel Costs		$0.39	
Alternative COE:		**$0.73**	
% Community energy		62%	
New Community COE		**$0.80**	

(includes non-fuel and diesel costs)

Savings

$90,973

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	59.1%

Other Resources

Egegik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

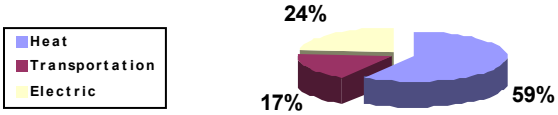
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project.

Ekwok

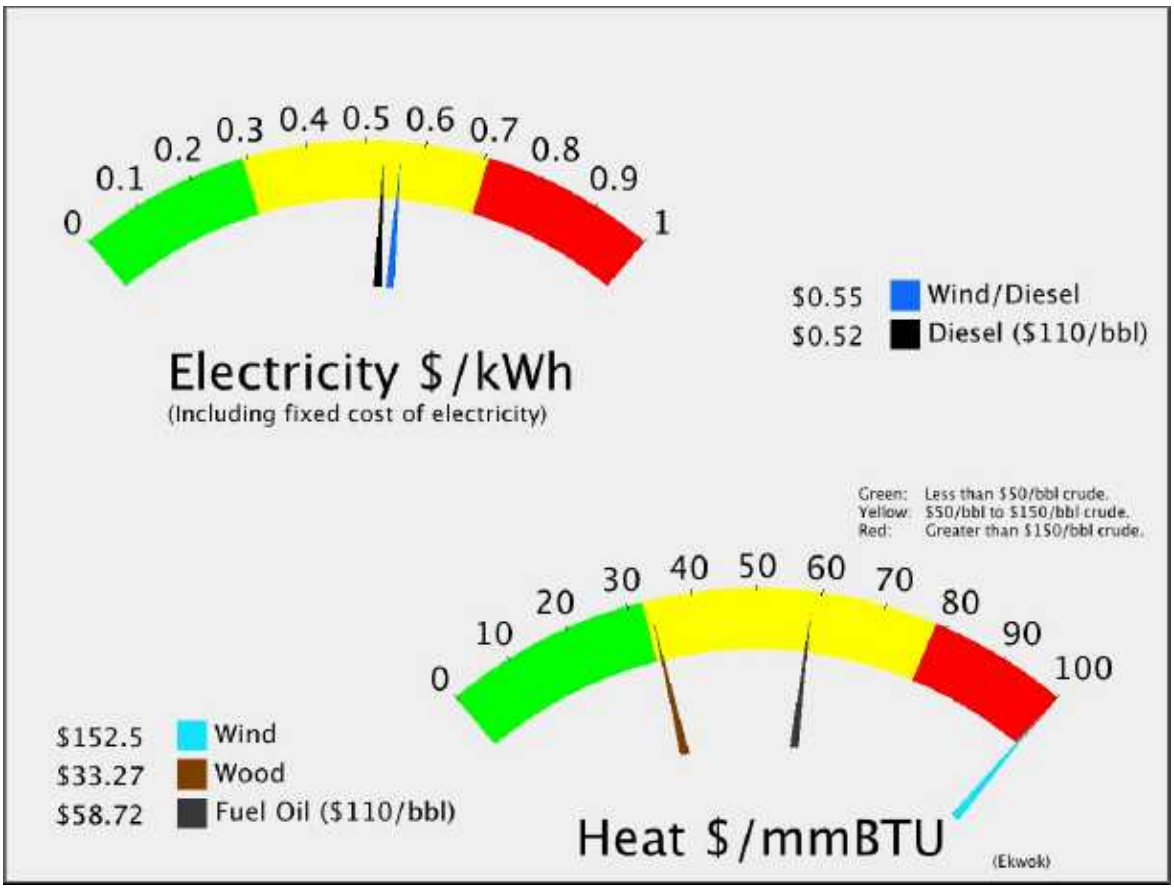
Energy Used



Total: **$6,975** Per capita

Heat	**$4,114**	Per capita
Transportation	**$1,208**	Per capita
Electricity:	**$1,654**	Per capita

POPULATION: 108



Ekwok

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 108 LATITUDE: 59d 22m N LONGITUDE: 157d 30m **Unorganized**

LOCATION Ekwok is located along the Nushagak River, 43 miles northeast of Dillingham, and 285 miles southwest of Anchorage.

ECONOMY A few residents trap. The entire population depends on subsistence activities for various food sources. Salmon, pike, moose, caribou, duck and berries are harvested. Summer gardens are also popular, because families do not leave the village to fish for subsistence purposes. Most residents are not interested in participating in a cash economy. Only six residents hold commercial fishing permits in Ekwok. The village corporation owns a fishing lodge two miles downriver. Gravel is mined near the community.

HISTORY Ekwok means end of the bluff and is the oldest continuously occupied Yup'ik Eskimo village on the river. During the 1800s, the settlement was used in the spring and summer as a fish camp, and in the fall as a base for berry-picking. By 1923, it was the largest settlement along the river. In 1930, a BIA school was constructed. Mail was delivered by dog sled from Dillingham until a post office opened in 1941. Many of the earliest homes in Ekwok were located in a low, flat area near the riverbank. After a severe flood in the early 1960s, villagers relocated on higher ground, to the current location. The City was incorporated in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.42**	kW-hr/gal	Fuel COE	**$0.34**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.49**
Consumption in 200	**23,090**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$7,465**
Average Load	**43**	kW	NF COE:	**$0.17**	/kw-hr	Other Non-Fuel Costs:	**$63,606**
Estimated peak loa	**85.222**	kW	Total	**$0.53**		Current Fuel Costs	**$126,746**
Average Sales	**373,274**	kW-hours				**Total Electric**	**$197,817**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**68,463**	gal	
Fuel Oil:	**89%**	Estimated heating fuel cost/gallon	**$6.49**		
Wood:	**11%**	$/MMBtu delivered to user	**$58.86**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,216**		**$444,272**

Transportation (Estimated)

Estimated Diesel:	**20,098**	gal	Estimated cost	**$6.49**	**Total Transportation** **$130,419**

Energy Total **$772,508**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$3,000,000**			
Complete Powerhouse		Annual Capital cost	**$251,300**	$0.67	/kw-hr	
Status **Pending**		Estimated Diesel OM	**$7,465**	$0.02		
Acheivable efficiency	**14** kW-	New fuel cost	**$112,434**	$0.30		**Savings**
New Fuel use	**20,483**	Avg Non-Fuel Costs:	**$71,071**	$0.17		**($236,988)**
		New cost of electricity		**$1.26** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working: **None**

			Value
Water Jacket	**3,464**	gal	**$22,475**
Stack Heat	**0**	gal	**$0**

Capital cost	**$119,311**		
Annual ID	**$9,994**		
Annual OM	**$2,386**		
Total Annual costs	**$12,381**		**Savings**
Heat cost	**$32.35**	$/MMBtu	**$10,095**

Alternative Energy Resources

Wood

Installed KW **0**

kW-hr/year **0**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **0** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,440,000**	per kW-hr	
Annual Capital	**$96,791**	#Div/0!	
Annual OM	**$105,573**	#Div/0!	
Fuel cost:	**$0**	#Num!	-90
Total Annual Cost	**$202,364**	#Div/0!	**$29.76**
Non-Fuel Costs		$0.19	
Alternative COE:		**#Error**	
% Community energy		0%	
New Community COE (includes non-fuel and diesel costs)			

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **417786**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$82.99
Annual OM	**$19,601**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,933**	$0.33	**$96.73**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.52**	
% Community energy		112%	
New Community COE (includes non-fuel and diesel costs)		**$0.56**	

Savings

$59,884

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	31.0%

Other Resources

Ekwok

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

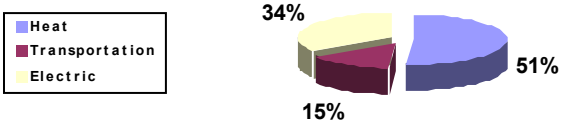
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Elfin Cove

Energy Used



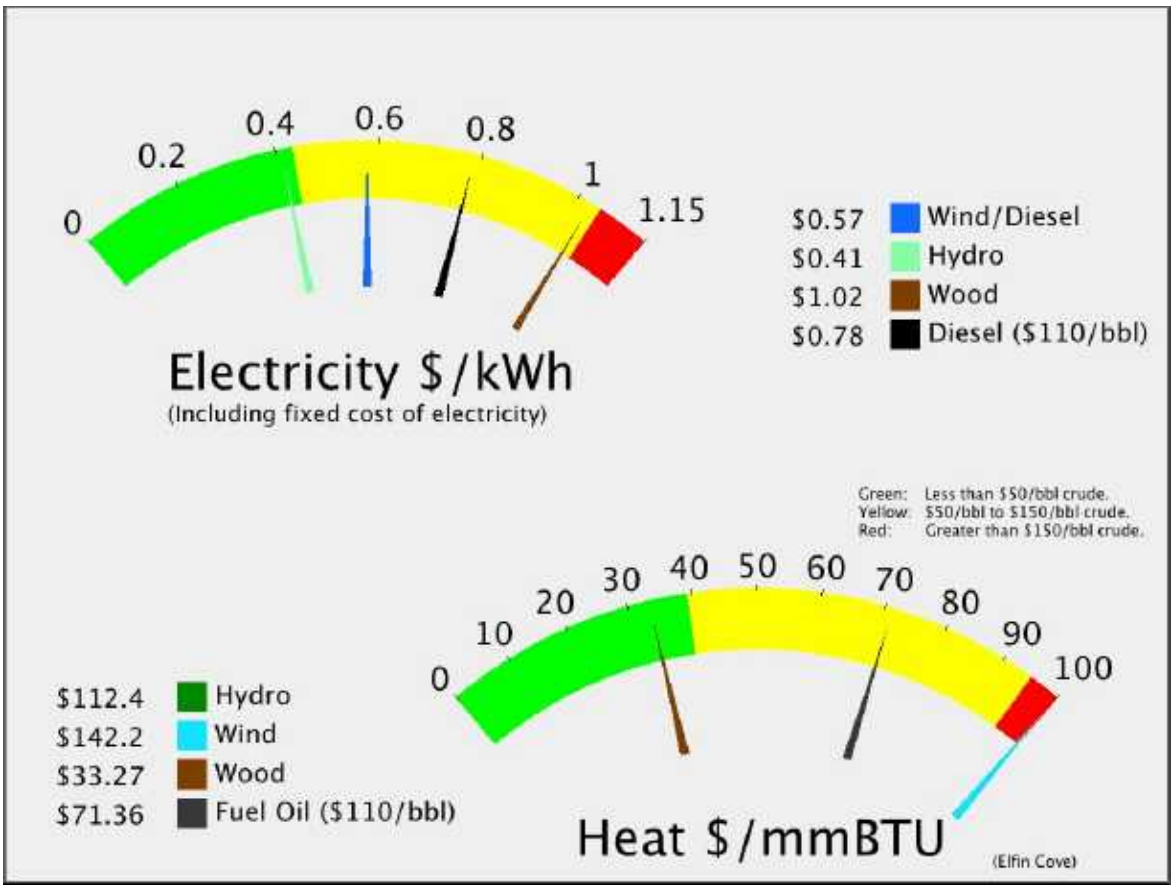
Total: $25,151 Per capita

Heat $12,860 Per capita

Transportation $3,699 Per capita

Electricity: $8,593 Per capita

POPULATION: 21



Elfin Cove

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 21 LATITUDE: 58d 11m N LONGITUDE: 136d 20m **Unorganized**

LOCATION Elfin Cove lies on the northern shore of Chichagof Island, approximately 70 miles by air and 85 miles by boat west of Juneau; and 33 miles west of Hoonah. The community is only accessible by small seaplane or boat.

ECONOMY Elfin Cove is a fish-buying and supply center for fishermen. Most residents participate in commercial fishing, sport fishing and charter services, so the economy is highly seasonal. In 2006, 30 individuals listing Elfin Cove addresses held commercial fishing permits. Summer lodges and local retail businesses also provide seasonal employment.

HISTORY This protected, flask-shaped harbor was originally called "Gunkhole" by fishermen anchoring here. Its safe anchorage and proximity to the Fairweather fishing grounds made this a natural spot for fish buyers and supplies. Ernie Swanson built a store, restaurant and dock here in the 1920s. His wife, Ruth, applied for a post office in 1935, and gave it the new name of Elfin Cove. John Lowell, another fish buyer, arrived in the 1940s and built a second dock, a warehouse, store and restaurant. According to locals, the Tlingits who visited the harbor would not overwinter because of the "evil spirits" there.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.86**	kW-hr/gal	Fuel COE	**$0.65**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$6.89**
Consumption in 200	**29,464**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,286**
Average Load	**36**	kW	NF COE:	**$0.12**	/kw-hr	Other Non-Fuel Costs:	**$38,298**
Estimated peak loa	**71.755**	kW	Total	**$0.79**		Current Fuel Costs	**$202,880**
Average Sales	**314,285**	kW-hours				**Total Electric**	**$247,464**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**34,246**	gal	
Fuel Oil:	**83%**	Estimated heating fuel cost/gallon	**$7.89**		
Wood:	**17%**	$/MMBtu delivered to user	**$71.52**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**4,110**		**$270,056**

Transportation (Estimated)

Estimated Diesel:	**9,850**	gal	Estimated cost	**$7.89**	**Total Transportation** **$77,677**

Energy Total **$595,197**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **24,967**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$6,286**	$0.02	
New fuel cost	**$171,914**	$0.55	
Avg Non-Fuel Costs:	**$44,584**	$0.12	
New cost of electricity	**$0.64** per kW-hr		

Savings **$30,338**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, Community Center

			Value
Water Jacket	**4,420**	gal	**$34,852**
Stack Heat	**0**	gal	**$0**

Capital cost	**$100,456**		
Annual ID	**$8,415**		
Annual OM	**$2,009**		
Total Annual costs	**$10,424**		
Heat cost	**$21.35**	$/MMBtu	

Savings **$24,428**

Alternative Energy Resources

Hydro

Installed KW **100**
kW-hr/year **292987**
Site **Crooked Creek / Jim's Lake**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.43**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,416,929**		
Annual Capital	**$65,081**	$0.22	$65.08
Annual OM	**$12,320**	$0.04	$12.32
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,401**	$0.26	**$77.40**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.41**	
% Community energy		93%	
New Community COE		**$0.39**	

(includes non-fuel and diesel costs)

Savings
$124,106

Alternative Energy Resources

Wood

Installed KW **42**
kW-hr/year **315354**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **399** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,506,599**		
Annual Capital	**$101,267**	$0.32	
Annual OM	**$118,041**	$0.37	
Fuel cost:	**$59,777**	$0.19	-90
Total Annual Cost	**$279,086**	$0.88	**$29.76**
Non-Fuel Costs		$0.14	
Alternative COE:		**$1.03**	
% Community energy		100%	
New Community COE		**$1.03**	

(includes non-fuel and diesel costs)

Savings
($31,622)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **398692**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.30	$86.96
Annual OM	**$18,705**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,037**	$0.34	**$100.71**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.49**	
% Community energy		127%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings
$110,427

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	62.1%

Other Resources

Elfin Cove

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

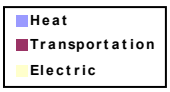
Renewable Fund Project List:

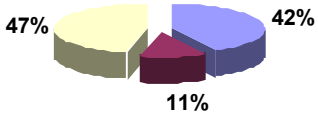
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Crooked Creek Hydro_Elfin Cove has been submitted by: Community of Elfin Cove Non-Profit Corporation, Elfin Cove Utility Commission for a Hydro project. The total project budget is: $2,203,497 with $347,200 requested in grant funding and $48,000 as matching funds.

Elim

Energy Used





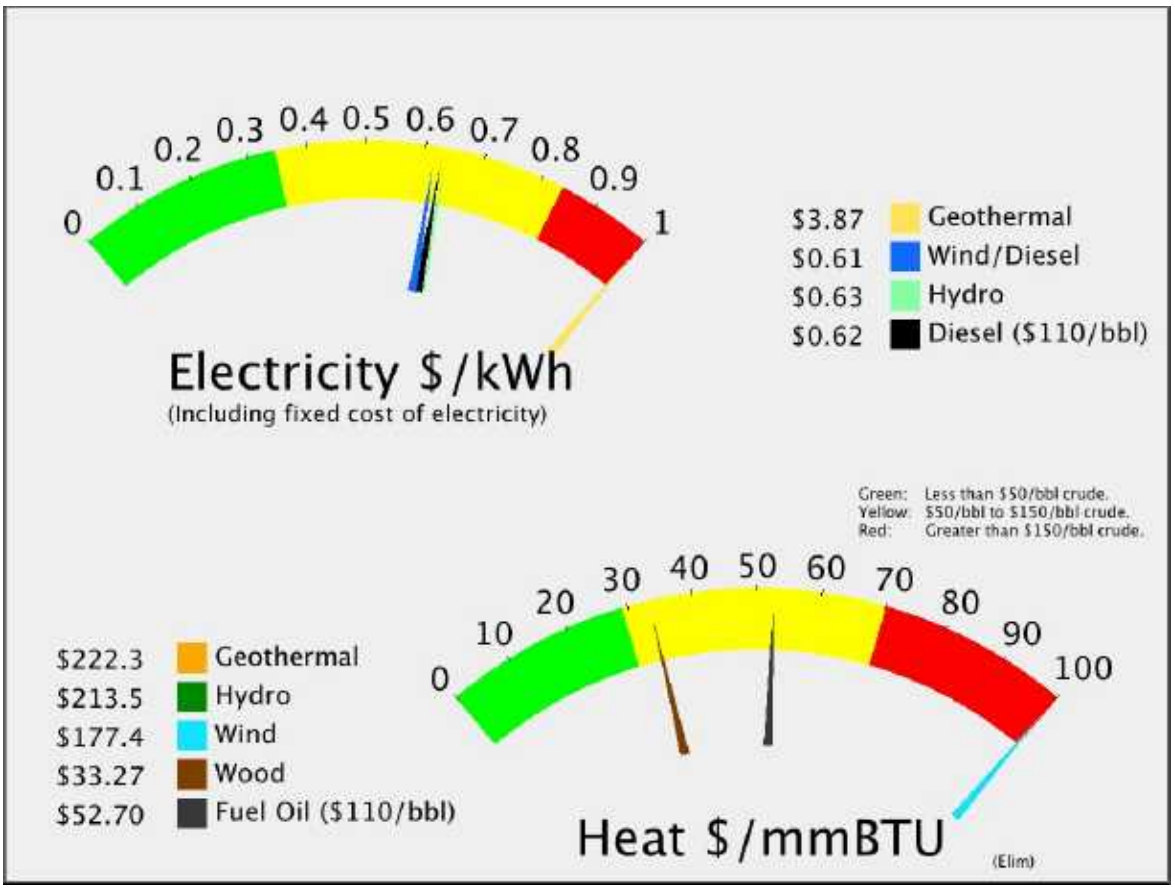
Total: **$4,709** Per capita

Heat **$1,983** Per capita

Transportation **$537** Per capita

Electricity: **$2,190** Per capita

POPULATION: 309



Elim

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 309 LATITUDE: 64d 37m N LONGITUDE: 162d 15m **Unorganized**

LOCATION Elim is located on the northwest shore of Norton Bay on the Seward Peninsula, 96 miles east of Nome. It lies 460 miles northwest of Anchorage.

ECONOMY The Elim economy is based on subsistence harvests; cash employment is limited to fishing, the city and school. Unemployment is high. 39 residents hold commercial fishing permits. The village wants to develop a fish processing plant. Residents rely on fish, seal, walrus, beluga whale, reindeer, moose and home gardens.

HISTORY This settlement was formerly the Malemiut Inupiat Eskimo village of Nuviakchak. The Native culture was well-developed and well adapted to the environment. Each tribe possessed a well-defined subsistence harvest territory. The area became a federal reindeer reserve in 1911. In 1914, Rev. L.E. Ost founded a Covenant mission and school, called Elim Mission Roadhouse. The City was incorporated in 1970. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, Elim decided not to participate, and instead opted for title to the 298,000 acres of land in the former Elim Reserve. The Iditarod Sled Dog Race passes through Elim each year.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.67**	kW-hr/gal	Fuel COE	**$0.35**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.82**
Consumption in 200	**80,391**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$22,161**
Average Load	**126**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$288,090**
Estimated peak loa	**252.98**	kW	Total	**$0.63**		Current Fuel Costs	**$387,766**
Average Sales	**1,108,037**	kW-hours				**Total Electric**	**$698,016**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**105,228**	gal	
Fuel Oil:	**76%**	Estimated heating fuel cost/gallon	**$5.82**		
Wood:	**24%**	$/MMBtu delivered to user	**$52.82**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,627**		**$612,793**

Transportation (Estimated)

Estimated Diesel:	**28,474**	gal	Estimated cost	**$5.82**	**Total Transportation** **$165,816**

Energy Total **$1,476,625**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **78,511**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$22,161**	$0.02	
New fuel cost	**$378,696**	$0.34	
Avg Non-Fuel Costs:	**$310,250**	$0.26	
New cost of electricity		**$0.63** per kW-hr	

Savings **$8,442**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**12,059**	gal	**$70,224**
Stack Heat	**0**	gal	**$0**

Capital cost	**$354,167**		
Annual ID	**$29,667**		
Annual OM	**$7,083**		
Total Annual costs	**$36,751**		
Heat cost	**$27.58**	$/MMBtu	

Savings **$33,473**

Alternative Energy Resources

Hydro

Installed KW	**125**		
kW-hr/year	**86942**		
Site	**Peterson Creek**		
Study plan effort	**reconnaissance**		
Plant Factor	**30**	%	
Penetration	**0.26**		

			Heat Cost $/MMBtu :
Capital cost	**$1,971,020**	per kW-hr	
Annual Capital	**$105,777**	$1.22	$356.48
Annual OM	**$41,700**	$0.48	$140.53
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$147,477**	$1.70	**$497.01**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.98**	
% Community energy		8%	
New Community COE		**$0.64**	
(includes non-fuel and diesel costs)			

Savings

($6,863)

Alternative Energy Resources

Geothermal

Installed KW	**1000**		
kW-hr/year	**8322000**		
Site Name	**Elim - deep**		
Project Capatcity			
Shallow Resource	**0**	Feet	
Shallow Temp	**41.00**	C	

			Heat Cost $/MMBtu :
Capital cost	**$41,000,000**	per kW-hr	
Annual Capital	**$2,755,844**	$0.33	$97.03
Annual OM	**$1,230,000**	$0.15	$43.31
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,985,844**	$0.48	**$140.33**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.76**	
% Community energy		751%	
New Community COE		**$3.88**	
(includes non-fuel and diesel costs)			

Savings

($3,287,828)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**300**	
kW-hr/year	**587923**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**7**	
Avg wind speed	**8.50**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.28	$81.67
Annual OM	**$27,583**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$191,455**	$0.33	**$95.41**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.61**	
% Community energy		53%	
New Community COE		**$0.61**	
(includes non-fuel and diesel costs)			

Savings

$26,079

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	
Cords/day:	**1.8**		
Hours per year	**6000**		
Wood (cordwood or willows)	**$225**	$/cord	

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	20.2%

Other Resources

Elim

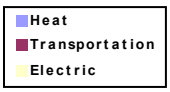
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

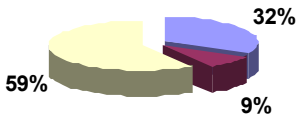
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Emmonak

Energy Used





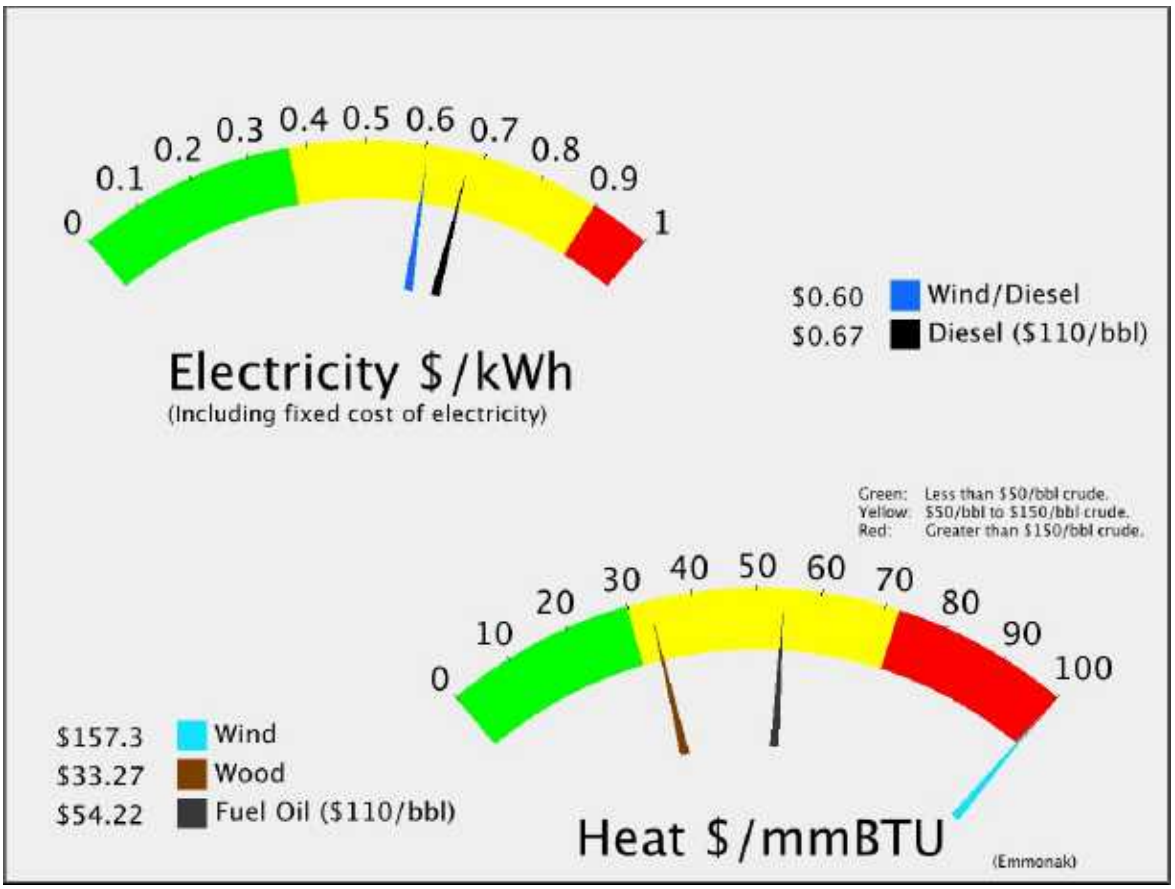
Total: **$4,084** Per capita

Heat **$1,316** Per capita

Transportation **$361** Per capita

Electricity: **$2,407** Per capita

POPULATION: 796



Emmonak

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 796 LATITUDE: 62d 47m N LONGITUDE: 164d 32m **Unorganized**

LOCATION Emmonak is located at the mouth of the Yukon River, 10 miles from the Bering Sea, on the north bank of Kwiguk Pass. It lies 120 air miles northwest of Bethel and 490 air miles from Anchorage, in the Yukon Delta National Wildlife Refuge.

ECONOMY The City experiences a seasonal economy as a center for commercial fishing, purchasing and processing on the lower Yukon River. Yukon Delta Fish Marketing Co-op and Bering Sea Fisheries process and export salmon from Emmonak. 101 residents hold commercial fishing permits. Subsistence activities, trapping and public assistance support income. The majority of the community travels to fish camps during the summer months to dry salmon for winter use. Moose, beluga whale, seal and waterfowl are also utilized.

HISTORY The village was originally called "Kwiguk," a Yup'ik word meaning "big stream." Villagers call themselves "Kuigpagmuit," or "people from the Yukon River." It has also been called "Emanguk" by the Census Bureau. The original settlement was 1.4 miles south of its present location, and was first reported by the U.S. Coast and Geodetic Survey in 1899. A post office was established there in 1920. Later, commercial fishing became a major industry in the village and the northern Commercial Company built a cannery. In 1964, the cannery was washed away by floods. That same year, the City government was incorporated. Due to increasing flooding and erosion, the village was relocated 1.4 miles north of Kwiguk in 1964-65. The new location was renamed Emmonak, which means "blackfish."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.99** /kw-hr

Current efficiency	**14.05**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$54,274**
Consumption in 200	**214,760**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$705,561**
Average Load	**310**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$1,072,103**
Estimated peak loa	**619.57**	kW	Total	**$0.68**		**Total Electric**	
Average Sales	**2,713,696**	kW-hours				**$1,831,938**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**174,879**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$5.99**		
Wood:	**3%**	$/MMBtu delivered to user	**$54.35**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**20,986**		**$1,047,895**

Transportation (Estimated)

Estimated Diesel:	**47,920**	gal	Estimated cost	**$5.99**	**Total Transportation** **$287,142**

Energy Total **$3,166,975**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **204,530**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.09	/kw-hr
Estimated Diesel OM	**$54,274**	$0.02	
New fuel cost	**$1,021,037**	$0.38	
Avg Non-Fuel Costs:	**$759,835**	$0.26	
New cost of electricity	**$0.71** per kW-hr		

Savings **($200,233)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Plant

			Value
Water Jacket	**32,214**	gal	**$193,030**
Stack Heat	**0**	gal	**$0**

Capital cost	**$867,392**		
Annual ID	**$72,658**		
Annual OM	**$17,348**		
Total Annual costs	**$90,006**		
Heat cost	**$25.29**	$/MMBtu	

Savings **$103,023**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1361318**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.21	$61.54
Annual OM	**$63,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$349,780**	$0.26	**$75.28**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		50%	
New Community COE		**$0.60**	

(includes non-fuel and diesel costs)

Savings

$215,321

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.2%

Other Resources

Emmonak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

Renewable Fund Project List:

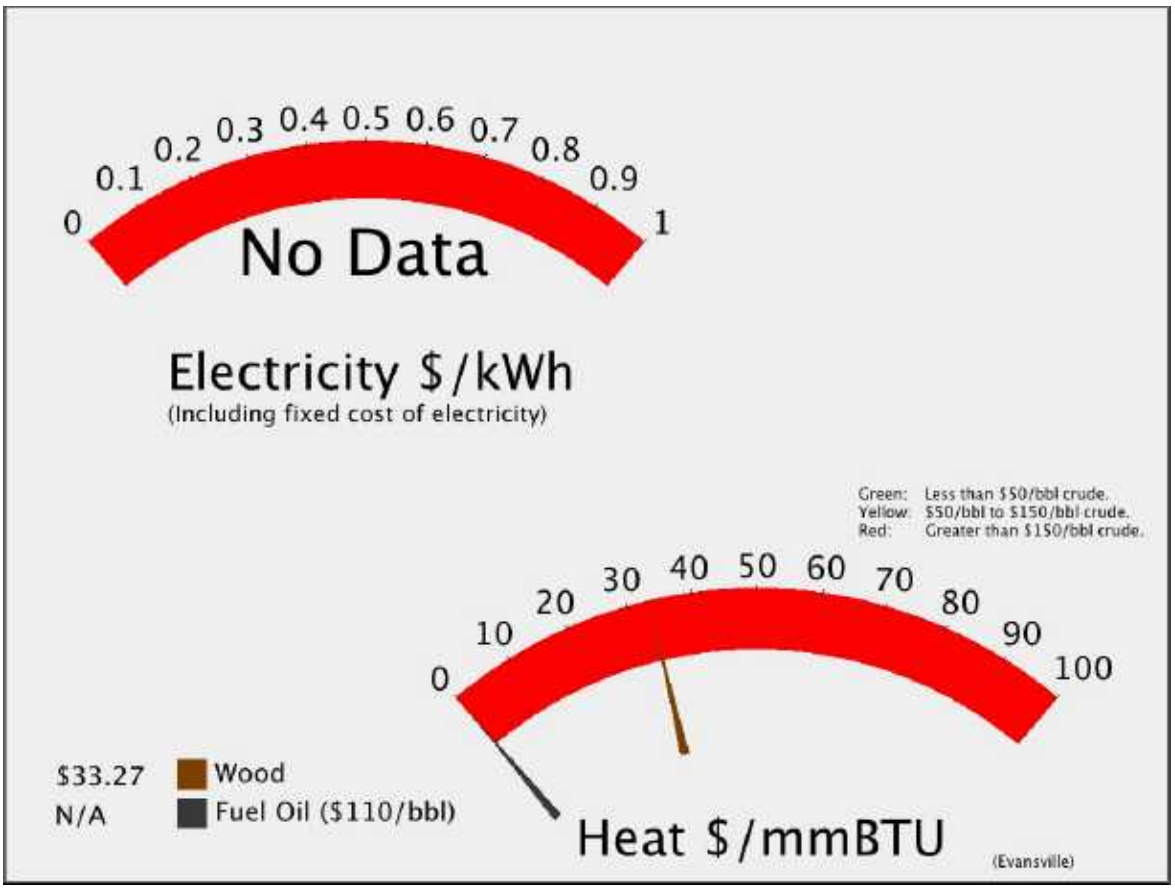
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Emmonak Wind and Transmission_AVEC has been submitted by: Alaska Village Cooperative (AVCP) for a Wind Diesel Hybrid project. The total project budget is: $10,733,179 with $9,670,361 requested in grant funding and $1,062,818 as matching funds.

Evansville

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	19
Transportation	Per capita		
Electricity:	Per capita		



Evansville

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 19 LATITUDE: 66d 55m N LONGITUDE: 151d 30m **Unorganized**

LOCATION Evansville is located about 180 air miles and 250 road miles northwest of Fairbanks, adjacent to Bettles.

ECONOMY The economy is linked to air transportation, visitor services and government. 90% of the heads of household are employed, most full-time, which is unique for a rural community. The community is accessible by road during winter months, which dramatically reduces the cost of goods and supplies. The FAA, National Park Service, school, and City provide year-round employment. During the summer, a BLM fire-fighting station and guides for the Brooks Range provide seasonal employment. Subsistence activities are important to the Native residents, however, subsistence use by the non-Natives is substantially lower. Salmon, moose, bear, caribou and sheep are utilized. Urban hunters, who drive up the Dalton Highway, also compete for local game. The Tribe provides a tribal office and operates a clinic.

HISTORY Several Native groups have lived in the area, including Koyukon Athabascans and Kobuk, Selawik, and Nunamiut Eskimos from the north and northwest. The Koyukon lived in several camps throughout the year, moving as the seasons changed, following the wild game and fish. Evansville was named for Wilford Evans, Sr., who owned a trading post and river barge business in Allakaket. Evans opened a sawmill at the present site of Evansville and built the Bettles Lodge and General Store. In 1948, the FAA constructed an airfield and communications installation at Bettles Field, adjacent to Evansville. The U.S. Navy used these facilities as a support base for exploring National Petroleum Reserve 4. Work opportunities at Bettles Field attracted both Natives and whites to the new airfield. A post office was established at the Bettles Lodge in 1950. A school was constructed in 1956. A health clinic opened in 1980. The school was closed for the 2002/2003 year due to low enrollment.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **433880**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.27	$79.91
Annual OM	**$20,356**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,688**	$0.32	**$93.66**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Evansville

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

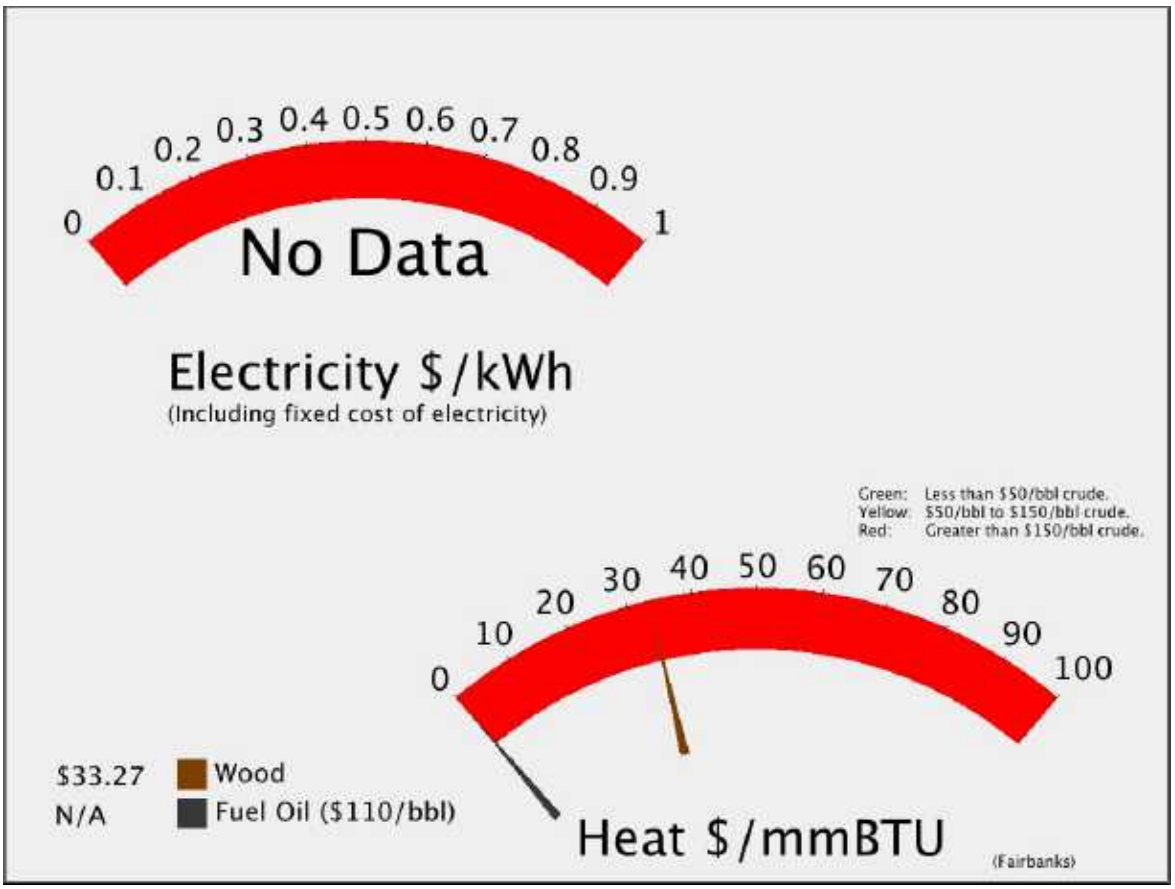
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Fairbanks

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	31639
Transportation	Per capita		
Electricity:	Per capita		



Fairbanks

Regional Corporation
Doyon, Limited
House 8
Senate : **D**

POPULATION 31639 LATITUDE: 64d 50m N LONGITUDE: 147d 43m **Fairbanks North Star Bo**

LOCATION Fairbanks is located in the heart of Alaska's Interior, on the banks of the Chena River in the Tanana Valley. By air, Fairbanks is 45 minutes from Anchorage and 3 hours from Seattle. It lies 358 road miles north of Anchorage.

ECONOMY As the regional service and supply center for Interior Alaska, Fairbanks offers a diverse economy, including city, borough, state and federal government services, transportation, communication, manufacturing, financial, and regional medical services. Tourism and mining also comprise a significant part of the economy. Including Eielson Air Force Base and Fort Wainwright personnel, over one-third of the employment is in government services. The University of Alaska Fairbanks is also a major employer. Approximately 325,000 tourists visit Fairbanks each summer. The Fort Knox hardrock gold mine produces 1,200 ounces daily with 360 permanent year-round employees. 126 City residents hold commercial fishing permits.

HISTORY Koyukon Athabascans have lived in this area for thousands of years. In 1901, Capt. E.T. Barnette established a trading post on the Chena River - "Barnette's Cache." A year later, gold was discovered 16 miles north of the post. The town grew as the Chena steamboat landing brought many prospectors during the Pedro Dome gold rush. Fairbanks was named in 1902 after Indiana Senator Charles Fairbanks, who became Vice President of the U.S. from 1905-1909. In 1903, Judge Wikersham moved the seat of the Third Judicial District from Eagle to Fairbanks. The population of the area continued to increase as Fairbanks became the hub of the Interior, with the addition of the court, government offices, a jail, a post office, and the Northern Commercial Company. Barnette was elected as the first Mayor of the City of Fairbanks in 1903, and established telephone service, fire protection, sanitation ordinances, electricity and steam heat. He also founded the Washington-Alaska Bank. By 1910, the official population had grown to 3,541, although more than 6,000 miners lived and worked their claims on creeks north of town. Ladd Field (now Fort Wainwright) was constructed in 1938. Construction of the Alcan Highway in the 1940s and the Trans-Alaska oil pipeline in the 1970s fueled growth and development.

Alternative Energy Resources

Installed KW

kW-hr/year

Capital cost

Annual Capital

Annual OM

Fuel cost:

Total Annual Cost

per kW-hr

Heat Cost $/MMBtu :

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Installed KW

kW-hr/year

Capital cost

Annual Capital

Annual OM

Fuel cost:

Total Annual Cost

per kW-hr

Heat Cost $/MMBtu :

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Installed KW

kW-hr/year

Capital cost

Annual Capital

Annual OM

Fuel cost:

Total Annual Cost

per kW-hr

Heat Cost $/MMBtu :

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

	Capital cost	per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital		
kW-hr/year	Annual OM		
	Fuel cost:		
	Total Annual Cost		
	Non-Fuel Costs		
	Alternative COE:		
	% Community energy		**Savings**
	New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Fairbanks

Tidal:	
Wave:	
Coal Bed Methane:	NO POSITIVE INDICATION OF POTENTIAL
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

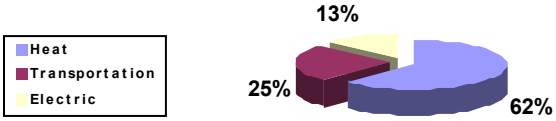
A project titled: Fairbanks Waste Gasification Feasibility Study has been submitted by: Alaska Recycling Energy, LLC for a Biofuels project. The total project budget is: $100,000,000 with $775,000 requested in grant funding and no matching funds.

A project titled: UAF Absorption Chiller has been submitted by: University of Alaska, Fairbanks for a Heat Recovery project. The total project budget is: $15,000,000 with $10,000,000 requested in grant funding and $5,000,000 as matching funds.

A project titled: UAF Photovoltaic has been submitted by: Univertity of Alaska, Fairbanks for a Solar project. The total project budget is: $370,000 with $320,000 requested in grant funding and $50,000 as matching funds.

False Pass

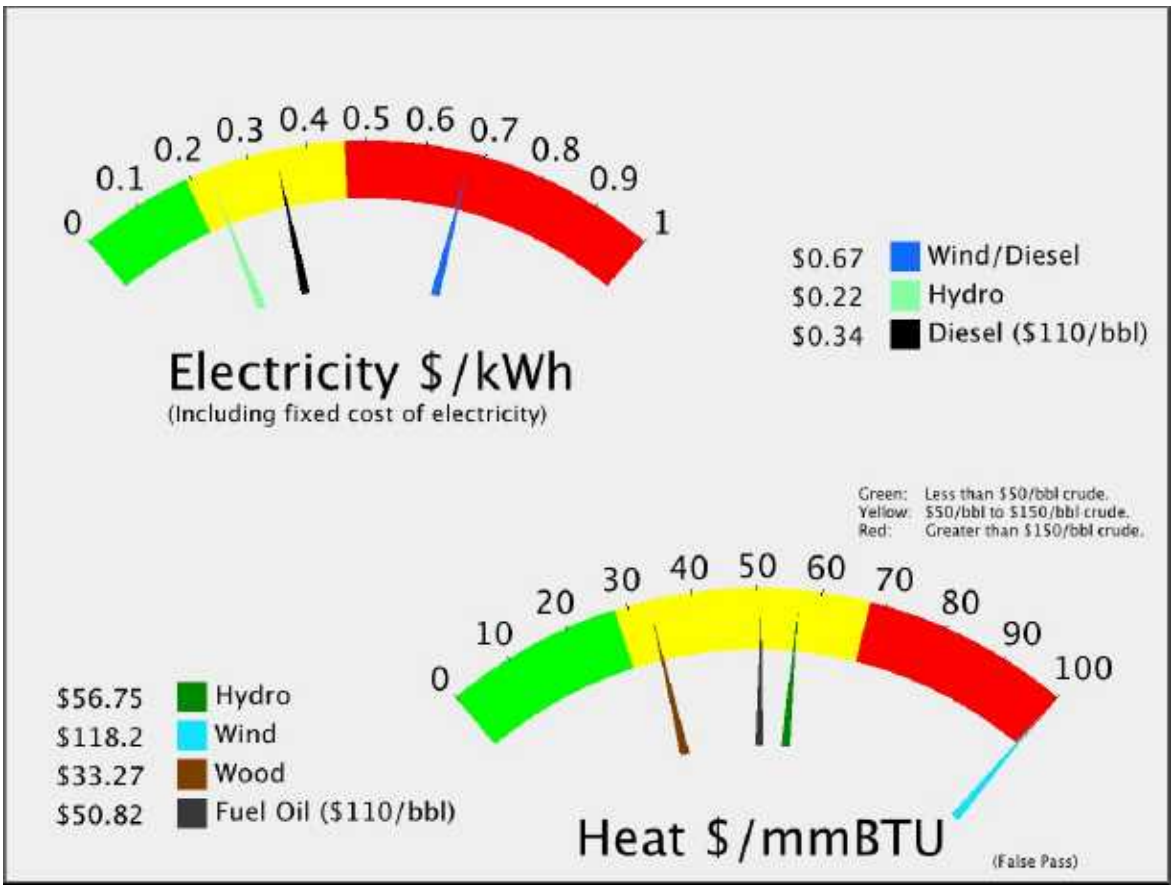
Energy Used



Total: **$9,453** Per capita

Heat	**$5,915**	Per capita
Transportation	**$2,339**	Per capita
Electricity:	**$1,199**	Per capita

POPULATION: 46



False Pass

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 46 LATITUDE: 54d 51m N LONGITUDE: 163d 24m **Aleutians East Borough**

LOCATION False Pass is located on the eastern shore of Unimak Island on a strait connecting the Pacific Gulf of Alaska to the Bering Sea. It is 646 air miles southwest of Anchorage. The city owns approximately 66 square miles of land and water.

ECONOMY The local economy is driven by commercial salmon fishing and fishing services. False Pass is an important refueling stop for Bristol Bay and Bering Sea fishing fleets. Bering Pacific and Peter Pan Seafoods process the commercial catch. Eleven residents hold commercial fishing permits. Cash income is supplemented by subsistence hunting and fishing. Salmon, halibut, geese, caribou, seals and wild cattle on Sanak Island are utilized.

HISTORY The name False Pass is derived from the fact that the Bering Sea side of the strait is extremely shallow and cannot accommodate large vessels. The area was originally settled by a homesteader in the early 1900s, and grew with the establishment of a cannery in 1917. Natives immigrated from Morzhovoi, Sanak Island and Ikatan when the cannery was built. A post office was established in 1921. The cannery has operated continuously, except for 1973 - 1976, when two hard winters depleted the fish resources. The cannery was subsequently purchased by Peter Pan Seafoods. It was destroyed by fire in March 1981, and was not rebuilt. The City was incorporated in 1990.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.43**	kW-hr/gal	Fuel COE	**$0.28**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.62**
Consumption in 200	**13,787**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$4,506**
Average Load	**26**	kW	NF COE:	**$0.05**	/kw-hr	Other Non-Fuel Costs:	**$10,244**
Estimated peak loa	**51.435**	kW	Total	**$0.35**		Current Fuel Costs	**$63,645**
Average Sales	**225,287**	kW-hours				**Total Electric**	**$78,394**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**48,443**	gal	
Fuel Oil:	**88%**	Estimated heating fuel cost/gallon	**$5.62**		
Wood:	**0%**	$/MMBtu delivered to user	**$50.94**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,813**		**$272,068**

Transportation (Estimated)

Estimated Diesel:	**19,160**	gal	Estimated cost	**$5.62**	**Total Transportation** **$107,609**

Energy Total **$458,071**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **11,256**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,506**	$0.02	
New fuel cost	**$51,961**	$0.23	
Avg Non-Fuel Costs:	**$14,749**	$0.05	
New cost of electricity	**$0.40** per kW-hr		

Savings **$11,056**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**2,068**	gal	**$11,615**
Stack Heat	**0**	gal	**$0**

Capital cost	**$72,009**		
Annual ID	**$6,032**		
Annual OM	**$1,440**		
Total Annual costs	**$7,472**		
Heat cost	**$32.70**	$/MMBtu	

Savings **$4,143**

Alternative Energy Resources

Hydro

Installed KW **900**

kW-hr/year **173061**

Site **Unnamed Stream #2**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **0.81**

			Heat Cost $/MMBtu :
Capital cost	**$7,123,500**	per kW-hr	
Annual Capital	**$297,846**	$1.72	$504.27
Annual OM	**$157,500**	$0.91	$266.65
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$455,346**	$2.63	**$770.92**

Non-Fuel Costs $0.07

Alternative COE: $2.70

% Community energy 77%

New Community COE **$0.21**

(includes non-fuel and diesel costs)

Savings

$30,160

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **406290**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$85.34
Annual OM	**$19,062**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,394**	$0.34	**$99.08**

Non-Fuel Costs $0.07

Alternative COE: $0.40

% Community energy 180%

New Community COE **$0.68**

(includes non-fuel and diesel costs)

Savings

($58,999)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	43.9%

Other Resources

False Pass

Tidal: SOME POTENTIAL

Wave: SOME POTENTIAL

Coal Bed Methane:

Natural Gas:

Coal:

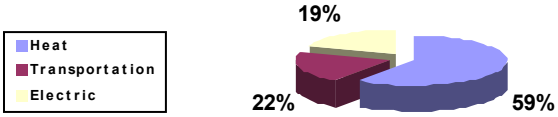
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Fort Yukon

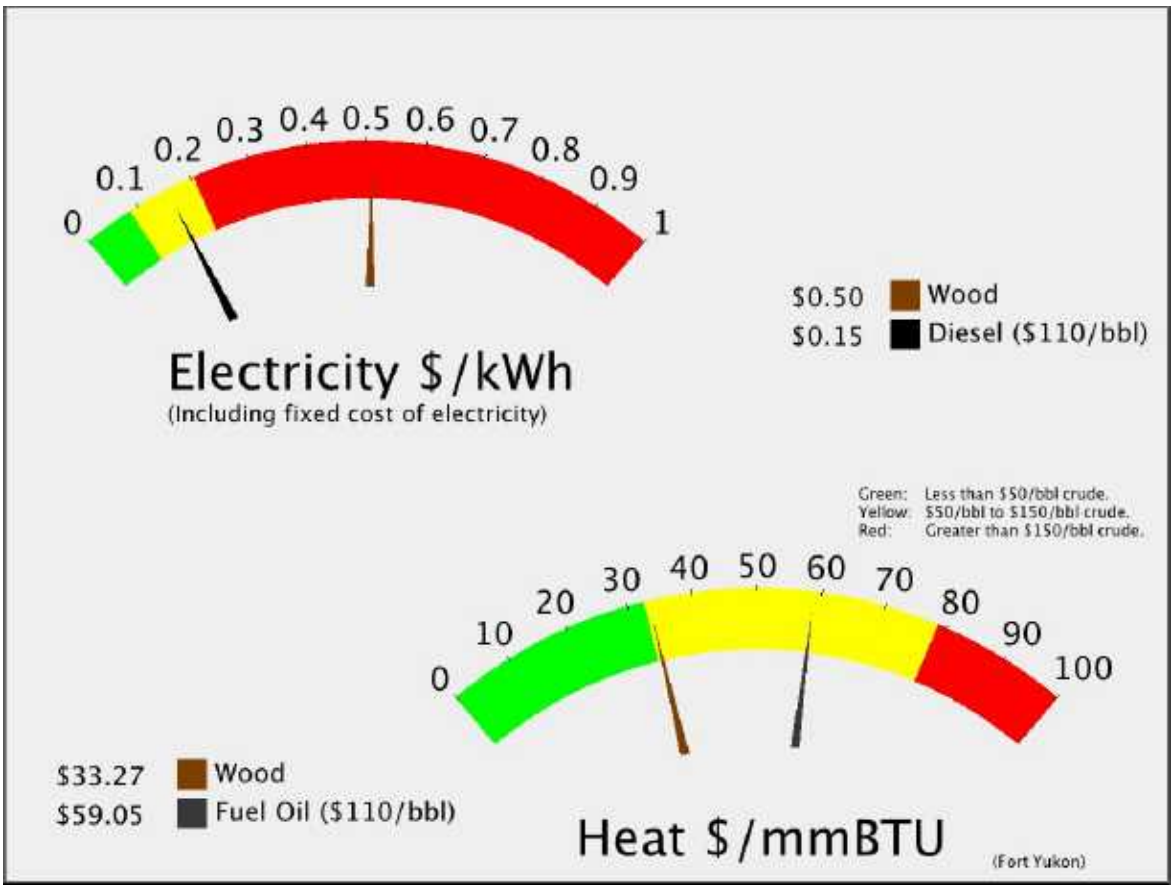
Energy Used



Total: **$3,135** Per capita

Heat	**$1,868**	Per capita
Transportation	**$675**	Per capita
Electricity:	**$591**	Per capita

POPULATION: 591



Fort Yukon

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 591 LATITUDE: 66d 34m N LONGITUDE: 145d 16m **Unorganized**

LOCATION Fort Yukon is located at the confluence of the Yukon River and the Porcupine River, about 145 air miles northeast of Fairbanks.

ECONOMY City, state, federal agencies and the Native corporation are the primary employers in Fort Yukon. The School District is the largest employer. Winter tourism is becoming increasingly popular -- Fort Yukon experiences spectacular Northern Lights. The BLM operates an emergency fire fighting base at the airport. The U.S. Air Force operates a White Alice Radar Station in Fort Yukon. Trapping and Native handicrafts also provide income. Residents rely on subsistence foods -- salmon, whitefish, moose, bear, caribou, and waterfowl provide most meat sources. One resident holds a commercial fishing permit.

HISTORY Fort Yukon was founded in 1847 by Alexander Murray as a Canadian outpost in Russian Territory. It became an important trade center for the Gwich'in Indians, who inhabited the vast lowlands of the Yukon Flats and River valleys. The Hudson Bay Company, a British trading company, operated at Fort Yukon from 1846 until 1869. In 1862, a mission school was established. In 1867, Alaska was purchased by the U.S., and two years later it was determined that Fort Yukon was on American soil. Moses Mercier, a trader with the Alaska Commercial Company, took over operation of the Fort Yukon Trading Post. A post office was established in 1898. The fur trade of the 1800s, the whaling boom on the Arctic coast (1889-1904), and the Klondike gold rush spurred economic activity and provided some economic opportunities for the Natives. However, major epidemics of introduced diseases struck the Fort Yukon population from the 1860s until the 1920s. In 1949, a flood damaged or destroyed many homes in Fort Yukon. During the 1950s, a White Alice radar site and an Air Force station were established. Fort Yukon incorporated as a city in 1959.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.53** /kw-hr

Current efficiency	**14.14**	kW-hr/gal	Fuel COE	**$0.06**	/kw-hr	Estimated Diesel OM	**$44,725**
Consumption in 200	**24,975**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$162,092**
Average Load	**255**	kW	NF COE:	**$0.07**	/kw-hr	Current Fuel Costs	**$137,992**
Estimated peak loa	**510.56**	kW	Total	**$0.15**		**Total Electric**	
Average Sales	**2,236,240**	kW-hours				**$344,809**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**169,221**	gal	
Fuel Oil:	**61%**	Estimated heating fuel cost/gallon	**$6.53**		
Wood:	**38%**	$/MMBtu delivered to user	**$59.18**		**Total Heating Oil**
Electricity:	**0.8%**	Community heat needs in MMBtu	**20,306**		**$1,104,199**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **61,135** gal Estimated cost **$6.53**

$398,916

Energy Total **$1,847,923**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Design In Pro**

Acheivable efficiency **14.8** kW-

New Fuel use **23,943**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.11	/kw-hr
Estimated Diesel OM	**$44,725**	$0.02	
New fuel cost	**$132,290**	$0.06	
Avg Non-Fuel Costs:	**$206,817**	$0.07	
New cost of electricity	**$0.58** per kW-hr		

Savings

($245,598)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Pump House

			Value
Water Jacket	**3,746**	gal	**$24,445**
Stack Heat	**0**	gal	**$0**

Capital cost	**$714,780**		
Annual ID	**$59,875**		
Annual OM	**$14,296**		
Total Annual costs	**$74,170**		
Heat cost	**$179.18**	$/MMBtu	

Savings

($49,725)

Alternative Energy Resources

Wood

Installed KW **352**

kW-hr/year **2617962**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **3308** Cd/Y

Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,387,760**		
Annual Capital	**$227,711**	$0.09	
Annual OM	**$209,082**	$0.08	
Fuel cost:	**$496,249**	$0.19	-90
Total Annual Cost	**$933,042**	$0.36	**$29.76**
Non-Fuel Costs		$0.09	
Alternative COE:	**$0.45**		
% Community energy		117%	
New Community COE (includes non-fuel and diesel costs)	**$0.51**		

Savings

($588,233)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat 12.6%

Other Resources

Fort Yukon

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal: SOME POTENTIAL

Propane:

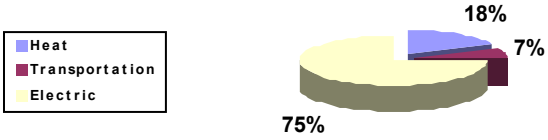
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Fort Yukon Central Wood Heating Construction has been submitted by: Gwitchyaa Zhee Utility Company for a Biomass project. The total project budget is: $4,285,161 with $2,945,991 requested in grant funding and $1,200,000 as matching funds.

Galena

Energy Used



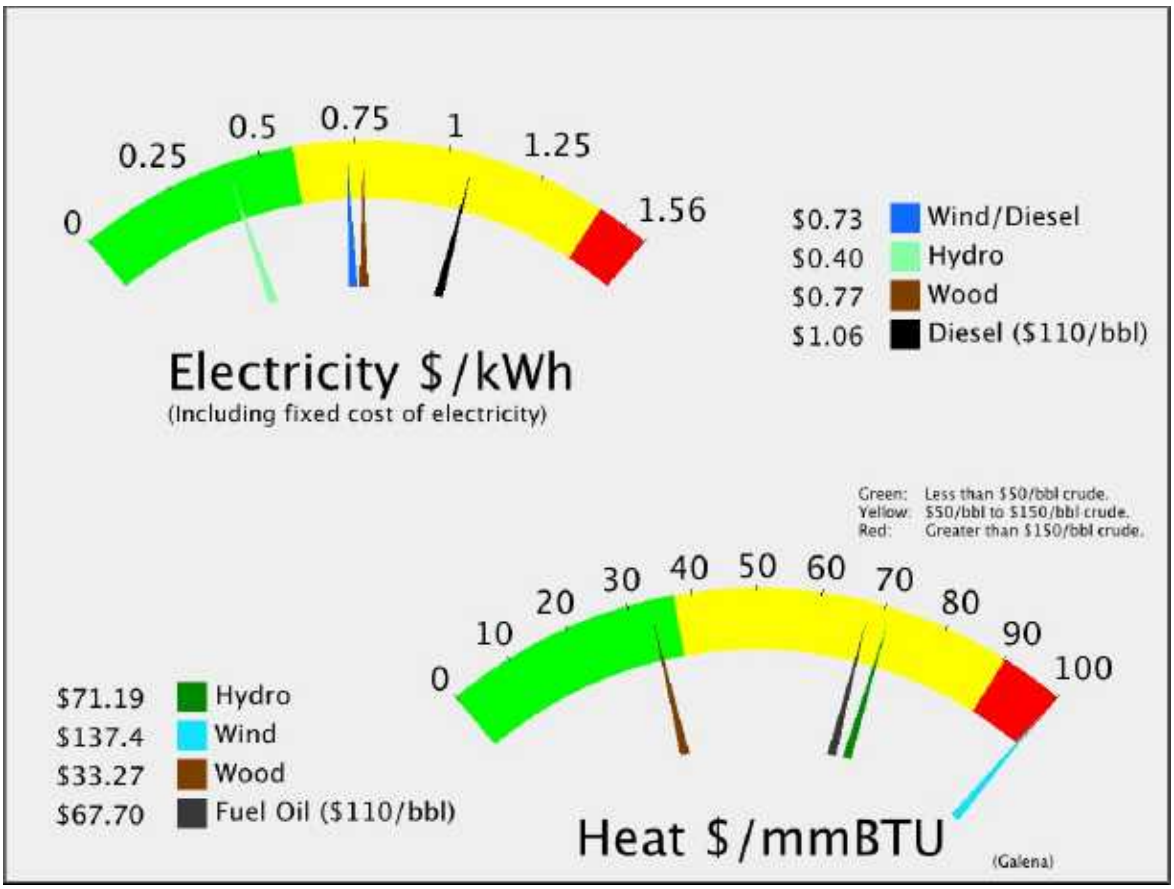
Total: **$8,939** Per capita

Heat **$1,622** Per capita

Transportation **$586** Per capita

Electricity: **$6,731** Per capita

POPULATION: 610



Galena

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 610 LATITUDE: 64d 44m N LONGITUDE: 156d 56m **Unorganized**

LOCATION Galena is located on the north bank of the Yukon River, 45 miles east of Nulato and 270 air miles west of Fairbanks. It lies northeast of the Innoko National Wildlife Refuge.

ECONOMY Galena serves as the transportation, government and commercial center for the western Interior. Federal, state, city, school and village government jobs dominate, but Galena has many other jobs in air transportation and retail businesses. 31 residents hold commercial fishing permits. Other seasonal employment, such as construction work and BLM fire fighting, provide some income. The Illinois Creek gold mine, 50 miles southwest of Galena, has closed due to low market prices.

HISTORY The area's Koyukon Athabascans had spring, summer, fall, and winter camps, and moved as the wild game migrated. In the summer many families would float on rafts to the Yukon to fish for salmon. There were 12 summer fish camps located on the Yukon River between the Koyukuk River and the Nowitna River. Galena was established in 1918 near an old Athabascan fish camp called Henry's Point. It became a supply and trans-shipment point for nearby lead ore mines. In 1920, Athabascans living 14 miles upriver at Louden began moving to Galena to sell wood to steamboats and to work hauling freight for the mines. A school was established in the mid-1920s, and a post office opened in 1932. The Galena Air Field was constructed in World War II. In 1945, the community suffered a major flood. During the 1950s, military facilities at the Galena and Campion Air Force Stations, airport and road developments, sparked growth in the community. Due to another severe flood in 1971, a new community site was developed at Alexander Lake, about 1 1/2 miles east of the original townsite. City offices, the health clinic, schools, washeteria, store, and more than 150 homes were constructed at New Town and a City government was formed. The Air Force Station was closed in 1993, and the facilities are currently being used by the Galena School District as a Boarding School. The Base facilities are maintained under contract by the Chugach Development Corp.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.46**	kW-hr/gal	Fuel COE	**$0.85**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$6.48**
Consumption in 200	**574,806**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$87,746**
Average Load	**501**	kW	NF COE:	**$0.20**	/kw-hr	Other Non-Fuel Costs:	**$875,744**
Estimated peak loa	**1001.7**	kW	Total	**$1.07**		Current Fuel Costs	**$3,725,260**
Average Sales	**4,387,284**	kW-hours				**Total Electric**	**$4,688,750**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**132,282**	gal	
Fuel Oil:	**62%**	Estimated heating fuel cost/gallon	**$7.48**		
Wood:	**31%**	$/MMBtu delivered to user	**$67.85**		**Total Heating Oil**
Electricity:	**3.3%**	Community heat needs in MMBtu	**15,874**		**$989,592**

Transportation (Estimated)

Estimated Diesel:	**47,790**	gal	Estimated cost	**$7.48**	**Total Transportation** **$357,511**

Energy Total **$6,035,853**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **524,525**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.01	/kw-hr
Estimated Diesel OM	**$87,746**	$0.02	
New fuel cost	**$3,399,394**	$0.77	
Avg Non-Fuel Costs:	**$963,489**	$0.20	
New cost of electricity	**$0.67** per kW-hr		

Savings **$275,606**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Elementary and High School, Clinic, City Hall, Swimming Pool, Showerhouse, Water Plant

			Value
Water Jacket	**86,221**	gal	**$645,010**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,402,328**

Annual ID **$117,468**

Annual OM **$28,047**

Total Annual costs **$145,515**

Heat cost **$15.27** $/MMBtu

Savings **$499,495**

Alternative Energy Resources

Hydro

Installed KW **761**
kW-hr/year **527061**
Site **Kala Creek**
Study plan effort **reconnaissance**
Plant Factor **26** %
Penetration **0.30**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$34,384,950**		
Annual Capital	**$1,386,670**	$2.63	$770.87
Annual OM	**$202,500**	$0.38	$112.57
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,589,170**	$3.02	**$883.44**
Non-Fuel Costs		$0.22	
Alternative COE:		**$3.23**	
% Community energy		12%	
New Community COE		**$1.07**	

(includes non-fuel and diesel costs)

Savings
($26,346)

Alternative Energy Resources

Wood

Installed KW **1085**
kW-hr/year **8082070**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **10213** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$6,964,683**		
Annual Capital	**$468,136**	$0.06	
Annual OM	**$425,122**	$0.05	
Fuel cost:	**$1,532,001**	$0.19	-90
Total Annual Cost	**$2,425,259**	$0.30	**$29.76**
Non-Fuel Costs		$0.22	
Alternative COE:		**$0.52**	
% Community energy		184%	
New Community COE		**$0.77**	

(includes non-fuel and diesel costs)

Savings
$2,263,490

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1200**
kW-hr/year **2462276**
Met Tower? **no**
Homer Data? **yes**
Wind Class **2**
Avg wind speed **5.80** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,421,434**		
Annual Capital	**$498,837**	$0.20	$59.36
Annual OM	**$115,521**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$614,358**	$0.25	**$73.11**
Non-Fuel Costs		$0.22	
Alternative COE:		**$0.47**	
% Community energy		56%	
New Community COE		**$0.72**	

(includes non-fuel and diesel costs)

Savings
$1,525,659

Alternative Energy Resources

Hydro

Installed KW **20000**

kW-hr/year **3500000**

Site **Melozitna River**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **0.82**

			Heat Cost $/MMBtu :
Capital cost	**$656,500**	per kW-hr	
Annual Capital	**$1,242,394**	$0.35	$104.01
Annual OM	**$808,000**	$0.23	$67.64
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,050,394**	$0.59	**$171.65**
Non-Fuel Costs		$0.22	
Alternative COE:		**$0.81**	
% Community energy		80%	**Savings**
New Community COE (includes non-fuel and diesel costs)		**$0.39**	**$2,959,997**

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	16.1%

Other Resources

Galena

Tidal:

Wave:

Coal Bed Methane: NO POSITIVE INDICATION OF POTENTIAL

Natural Gas:

Coal: VERY GOOD POTENTIAL

Propane:

Renewable Fund Project List:

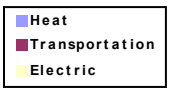
For detailed information, consult the AEA web site. akenergyauthority.org

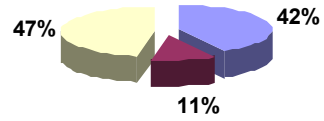
A project titled: Galena Hydrokinetic has been submitted by: City of Galena for a Ocean/River project. The total project budget is: $279,331 with $223,464 requested in grant funding and $55,866 as matching funds.

A project titled: Galena Wood Heating Construction has been submitted by: Interior Regional Housing Authority (IRHA) for a Biomass project. The total project budget is: $382,779 with $382,779 requested in grant funding and $4,659,760 as matching funds.

Gambell

Energy Used





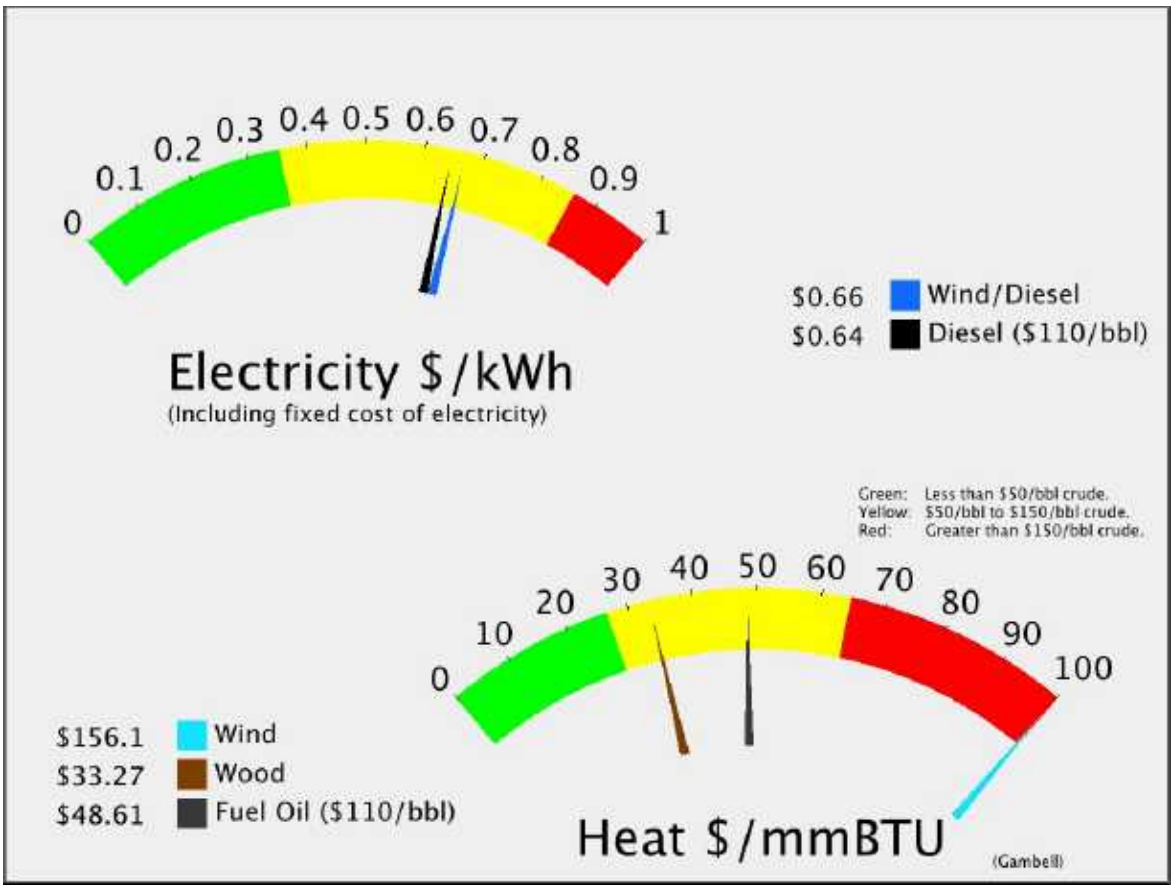
Total: **$3,573** Per capita

Heat **$1,492** Per capita

Transportation **$404** Per capita

Electricity: **$1,677** Per capita

POPULATION: 662



Gambell

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 662 LATITUDE: 63d 47m N LONGITUDE: 171d 45m **Unorganized**

LOCATION Gambell is located on the northwest cape of St. Lawrence Island, 200 miles southwest of Nome, in the Bering Sea. The City is 36 miles from the Chukotsk Peninsula, Siberia.

ECONOMY The economy in Gambell is largely based upon subsistence harvests from the sea -- seal, walrus, fish and bowhead and gray whales. Fox are trapped as a secondary source of cash income. Some reindeer roam free on the island, but most harvesting occurs out of Savoonga. Ivory carving is a popular source of income. The abundant number of seabird colonies provide an opportunity for limited tourism by bird-watchers.

HISTORY St. Lawrence Island has been inhabited intermittently for the past 2,000 years by Yup'ik Eskimos. In the 18th and 19th centuries, over 4,000 people inhabited the island in 35 villages. Sivuqaq is the Yup'ik name for the village and for the Island. The City was renamed for Mr. and Mrs. Vene C. Gambell. A tragic famine between 1878 and 1880 decimated the population. In 1900, reindeer were introduced to the island for local use, and in 1903, President Roosevelt established a reindeer reservation. During the 1930s, some residents moved to Savoonga to establish a permanent settlement there. The City was incorporated in 1963. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, Gambell and Savoonga decided not to participate, and instead opted for title to the 1.136 million acres of land in the former St. Lawrence Island Reserve. The island is jointly owned by Savoonga and Gambell.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.49**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.37** /kw-hr
Consumption in 200	**140,695**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$33,632**
Average Load	**192**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$437,217**
Estimated peak loa	**383.93**	kW	Total	**$0.65**		Current Fuel Costs	**$615,076**
Average Sales	**1,681,604**	kW-hours				**Total Electric**	**$1,085,926**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**183,822**	gal	
Fuel Oil:	**99%**	Estimated heating fuel cost/gallon	**$5.37**		
Wood:	**0%**	$/MMBtu delivered to user	**$48.72**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**22,059**		**$987,436**

Transportation (Estimated)

Estimated Diesel:	**49,741**	gal	Estimated cost	**$5.37**	**Total Transportation** **$267,191**

Energy Total **$2,340,553**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$7,500**			
Semiannual Circuit Rider			Annual Capital cost	**$628**	$0.00	/kw-hr	
Status	**Completed**		Estimated Diesel OM	**$33,632**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$592,561**	$0.35		**Savings**
New Fuel use	**135,545**		Avg Non-Fuel Costs:	**$470,849**	$0.26		**$21,887**
			New cost of electricity		**$0.59**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**21,104**	gal	**$113,366**
Stack Heat	**0**	gal	**$0**

Capital cost	**$537,499**		
Annual ID	**$45,024**		
Annual OM	**$10,750**		
Total Annual costs	**$55,774**		**Savings**
Heat cost	**$23.92**	$/MMBtu	**$57,591**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1300**

kW-hr/year **2579489**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.03** m/s

			Heat Cost $/MMBtu :
Capital cost	**$7,914,104**	per kW-hr	
Annual Capital	**$531,952**	$0.21	$60.42
Annual OM	**$121,020**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$652,972**	$0.25	**$74.17**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.53**	
% Community energy		153%	
New Community COE		**$0.67**	

(includes non-fuel and diesel costs)

Savings

$432,953

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	11.6%

Other Resources

Gambell

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

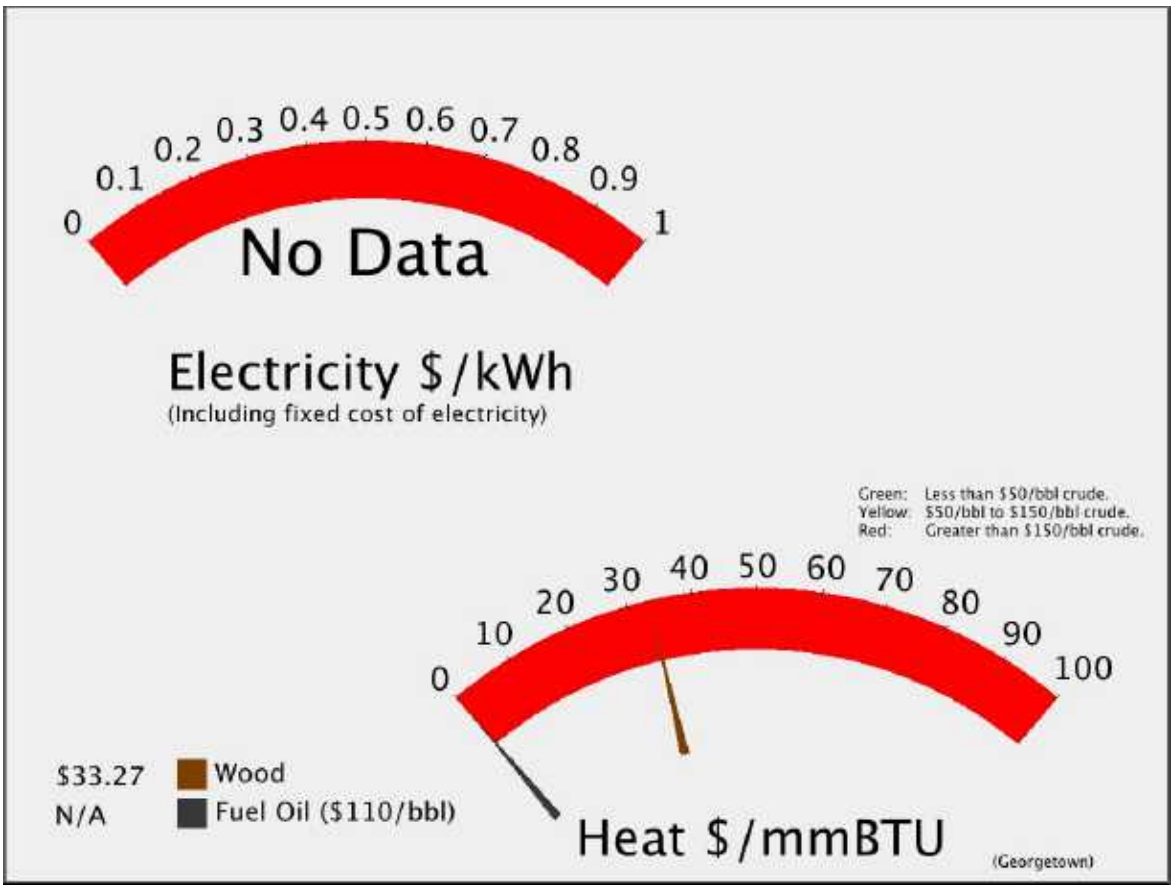
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Georgetown

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	3
Transportation	Per capita		
Electricity:	Per capita		



Georgetown

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 3 LATITUDE: 61d 53m N LONGITUDE: 157d 43m **Unorganized**

LOCATION Georgetown is located on the north bank of the upper Kuskokwim River in the Kilbuck-Kuskokwim mountains. It is east of the mouth of the George River, 16 miles northwest of Red Devil.

ECONOMY There are three year-round residents.

HISTORY The middle Kuskokwim area first experienced contact with Europeans when the Russian explorer Zagoskin sailed upriver to McGrath in 1844. At that time, Georgetown was known as Keledzhichagat, a summer fish camp for residents of Kwigiumpainukamiut. Gold was found along the George River in 1909. This mining settlement and the river were named for three traders: George Hoffman, George Fredericks and George Morgan. By 1910, about 300 prospectors were living on the west side of the George River. About 200 cabins had been built, when a fire swept through the settlement in 1911, destroying all but 25 cabins. Also saved were the two general stores in town -- the Kuskokwim Commercial Company and the Northern Commercial Company. By 1953, the only large structure that remained at the site was the two-story log house belonging to George Fredericks. In the 1950s, the present settlement, on the east side of the George River, began to develop. A State school was established in 1965, and remained until 1970.

Alternative Energy Resources

			Heat Cost $/MMBtu :
	Capital cost	per kW-hr	
Installed KW	Annual Capital		
kW-hr/year	Annual OM		
	Fuel cost:		
	Total Annual Cost		
	Non-Fuel Costs		
	Alternative COE:		
	% Community energy		**Savings**
	New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Georgetown

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

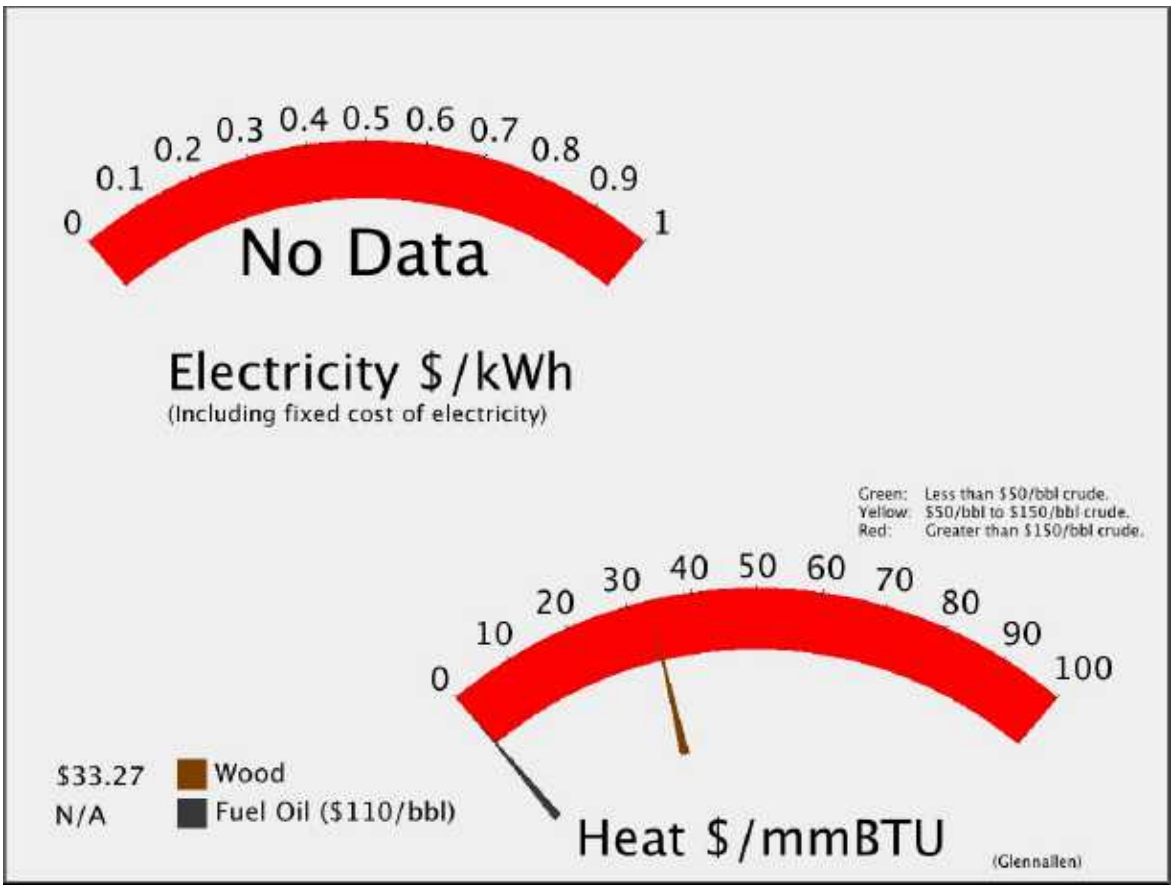
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Glennallen

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	518
Transportation	Per capita		
Electricity:	Per capita		



Glennallen

Regional Corporation
Ahtna, Incorporated
House 12
Senate : **F**

POPULATION 518 LATITUDE: 62d 07m N LONGITUDE: 145d 33m **Unorganized**

LOCATION The community of Glennallen lies along the Glenn Highway at its junction with the Richardson Highway, 189 road miles east of Anchorage. It is located just outside the western boundary of Wrangell-St. Elias National Park.

ECONOMY Glennallen is the supply hub of the Copper River region. Local businesses serve area residents and Glenn Highway traffic, supplies and services, schools and medical care. State highway maintenance and federal offices are in Glennallen. RV parks, lodging, fuel and other services cater to independent travelers. The National Park Service's Wrangell-St. Elias Visitor Center and the Copper River Princess Wilderness Lodge were completed in 2002 at Copper Center. Offices for the Bureau of Land Management, Alaska State Troopers, and the Dept. of Fish and Game are located here. There are several small farms in the area. Four residents hold commercial fishing permits.

HISTORY The name was derived from Maj. Edwin Glenn and Lt. Henry Allen, both leaders in the early explorations of the Copper River region. It is one of the few communities in the region that was not built on the site of a Native village.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **800**
kW-hr/year **1574032**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$5,359,034**		
Annual Capital	**$360,211**	$0.23	$67.05
Annual OM	**$73,848**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$434,059**	$0.28	**$80.80**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Glennallen

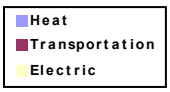
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

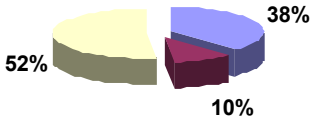
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Golovin

Energy Used





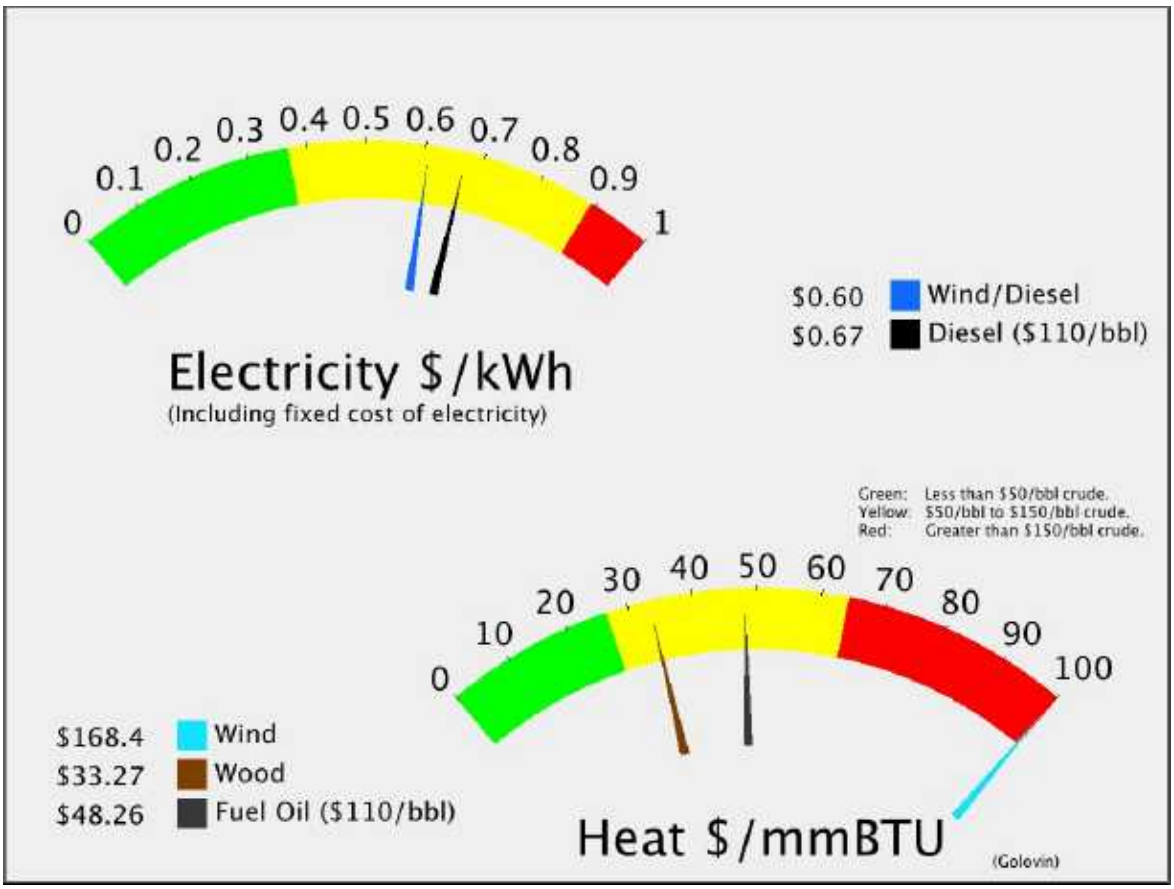
Total: **$4,775** Per capita

Heat **$1,818** Per capita

Transportation **$492** Per capita

Electricity: **$2,465** Per capita

POPULATION: 167



Golovin

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 167 LATITUDE: 64d 33m N LONGITUDE: 163d 02m **Unorganized**

LOCATION Golovin is located on a point of land between Golovnin Bay and Golovnin Lagoon on the Seward Peninsula. It is 70 miles east of Nome.

ECONOMY Golovin's economy is based on subsistence activities, reindeer herding, fish processing and commercial fishing. 14 residents hold commercial fishing permits. The salmon fishery and reindeer herding offer some potential for cash income to augment subsistence food harvests. Fish, beluga whale, seal, moose and reindeer are the main sources of meat.

HISTORY The Eskimo village of Chinik located at the present site of Golovin, was originally settled by the Kauweramiut Eskimos who later mixed with the Unaligmiut Eskimos. Golovin was named for Captain Vasili Golovnin of the Russian Navy. In 1887, the Mission Covenant of Sweden established a church and school south of the current site. Around 1890, John Dexter established a trading post that became the center for prospecting information for the entire Seward Peninsula. When gold was discovered in 1898 at Council, Golovin became a supply point for the gold fields. Supplies were shipped from Golovin across Golovnin Lagoon and up the Fish and Niukluk Rivers to Council. A post office was opened in 1899. Reindeer herding was a integral part of the missions in the area in the 1900s. The City was incorporated in 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.33** /kw-hr

Current efficiency	**11.16**	kW-hr/gal	Fuel COE	**$0.47**	/kw-hr	Estimated Diesel OM	**$11,154**
Consumption in 200	**59,991**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$102,533**
Average Load	**64**	kW	NF COE:	**$0.18**	/kw-hr	Current Fuel Costs	**$259,965**
Estimated peak loa	**127.32**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**557,676**	kW-hours				**$373,651**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**56,922**	gal	
Fuel Oil:	**91%**	Estimated heating fuel cost/gallon	**$5.33**		
Wood:	**4%**	$/MMBtu delivered to user	**$48.37**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,831**	**$303,588**	

Transportation (Estimated)

Estimated Diesel:	**15,403**	gal	Estimated cost	**$5.33**	**Total Transportation** **$82,148**

Energy Total **$759,388**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **47,820**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$11,154**	$0.02	
New fuel cost	**$207,224**	$0.37	
Avg Non-Fuel Costs:	**$113,686**	$0.18	
New cost of electricity	**$0.51** per kW-hr		

Savings **$52,113**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Bldg. Utility Shop, Water Plant

			Value
Water Jacket	**8,999**	gal	**$47,993**
Stack Heat	**0**	gal	**$0**

Capital cost **$178,253**

Annual ID **$14,932**

Annual OM **$3,565**

Total Annual costs **$18,497**

Heat cost **$18.60** $/MMBtu

Savings **$29,497**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **365206**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **4.96** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.32	$94.94
Annual OM	**$17,134**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$135,466**	$0.37	**$108.68**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.57**	
% Community energy		65%	
New Community COE (includes non-fuel and diesel costs)		**$0.59**	

Savings

$42,077

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	37.3%

Other Resources

Golovin

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

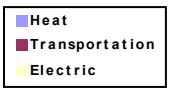
Propane:

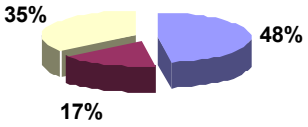
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Goodnews Bay

Energy Used





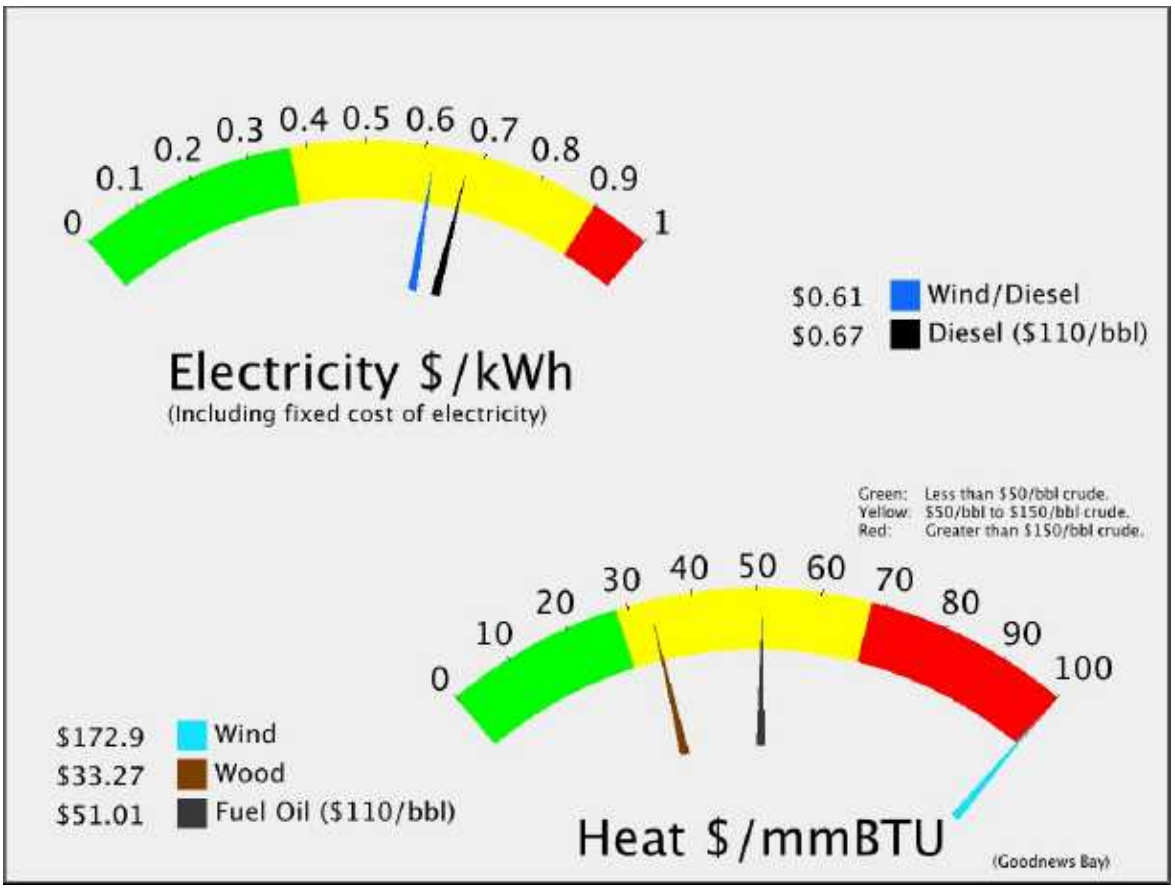
Total: **$5,179** Per capita

Heat **$2,464** Per capita

Transportation **$881** Per capita

Electricity: **$1,834** Per capita

POPULATION: 235



Goodnews Bay

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 235 LATITUDE: 59d 07m N LONGITUDE: 161d 35m **Unorganized**

LOCATION The community is located on the north shore of Goodnews Bay at the mouth of Goodnews River. It is 116 air miles south of Bethel, 110 miles northwest of Dillingham and 400 miles west of Anchorage.

ECONOMY The city, school, local businesses and commercial fishing provide the majority of the income, supplemented by subsistence activities. 41 residents hold commercial fishing permits for salmon and herring roe fisheries. Many residents engage in trapping. Subsistence upon salmon, seal, walrus, birds, berries, moose and bear is an integral part of the lifestyle.

HISTORY Yup'ik Eskimos called this village Mumtraq which was moved to its present location due to constant flooding and storms at the old site. Shortly thereafter, in the 1930s, a government school and post office were built. The City was incorporated in 1970. A high school was built in 1979.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.64** /kw-hr

Current efficiency	**12.57**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$12,984**
Consumption in 200	**55,322**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$168,797**
Average Load	**74**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$256,545**
Estimated peak loa	**148.22**	kW	Total	**$0.68**		**Total Electric**	
Average Sales	**649,218**	kW-hours				**$438,326**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**102,711**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.64**		
Wood:	**0%**	$/MMBtu delivered to user	**$51.13**		**Total Heating Oil**
Electricity:	**2.9%**	Community heat needs in MMBtu	**12,325**		**$579,011**

Transportation (Estimated)

Estimated Diesel: **36,743** gal Estimated cost **$5.64**

Total Transportation **$207,129**

Energy Total **$1,224,466**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **49,689**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.17	/kw-hr
Estimated Diesel OM	**$12,984**	$0.02	
New fuel cost	**$230,424**	$0.35	
Avg Non-Fuel Costs:	**$181,781**	$0.26	
New cost of electricity		**$0.78**	per kW-hr

Savings **($82,776)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Office, Clinic, Water and Sewer Plant

			Value
Water Jacket	**8,298**	gal	**$46,780**
Stack Heat	**0**	gal	**$0**

Capital cost	**$207,513**	
Annual ID	**$17,383**	
Annual OM	**$4,150**	
Total Annual costs	**$21,533**	
Heat cost	**$23.48**	$/MMBtu

Savings **$25,247**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **449143**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		69%	
New Community COE		**$0.60**	

(includes non-fuel and diesel costs)

Savings

$47,052

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	20.7%

Other Resources

Goodnews Bay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

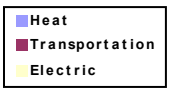
Propane:

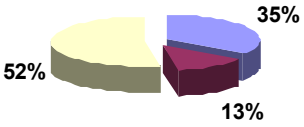
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Grayling

Energy Used





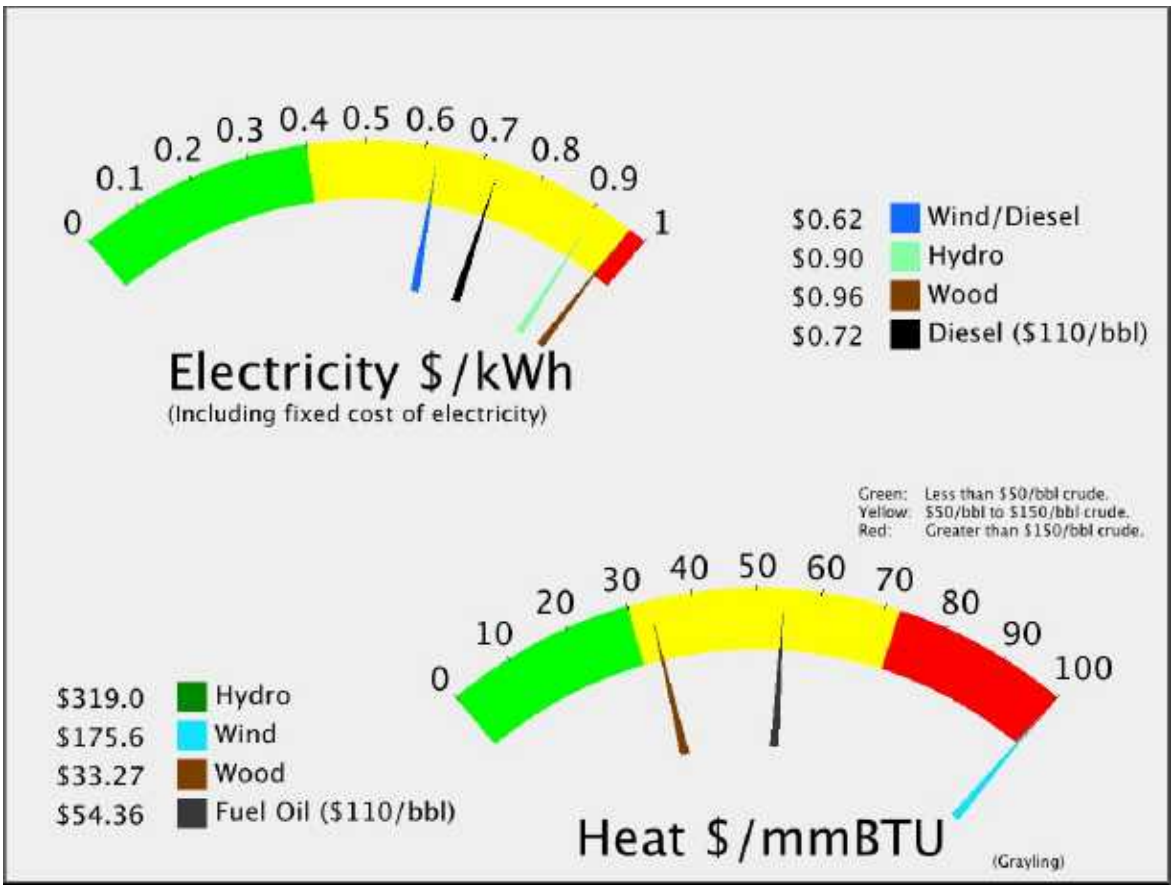
Total: **$4,094** Per capita

Heat **$1,423** Per capita

Transportation **$514** Per capita

Electricity: **$2,157** Per capita

POPULATION: 164



Grayling

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 164 LATITUDE: 62d 57m N LONGITUDE: 160d 03m **Unorganized**

LOCATION Grayling is located in Interior Alaska on the west bank of the Yukon River east of the Nulato Hills. It is 18 air miles north of Anvik.

ECONOMY Grayling's economy is heavily dependent on subsistence activities, and employment is found primarily in seasonal work. Nine residents hold commercial fishing permits. Subsistence activities include fishing, hunting, trapping, gathering and gardening. Salmon, moose, black bear, small game and waterfowl are utilized.

HISTORY In 1900, the U.S. Revenue steamer Nunivak reported 75 inhabitants, a store and a large woodyard to supply steamers. Between 1962 and 1966, 25 families moved from Holikachuk on the Innoko River to Grayling. Holikachuk was prone to annual spring flooding, and low water levels made the return trip from Yukon fish camps each year difficult. The City government was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.01** /kw-hr

Current efficiency	**12.40**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$10,487**
Consumption in 200	**46,911**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$136,333**
Average Load	**60**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$234,888**
Estimated peak loa	**119.72**	kW	Total	**$0.73**		**Total Electric**	
Average Sales	**524,357**	kW-hours				**$381,708**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**38,853**	gal	
Fuel Oil:	**37%**	Estimated heating fuel cost/gallon	**$6.01**		
Wood:	**63%**	$/MMBtu delivered to user	**$54.48**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**4,662**		**$233,395**

Transportation (Estimated)

Estimated Diesel:	**14,037**	gal	Estimated cost	**$6.01**	**Total Transportation** **$84,319**

Energy Total **$699,422**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **41,548**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.21	/kw-hr
Estimated Diesel OM	**$10,487**	$0.02	
New fuel cost	**$208,034**	$0.40	
Avg Non-Fuel Costs:	**$146,820**	$0.26	
New cost of electricity	**$0.85** per kW-hr		

Savings **($82,043)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**7,037**	gal	**$42,270**
Stack Heat	**0**	gal	**$0**

Capital cost	**$167,603**		
Annual ID	**$14,040**		
Annual OM	**$3,352**		
Total Annual costs	**$17,392**		
Heat cost	**$22.37**	$/MMBtu	

Savings **$24,878**

Alternative Energy Resources

Hydro

Installed KW	**230**
kW-hr/year	**261532**
Site	**N. Fork Grayling Creek**
Study plan effort	**reconnaissance**
Plant Factor	**30** %
Penetration	**0.43**

			Heat Cost $/MMBtu :
Capital cost	**$8,659,700**	per kW-hr	
Annual Capital	**$352,770**	$1.35	$395.22
Annual OM	**$136,220**	$0.52	$152.61
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$488,990**	$1.87	**$547.83**
Non-Fuel Costs		$0.28	
Alternative COE:		**$2.15**	
% Community energy		50%	
New Community COE		**$0.90**	

(includes non-fuel and diesel costs)

Savings

($89,194)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**
kW-hr/year	**433880**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**7**
Avg wind speed	**8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.27	$79.91
Annual OM	**$20,356**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,688**	$0.32	**$93.66**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.60**	
% Community energy		83%	
New Community COE		**$0.61**	

(includes non-fuel and diesel costs)

Savings

$64,368

Alternative Energy Resources

Wood

Installed KW	**67**
kW-hr/year	**496340**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**627** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,921,326**	per kW-hr	
Annual Capital	**$129,143**	$0.26	
Annual OM	**$125,197**	$0.25	
Fuel cost:	**$94,084**	$0.19	-90
Total Annual Cost	**$348,425**	$0.70	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.98**	
% Community energy		95%	
New Community COE		**$0.95**	

(includes non-fuel and diesel costs)

Savings

($116,166)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	54.7%

Other Resources

Grayling

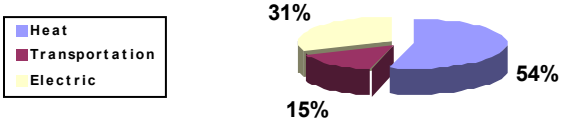
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Gustavus

Energy Used



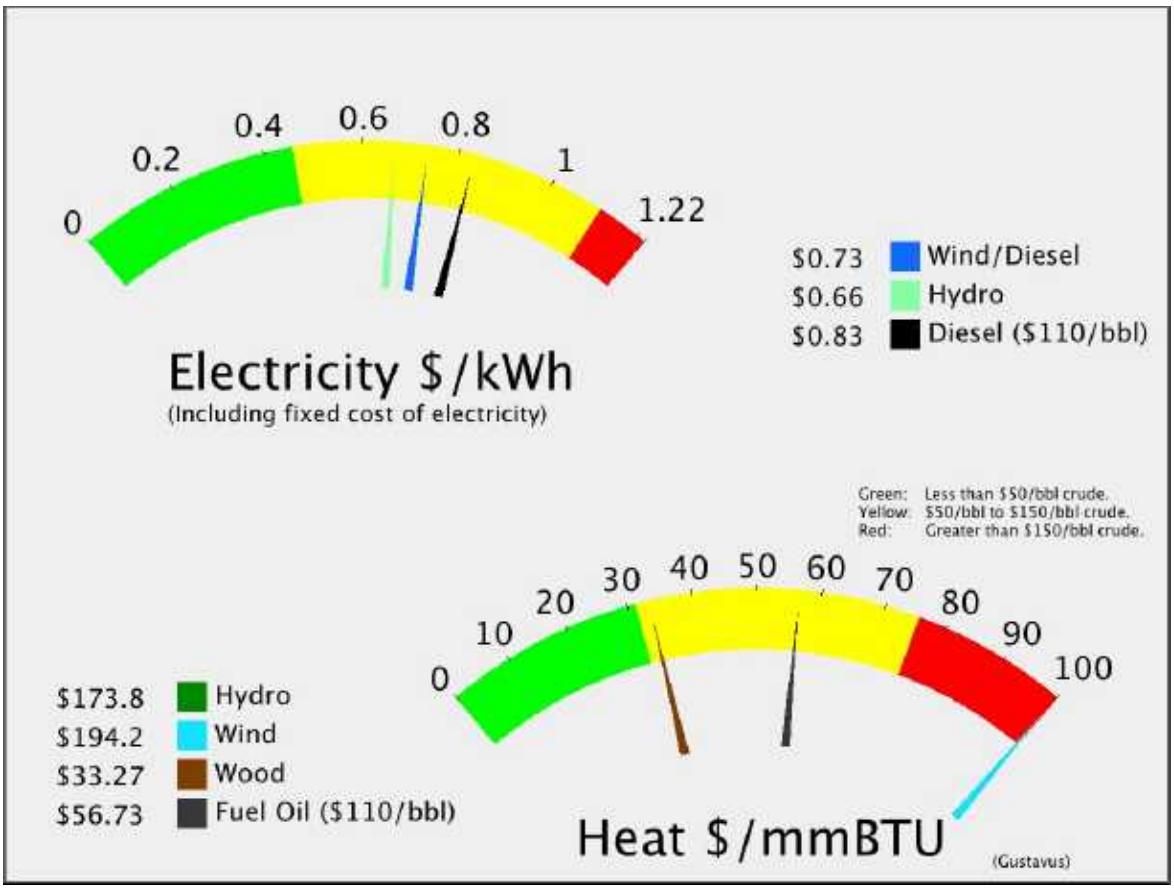
Total: **$9,129** Per capita

Heat **$4,918** Per capita

Transportation **$1,415** Per capita

Electricity: **$2,796** Per capita

POPULATION: 442



Gustavus

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 442 LATITUDE: 58d 24m N LONGITUDE: 135d 44m **Unorganized**

LOCATION Gustavus lies on the north shore of Icy Passage at the mouth of the Salmon River, 48 air miles northwest of Juneau in the St. Elias Mountains. It is surrounded by Glacier Bay National Park and Preserve on three sides and the waters of Icy Passage on the south. Glacier Bay Park is 3.3 million acres, and offers 16 tidewater glaciers.

ECONOMY Gustavus has a seasonal economy; the Glacier Bay National Park attracts a large number of tourists and recreation enthusiasts during the summer months. Gustavus has tree kayaking companies and a 9 hole golf course. There are several sport fishing guides and some commercial fishing occurs. Over 50% of the working people are employed by the Park Service. The lodge, airport, school, and small businesses also offer employment. The number of residents during the summer approximately doubles from the current population estimates of year-round residents. Approximately 60,000 tourists visit or transit this small community annually. Gardening is a prevalent activity during the summer.

HISTORY When Capt. George Vancouver sailed through Icy Strait in 1794, Glacier Bay was completely covered by the Grand Pacific Glacier. Over the next century, the glacier retreated some 40 miles, and a spruce-hemlock forest began to develop. By 1916, it had retreated 65 miles from the position observed by Vancouver in 1794. Gustavus is located on a flat area formed by the outwash from the glacier and the area is still growing. Gustavus began as an agricultural homestead in 1914. It was once known as Strawberry Point due to the abundant wild strawberries. The current name was derived from Point Gustavus, which lies 7 miles to the southwest. Glacier Bay National Monument (including Gustavus) was established by President Calvin Coolidge in 1925. After many appeals the homesteaders were able to keep their land and the Gustavus area was excluded from the monument. It became a National Park in 1980 with the passage of the Alaska National Interest Lands Conservation Act. The City of Gustavus was incorporated on April 1, 2004.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.96**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.27**
Consumption in 200	**132,128**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$29,973**
Average Load	**171**	kW	NF COE:	**$0.35**	/kw-hr	Other Non-Fuel Costs:	**$522,138**
Estimated peak loa	**342.16**	kW	Total	**$0.83**		Current Fuel Costs	**$696,130**
Average Sales	**1,498,663**	kW-hours				**Total Electric**	**$1,248,240**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**346,786**	gal	
Fuel Oil:	**73%**	Estimated heating fuel cost/gallon	**$6.27**		
Wood:	**22%**	$/MMBtu delivered to user	**$56.86**		**Total Heating Oil**
Electricity:	**1.5%**	Community heat needs in MMBtu	**41,614**		**$2,173,866**

Transportation (Estimated)

Estimated Diesel:	**99,747**	gal	Estimated cost	**$6.27**	**Total Transportation** **$625,277**

Energy Total **$4,047,383**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **122,312**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$29,973**	$0.02	
New fuel cost	**$644,411**	$0.43	
Avg Non-Fuel Costs:	**$552,111**	$0.35	
New cost of electricity	**$0.75** per kW-hr		

Savings **$51,091**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**19,819**	gal	**$124,239**
Stack Heat	**0**	gal	**$0**

Capital cost	**$479,025**		
Annual ID	**$40,126**		
Annual OM	**$9,580**		
Total Annual costs	**$49,707**		
Heat cost	**$22.70**	$/MMBtu	

Savings **$74,532**

Alternative Energy Resources

Wood

Installed KW		Capital cost		per kW-hr	Heat Cost $/MMBtu :
kW-hr/year		Annual Capital			
Installation Type		Annual OM			
Electric Wood cost		Fuel cost:			-90
Wood Required	Cd/Y	Total Annual Cost			**$29.76**
Stove Wood cost	$/Cd	Non-Fuel Costs	$0.37		
		Alternative COE:			
		% Community energy			**Savings**
		New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**	Capital cost	**$3,071,563**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**834346**	Annual Capital	**$206,457**	$0.25	$72.50
Met Tower?	**no**	Annual OM	**$39,144**	$0.05	$13.75
Homer Data?	**yes**	Fuel cost:	**$0**	$0.00	
Wind Class	**4**	Total Annual Cost	**$245,602**	$0.29	**$86.25**
Avg wind speed	**7.00** m/s	Non-Fuel Costs		$0.37	
		Alternative COE:		**$0.66**	
		% Community energy		56%	**Savings**
		New Community COE (includes non-fuel and diesel costs)		**$0.73**	**$158,611**

Alternative Energy Resources

Hydro

Installed KW	**820**	Capital cost	**$10,153,000**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**1506262**	Annual Capital	**$394,601**	$0.26	$76.76
Site	**Falls Creek - Under Construction**	Annual OM	**$55,000**	$0.04	$10.70
Study plan effort	**reconnaissance**	Fuel cost:	**$0**	$0.00	
Plant Factor	%	Total Annual Cost	**$449,601**	$0.30	**$87.46**
Penetration	**0.46**	Non-Fuel Costs		$0.37	
		Alternative COE:		**$0.67**	
		% Community energy		101%	**Savings**
		New Community COE (includes non-fuel and diesel costs)		**$0.67**	**$798,639**

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	6.1%

Other Resources

Gustavus

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

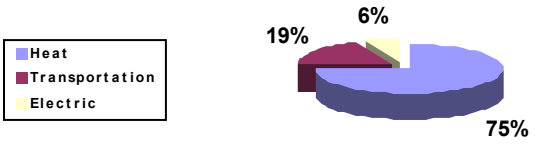
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Falls Creek Hydroelectric Construction has been submitted by: Gustavus Electric Company for a Hydro project. The total project budget is: $10,153,000 with $750,000 requested in grant funding and no matching funds.

A project titled: Gustavus/Angoon/Wrangell/Nikiski Tidal Feasibility Study has been submitted by: Alaska Tidal Energy Company for a Tidal project. The total project budget is: $ with $1,940,000 requested in grant funding and $515,000 as matching funds.

Haines

Energy Used



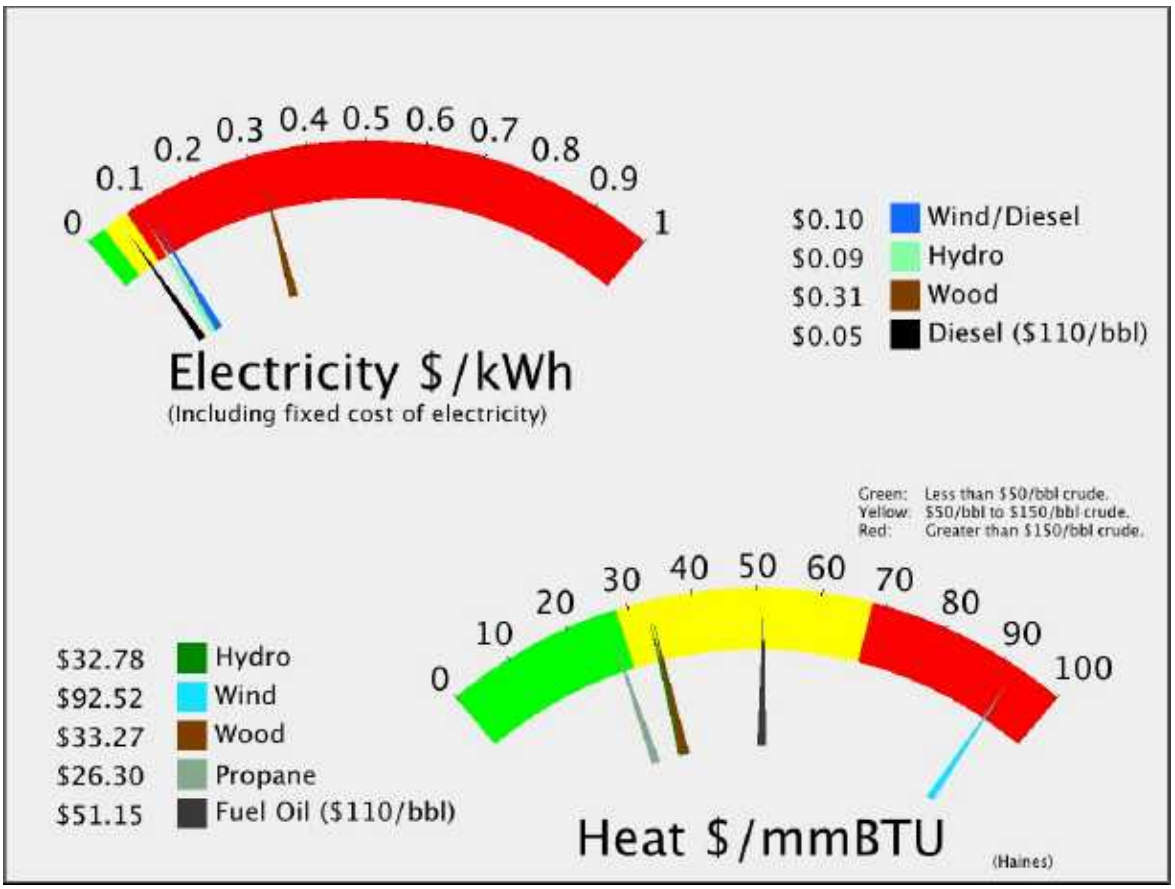
Total: **$6,536** Per capita

Heat **$4,891** Per capita

Transportation **$1,237** Per capita

Electricity: **$407** Per capita

POPULATION: 1474



Haines

Regional Corporation
Sealaska Corporation

House 5
Senate : **C**

POPULATION 1474 LATITUDE: 59d 14m N LONGITUDE: 135d 26m **Haines Borough**

LOCATION Haines is located on the western shore of Lynn Canal, between the Chilkoot and Chilkat Rivers. It is 80 air miles northwest of Juneau, just south of the Canadian border at British Columbia, and 600 air miles southeast of Anchorage and Fairbanks. By road, it is 775 miles from Anchorage.

ECONOMY Commercial fishing, timber, government, tourism, and transportation are the primary employers. 128 area residents hold commercial fishing permits. Many jobs are seasonal. Tourism and the traffic Haines draws as a result of its road connection to the State Ferry are important. In 2001, Royal Caribbean Cruise Lines ceased serving Haines as a port of call. Today, around 45,000 cruise ship passengers visit yearly. The Chilkat Bald Eagle Preserve draws visitors from around the world.

HISTORY The Haines area was called "Dei Shu" by the Tlingit, meaning "end of the trail." The Chilkat Tlingit tightly controlled the trading routes between the coast and the Interior. The first non-Native to settle here was George Dickinson, an agent for the North West Trading Co., in 1880. In 1881, S. Young Hall, a Presbyterian minister, received permission from the Chilkat to build the Willard Mission and school. The mission was renamed Haines in 1884 in honor of Mrs. F.E. Haines, Secretary of the Presbyterian Women's Executive Society of Home Missions, who had raised funds for the mission's construction. During the Klondike gold rush in the late 1890s, it grew as a mining supply center, since the Dalton Trail from Chilkat Inlet to Whitehorse offered an easier route to the Yukon for prospectors. Gold was also discovered 36 miles from Haines in 1899 at the Porcupine District. Four canneries had been constructed in the area by the turn of the century. The first permanent U.S. military installation was constructed south of Haines in 1904, Fort William H. Seward. The City was incorporated in 1910. In 1922, the fort was renamed Chilkoot Barracks. Until World War II, it was the only U.S. Army post in Alaska. It was deactivated in 1946 and sold as surplus property to a group of veterans who established it as Port Chilkoot. In 1970, the City of Port Chilkoot (formed in 1956) merged with Haines into one municipality. In 1972, the post was designated a national historic site and the name, Fort William Seward, was restored. The last of the early canneries closed in 1972 due to declining fish stocks. Expansion of the timber industry in the early 1970s fueled growth. The sawmills closed in 1976. In 2002, the City was consolidated with the Haines Borough.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.66**	kW-hr/gal	Fuel COE	**$0.01**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.65** /kw-hr
Consumption in 200	**16,646**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$237,779**
Average Load	**1,357**	kW	NF COE:	**$0.03**	/kw-hr	Other Non-Fuel Costs:	**$396,062**
Estimated peak loa	**2714.4**	kW	Total	**$0.06**		Current Fuel Costs	**$77,439**
Average Sales	**11,888,956**	kW-hours				**Total Electric**	**$711,280**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,275,459**	gal	
Fuel Oil:	**83%**	Estimated heating fuel cost/gallon	**$5.65**		
Wood:	**11%**	$/MMBtu delivered to user	**$51.26**		**Total Heating Oil**
Electricity:	**2.7%**	Community heat needs in MMBtu	**153,055**		**$7,209,023**

Transportation (Estimated)

Estimated Diesel:	**322,714**	gal	Estimated cost	**$5.65**	**Total Transportation** **$1,824,011**

Energy Total **$9,744,314**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14.8** kW-

New Fuel use **12,027**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$237,779**	$0.02	
New fuel cost	**$55,951**	$0.00	
Avg Non-Fuel Costs:	**$633,842**	$0.03	
New cost of electricity	**$0.37** per kW-hr		

Savings **$20,859**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**2,497**	gal	**$14,113**
Stack Heat	**1,665**	gal	**$9,408**

Capital cost	**$3,800,123**		
Annual ID	**$318,323**		
Annual OM	**$76,002**		
Total Annual costs	**$394,326**		
Heat cost	**$857.54**	$/MMBtu	

Savings **($370,805)**

Alternative Energy Resources

Hydro

Installed KW **4490**
kW-hr/year **8605497**
Site **Dayebas Creek**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.47**

			Heat Cost $/MMBtu :
Capital cost	**$13,820,140**	per kW-hr	
Annual Capital	**$579,082**	$0.07	$19.72
Annual OM	**$487,680**	$0.06	$16.60
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,066,762**	$0.12	**$36.32**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.18**	
% Community energy		72%	
New Community COE		**$0.08**	

(includes non-fuel and diesel costs)

Savings
($276,004)

Alternative Energy Resources

Hydro

Installed KW **3600**
kW-hr/year **6220805**
Site **Upper Chilkoot**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.44**

			Heat Cost $/MMBtu :
Capital cost	**$41,454,000**	per kW-hr	
Annual Capital	**$2,049,241**	$0.33	$96.52
Annual OM	**$540,000**	$0.09	$25.43
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,589,241**	$0.42	**$121.95**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.47**	
% Community energy		52%	
New Community COE		**$0.14**	

(includes non-fuel and diesel costs)

Savings
($974,632)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1200**
kW-hr/year **2314309**
Met Tower? **no**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$7,421,434**	per kW-hr	
Annual Capital	**$498,837**	$0.22	$63.15
Annual OM	**$108,579**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$607,416**	$0.26	**$76.90**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.32**	
% Community energy		19%	
New Community COE		**$0.11**	

(includes non-fuel and diesel costs)

Savings
($546,114)

Alternative Energy Resources

Wood

Installed KW **1475**

kW-hr/year **10981170**

Installation Type

Electric Wood cost

Wood Required **13877** Cd/Y

Stove Wood cost **150.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$7,343,658**	per kW-hr	
Annual Capital	**$493,609**	$0.04	
Annual OM	**$539,747**	$0.05	
Fuel cost:	**$2,081,542**	$0.19	-90
Total Annual Cost	**$3,114,898**	$0.28	**$29.76**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.34**	
% Community energy		92%	**Savings**
New Community COE (includes non-fuel and diesel costs)		**$0.30**	**($2,824,061)**

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	1.7%

Other Resources

Haines

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane: Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Haines Assistant living GSHP_Apt has been submitted by: Alaska Power and Telephone, Inc. Haines Assistant Living, Inc. for a Geothermal project. The total project budget is: $2,379,007 with $1,432,906 requested in grant funding and $946,101 as matching funds.

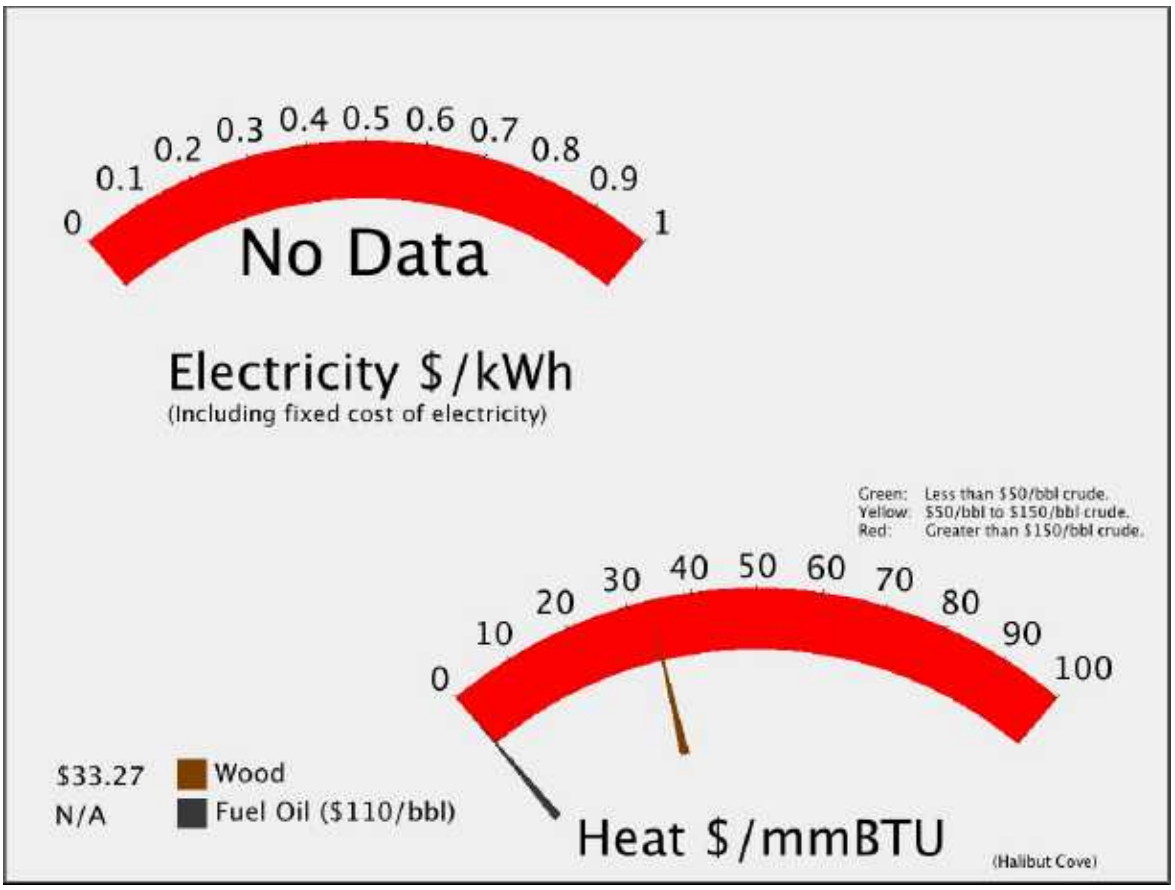
A project titled: Haines Central Wood Heating Feasibility Study (Community Buildings) has been submitted by: Haines Borough for a Biomass project. The total project budget is: $2,090,500 with $120,500 requested in grant funding and $2,0000 as matching funds.

A project titled: Haines Central Wood Heating System Construction (Low Income Housing Project) has been submitted by: Chilkoot Indian Association for a Biomass project. The total project budget is: $441,229 with $288,222 requested in grant funding and $28,446 as matching funds.

Halibut Cove

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	20
Transportation	Per capita		
Electricity:	Per capita		



Halibut Cove

Regional Corporation
Cook Inlet Region, Inc.
House 35
Senate : **R**

POPULATION 20 LATITUDE: 59d 37m N LONGITUDE: 151d 14m **Kenai Peninsula Boroug**

LOCATION Halibut Cove is in the Kachemak Bay State Park on the Kenai Peninsula. It lies on the south shore of Kachemak Bay, 12 miles across the inlet from the Homer Spit.

ECONOMY Many residents are self-employed artists; others work in seasonal construction jobs. Eight residents hold commercial fishing permits.

HISTORY The Cove was named by W.H. Dall of the U.S. Coast & Geodetic Survey in 1880. Between 1911 and 1928, Halibut Cove had 42 herring salteries and a population of over 1,000, according to one resident. From 1928 to 1975, the population stayed around 40, mostly fishermen.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	

Other Resources

Halibut Cove

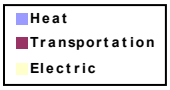
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

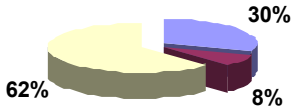
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Healy Lake

Energy Used





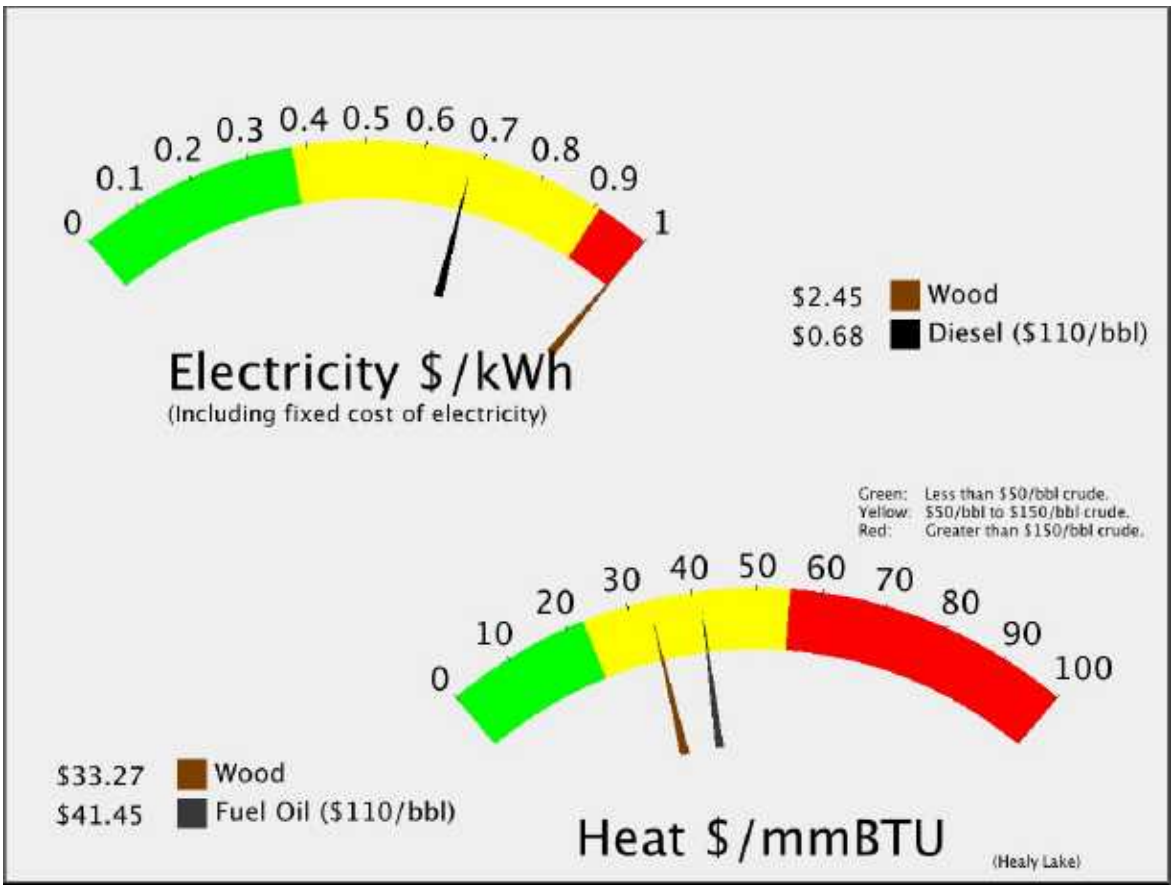
Total: **$3,770** Per capita

Heat **$1,135** Per capita

Transportation **$294** Per capita

Electricity: **$2,341** Per capita

POPULATION: 37



Healy Lake

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 37 LATITUDE: 63d 49m N LONGITUDE: 144d 44m **Unorganized**

LOCATION The 5-mile long Healy Lake lies on the course of the Healy River, 29 miles east of Delta Junction.

ECONOMY Some private sector and government employment is available. Recreational use of the Lake occurs during summer months, attracting Fairbanks residents.

HISTORY The local name was reported in 1914 by the U.S. Geological Survey. Due to declining enrollment, the school was closed in 1999.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.07**	kW-hr/gal	Fuel COE	**$0.33**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$3.58**
Consumption in 200	**11,050**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$2,374**
Average Load	**14**	kW	NF COE:	**$0.33**	/kw-hr	Other Non-Fuel Costs:	**$39,075**
Estimated peak loa	**27.103**	kW	Total	**$0.68**		Current Fuel Costs	**$39,561**
Average Sales	**118,713**	kW-hours				**Total Electric**	**$81,011**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**9,168**	gal	
Fuel Oil:	**65%**	Estimated heating fuel cost/gallon	**$4.58**		
Wood:	**35%**	$/MMBtu delivered to user	**$41.54**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**1,100**		**$41,990**

Transportation (Estimated)

Estimated Diesel:	**2,376**	gal	Estimated cost	**$4.58**	**Total Transportation** **$10,883**

Energy Total **$133,883**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **7,945**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.92	/kw-hr
Estimated Diesel OM	**$2,374**	$0.02	
New fuel cost	**$28,445**	$0.24	
Avg Non-Fuel Costs:	**$41,449**	$0.33	
New cost of electricity	**$1.52** per kW-hr		

Savings

($97,780)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**1,658**	gal	**$7,592**
Stack Heat	**0**	gal	**$0**

Capital cost	**$37,945**		
Annual ID	**$3,179**		
Annual OM	**$759**		
Total Annual costs	**$3,937**		
Heat cost	**$21.50**	$/MMBtu	

Savings

$3,654

Alternative Energy Resources

Wood

Installed KW **19**

kW-hr/year **139995**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **177** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,670,770**	per kW-hr	
Annual Capital	**$112,302**	$0.80	
Annual OM	**$111,108**	$0.79	
Fuel cost:	**$26,537**	$0.19	-90
Total Annual Cost	**$249,947**	$1.79	**$29.76**
Non-Fuel Costs		$0.35	
Alternative COE:		**$2.13**	
% Community energy		118%	
New Community COE (includes non-fuel and diesel costs)		**$2.45**	

Savings

($168,936)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	231.8%

Other Resources

Healy Lake

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

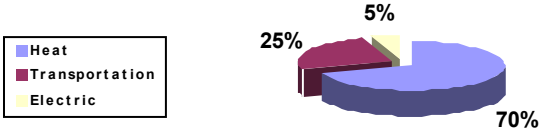
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Hollis

Energy Used



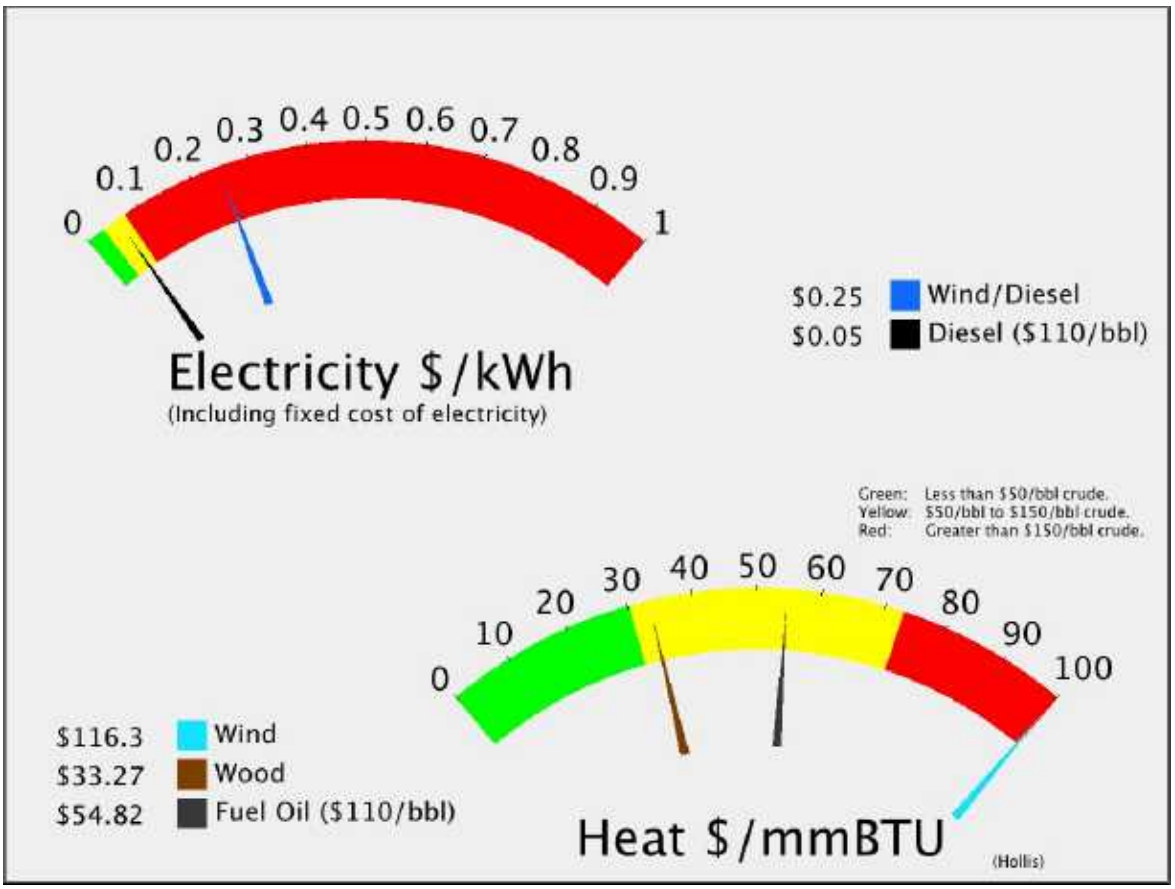
Total: **$5,058** Per capita

Heat **$3,521** Per capita

Transportation **$1,280** Per capita

Electricity: **$257** Per capita

POPULATION: 186



Hollis

Regional Corporation
Sealaska Corporation

House 1
Senate : **A**

POPULATION 186 LATITUDE: 55d 29m N LONGITUDE: 132d 40m **Unorganized**

LOCATION Hollis is located on the east side of Prince of Wales Island, on Twelvemile Arm, 19 miles east of Craig by road, and 35 miles west of Ketchikan by water.

ECONOMY Logging is prevalent on the Island, though it does not occur directly in Hollis. Support services for the logging industry, the U.S. Forest Service, and work for the Alaska Marine Highway provides most employment.

HISTORY Hollis was a mining town with a population of over 1,000 around 1900. Gold and silver were mined until about 1915. In 1953, it became a logging camp when a long-term timber contract was enacted with Ketchikan Pulp Co. It served as the base for timber operations on Prince of Wales Island until 1962, when the camp was moved 45 miles north to Thorne Bay. The area was permanently settled by in recent years through a State land disposal sale. Dock facilities at Hollis provide support for logging operations and state ferry services.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.06** /kw-hr

Current efficiency	**12.30**	kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$14,181**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$26,217**
Average Load	**81**	kW	NF COE:	**$0.04**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**161.88**	kW	Total	**$0.06**		**Total Electric**	
Average Sales	**709,055**	kW-hours					**$40,398**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**108,108**	gal	
Fuel Oil:	**49%**	Estimated heating fuel cost/gallon	**$6.06**		
Wood:	**30%**	$/MMBtu delivered to user	**$54.94**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,973**		**$654,876**

Transportation (Estimated)

Estimated Diesel:	**39,297**	gal	Estimated cost	**$6.06**	**Total Transportation** **$238,048**

Energy Total **$933,322**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$14,181**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$0**	$0.00		**Savings**
New Fuel use	**0**		Avg Non-Fuel Costs:	**$40,398**	$0.04		**$0**
			New cost of electricity		**$0.42** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**0**	gal	**$0**
Stack Heat	**0**	gal	**$0**

Capital cost	**$226,639**	
Annual ID	**$18,985**	
Annual OM	**$4,533**	
Total Annual costs	**$23,518**	**Savings**
Heat cost	**#Div/0!** $/MMBtu	**($23,518)**

Alternative Energy Resources

Wood

Installed KW		Capital cost		per kW-hr	Heat Cost $/MMBtu :
kW-hr/year		Annual Capital			
Installation Type		Annual OM			
Electric Wood cost		Fuel cost:			-90
Wood Required	Cd/Y	Total Annual Cost			**$29.76**
Stove Wood cost	$/Cd	Non-Fuel Costs	$0.06		
		Alternative COE:			
		% Community energy			**Savings**
		New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	Capital cost	**$1,760,485**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**403550**	Annual Capital	**$118,332**	$0.29	$85.92
Met Tower?	**no**	Annual OM	**$18,933**	$0.05	$13.75
Homer Data?	**yes**	Fuel cost:	**$0**	$0.00	
Wind Class	**6**	Total Annual Cost	**$137,265**	$0.34	**$99.66**
Avg wind speed	**8.10** m/s	Non-Fuel Costs		$0.06	
		Alternative COE:		**$0.40**	
		% Community energy		57%	**Savings**
		New Community COE (includes non-fuel and diesel costs)		**$0.24**	**($129,187)**

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	19.7%

Other Resources

Hollis

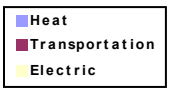
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

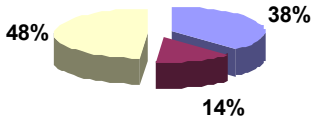
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Holy Cross

Energy Used





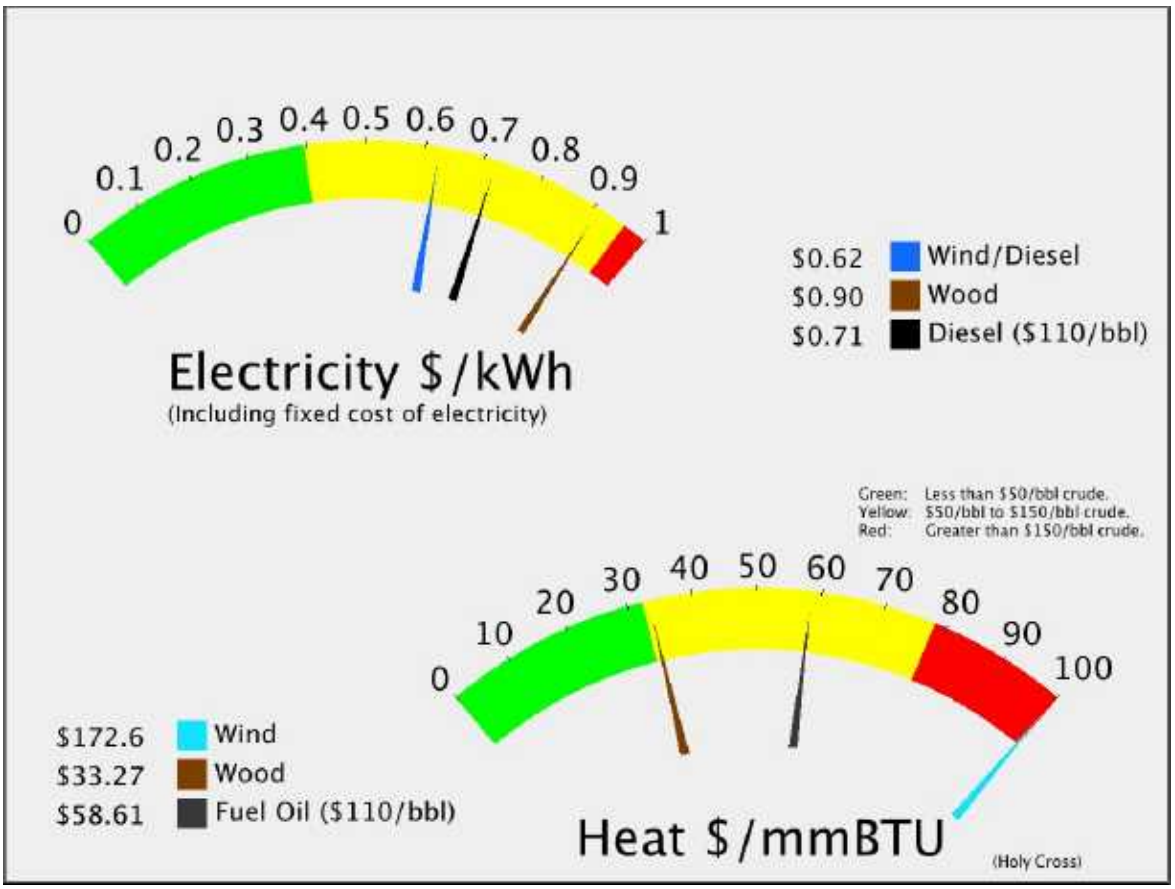
Total: **$4,358** Per capita

Heat **$1,647** Per capita

Transportation **$595** Per capita

Electricity: **$2,115** Per capita

POPULATION: 200



Holy Cross

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 200 LATITUDE: 62d 12m N LONGITUDE: 159d 46m **Unorganized**

LOCATION Holy Cross is located in Interior Alaska on the west bank of Ghost Creek Slough off the Yukon River. It is 40 miles northwest of Aniak and 420 miles southwest of Fairbanks.

ECONOMY Holy Cross is characterized by a seasonal economy. Nine residents hold commercial fishing permits. Subsistence hunting, fishing, trapping and gardening supplement income.

HISTORY Holy Cross first had contact with Europeans in the early 1840s, when Russian explorers led by Lt. Zagoskin traveled the Yukon River. They reported "Anilukhtakpak," with 170 people. In 1880, the village was reported as "Askhomute," with 30 residents. A Catholic mission and school were established in the 1880s by Father Aloysius Robaut, who came to Alaska across the Chilkoot Trail. Ingalik Indians migrated to Holy Cross to be near the mission and school. A post office was opened in 1899 under the name "Koserefsky." In 1912, the name of the town was changed to "Holy Cross," after the mission. In the 1930s and 40s, sternwheelers brought the mail and supplies two or three times a year. The course of the River changed during the 1930s, and by the mid-40s, the slough on which the village is now located was formed. The mission Church and many additional buildings were torn down after the boarding school ceased operations in 1956. The City government was incorporated in 1968.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.48** /kw-hr

Current efficiency	**12.93**	kW-hr/gal	Fuel COE	**$0.44**	/kw-hr	Estimated Diesel OM	**$12,414**
Consumption in 200	**49,844**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$161,383**
Average Load	**71**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$272,986**
Estimated peak loa	**141.71**	kW	Total	**$0.72**		**Total Electric**	
Average Sales	**620,706**	kW-hours				**$446,783**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**50,872**	gal	
Fuel Oil:	**72%**	Estimated heating fuel cost/gallon	**$6.48**		
Wood:	**28%**	$/MMBtu delivered to user	**$58.74**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,105**		**$329,488**

Transportation (Estimated)

Estimated Diesel: **18,379** gal Estimated cost **$6.48**

Total Transportation **$119,035**

Energy Total **$895,306**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **46,032**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.18	/kw-hr
Estimated Diesel OM	**$12,414**	$0.02	
New fuel cost	**$252,107**	$0.41	
Avg Non-Fuel Costs:	**$173,798**	$0.26	
New cost of electricity	**$0.85** per kW-hr		

Savings **($88,018)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**7,477**	gal	**$48,424**
Stack Heat	**0**	gal	**$0**

Capital cost	**$198,399**		
Annual ID	**$16,619**		
Annual OM	**$3,968**		
Total Annual costs	**$20,587**		
Heat cost	**$24.92**	$/MMBtu	

Savings **$27,837**

Alternative Energy Resources

Wood

Installed KW **77**

kW-hr/year **574443**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **726** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,976,079**	per kW-hr	
Annual Capital	**$132,824**	$0.23	
Annual OM	**$128,285**	$0.22	
Fuel cost:	**$108,889**	$0.19	-90
Total Annual Cost	**$369,998**	$0.64	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.92**	
% Community energy		93%	
New Community COE		**$0.89**	

(includes non-fuel and diesel costs)

Savings

($105,870)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **451233**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.84
Annual OM	**$21,170**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,502**	$0.31	**$90.58**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		73%	
New Community COE		**$0.61**	

(includes non-fuel and diesel costs)

Savings

$67,955

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	41.8%

Other Resources

Holy Cross

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

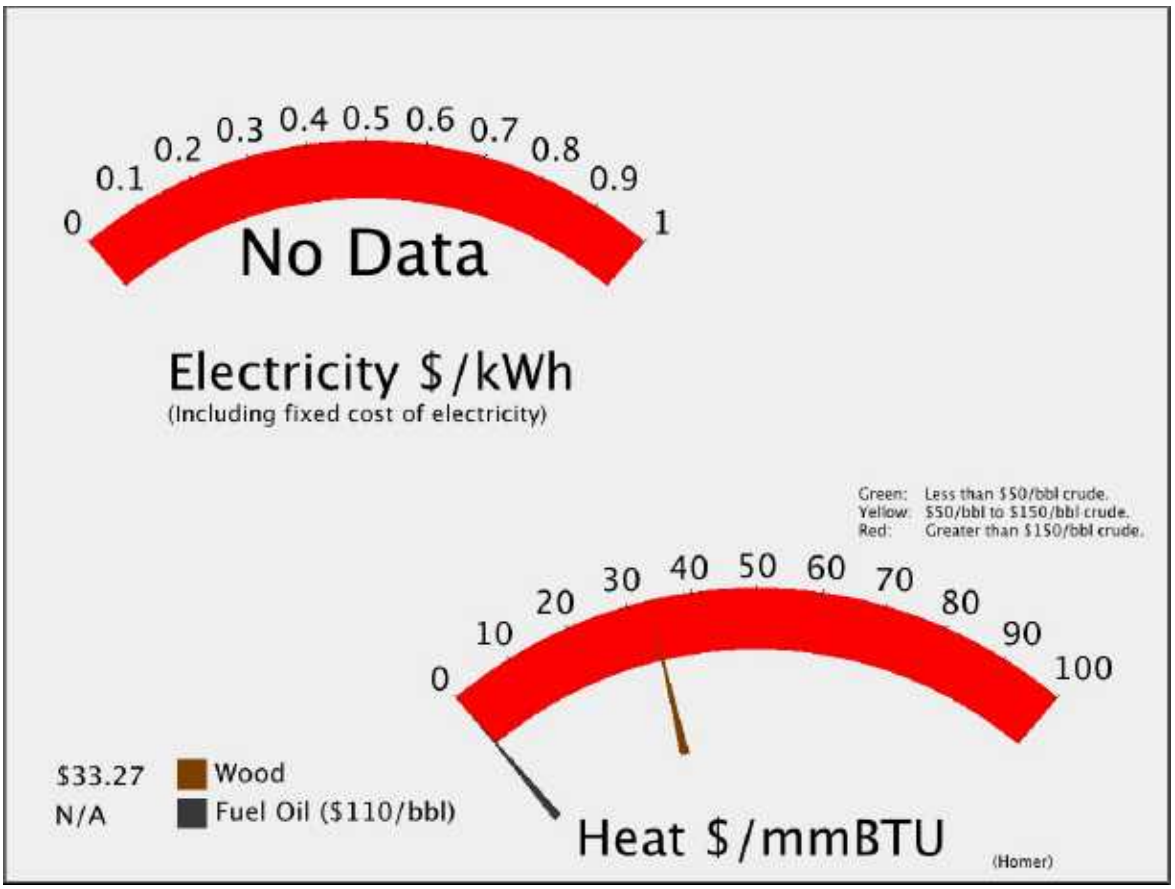
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Homer

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	5504
Transportation	Per capita		
Electricity:	Per capita		



Homer

Regional Corporation
Cook Inlet Region, Inc.

House 35
Senate : **R**

POPULATION 5504 LATITUDE: 59d 38m N LONGITUDE: 151d 33m **Kenai Peninsula Boroug**

LOCATION Homer is located on the north shore of Kachemak Bay on the southwestern edge of the Kenai Peninsula. The Homer Spit, a 4.5-mile long bar of gravel, extends from the Homer shoreline. It is 227 road miles south of Anchorage, at the southern-most point of the Sterling Highway.

ECONOMY Homer is primarily a fishing, fish processing, trade and service center, and enjoys a considerable seasonal visitor industry. It has also become a popular retirement community. Approximately 10 cruise ships dock each summer. During summer months, the population swells with students and others seeking cannery or fishery employment. Sport fishing for halibut and salmon contribute significantly to the economy. 541 area residents hold commercial fishing permits. The fish dock is equipped with cold storage facilities, ice manufacturing and a vacuum fish-loading system. Gates Construction processes wood chips from spruce bark beetle-killed timber at its Homer Spit facility and exports the chips to Pacific Rim pulp and paper companies. The Alaska Islands and Ocean Visitor Center is popular for tourism and also serves as the headquarters for the Alaska Maritime National Wildlife Refuge and Kachemak Bay National Estuarine Research Reserve. The National Park Service maintains a regional office. Government and health care are major employers.

HISTORY The Homer area has been home to Kenaitze Indians for thousands of years. In 1895 the U.S. Geological Survey arrived to study coal and gold resources. Prospectors bound for Hope and Sunrise disembarked at the Homer Spit. The community was named for Homer Pennock, a gold mining company promoter, who arrived in 1896 and built living quarters for his crew of 50 on the Spit. Their plans were to mine the beach sands along Cook Inlet, from Homer to Ninilchik. The Homer post office opened shortly thereafter. In 1899, Cook Inlet Coal Fields Company built a town and dock on the Spit, a coal mine at Homer's Bluff Point, and a 7-mile-long railroad which carried the coal to the end of Homer Spit. Various coal mining operations continued until World War I, and settlers continued to trickle into the area, some to homestead in the 1930s and 40s, others to work in the canneries built to process Cook Inlet fish. Coal provided fuel for homes, and there is still an estimated 400 million tons of coal deposits in the vicinity of Homer. The City government was incorporated in March 1964. After the Good Friday earthquake in 1964, the Homer Spit sunk approximately 4 to 6 feet, and several buildings had to be relocated.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Homer

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	CONFIRMED RESOURCE
Natural Gas:	CONFIRMED RESOURCE
Coal:	CONFIRMED RESOURCE
Propane:	

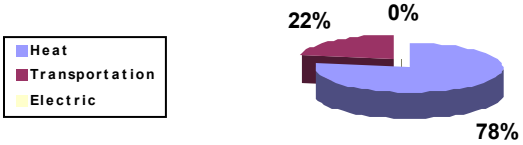
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Tidal Feasibility_City of Homer has been submitted by: City of Homer for a Ocean/River project. The total project budget is: $2,498,591 with $482,387 requested in grant funding and $672,125 as matching funds.

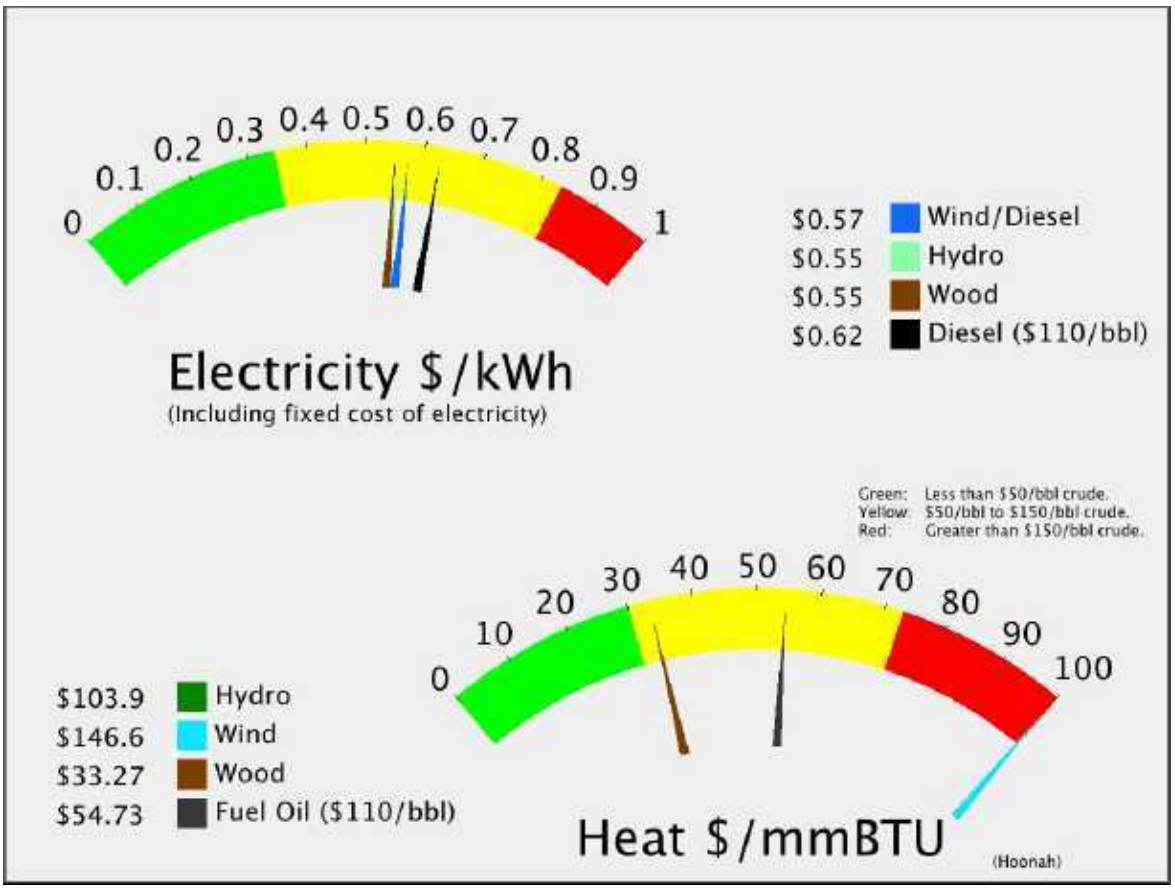
Hoonah

Energy Used



Total:		Per capita
Heat	**$2,297**	Per capita
Transportation	**$661**	Per capita
Electricity:		Per capita

POPULATION: 852



Hoonah

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 852 LATITUDE: 58d 06m N LONGITUDE: 135d 26m **Unorganized**

LOCATION Hoonah is a Tlingit community located on the northeast shore of Chichagof Island, 40 air miles west of Juneau.

ECONOMY Fishing and local government are mainstays of the economy. 117 residents hold commercial fishing permits. Some employment occurs at the Hoonah Cold Storage plant. Whitestone Logging Inc. and Southeast Stevedoring (a sort yard and timber transfer facility) are major private employers. The City and School District are the main public sector employers. In summer 2004, Hoonah will host cruise ship visitors from the Celebrity Summit twice each week at Icy Strait Point. Subsistence activities are an important component of the lifestyle. Salmon, halibut, shellfish, deer, waterfowl and berries are harvested.

HISTORY It is the principal village for the Huna, a Tlingit tribe which has occupied the Glacier Bay/Icy Strait area since prehistory. Local legend tells of an original ancestral home in Glacier Bay that was destroyed by a glacial advance. Hoonah means "village by the cliff." The Northwest Trading Co. built the first store in Hoonah in 1880. In 1881, the Presbyterian Home Mission and school was built. By 1887, 450 to 500 people were wintering in the village. A post office was established in 1901. In 1912, the Hoonah Packing Co. built a large cannery one mile north of town. The Thompson Fish Company still operates today as Hoonah Cold Storage. In 1944, a fire destroyed much of the City and many priceless Tlingit cultural objects. The federal government assisted in rebuilding the community. The City of Hoonah was incorporated in 1946.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**14.32**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.05**
Consumption in 200	**367,239**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$95,688**
Average Load	**546**	kW	NF COE:		/kw-hr	Other Non-Fuel Costs:	
Estimated peak loa	**1092.3**	kW	Total			Current Fuel Costs	**$1,853,933**
Average Sales	**4,784,399**	kW-hours				**Total Electric**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**323,576**	gal	
Fuel Oil:	**82%**	Estimated heating fuel cost/gallon	**$6.05**		
Wood:	**10%**	$/MMBtu delivered to user	**$54.86**		**Total Heating Oil**
Electricity:	**1.3%**	Community heat needs in MMBtu	**38,829**		**$1,957,087**

Transportation (Estimated)

Estimated Diesel:	**93,071**	gal	Estimated cost	**$6.05**	**Total Transportation** **$562,924**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$100,000**			
Powerhouse Upgrade			Annual Capital cost	**$8,377**	$0.00	/kw-hr	
Status	**Final Design**		Estimated Diesel OM	**$95,688**	$0.02		
Acheivable efficiency	**14.8**	kW-	New fuel cost	**$1,800,123**	$0.38		**Savings**
New Fuel use	**356,580**		Avg Non-Fuel Costs:				**$45,433**
			New cost of electricity			per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?	**N**		Capital cost	**$1,529,260**		
Is it working now?	**N**		Annual ID	**$128,101**		
BLDGs connected and working:			Annual OM	**$30,585**		
None						
		Value	Total Annual costs	**$158,686**		**Savings**
Water Jacket	**55,086** gal	**$333,176**				
Stack Heat	**36,724** gal	**$222,117**	Heat cost	**$15.64**	$/MMBtu	**$396,607**

Alternative Energy Resources

Wood

Installed KW	**628**	
kW-hr/year	**4674176**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**5907**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$4,003,310**	per kW-hr	
Annual Capital	**$269,085**	$0.06	
Annual OM	**$290,381**	$0.06	
Fuel cost:	**$886,016**	$0.19	-90
Total Annual Cost	**$1,445,482**	$0.31	**$29.76**
Non-Fuel Costs			
Alternative COE:			
% Community energy	98%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW		
kW-hr/year	**1200000**	
Site	**Elephant Falls**	
Study plan effort	**reconnaissance**	
Plant Factor	**34**	%
Penetration	**0.29**	

			Heat Cost $/MMBtu :
Capital cost	**$3,876,880**	per kW-hr	
Annual Capital	**$179,014**	$0.15	$43.71
Annual OM	**$49,000**	$0.04	$11.96
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$228,014**	$0.19	**$55.67**
Non-Fuel Costs			
Alternative COE:			
% Community energy	25%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW		
kW-hr/year	**1200000**	
Site	**Gartina Creek**	
Study plan effort	**reconnaissance**	
Plant Factor	**33**	%
Penetration	**0.28**	

			Heat Cost $/MMBtu :
Capital cost	**$4,133,640**	per kW-hr	
Annual Capital	**$186,632**	$0.16	$45.57
Annual OM	**$49,000**	$0.04	$11.96
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$235,632**	$0.20	**$57.53**
Non-Fuel Costs			
Alternative COE:			
% Community energy	25%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**
kW-hr/year **2017714**
Met Tower? **no**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$6,410,697**	per kW-hr	
Annual Capital	**$430,900**	$0.21	$62.57
Annual OM	**$94,664**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$525,563**	$0.26	**$76.32**

Non-Fuel Costs
Alternative COE:
% Community energy 42%
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW
kW-hr/year **1300000**
Site **Water Supply Creek**
Study plan effort **reconnaissance**
Plant Factor **35** %
Penetration **0.29**

			Heat Cost $/MMBtu :
Capital cost	**$3,410,400**	per kW-hr	
Annual Capital	**$159,970**	$0.12	$36.05
Annual OM	**$49,000**	$0.04	$11.04
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$208,970**	$0.16	**$47.10**

Non-Fuel Costs
Alternative COE:
% Community energy 27%
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	6.6%

Other Resources

Hoonah

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

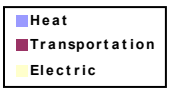
Renewable Fund Project List:

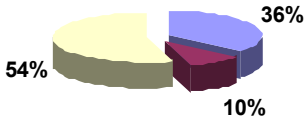
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Hoonah - Hawk Inlet Intertie Construction has been submitted by: Kwaan Electric Transmission Intertie Cooperative, Inc (KWETICO) for a Transmission project. The total project budget is: $37,459,970 with $36,709,970 requested in grant funding and $750,000 as matching funds

Hooper Bay

Energy Used

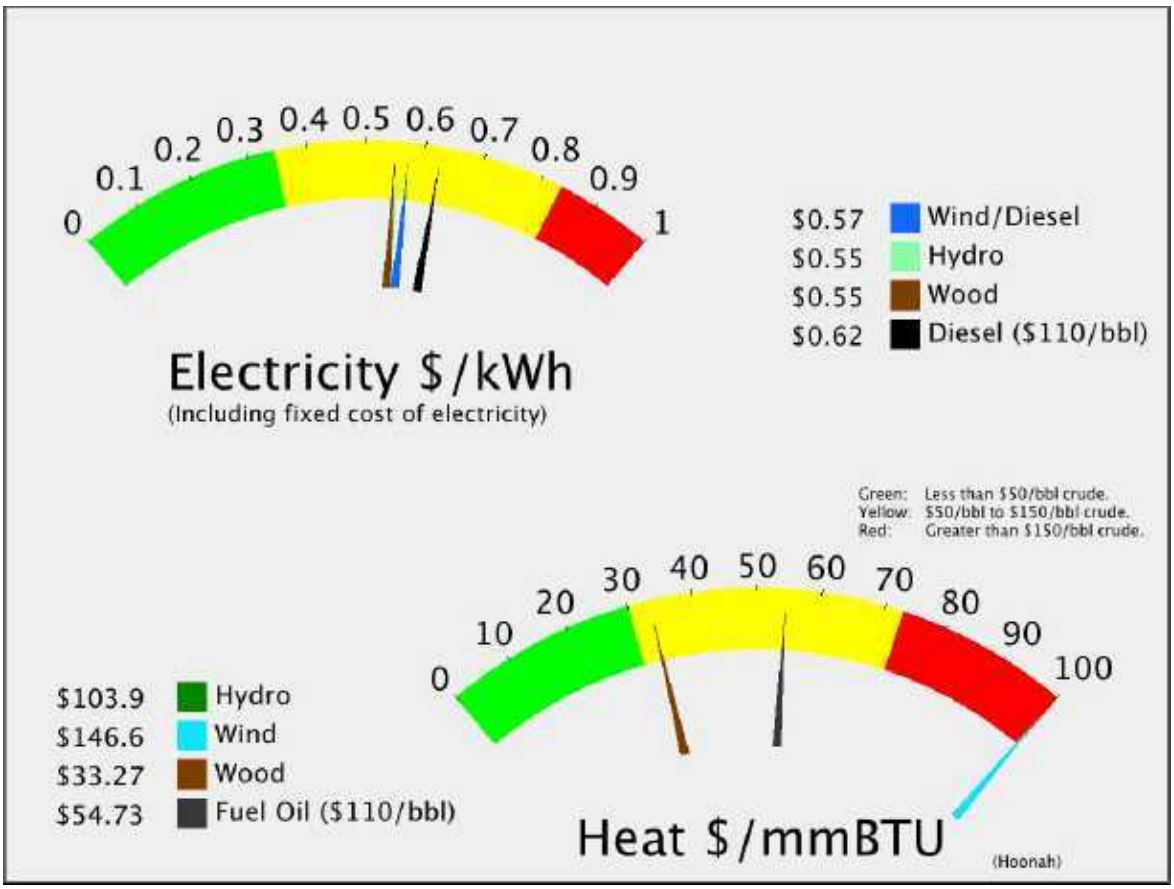




Total: **$2,747** Per capita

Heat	**$984**	Per capita
Transportation	**$270**	Per capita
Electricity:	**$1,493**	Per capita

POPULATION: 1149



Hooper Bay

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 1149 LATITUDE: 61d 31m N LONGITUDE: 166d 05m **Unorganized**

LOCATION Hooper Bay is located 20 miles south of Cape Romanzof, 25 miles south of Scammon Bay in the Yukon-Kuskokwim Delta. The city is separated into two sections: a heavily built-up townsite located on gently rolling hills, and a newer section in the lowlands. Hooper Bay is located 500 miles west of Anchorage.

ECONOMY Most employment is seasonal with little income-producing activity during the winter. 47 residents hold commercial fishing permits. Coastal Villages Seafood, Inc. processes halibut and salmon in Hooper Bay. BLM fire fighting offers some employment, and grass baskets and ivory handicrafts are produced. The community is interested in developing the Naparyarmiut Arts & Crafts Cooperative. Income is supplemented by subsistence activities. Salmon, walrus, beluga whale and waterfowl are harvested. The school employs 27 certified staff members and 23 classified staff members. The Sea Lion Corportation operates an e-commerce building in the community which provides dial-up internet service. Hooper Bay is included in the Coastal Villages Region Fund Community Development Quota (CDQ). The CDQs goal is promote fisheries related economic development in western Alaska. There are plans to construct a Fisheries Support Center to provide boat storage and a place to sell fishing related goods. Hooper Bay is included in the Lower Kuskokwim Economic Development Counsil. AVEC has two year round employees. Local stores account for approximately 20 full and part-time jobs.

HISTORY Askinuk" or "Askinaghamiut" are the early Eskimo names for Hooper Bay. The village was first reported in 1878 by E.W. Nelson of the U.S. Signal Service. The 1890 Census found 138 persons living in 14 homes. The name Hooper Bay came into common usage after a post office with this name was established in 1934. The present-day Eskimo name "Naparyarmiut" means "stake village people." The City government was incorporated in 1966."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.61**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.87**
Consumption in 200	**200,475**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$49,770**
Average Load	**284**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$647,016**
Estimated peak loa	**568.16**	kW	Total	**$0.67**		Current Fuel Costs	**$977,115**
Average Sales	**2,488,522**	kW-hours				**Total Electric**	**$1,673,901**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**192,441**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**3%**	$/MMBtu delivered to user	**$53.28**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**23,093**		**$1,130,398**

Transportation (Estimated)

Estimated Diesel:	**52,732**	gal	Estimated cost	**$5.87**	**Total Transportation** **$309,749**

Energy Total **$3,114,048**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **184,944**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.04	/kw-hr
Estimated Diesel OM	**$49,770**	$0.02	
New fuel cost	**$901,415**	$0.36	
Avg Non-Fuel Costs:	**$696,786**	$0.26	
New cost of electricity	**$0.65** per kW-hr		

Savings **($33,197)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**30,071**	gal	**$176,639**
Stack Heat	**0**	gal	**$0**

Capital cost	**$795,418**		
Annual ID	**$66,629**		
Annual OM	**$15,908**		
Total Annual costs	**$82,538**		
Heat cost	**$24.84**	$/MMBtu	

Savings **$94,101**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1284334**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **6.25** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.22	$65.23
Annual OM	**$60,256**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$346,168**	$0.27	**$78.97**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.55**	
% Community energy		52%	
New Community COE (includes non-fuel and diesel costs)		**$0.60**	

Savings

$183,851

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	11.0%

Other Resources

Hooper Bay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Hooper Bay Wind Farm Construction has been submitted by: City of Hooper Bay for a Wind Diesel Hybrid project. The total project budget is: $2,220,141 with $2,220,141 requested in grant funding and no matching funds.

Hope

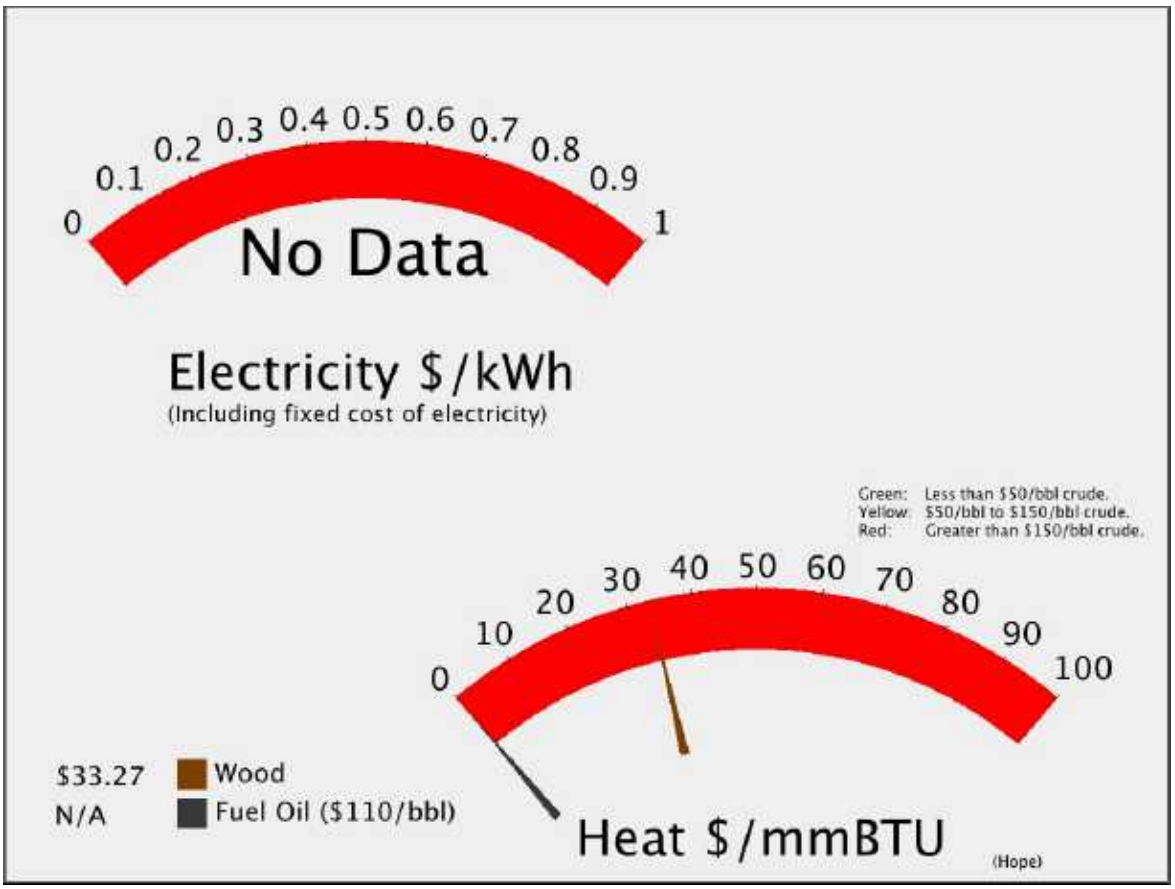
Energy Used

Total: Per capita

Heat Per capita POPULATION: 147

Transportation Per capita

Electricity: Per capita



Hope

Regional Corporation
Cook Inlet Region, Inc.

House 32
Senate : **P**

POPULATION 147 LATITUDE: 60d 55m N LONGITUDE: 149d 38m **Kenai Peninsula Borough**

LOCATION Hope lies on the northern end of Kenai Peninsula, on the south shore of the Turnagain Arm of Cook Inlet. The community lies on the 17-mile Hope Highway, northwest of the Seward Highway, near the mouth of Resurrection Creek.

ECONOMY The school and local retail businesses provide the only employment in Hope. Some mining activities continue today. A small sawmill is used by the community. Two residents hold a commercial fishing permit.

HISTORY Hope City" was a mining camp for Resurrection Creek established in 1896. The Hope post office began operating in 1897. Portions of the town were destroyed in the 1964 earthquake."

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Hope

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

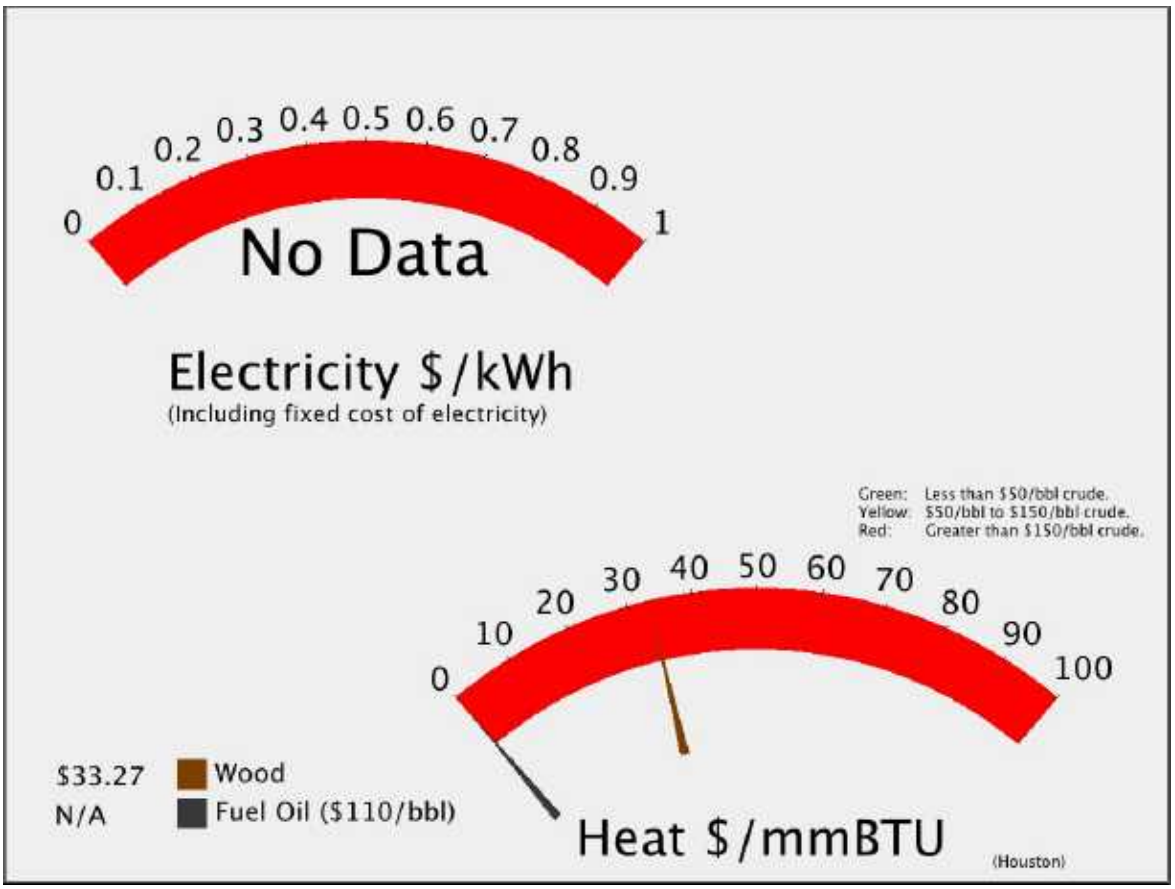
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Houston

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	1588
Transportation	Per capita		
Electricity:	Per capita		



Houston

Regional Corporation
Cook Inlet Region, Inc.
House 15
Senate : **H**

POPULATION 1588 LATITUDE: 61d 38m N LONGITUDE: 149d 50m **Matanuska-Susitna Bor**

LOCATION Houston is located north of Wasilla in the Mat-Su Borough, 57 road miles north of Anchorage. It lies on the George Parks Highway, along the Little Susitna River.

ECONOMY Residents are employed in the nearby Wasilla/Palmer area; some commute to Anchorage. Houston is a popular fishing and recreation center for the Little Susitna River and area lakes. Two residents hold a commercial fishing permit.

HISTORY Herning Trail (now Willow Creek Sled Trail) was used for freighting supplies to the Willow Creek Mining District. "Houston Siding" was first listed on a blueprint map of the Alaska Railroad in 1917; it was named after Congressman Houston of Tennessee. Several coal mines were developed in the area during 1917-18. A railroad spur was constructed to the Janios & Athens coal mine, which supplied coal to Anchorage and the LaTouche Mining Co. in Prince William Sound. In the mid-1920s, the Heaven brothers operated a mink farm at mile 59.6. In 1953-54, gravels roads and power lines were extended west of Wasilla, and Houston was quickly settled. In 1966, Houston became an incorporated city. In June 1996, the "Miller's Reach" wildfire destroyed more than 37,500 acres in the Houston and Big Lake area, including 433 buildings and homes valued at $8.9 million.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Houston

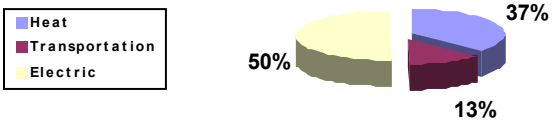
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Hughes

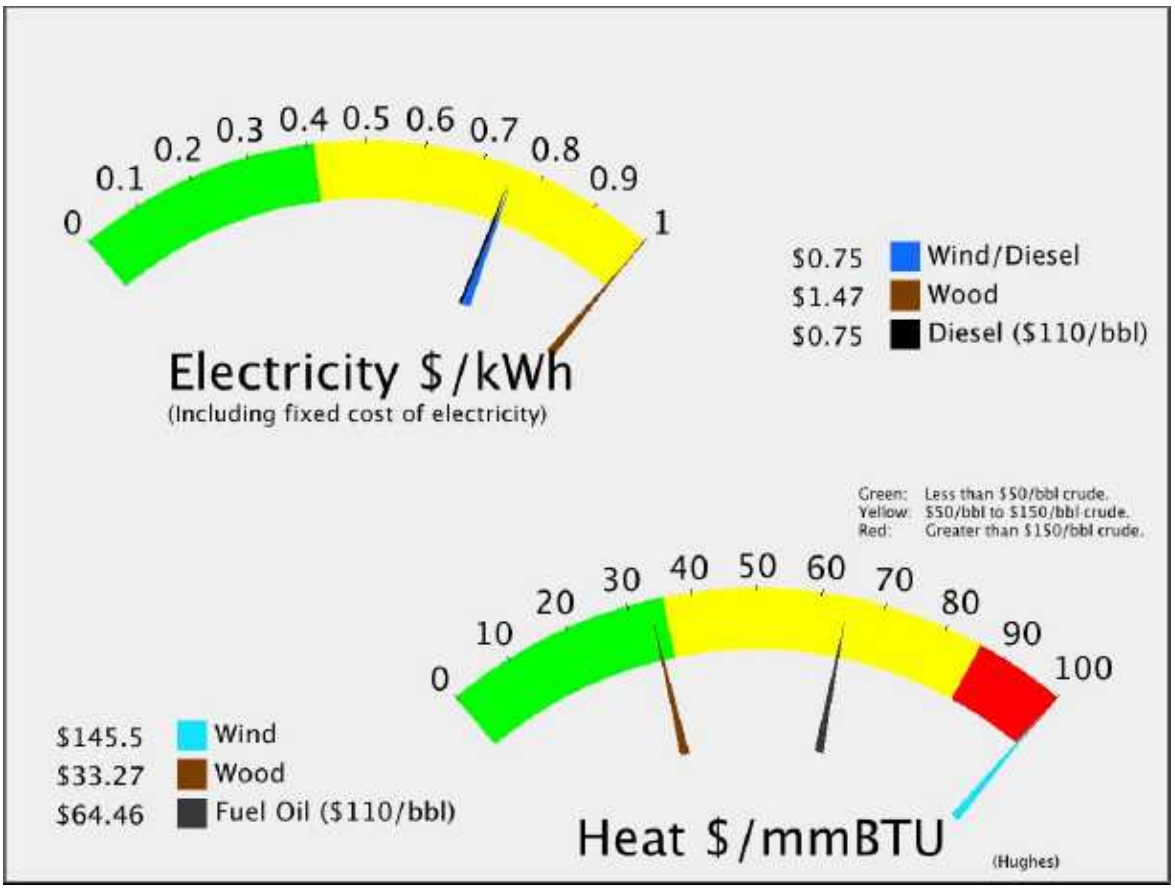
Energy Used



Total: **$5,126** Per capita

Heat	**$1,878**	Per capita
Transportation	**$678**	Per capita
Electricity:	**$2,570**	Per capita

POPULATION: 76



Hughes

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 76 LATITUDE: 66d 03m N LONGITUDE: 154d 15m **Unorganized**

LOCATION Hughes is located on a 500-foot bluff on the east bank of the Koyukuk River, about 115 air miles northeast of Galena and 210 air miles northwest of Fairbanks.

ECONOMY Subsistence is the focus of the local economy. Salmon, freshwater fish, moose, black bear, rabbits, waterfowl and berries are utilized. Caribou are also sought when available. Most cash is earned from part-time jobs with the city, school, tribal clinic or store. BLM emergency fire fighting, construction work, skin sewing, beadwork, sled building, and trapping also provide seasonal income.

HISTORY Several Native groups have lived in the area, including Koyukon Athabascans and Kobuk, Selawik, and Nunamiut Eskimos from the north and northwest. The Koyukon lived in several camps throughout the year, moving as the seasons changed, following the wild game and fish. Hughes was used as a trade center between Athabascans and Eskimos. Roy (Frederick) Hughes prospected an area two miles upstream in 1884. But according to the U.S. Geological Survey, the community was named in 1910 after New York Gov. Charles Hughes. It served as a riverboat landing and supply port for the Indian River gold fields until 1915 when the local mining industry declined. The local Natives stayed on, however, and a post office was established in 1942. An airstrip was built in the 1950s, a school in 1956, and a clinic in 1968. The City was incorporated in 1973, and local roads were built in 1974. A community-wide electric system was developed in 1981. In September 1994, flood waters destroyed and swept away nearly all of the community's buildings, homes, and food caches for the winter. Residents have rebuilt homes and facilities.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.12** /kw-hr

Current efficiency	**12.13**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Diesel OM	**$4,795**
Consumption in 200	**22,440**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$37,707**
Average Load	**27**	kW	NF COE:	**$0.16**	/kw-hr	Current Fuel Costs	**$137,409**
Estimated peak loa	**54.741**	kW	Total	**$0.75**		**Total Electric**	
Average Sales	**239,764**	kW-hours				**$179,912**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**20,031**	gal	
Fuel Oil:	**38%**	Estimated heating fuel cost/gallon	**$7.12**		
Wood:	**62%**	$/MMBtu delivered to user	**$64.61**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,404**		**$142,691**

Transportation (Estimated)

Estimated Diesel:	**7,237**	gal	Estimated cost	**$7.12**	**Total Transportation**
					$51,550

Energy Total **$374,153**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **19,435**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,795**	$0.02	
New fuel cost	**$119,010**	$0.50	
Avg Non-Fuel Costs:	**$42,502**	$0.16	
New cost of electricity		**$0.62**	per kW-hr

Savings

$17,770

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Washeteria

			Value
Water Jacket	**3,366**	gal	**$23,977**
Stack Heat	**0**	gal	**$0**

Capital cost	**$76,637**		
Annual ID	**$6,420**		
Annual OM	**$1,533**		
Total Annual costs	**$7,952**		
Heat cost	**$21.38**	$/MMBtu	

Savings

$16,025

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		
kW-hr/year	**433880**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**7**		
Avg wind speed	**8.50**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.27	$79.91
Annual OM	**$20,356**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,688**	$0.32	**$93.66**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.50**	
% Community energy		181%	
New Community COE		**$0.76**	

(includes non-fuel and diesel costs)

Savings

$41,223

Alternative Energy Resources

Wood

Installed KW	**17**	
kW-hr/year	**129962**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**164**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,663,697**	per kW-hr	
Annual Capital	**$111,827**	$0.86	
Annual OM	**$110,711**	$0.85	
Fuel cost:	**$24,635**	$0.19	-90
Total Annual Cost	**$247,173**	$1.90	**$29.76**
Non-Fuel Costs		$0.18	
Alternative COE:		**$2.08**	
% Community energy		54%	
New Community COE		**$1.46**	

(includes non-fuel and diesel costs)

Savings

($170,098)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	106.1%

Other Resources

Hughes

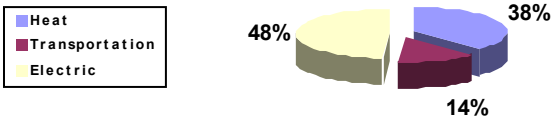
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Huslia

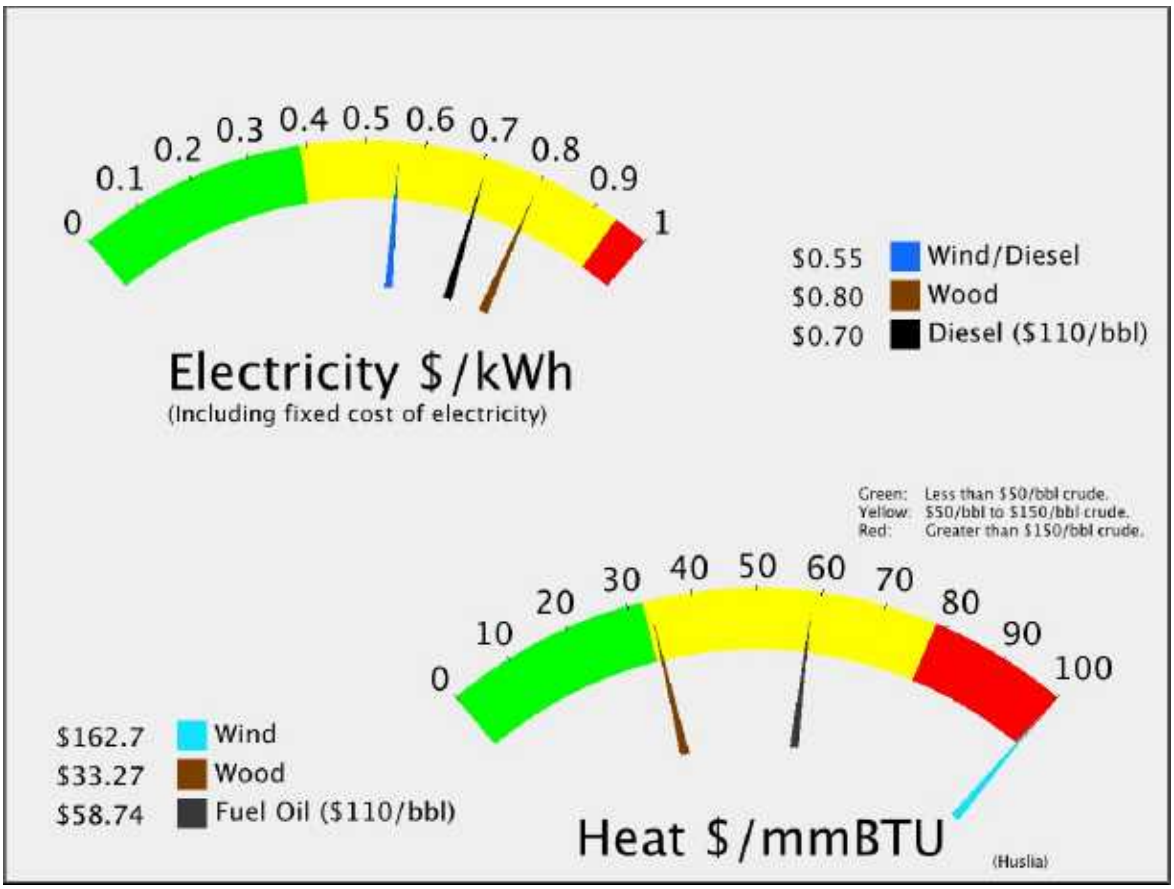
Energy Used



Total: **$4,775** Per capita

Heat	**$1,793**	Per capita
Transportation	**$648**	Per capita
Electricity:	**$2,334**	Per capita

POPULATION: 255



Huslia

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 255 LATITUDE: 65d 41m N LONGITUDE: 156d 24m **Unorganized**

LOCATION Huslia is located on the north bank of the Koyukuk River, about 170 river miles northwest of Galena and 290 air miles west of Fairbanks. It lies within the Koyukuk National Wildlife Refuge.

ECONOMY Subsistence is central to the local economy. Salmon, whitefish, moose, bear, caribou, small game, waterfowl and berries provide most food sources. The City, Tribe, school, clinic and stores provide the only full-time employment. During summer months, BLM fire fighting and construction jobs outside of the village supplement income. Two residents hold a commercial fishing permit.

HISTORY The Koyukon Athabascans lived between the south fork of the Koyukuk River and the Kateel River. They had spring, summer, fall, and winter camps, and moved as the wild game migrated. In the summer many families would float on a raft to the Yukon to fish for salmon. The Koyukon often traded with the Kobuk River Eskimos. By 1843, Russian explorers had made contact with Athabascans approximately 50 miles downriver from the current site. The Western Union Telegraph Company explored the River around 1867, and missionary activity increased after 1870. Cutoff Trading Post (also called Old Town) was established in the 1920s about 4 miles overland, or 16 river miles, from modern Huslia. In 1949, the community moved to the present site because Cutoff flooded frequently and the ground was swampy. Huslia (originally spelled Huslee) was named after a local stream. Huslia had been used as a burial site since 1886, but by the time of the move, most of the old cemetery had been destroyed by erosion. In 1950, the first school was established, followed by a post office, airport and road construction in 1952. At this time, families began to live year-round at Huslia. In 1960, a health clinic was constructed, and in 1963, 29 individual hand-pumped water wells were installed. The City government was incorporated in 1969. Running water and indoor plumbing arrived in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.49** /kw-hr

Current efficiency	**13.01**	kW-hr/gal	Fuel COE	**$0.43**	/kw-hr	Estimated Diesel OM	**$18,088**
Consumption in 200	**70,286**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$235,146**
Average Load	**103**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$385,926**
Estimated peak loa	**206.49**	kW	Total	**$0.71**		**Total Electric**	
Average Sales	**904,406**	kW-hours				**$639,160**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**70,450**	gal	
Fuel Oil:	**71%**	Estimated heating fuel cost/gallon	**$6.49**		
Wood:	**29%**	$/MMBtu delivered to user	**$58.87**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,454**	**$457,276**	

Transportation (Estimated)

Estimated Diesel:	**25,452**	gal	Estimated cost	**$6.49**	**Total Transportation**
					$165,201

Energy Total **$1,261,637**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **65,301**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.12	/kw-hr
Estimated Diesel OM	**$18,088**	$0.02	
New fuel cost	**$358,552**	$0.40	
Avg Non-Fuel Costs:	**$253,234**	$0.26	
New cost of electricity	**$0.79** per kW-hr		

Savings

($81,522)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

AVEC Office

			Value
Water Jacket	**10,543**	gal	**$68,432**
Stack Heat	**0**	gal	**$0**

Capital cost	**$289,080**		
Annual ID	**$24,215**		
Annual OM	**$5,782**		
Total Annual costs	**$29,997**		
Heat cost	**$25.75**	$/MMBtu	

Savings

$38,435

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		
kW-hr/year	**903235**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**4**		
Avg wind speed	**7.00**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.97
Annual OM	**$42,377**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,834**	$0.28	**$80.72**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.56**	
% Community energy		100%	
New Community COE		**$0.54**	

(includes non-fuel and diesel costs)

Savings

$154,650

Alternative Energy Resources

Wood

Installed KW	**126**	
kW-hr/year	**939145**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**1187**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,230,970**	per kW-hr	
Annual Capital	**$149,956**	$0.16	
Annual OM	**$142,705**	$0.15	
Fuel cost:	**$178,020**	$0.19	-90
Total Annual Cost	**$470,681**	$0.50	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.78**	
% Community energy		104%	
New Community COE		**$0.80**	

(includes non-fuel and diesel costs)

Savings

$168,479

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	30.2%

Other Resources

Huslia

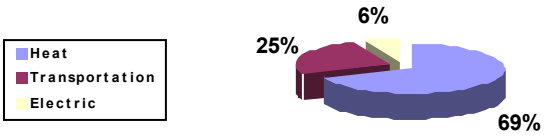
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Hydaburg

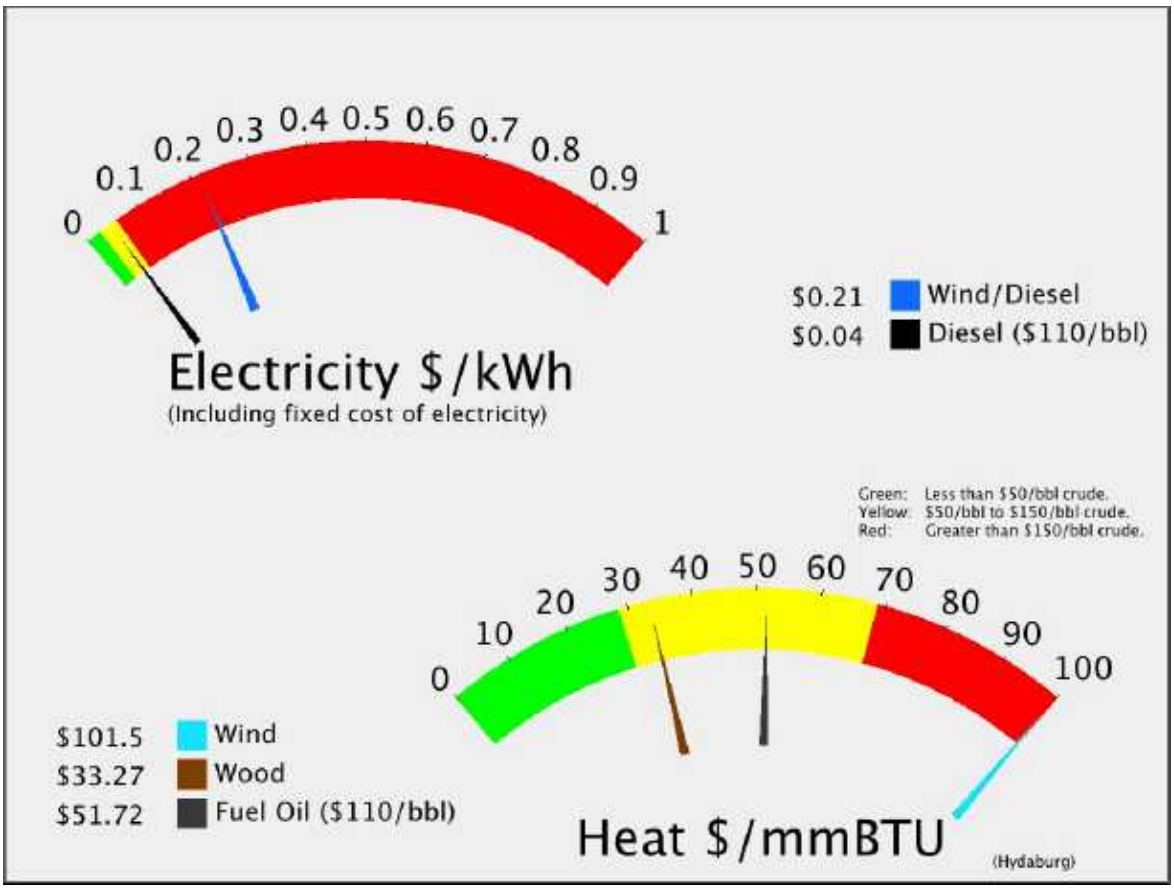
Energy Used



Total: **$2,861** Per capita

Heat	**$1,969**	Per capita
Transportation	**$716**	Per capita
Electricity:	**$176**	Per capita

POPULATION: 353



Hydaburg

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 353 LATITUDE: 55d 12m N LONGITUDE: 132d 49m **Unorganized**

LOCATION Hydaburg is located on the southwest coast of Prince of Wales Island, 45 air miles northwest of Ketchikan. It lies 36 road miles west of Hollis, site of the State Ferry landing.

ECONOMY Hydaburg has a fishing and timber-based economy. 39 residents hold commercial fishing permits. The Haida Corp. owns a substantial timber holding, although it suspended logging in 1985 due to a decline in the timber market. The Corporation's log storage facility and sort yard are leased to Sealaska Corp., where residents are employed with Southeast Stevedoring part-time in shipping and loading timber. The City, school, Haida Corp. and SEARHC are other leading employers. The community is interested in developing a fish processing facility, a U.S. Forest Service Visitor Center, specialty woodworking, and a mini-mall/retail center. Subsistence food sources include deer, salmon, halibut, shrimp and crab.

HISTORY During the mid to late 1700s, the Haida Indians migrated to Prince of Wales, a predominantly Tlingit area, from Graham Island in the Queen Charlotte Islands, Canada. In 1911, three Haida villages combined at the present site (Sukkwan, Howkan and Klinkwan) for their children to attend school; it was designated as the Hydaburg Indian Reservation in 1912. The new village established a trading company, store and sawmill. However, the villagers were never comfortable with the arrangement, and at their request in 1926, the land was restored to its former status as part of the Tongass National Forest. 189 acres of the land were reserved for the school and townsite disposals. Hydaburg was incorporated as a City in 1927, three years after its people had become citizens of the United States. The first fish processing plant opened in 1927, and three other canneries operated through the 1930s. When the Indian Reorganization Act (IRA) was amended in 1936 to include Alaska Natives, Hydaburg became the first village in Alaska to form an IRA Council.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.72** /kw-hr

Current efficiency	**12.91**	kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$28,881**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$34,503**
Average Load	**165**	kW	NF COE:	**$0.02**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**329.69**	kW	Total	**$0.04**		**Total Electric**	
Average Sales	**1,444,062**	kW-hours				**$63,385**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**121,622**	gal	
Fuel Oil:	**71%**	Estimated heating fuel cost/gallon	**$5.72**		
Wood:	**21%**	$/MMBtu delivered to user	**$51.84**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**14,595**	**$695,104**	

Transportation (Estimated)

Estimated Diesel: **44,210** gal Estimated cost **$5.72**

Total Transportation **$252,671**

Energy Total **$1,011,161**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **0**

Capital cost **$7,500**

Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$28,881**	$0.02	
New fuel cost	**$0**	$0.00	
Avg Non-Fuel Costs:	**$63,385**	$0.02	

New cost of electricity **$0.38** per kW-hr

Savings **($628)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**0**	gal	**$0**
Stack Heat	**0**	gal	**$0**

Capital cost **$461,572**

Annual ID **$38,664**

Annual OM **$9,231**

Total Annual costs **$47,896**

Heat cost **#Div/0!** $/MMBtu

Savings **($47,896)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		Capital cost	**$3,071,563**	per kW-hr
kW-hr/year	**807100**		Annual Capital	**$206,457**	$0.26
Met Tower?	**no**		Annual OM	**$37,866**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**6**		Total Annual Cost	**$244,323**	$0.30
Avg wind speed	**8.10**	m/s	Non-Fuel Costs		$0.04
			Alternative COE:		**$0.35**
			% Community energy		56%
			New Community COE (includes non-fuel and diesel costs)		**$0.20**

Heat Cost $/MMBtu : $74.95 | $13.75 | **$88.70**

Savings

($228,173)

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr
kW-hr/year			Annual Capital		
Installation Type			Annual OM		
Electric Wood cost			Fuel cost:		
Wood Required		Cd/Y	Total Annual Cost		
Stove Wood cost		$/Cd	Non-Fuel Costs		$0.04
			Alternative COE:		
			% Community energy		
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	17.5%

Other Resources

Hydaburg

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

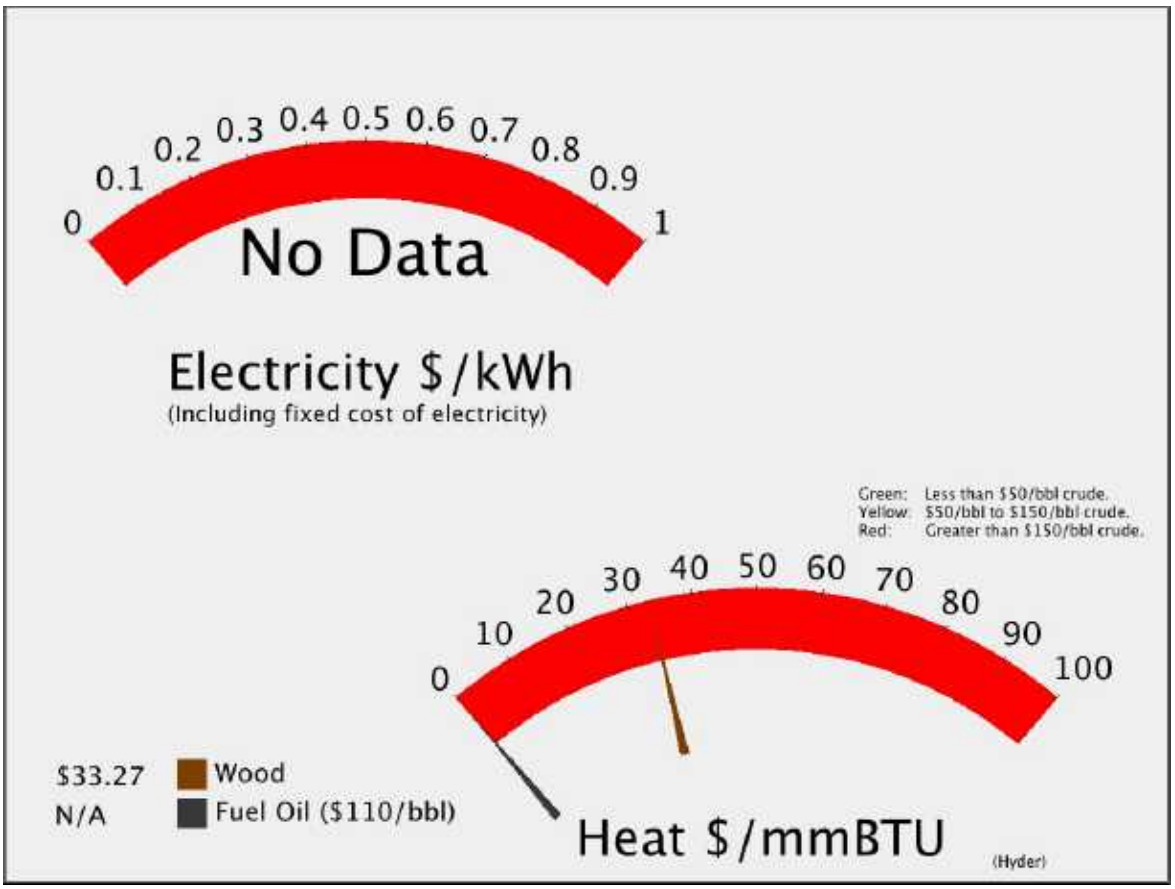
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Reynolds Creek Hydroelectric Construction has been submitted by: Haida Power, Inc. for a Hydro project. The total project budget is: $17,145,000 with $13,720,000 requested in grant funding and no matching funds.

Hyder

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	72
Transportation	Per capita		
Electricity:	Per capita		



Hyder

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 72 LATITUDE: 55d 55m N LONGITUDE: 130d 01m **Unorganized**

LOCATION Hyder is nestled at the head of Portland Canal, a 70 mile-long fjord which forms a portion of the U.S./Canadian border. Hyder is just 2 miles from Stewart, British Columbia, and 75 air miles from Ketchikan. It is the only community in southern Alaska accessible by road.

ECONOMY Hyder's economy is based primarily on tourism today; visitors cross the border from Canada. Four of the five largest employers are tourist-related, and visitor services are shared with Stewart, B.C. A bottled water business employs local residents. Four residents hold commercial fishing permits. Recreational fishing and hunting provide food for some families. Deer, salmon, shrimp and crab are the favorite resources.

HISTORY Nass River Indians called the head of Portland Canal Skam-A-Kounst meaning safe place probably referring to the site as a retreat from the harassment of the coastal Haidas. The Nass used this area as a seasonal berry-picking and bird-hunting site. In 1896, Capt. D.D. Gaillard of the U.S. Army Corps of Engineers explored Portland Canal. Gold and silver lodes were discovered in this area in the late 1898, mainly on the Canadian side in the upper Salmon River basin. The Stewart brothers arrived in 1902. Hyder was originally called Portland City, and the name was changed in 1914 after Frederick Hyder, a Canadian mining engineer who predicted a bright future for the area. Hyder was the only practical point of access to the silver mining properties in Canada, and the community became the ocean port, supply point, and post office for miners by 1917. Hyder's boom years occurred between 1920 and 1930, when the Riverside Mine on U.S. territory extracted gold, silver, copper, lead, zinc, and tungsten. The mine operated from 1924 until 1950. In 1948, the townsite, built on pilings, was destroyed by fire. By 1956, all major mining had closed except for the Granduc Copper Mine in Canada, which operated until 1984. Westmin Resources Ltd. currently operates a gold and silver mine.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **412669**
Met Tower? **no**
Homer Data? **yes**
Wind Class **5**
Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.29	$84.02
Annual OM	**$19,361**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,693**	$0.33	**$97.76**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **2920**
kW-hr/year **500000**
Site **West Fork Creek**
Study plan effort **reconnaissance**
Plant Factor %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$19,304,000**		
Annual Capital	**$750,260**	$1.50	$439.65
Annual OM	**$233,680**	$0.47	$136.94
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$983,940**	$1.97	**$576.59**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Hyder

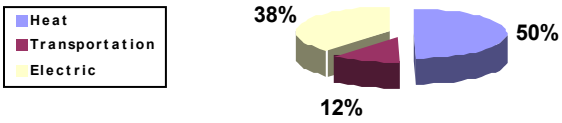
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Igiugig

Energy Used



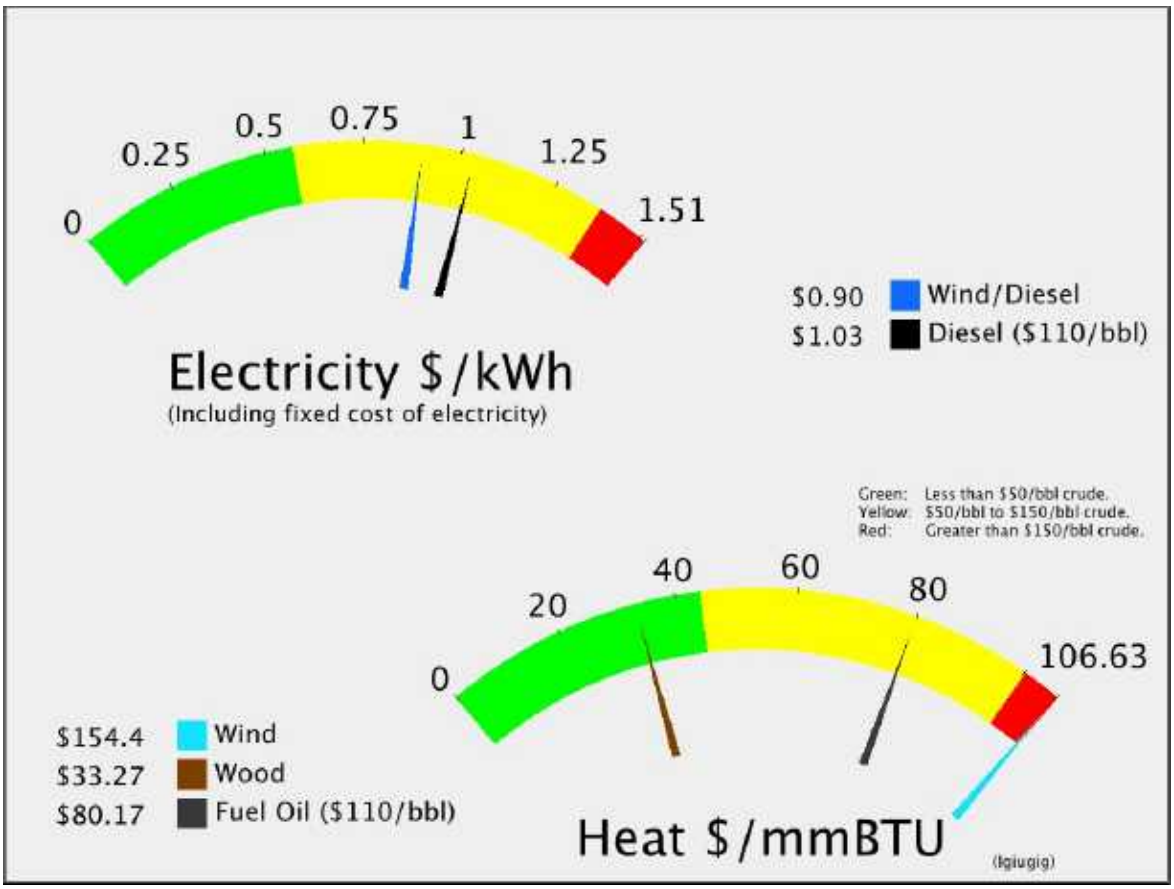
Total: **$9,900** Per capita

Heat **$4,904** Per capita

Transportation **$1,198** Per capita

Electricity: **$3,797** Per capita

POPULATION: 32



Igiugig

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 32 LATITUDE: 59d 20m N LONGITUDE: 155d 55m **Lake & Peninsula Borou**

LOCATION Igiugig is located on the south shore of the Kvichak River, which flows from Iliamna Lake, on the Alaska Peninsula. It is 50 air miles northeast of King Salmon and 48 miles southwest of Iliamna.

ECONOMY As is typical for the region, salmon fishing is the mainstay of Igiugig's economy. Five residents hold commercial fishing permits. Many travel to Naknek each summer to fish or work in the canneries. Subsistence is an important part of the residents' lifestyle. Salmon, trout, whitefish, moose, caribou and rabbit are utilized. Some trapping occurs. Lake Iliamna is the second largest lake in the U.S. Trophy rainbow trout attract sport fishermen. There are seven commercial lodges that serve sports fishermen and hunters seasonally in Igiugig.

HISTORY Kiatagmuit Eskimos originally lived on the north bank of the Kvichak River in the village of Kaskanak, and used Igiugig as a summer fish camp. At the turn of the century, these people moved upriver to the present site of Igiugig. People from Branch also moved to Igiugig as it began to develop. Today, about one-third of residents can trace their roots back to the Branch River village. A post office was established in 1934, but was discontinued in 1954. Commercial and subsistence fishing sustain the community.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.66**	kW-hr/gal	Fuel COE	**$0.85**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$7.86**
Consumption in 200	**20,640**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$3,799**
Average Load	**22**	kW	NF COE:	**$0.16**	/kw-hr	Other Non-Fuel Costs:	**$30,703**
Estimated peak loa	**43.370**	kW	Total	**$1.04**		Current Fuel Costs	**$162,208**
Average Sales	**189,961**	kW-hours				**Total Electric**	**$196,710**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**17,715**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$8.86**		
Wood:	**0%**	$/MMBtu delivered to user	**$80.35**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,126**		**$156,934**

Transportation (Estimated)

Estimated Diesel:	**4,329**	gal	Estimated cost	**$8.86**	**Total Transportation** **$38,350**

Energy Total **$391,994**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Construction**

Acheivable efficiency **14** kW-

New Fuel use **15,710**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.04	/kw-hr
Estimated Diesel OM	**$3,799**	$0.02	
New fuel cost	**$123,465**	$0.65	
Avg Non-Fuel Costs:	**$34,502**	$0.16	
New cost of electricity	**$0.79** per kW-hr		

Savings **$30,366**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Washeteria

			Value
Water Jacket	**3,096**	gal	**$27,427**
Stack Heat	**0**	gal	**$0**

Capital cost	**$60,718**		
Annual ID	**$5,086**		
Annual OM	**$1,214**		
Total Annual costs	**$6,301**		
Heat cost	**$18.42**	$/MMBtu	

Savings **$21,127**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **396045**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$87.54
Annual OM	**$18,581**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,913**	$0.35	**$101.29**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.53**	
% Community energy		208%	
New Community COE		**$0.90**	

(includes non-fuel and diesel costs)

Savings

$59,797

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	120.0%

Other Resources

Igiugig

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

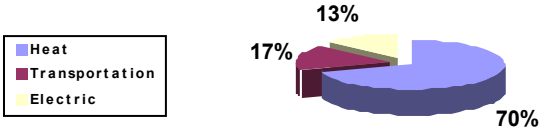
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kvichak River_Igiugig has been submitted by: Igiugig Village Council d/b/a Igiugig Electric Company for a Ocean/River project. The total project budget is: $2,396,830 with $2,302,630 requested in grant funding and $94,200 as matching funds.

Iliamna

Energy Used



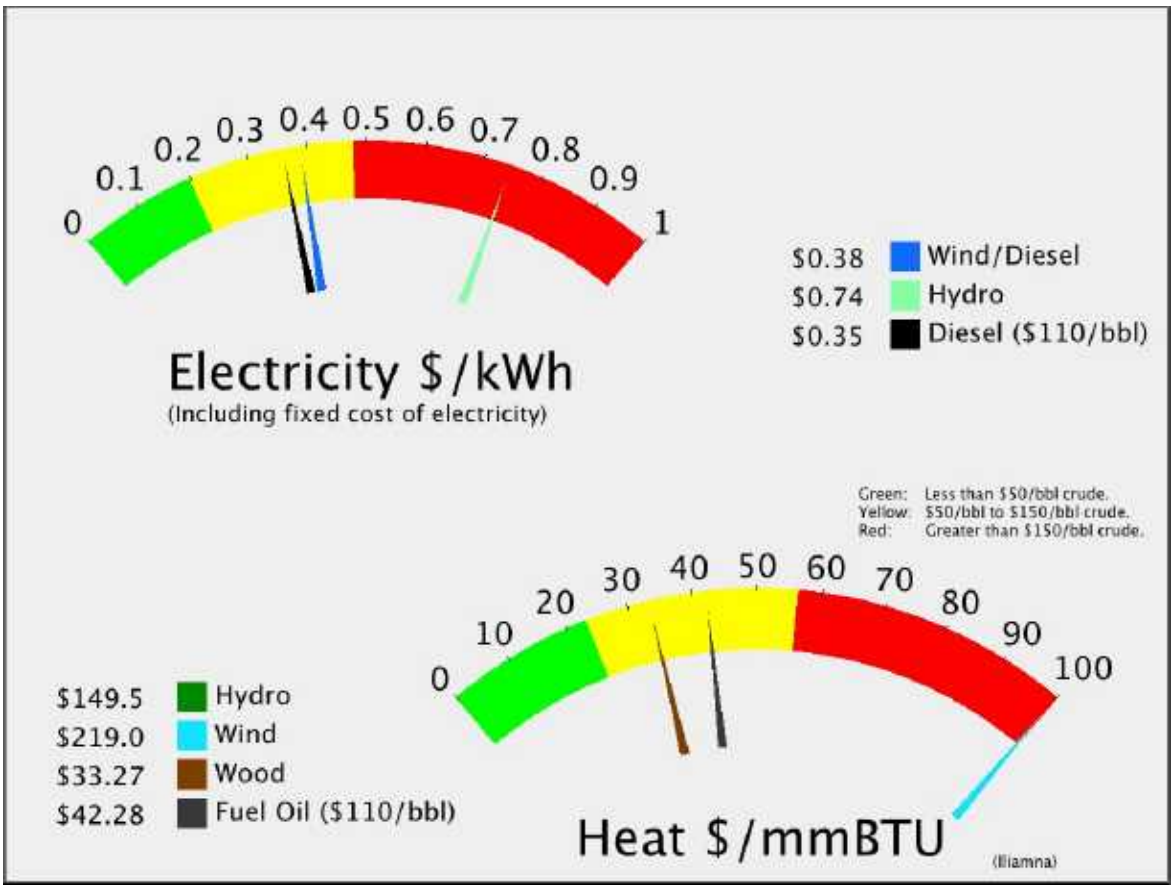
Total: $14,324 Per capita

Heat **$10,040** Per capita

Transportation **$2,453** Per capita

Electricity: **$1,830** Per capita

POPULATION: 93



Iliamna

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 93 LATITUDE: 59d 45m N LONGITUDE: 154d 55m **Lake & Peninsula Borou**

LOCATION Iliamna is located on the northwest side of Iliamna Lake, 225 miles southwest of Anchorage. It is near the Lake Clark Park and Preserve.

ECONOMY Commercial fishing, sport fishing, and tourism are the major sources of income for the community. 17 residents hold commercial fishing permits, and many depart each summer to fish in Bristol Bay. Lake Iliamna is the second largest lake in the U.S., and tourism is increasing. However, most lodge employees are hired from outside Alaska. Many residents participate in subsistence hunting and fishing activities. Salmon, trout, grayling, moose, caribou, bear, seal, porcupine and rabbits are utilized. Northern Dynasty Minerals Ltd. is exploring the gold, copper and molybdenum potential of the Pebble Deposit, 15 miles from Iliamna.

HISTORY Prior to 1935, "Old Iliamna" was located near the mouth of the Iliamna River, a traditional Athabascan village. A post office was established there in 1901. Around 1935, villagers moved to the present location, approximately 40 miles from the old site. The post office followed. Iliamna's current size and character can be attributed to the development of fishing and hunting lodges. The first lodge opened in the 1930s. A second lodge was built in the 1950s. During the 70s and 80s, lots were made available by the Baptist Church, and additional lodges were constructed.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$3.67** /kw-hr

Current efficiency	**12.95**	kW-hr/gal	Fuel COE	**$0.03**	/kw-hr	Estimated Diesel OM	**$47,569**
Consumption in 200	**17,816**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$741,790**
Average Load	**272**	kW	NF COE:	**$0.31**	/kw-hr	Current Fuel Costs	**$65,429**
Estimated peak loa	**543.03**	kW	Total	**$0.36**		**Total Electric**	
Average Sales	**2,378,453**	kW-hours				**$854,789**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**199,833**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$4.67**		
Wood:	**0%**	$/MMBtu delivered to user	**$42.38**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**23,980**		**$933,720**

Transportation (Estimated)

Estimated Diesel: **48,833** gal Estimated cost **$4.67**

Total Transportation **$228,174**

Energy Total **$2,016,683**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **15,643**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.02	/kw-hr
Estimated Diesel OM	**$47,569**	$0.02	
New fuel cost	**$57,450**	$0.02	
Avg Non-Fuel Costs:	**$789,359**	$0.31	
New cost of electricity	**$0.60** per kW-hr		

Savings **($42,280)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Hall, Firehouse, Clinic

			Value
Water Jacket	**2,672**	gal	**$12,487**
Stack Heat	**0**	gal	**$0**

Capital cost	**$760,236**		
Annual ID	**$63,682**		
Annual OM	**$15,205**		
Total Annual costs	**$78,887**		
Heat cost	**$267.15**	$/MMBtu	

Savings **($66,400)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**100**		Capital cost	**$1,009,033**	per kW-hr
kW-hr/year	**183929**		Annual Capital	**$67,823**	$0.37
Met Tower?	**yes**		Annual OM	**$8,629**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**7**		Total Annual Cost	**$76,452**	$0.42
Avg wind speed	**4.62**	m/s	Non-Fuel Costs		$0.33
			Alternative COE:		**$0.75**
			% Community energy		8%
			New Community COE		**$0.39**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $108.04 | $13.75 | **$121.79**

Savings

($67,725)

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr
kW-hr/year			Annual Capital		
Installation Type			Annual OM		
Electric Wood cost			Fuel cost:		
Wood Required		Cd/Y	Total Annual Cost		
Stove Wood cost		$/Cd	Non-Fuel Costs		$0.33
			Alternative COE:		
			% Community energy		
			New Community COE		
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Alternative Energy Resources

Hydro

Installed KW	**1500**		Capital cost	**$13,589,000**	per kW-hr
kW-hr/year	**2876318**		Annual Capital	**$528,143**	$0.18
Site	**Kokhanok River**		Annual OM	**$457,200**	$0.16
Study plan effort	**reconnaissance**		Fuel cost:	**$0**	$0.00
Plant Factor	**42**	%	Total Annual Cost	**$985,343**	$0.34
Penetration	**0.52**		Non-Fuel Costs		$0.33
			Alternative COE:		**$0.67**
			% Community energy		121%
			New Community COE		**$0.75**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $53.80 | $46.57 | **$100.37**

Savings

($130,555)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	10.6%

Other Resources

Iliamna

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

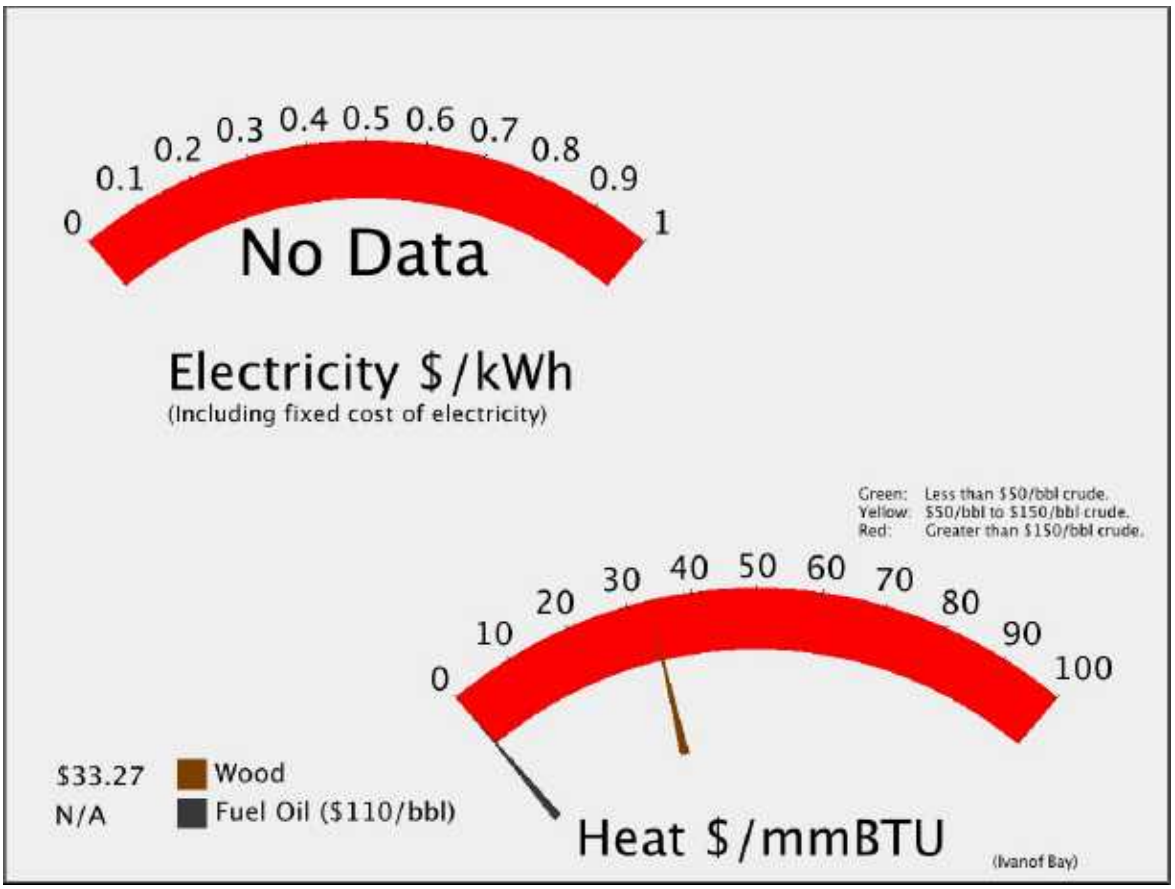
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project.

Ivanof Bay

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	0
Transportation	Per capita		
Electricity:	Per capita		



Ivanof Bay

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 0 LATITUDE: 55d 54m N LONGITUDE: 159d 29m **Lake & Peninsula Borou**

LOCATION Ivanof Bay is located on the northeast end of the Kupreanof Peninsula, 500 miles southwest of Anchorage and 250 miles southeast of Dillingham.

ECONOMY Two residents hold commercial fishing permits, for salmon and halibut. Many trap in the winter. The people depend upon subsistence hunting and fishing, and use salmon, trout, crab, clams, moose, caribou, bear, porcupine and seals.

HISTORY The bay was named by Lt. Dall of the U.S. Coast and Geodetic Survey in 1880. A salmon cannery operated at this site from the 1930s to the early 1950s. A post office operated from 1952 to 1954. Several families moved from Perryville to Ivanof Bay in 1965 in search of better water sources and hunting grounds, and to pursue a peaceful lifestyle with religious freedom. There are three predominant families, the Shangins, the Kalmakoffs and the Calugens. The school was closed for the 2000-2001 year, due to insufficient enrollment.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Ivanof Bay

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Juneau

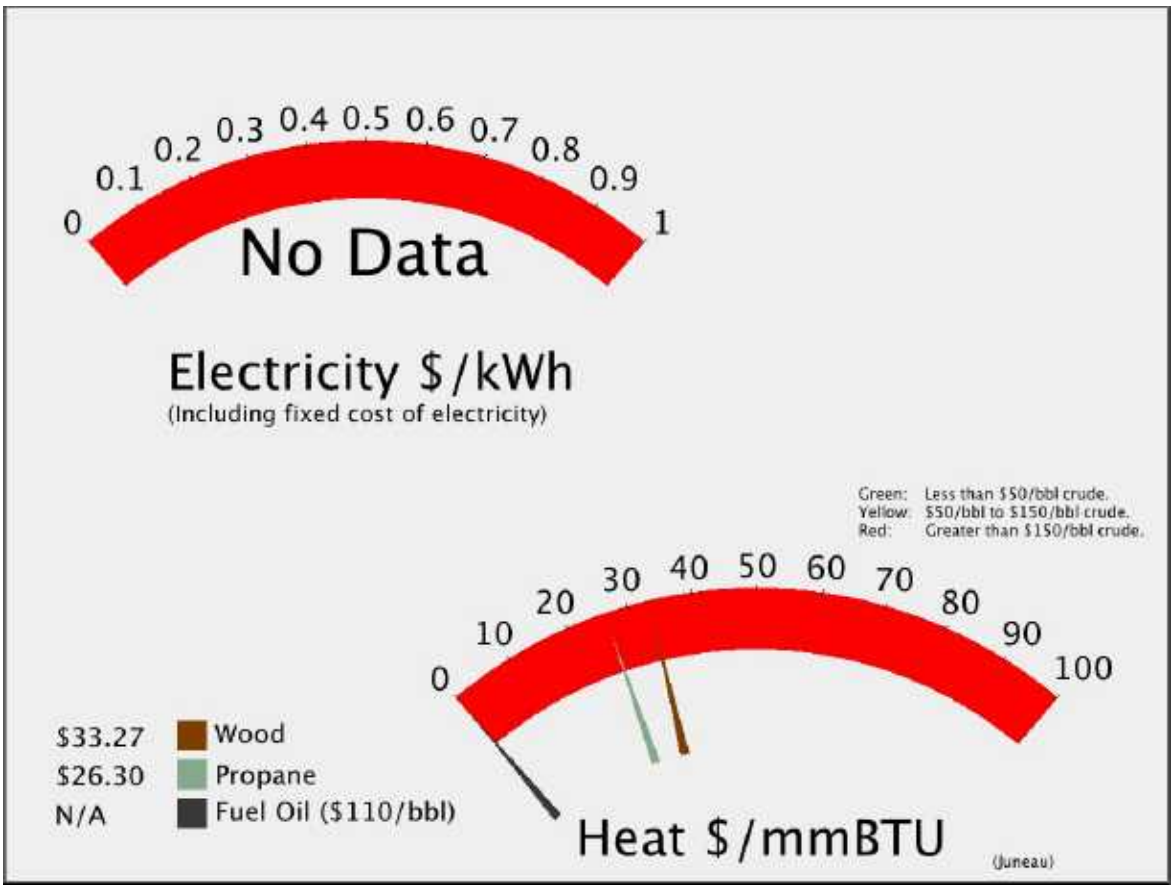
Energy Used

Total: Per capita

Heat Per capita POPULATION: 30317

Transportation Per capita

Electricity: Per capita



Juneau

Regional Corporation
Sealaska Corporation
House
Senate : **B**

POPULATION 30317 LATITUDE: 58d 18m N LONGITUDE: 134d 24m **City & Borough of June**

LOCATION Located on the mainland of Southeast Alaska, opposite Douglas Island, Juneau was built at the heart of the Inside Passage along the Gastineau Channel. It lies 900 air miles northwest of Seattle and 577 air miles southeast of Anchorage.

ECONOMY The State, City & Borough of Juneau, and federal agencies provide nearly 45% of the employment in the community. Juneau is home to State Legislators and their staff during the legislative session between January and May. Tourism is a significant contributor to the private sector economy during the summer months, providing a $130 million income and nearly 2,000 jobs. Over 690,000 visitors arrive by cruise ship, and another 100,000 independent travelers visit Juneau each year. The Mendenhall Glacier, Juneau Icefield air tours, Tracy Arm Fjord Glacier, State Museum, and Mount Roberts Tramway are local attractions. Support services for logging and fish processing contribute to the Juneau economy, and 519 residents hold commercial fishing permits. DIPAC, a private non-profit organization, operates a fish hatchery which increases the local salmon population. The Kennecott Green's Creek Mine produces gold, silver, lead and zinc, and is the largest silver mine in North America.

HISTORY The area was a fish camp for the indigenous Tlingit Indians. In 1880, nearly 20 years before the gold rushes to the Klondike and Nome, Joe Juneau and Richard Harris were lead to Gold Creek by Chief Kowee of the Auk Tribe. They found mother lode deposits upstream, staked their mining claims, and developed a 160 acre incorporated city they called Harrisburg, which brought many prospectors to the area. The City of Juneau was formed in 1900. The state capital was transferred from Sitka to Juneau in 1906 while Alaska was a U.S. Territory. The Treadwell and Ready Bullion mines across the channel on Douglas Island became world-scale mines, operating from 1882 to 1917. In 1916, the Alaska-Juneau gold mine was built on the mainland, and became the largest operation of its kind in the world. In 1917, a cave-in and flood closed the Treadwell mine on Douglas. It produced $66 million in gold in its 35 years of operation. Fishing, canneries, transportation and trading services, and a sawmill contributed to Juneau's growth through the early 1900s. The A-J Mine closed in 1944, after producing over $80 million in gold. In 1970, the City of Juneau and City of Douglas were unified into the City & Borough of Juneau.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**4800**		Capital cost	**$22,591,339**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**4706529**		Annual Capital	**$1,518,493**	$0.32	$94.53
Met Tower?	**no**		Annual OM	**$220,813**	$0.05	$13.75
Homer Data?	**no**		Fuel cost:	**$0**	$0.00	
Wind Class	**7**		Total Annual Cost	**$1,739,306**	$0.37	**$108.28**
Avg wind speed	**4.46**	m/s	Non-Fuel Costs			
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW			Capital cost		per kW-hr	Heat Cost $/MMBtu :
kW-hr/year			Annual Capital	**$0**		
Site	**Sheep Creek (Thane)**		Annual OM			
Study plan effort	**reconnaissance**		Fuel cost:	**$0**		
Plant Factor	%		Total Annual Cost	**$0**		
Penetration			Non-Fuel Costs			
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Juneau

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

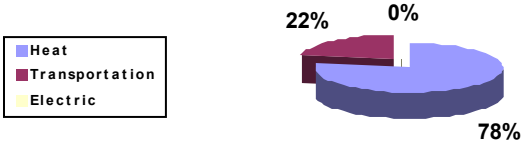
A project titled: Juneau Based Statewide Hydro/Ammonia Electricity Construction has been submitted by: Alaska Electric Light & Power for a Other/Hydro project. The total project budget is: $800,000 with $800,000 requested in grant funding and no matching funds.

A project titled: Juneau Ground Source Heat Pump Construction (Aquatic Center) has been submitted by: City & Borough of Juneau for a Geothermal project. The total project budget is: $1,950,000 with $1,450,000 requested in grant funding and $500,000 as matching funds.

A project titled: Juneau Waste Gasification Reconnaisance Study has been submitted by: Alaska Recycling Energy, LLC for a Biofuels project. The total project budget is: $ with $95,000 requested in grant funding and $ as matching funds.

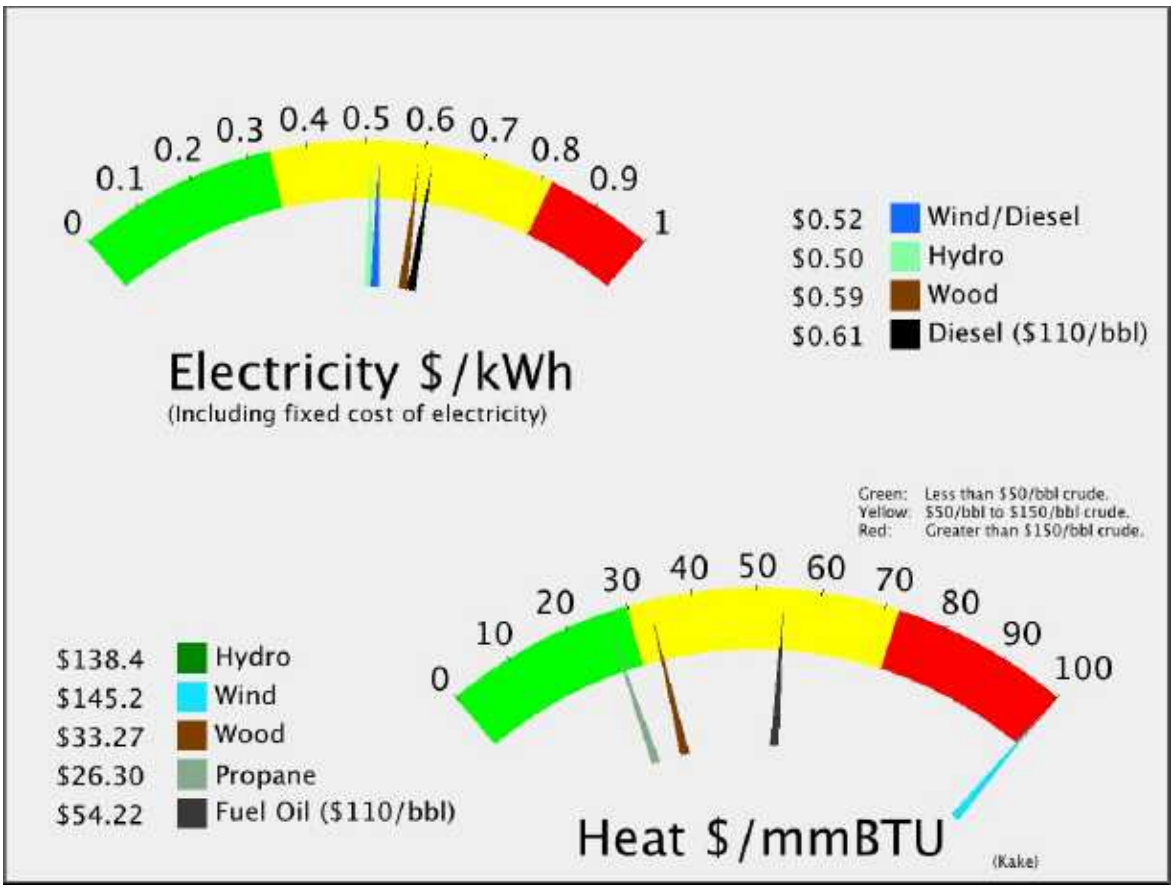
Kake

Energy Used



Total: Per capita

Heat	**$4,427**	Per capita	POPULATION:	536
Transportation	**$1,281**	Per capita		
Electricity:		Per capita		



Kake

Regional Corporation
Sealaska Corporation

House 5
Senate : **C**

POPULATION 536 LATITUDE: 56d 58m N LONGITUDE: 133d 56m **Unorganized**

LOCATION Kake is located on the northwest coast of Kupreanof Island along Keku Strait, 38 air miles northwest of Petersburg, and 95 air miles southwest of Juneau.

ECONOMY The City, School District and Kake Tribal Corp. are the largest employers. Fishing, seafood processing, and logging contribute considerably to the economy. 67 residents hold commercial fishing permits. The non-profit Gunnuk Creek Hatchery has assisted in sustaining the salmon fishery. Kake Foods produces smoked and dried salmon and halibut. Turn Mountain Timber, a joint venture between Whitestone Logging and Kake Tribal Corp., employs residents in logging tribal corporation lands. Southeast Stevedoring, a Sealaska contractor, also provides employment at the log sort yard and transfer facility at Point McCarny. Salmon, halibut, shellfish, deer, bear, waterfowl and berries are important food sources.

HISTORY Historically, the Kake tribe of the Tlingits controlled the trade routes around Kuiu and Kupreonof islands, defending their territory against other tribal groups in the region. Ventures into the region by early European explorers and traders resulted in occasional skirmishes between Native Tlingits and the foreigners. Tensions between locals and outsiders had been escalating when, in 1869, a non-Native sentry at the settlement in Sitka shot and killed a Kake Native. In accordance with their traditional custom, the Kakes then killed two prospectors in retribution. In reprisal, the U.S. Navy sent the USS Saginaw to punish the Kakes by shelling their villages and destroying their homes, boats and stored foods. The Kake people survived this onslaught, but were forced to disperse and live with other tribes to survive. Over the following 20 years, the Kakes regrouped at the current village site. In 1891, a government school and store were built. A Society of Friends mission also was established. A post office was built in 1904. In the early part of this century, Kake became the first Alaska Native village to organize under federal law, resulting in U.S. citizenship for community residents. In 1912 the first cannery was built near Kake. After the Second World War, timber harvesting and processing became a major local industry. The City was incorporated in 1952.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.35**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.99** /kw-hr
Consumption in 200	**199,431**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$53,164**
Average Load	**303**	kW	NF COE:		/kw-hr	Other Non-Fuel Costs:	
Estimated peak loa	**606.89**	kW	Total			Current Fuel Costs	**$995,540**
Average Sales	**2,658,178**	kW-hours				**Total Electric**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**396,020**	gal	
Fuel Oil:	**89%**	Estimated heating fuel cost/gallon	**$5.99**		
Wood:	**5%**	$/MMBtu delivered to user	**$54.35**		**Total Heating Oil**
Electricity:	**2.4%**	Community heat needs in MMBtu	**47,522**		**$2,372,915**

Transportation (Estimated)

Estimated Diesel: **114,551** gal Estimated cost **$5.99**

Total Transportation

$686,377

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **180,543**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.04	/kw-hr
Estimated Diesel OM	**$53,164**	$0.02	
New fuel cost	**$901,252**	$0.34	
Avg Non-Fuel Costs:			
New cost of electricity			per kW-hr

Savings

($14,609)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Shop, Cold Storage, Smokery

			Value
Water Jacket	**29,915**	gal	**$179,246**
Stack Heat	**0**	gal	**$0**

Capital cost **$849,646**

Annual ID **$71,172**

Annual OM **$16,993**

Total Annual costs **$88,165**

Heat cost **$26.67** $/MMBtu

Savings

$91,081

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**1000**	
kW-hr/year	**2063258**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**5**	
Avg wind speed	**7.50**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$6,410,697**	per kW-hr	
Annual Capital	**$430,900**	$0.21	$61.19
Annual OM	**$96,801**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$527,700**	$0.26	**$74.94**
Non-Fuel Costs			
Alternative COE:			
% Community energy	78%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW	**750**	
kW-hr/year	**2000000**	
Site	**Cathedral Falls Creek**	
Study plan effort	**reconnaissance**	
Plant Factor	**53**	%
Penetration	**0.44**	

			Heat Cost $/MMBtu :
Capital cost	**$16,141,700**	per kW-hr	
Annual Capital	**$700,999**	$0.35	$102.70
Annual OM	**$101,600**	$0.05	$14.88
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$802,599**	$0.40	**$117.58**
Non-Fuel Costs			
Alternative COE:			
% Community energy	75%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wood

Installed KW	**321**	
kW-hr/year	**2387746**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**3017**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,712,833**	per kW-hr	
Annual Capital	**$182,345**	$0.08	
Annual OM	**$199,980**	$0.08	
Fuel cost:	**$452,611**	$0.19	-90
Total Annual Cost	**$834,935**	$0.35	**$29.76**
Non-Fuel Costs			
Alternative COE:			
% Community energy	90%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	5.4%

Other Resources

Kake

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

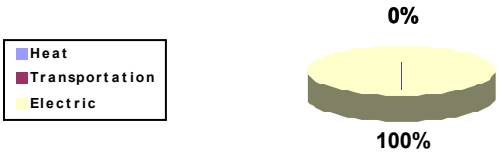
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kake Biomass gasifer_ccthita has been submitted by: Central Council Tlingit and Haida Indian Tribes of Alaska for a Wind Diesel Hybrid project. The total project budget is: $5,000,000 with $4,750,000 requested in grant funding and $250,000 as matching funds.

A project titled: Kake-Petersburg Intertie Final Design has been submitted by: Kwaan Electric Transmission Intertie Cooperative, Inc (KWETICO) for a Transmission project. The total project budget is: $40,000,000 with $2,990,000 requested in grant funding and $2,500,000 as matching funds.

Kaktovik

Energy Used



Total:

Per capita

Heat

Per capita

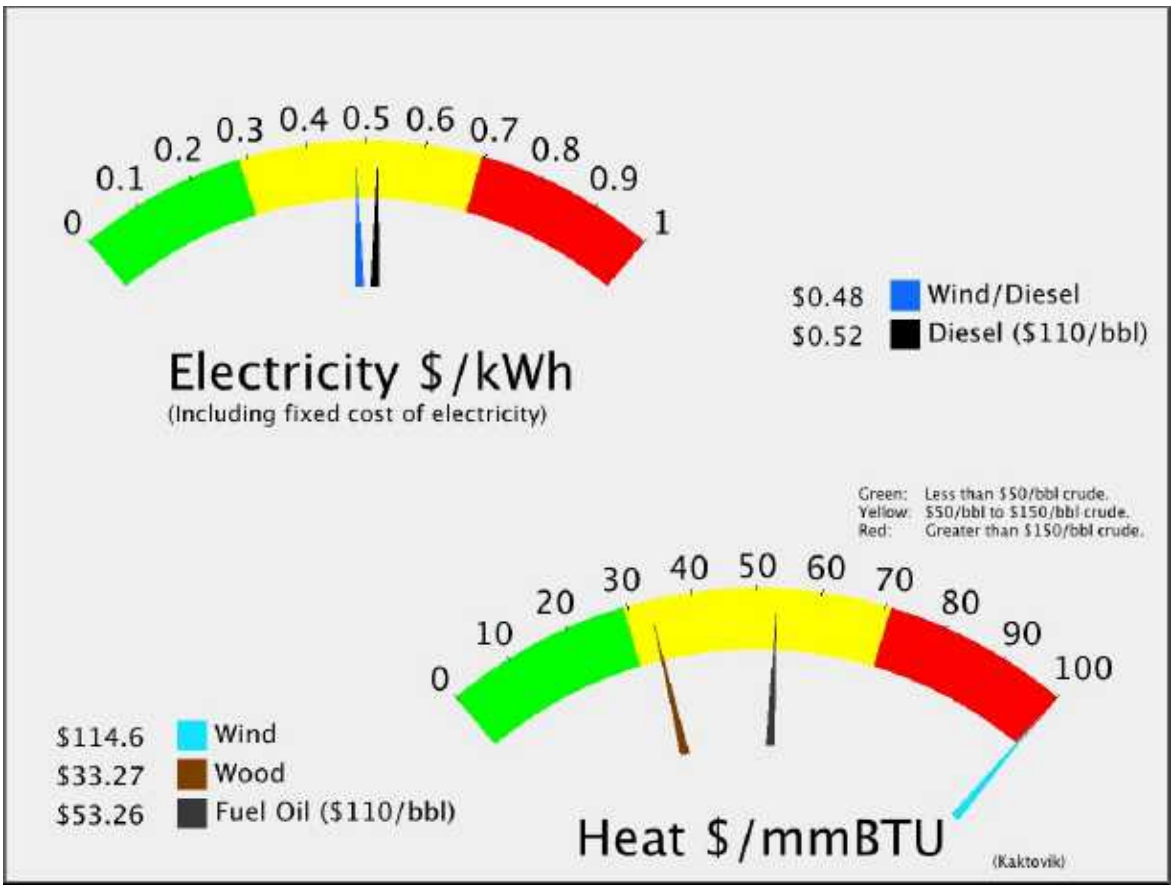
POPULATION: 287

Transportation

Per capita

Electricity: **$6,024**

Per capita



Kaktovik

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 287 LATITUDE: 70d 08m N LONGITUDE: 143d 38m **North Slope Borough**

LOCATION Kaktovik lies on the north shore of Barter Island, between the Okpilak and Jago Rivers on the Beaufort Sea coast. It lies in the 19.6-million-acre Arctic National Wildlife Refuge, an occasional calving ground for the Porcupine caribou herd.

ECONOMY Economic opportunities in Kaktovik are limited due to the community's isolation, and unemployment is high. Most employment is in education, the North Slope Borough, or in providing City services. Part-time seasonal jobs, such as construction projects, provide income.

HISTORY Until the late nineteenth century the island was a major trade center for the Inupiat and was especially important as a bartering place for Inupiat from Alaska and Inuit from Canada. The City was incorporated in 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.66**	kW-hr/gal	Fuel COE	**$0.43**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.89**
Consumption in 200	**294,318**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$67,204**
Average Load	**384**	kW	NF COE:	**$0.07**	/kw-hr	Other Non-Fuel Costs:	**$243,417**
Estimated peak loa	**767.17**	kW	Total	**$0.52**		Current Fuel Costs	**$1,437,979**
Average Sales	**3,360,186**	kW-hours				**Total Electric**	**$1,748,600**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$5.89**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.38**	**Total Heating Oil**	
Electricity:	**2.3%**	Community heat needs in MMBtu			

Transportation (Estimated)

Estimated Diesel:	gal	Estimated cost	**$5.89**	**Total Transportation**	

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$125,000**				
Generator Upgrade		Annual Capital cost	**$10,471**	$0.00	/kw-hr		
Status **Pending**		Estimated Diesel OM	**$67,204**	$0.02			
Acheivable efficiency	**14.8** kW-	New fuel cost	**$1,234,642**	$0.37		**Savings**	
New Fuel use	**252,700**	Avg Non-Fuel Costs:	**$310,621**	$0.07		**$192,866**	
		New cost of electricity	**$0.43** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working: **School, Washeteria, Water Treatment**

			Value	Capital cost	**$1,074,032**	
				Annual ID	**$89,968**	
				Annual OM	**$21,481**	
Water Jacket	**44,148**	gal	**$259,845**	Total Annual costs	**$111,449**	**Savings**
Stack Heat	**0**	gal	**$0**	Heat cost	**$22.85** $/MMBtu	**$148,396**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **979870**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.25	$73.85
Annual OM	**$45,972**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$292,945**	$0.30	**$87.60**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.39**	
% Community energy		29%	
New Community COE (includes non-fuel and diesel costs)		**$0.48**	

Savings

$145,989

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Kaktovik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

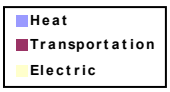
Propane:

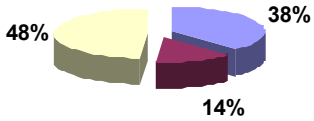
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kaltag

Energy Used





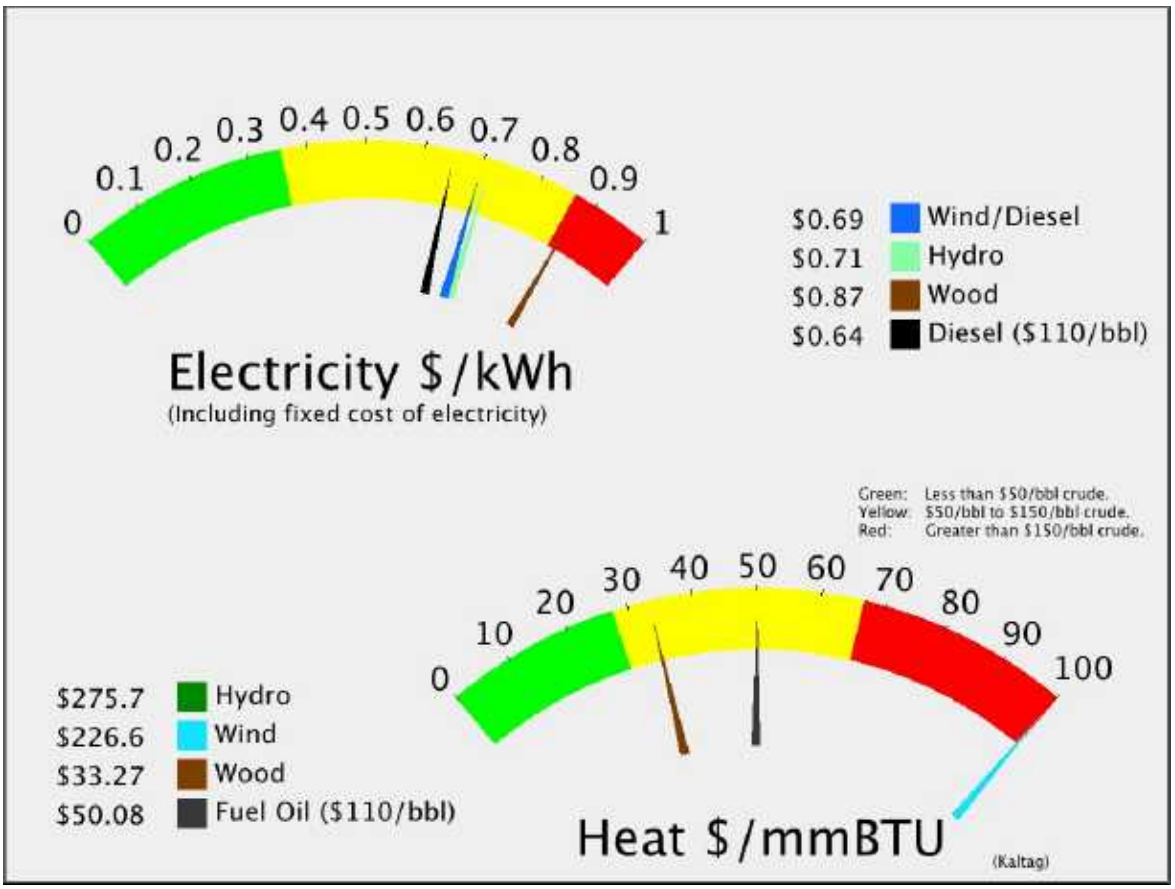
Total: **$4,056** Per capita

Heat **$1,535** Per capita

Transportation **$554** Per capita

Electricity: **$1,967** Per capita

POPULATION: 184



Kaltag

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 184 LATITUDE: 64d 20m N LONGITUDE: 158d 43m **Unorganized**

LOCATION Kaltag is located on the west bank of the Yukon River, 75 miles west of Galena and 335 miles west of Fairbanks. It is situated on a 35-foot bluff at the base of the Nulato Hills, west of the Innoko National Wildlife Refuge.

ECONOMY Subsistence is an important part of the local economy. Salmon, whitefish, moose, bear, waterfowl and berries are harvested. Most cash jobs are with the tribe, school, local government, BLM fire fighting, commercial fishing or fish processing. 18 residents hold commercial fishing permits.

HISTORY Kaltag is located in Koyukon Athabascan territory, and was used as a cemetery for surrounding villages. It was located on an old portage trail which led east through the mountains to Unalakleet. The Athabascans had spring, summer, fall, and winter camps, and moved as the wild game migrated. There were 12 summer fish camps located on the Yukon River between the Koyukuk River and the Nowitna River. The village was named by Russians for the Yukon Indian named Kaltaga. A smallpox epidemic, the first of several major epidemics, struck the Koyukon in 1839. A military telegraph line was constructed along the north side of the Yukon around 1867. Missionary activity was intense along the Yukon, and a Roman Catholic Mission and school opened upriver in Nulato in 1887. Steamboats on the Yukon, which supplied gold prospectors, peaked in 1900 with 46 in operation. During 1900, food shortages and a measles epidemic struck down one-third of the Native population. Kaltag was established shortly thereafter, when survivors from three nearby seasonal villages moved to the area to regroup. A post office opened in 1903, but closed in 1904. Gold seekers left the mid-Yukon after 1906, but other mining activity, such as the Galena lead mines, began operating in 1919. As a downriver village on a major transportation route, Kaltag witnessed rapid economic change. The post office reopened in 1909 and operated until 1920. Kaltag's first school opened in 1925. The post office reopened again in 1933. The old cemetery, which was located on Front Street, caved into the River around 1937. A watering point, airport and clinic were constructed during the 1960s. The City government was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.53** /kw-hr

Current efficiency	**13.46**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$13,218**
Consumption in 200	**53,653**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$171,836**
Average Load	**75**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$243,306**
Estimated peak loa	**150.89**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**660,908**	kW-hours				**$428,360**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**51,023**	gal	
Fuel Oil:	**54%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**46%**	$/MMBtu delivered to user	**$50.20**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,123**		**$282,403**

Transportation (Estimated)

Estimated Diesel: **18,433** gal Estimated cost **$5.53**

Total Transportation **$102,024**

Energy Total **$812,787**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **51,585**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$13,218**	$0.02	
New fuel cost	**$233,930**	$0.35	
Avg Non-Fuel Costs:	**$185,054**	$0.26	
New cost of electricity		**$0.60**	per kW-hr

Savings **$8,748**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**8,048**	gal	**$44,544**
Stack Heat	**0**	gal	**$0**

Capital cost	**$211,249**		
Annual ID	**$17,696**		
Annual OM	**$4,225**		
Total Annual costs	**$21,921**		
Heat cost	**$24.65**	$/MMBtu	

Savings **$22,623**

Alternative Energy Resources

Wood

Installed KW	**86**	
kW-hr/year	**643506**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**813**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,024,446**	per kW-hr	
Annual Capital	**$136,075**	$0.21	
Annual OM	**$131,016**	$0.20	
Fuel cost:	**$121,980**	$0.19	-90
Total Annual Cost	**$389,071**	$0.60	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.88**	
% Community energy		97%	
New Community COE		**$0.86**	

(includes non-fuel and diesel costs)

Savings

($139,294)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	
kW-hr/year	**265046**	
Met Tower?	**yes**	
Homer Data?	**yes**	
Wind Class	**6**	
Avg wind speed	**3.21**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.45	$130.81
Annual OM	**$12,435**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$130,767**	$0.49	**$144.56**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.77**	
% Community energy		40%	
New Community COE		**$0.69**	

(includes non-fuel and diesel costs)

Savings

($27,899)

Alternative Energy Resources

Hydro

Installed KW	**155**	
kW-hr/year	**144170**	
Site	**Tributary Stream of Kaltag River**	
Study plan effort	**reconnaissance**	
Plant Factor	**30**	%
Penetration	**0.35**	

			Heat Cost $/MMBtu :
Capital cost	**$4,331,240**	per kW-hr	
Annual Capital	**$194,267**	$1.35	$394.81
Annual OM	**$75,060**	$0.52	$152.55
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$269,327**	$1.87	**$547.36**
Non-Fuel Costs		$0.28	
Alternative COE:		**$2.15**	
% Community energy		22%	
New Community COE		**$0.71**	

(includes non-fuel and diesel costs)

Savings

($39,367)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	41.6%

Other Resources

Kaltag

Tidal:	
Wave:	
Coal Bed Methane:	NO POSITIVE INDICATION OF POTENTIAL
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

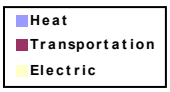
Renewable Fund Project List:

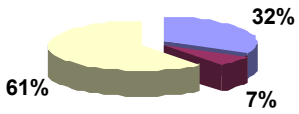
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Biomass Hydronic Heating_YKSD has been submitted by: Yukon-Koyukuk School District for a Biomass project. The total project budget is: $1,300,000 with $288,500 requested in grant funding and $17,500 as matching funds.

Karluk

Energy Used





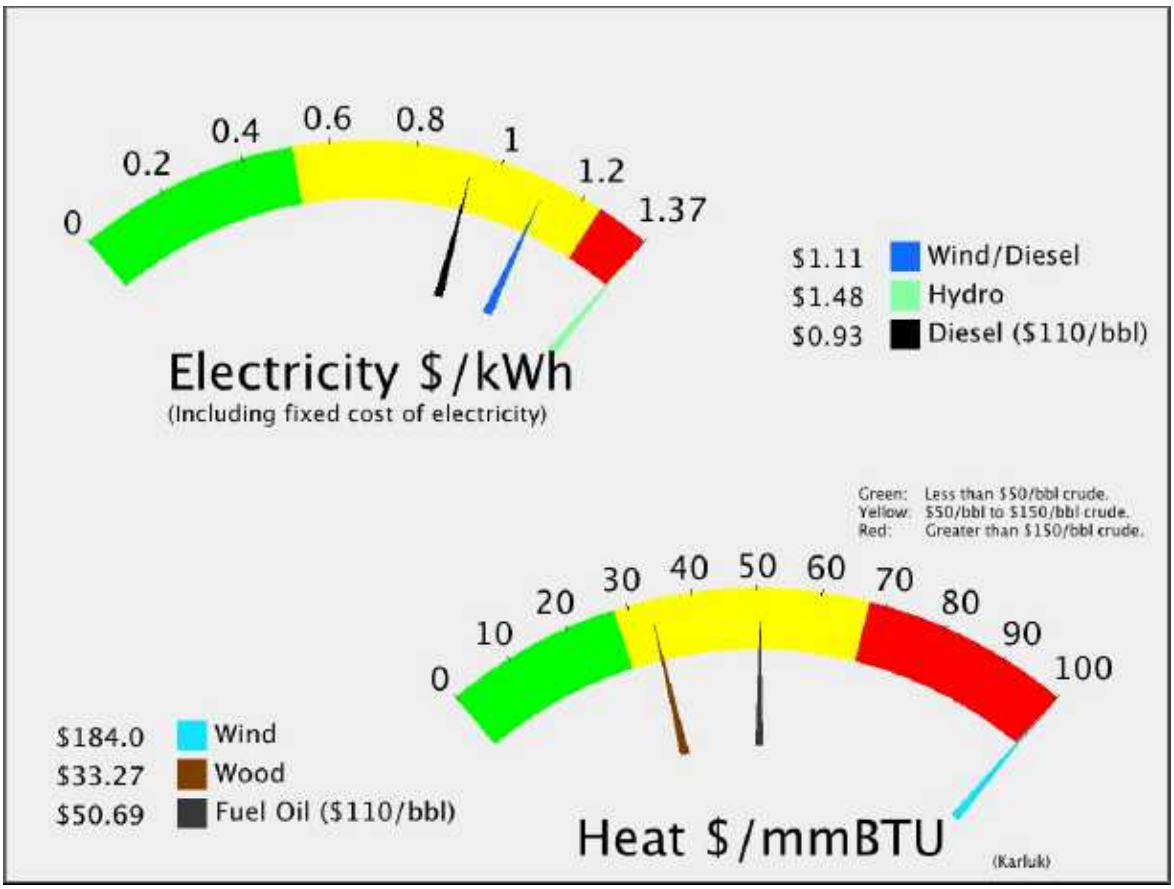
Total: **$9,889** Per capita

Heat **$3,178** Per capita

Transportation **$693** Per capita

Electricity: **$6,018** Per capita

POPULATION: 27



Karluk

Regional Corporation
Koniag, Incorporated

House 36
Senate : **R**

POPULATION 27 LATITUDE: 57d 34m N LONGITUDE: 154d 27m **Kodiak Island Borough**

LOCATION Karluk is located on the west coast of Kodiak Island, on the Karluk River, 88 air miles southwest of Kodiak and 301 miles southwest of Anchorage.

ECONOMY While fish processing was a primary source of livelihood at one point, today many residents participate in other types of work as well as subsistence hunting and fishing activities. Salmon, trout, ducks, seals and deer are harvested.

HISTORY The mouth of the Karluk River is thought to have been populated by Natives for more than 7,000 years. 36 archaeological sites exist in the area. Russian hunters established a trading post here in 1786. At that time, the village was located on both sides of the Karluk River, in the area of Karluk Lagoon. Between 1790 and 1850, many tanneries, salteries and canneries were established in the area. By 1900, Karluk was known for having the largest cannery and the greatest salmon stream in the world. A post office was established in 1892. In the early 1900s, canneries were constructed by the Alaska Packers Association. Over-fishing of the area forced the canneries to close in the late 1930s. After a severe storm in January 1978, the village council decided to relocate the community to the present site, upstream on the south side of the lagoon. HUD constructed 23 houses at the new community location. A few high school students attend Mount Edgecumbe in Sitka.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.60** /kw-hr

Current efficiency	**10.50**	kW-hr/gal	Fuel COE	**$0.66**	/kw-hr	Estimated Diesel OM	**$3,266**
Consumption in 200	**23,363**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$42,090**
Average Load	**19**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$107,498**
Estimated peak loa	**37.288**	kW	Total	**$0.94**		**Total Electric**	
Average Sales	**163,324**	kW-hours				**$152,854**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**15,320**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.60**		
Wood:	**0%**	$/MMBtu delivered to user	**$50.80**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**1,838**		**$85,810**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **3,343** gal Estimated cost **$5.60** **$18,722**

Energy Total **$257,387**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **17,530**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$3,266**	$0.02	
New fuel cost	**$80,660**	$0.49	
Avg Non-Fuel Costs:	**$45,356**	$0.26	
New cost of electricity		**$0.61**	per kW-hr

Savings

$26,209

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**3,504**	gal	**$19,629**
Stack Heat	**0**	gal	**$0**

Capital cost	**$52,204**		
Annual ID	**$4,373**		
Annual OM	**$1,044**		
Total Annual costs	**$5,417**		
Heat cost	**$13.99**	$/MMBtu	

Savings

$14,212

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**
kW-hr/year	**389605**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**5**
Avg wind speed	**7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.99
Annual OM	**$18,279**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,611**	$0.35	**$102.74**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.63**	
% Community energy		239%	
New Community COE (includes non-fuel and diesel costs)		**$1.11**	

Savings

$16,243

Alternative Energy Resources

Hydro

Installed KW	**190**
kW-hr/year	
Site	**unnamed stream #2**
Study plan effort	**reconnaissance**
Plant Factor	**67** %
Penetration	

			Heat Cost $/MMBtu :
Capital cost	**$3,276,000**	per kW-hr	
Annual Capital	**$151,459**		
Annual OM	**$45,000**		
Fuel cost:	**$0**		
Total Annual Cost	**$196,459**		
Non-Fuel Costs		$0.28	
Alternative COE:			
% Community energy			
New Community COE (includes non-fuel and diesel costs)		**$1.48**	

Savings

($43,605)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr
Cords/day:	**1.8**
Hours per year	**6000**
Wood (cordwood or willows)	**$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	138.7%

Other Resources

Karluk

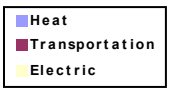
Tidal:	SOME POTENTIAL
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

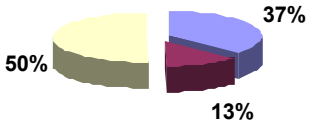
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kasigluk

Energy Used





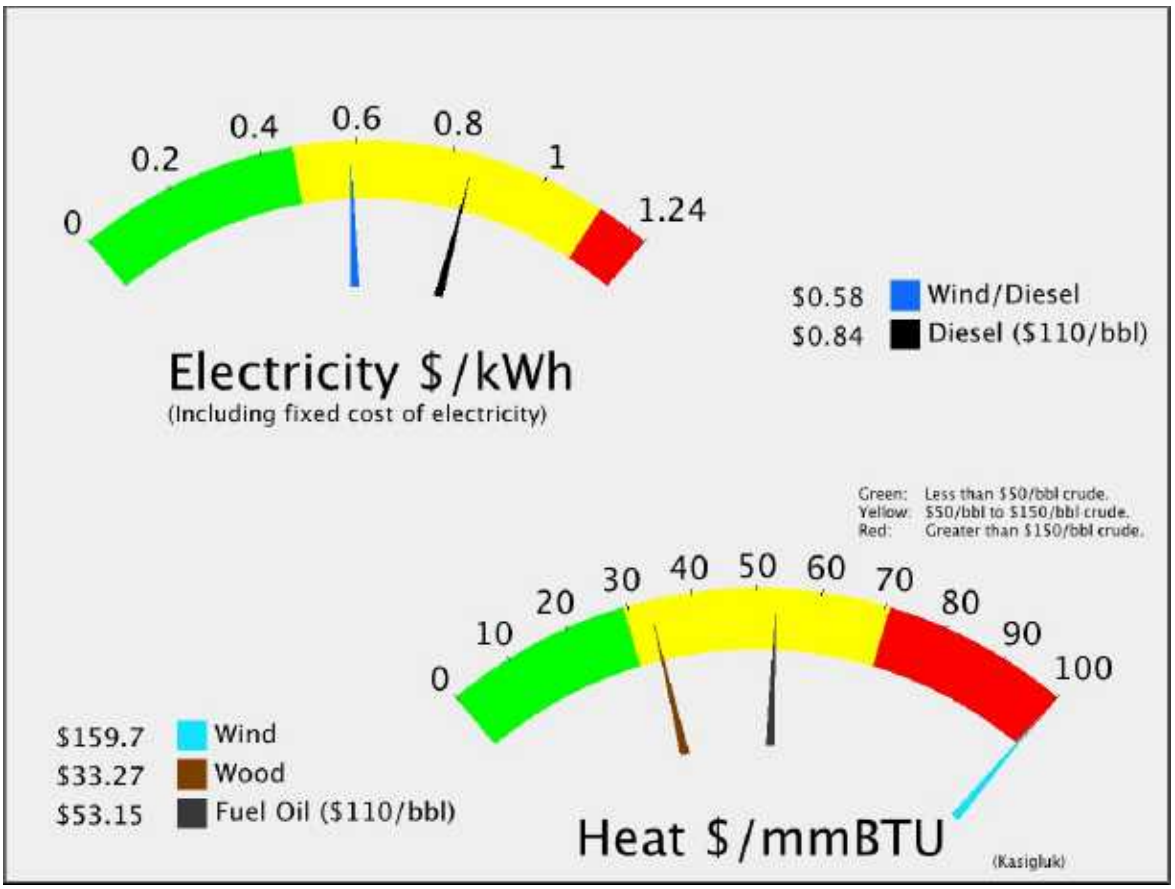
Total: **$4,187** Per capita

Heat **$1,531** Per capita

Transportation **$548** Per capita

Electricity: **$2,108** Per capita

POPULATION: 545



Kasigluk

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 545 LATITUDE: 60d 52m N LONGITUDE: 162d 32m **Unorganized**

LOCATION Kasigluk is on the Johnson River in the Kuskokwim River Delta, 26 miles northwest of Bethel. The community is comprised of Old and New Kasigluk, surrounded by the Johnson River and a network of lakes.

ECONOMY The school, commercial fishing, retail businesses and village government provide the majority of employment in Kasigluk. Subsistence activities contribute significantly to household diets. 46 residents hold commercial fishing permits, mainly for salmon set net and herring roe fisheries. Poor fish returns and prices in recent years have affected the ecnomy.

HISTORY It is an Eskimo village listed as one of the "Tundra Villages" in the 1939 U.S. Census, with a population of 66. A post office was established in 1962. It incorporated as a city in 1982, but was dissolved on Oct. 21, 1996 in favor of the traditional village council.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.72**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.87** /kw-hr
Consumption in 200	**154,079**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$26,417**
Average Load	**151**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$343,425**
Estimated peak loa	**301.57**	kW	Total	**$0.85**		Current Fuel Costs	**$750,981**
Average Sales	**1,320,865**	kW-hours				**Total Electric**	**$1,120,823**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**142,016**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.28**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**17,042**		**$834,203**

Transportation (Estimated)

Estimated Diesel:	**50,803**	gal	Estimated cost	**$5.87**	**Total Transportation** **$298,419**

Energy Total **$2,253,446**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **151,006**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$26,417**	$0.02	
New fuel cost	**$736,001**	$0.56	
Avg Non-Fuel Costs:	**$369,842**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings **$14,351**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**23,112**	gal	**$135,759**
Stack Heat	**0**	gal	**$0**

Capital cost	**$422,194**		
Annual ID	**$35,366**		
Annual OM	**$8,444**		
Total Annual costs	**$43,810**		
Heat cost	**$17.15**	$/MMBtu	

Savings **$91,949**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **1132041**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.22	$63.92
Annual OM	**$53,111**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$300,084**	$0.27	**$77.67**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.55**	
% Community energy		86%	
New Community COE (includes non-fuel and diesel costs)		**$0.57**	

Savings

$366,161

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	15.0%

Other Resources

Kasigluk

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

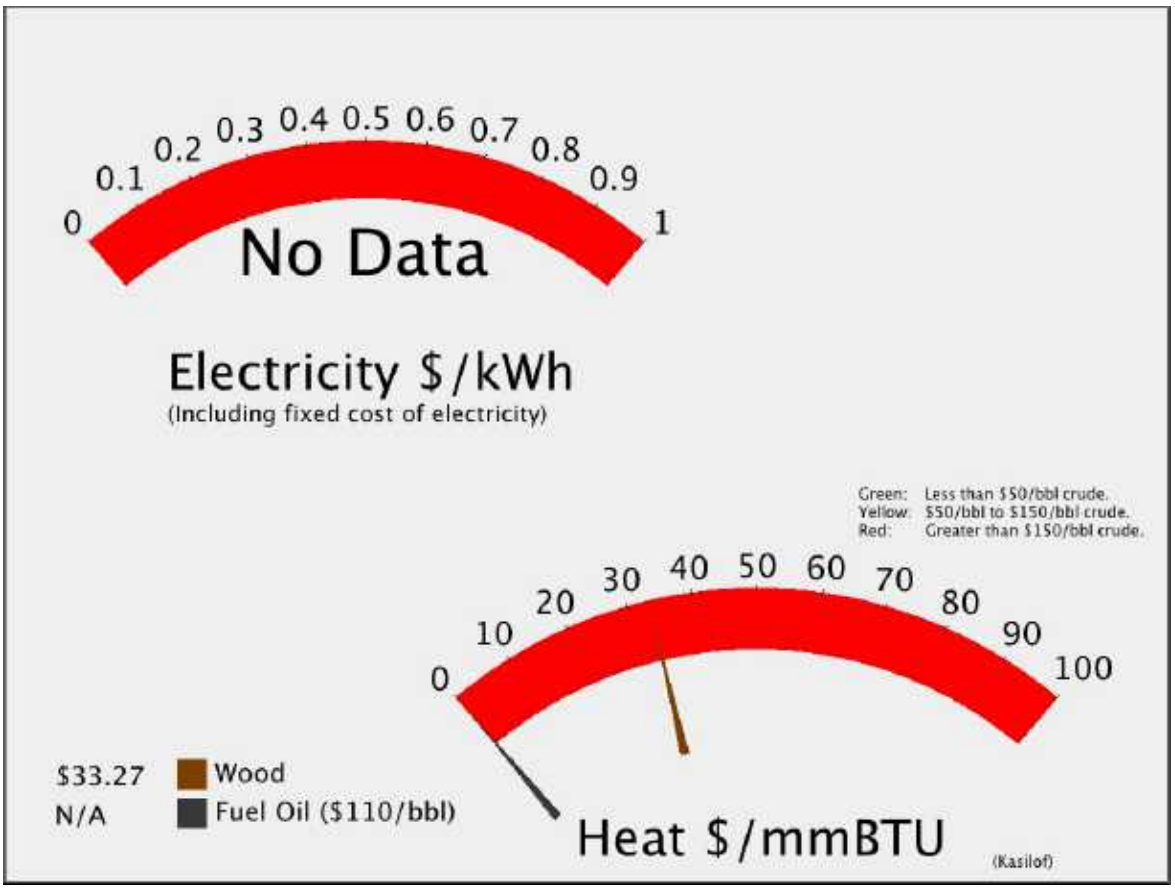
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kasilof

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	596
Transportation	Per capita		
Electricity:	Per capita		



Kasilof

Regional Corporation
Cook Inlet Region, Inc.

House 34
Senate : **Q**

POPULATION 596 LATITUDE: 60d 23m N LONGITUDE: 151d 17m **Kenai Peninsula Boroug**

LOCATION Kasilof is located on the east shore of Cook Inlet on the Kenai Peninsula. It lies on the Sterling Highway, 12 miles south of the City of Kenai.

ECONOMY The economy of the Kenai area is diverse: oil and gas processing, timber, commercial and sport fishing, government, retail businesses and tourism-related services provide employment. 155 Kasilof residents hold commercial fishing permits.

HISTORY Kasilof was an agricultural settlement of Kenaitze Indians, which grew around a stockade built by the Russian Kolomin of the Lebedef-Lastochkin Company. A partial excavation of the area in 1937 found 31 well-preserved houses.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Kasilof

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

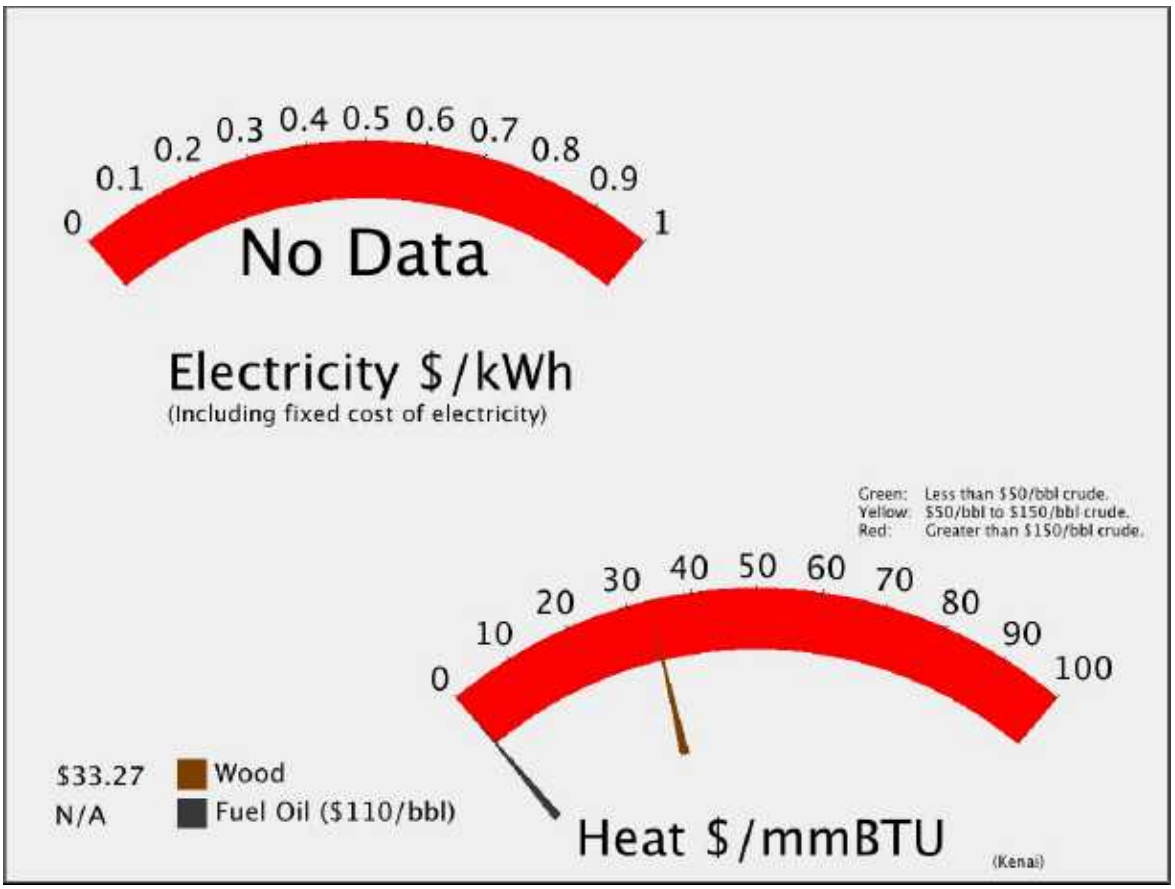
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kenai

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	6975
Transportation	Per capita		
Electricity:	Per capita		



Kenai

Regional Corporation
Cook Inlet Region, Inc.

House 33
Senate : **Q**

POPULATION 6975 LATITUDE: 60d 33m N LONGITUDE: 151d 16m **Kenai Peninsula Boroug**

LOCATION Kenai is located on the western coast of the Kenai Peninsula, fronting Cook Inlet. It lies on the western boundary of the Kenai National Wildlife Refuge, on the Kenai Spur Highway. It is approximately 65 air miles and 155 highway miles southwest of Anchorage via the Sterling Highway.

ECONOMY The City is the center of the oil and gas industry, providing services and supplies for Cook Inlet's oil and natural gas drilling and exploration. Tesoro Alaska's oil refining operations and Unocal's urea plant are located in North Kenai. Both in-state and out-of-state visitors provide a significant industry on the Peninsula. Other important economic sectors include sport, subsistence and commercial fishing, fish processing, timber and lumber, agriculture, transportation services, construction and retail trade. 234 area residents hold commercial fishing permits. The largest employers are the Borough School District, Unocal, Peak Oilfield Services, the Borough, and Central Peninsula General Hospital. The Challenger Learning Center of Alaska was completed in Spring 2000. Logging of spruce bark beetle-killed timber also occurs in the area.

HISTORY Prior to Russian settlement, Kenai was a Dena'ina Athabascan Indian village. Russian fur traders first arrived in 1741. At that time, about 1,000 Dena'ina lived in the village of Shk'ituk't, near the River. The traders called the people "Kenaitze," or "Kenai people." In 1791, a fortified Russian trading post, Fort St. Nicholas, was constructed for fur and fish trading. It was the second permanent Russian settlement in Alaska. In 1849, the Holy Assumption Russian Orthodox Church was established by Egumen Nicholai. In 1869 the U.S. military established a post for the Dena'ina Indians in the area, called Fort Kenay, which was abandoned in 1870 after Alaska was purchased by the U.S. A post office was established in 1899. Through the 1920s, commercial fishing was the primary activity. In 1940, homesteading enabled the area to develop. The first dirt road from Anchorage was constructed in 1951. In 1957, oil was discovered at Swanson River, 20 miles northeast of Kenai - the first major Alaska oil strike. The City was incorporated in 1960. In 1965, offshore oil discoveries in Cook Inlet fueled a period of rapid growth. Kenai has been a growing center for oil exploration, production and services since that time.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	
Cords/day:	**1.8**		
Hours per year	**6000**		
Wood (cordwood or willows)	**$225**	$/cord	

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Kenai

Tidal:	
Wave:	
Coal Bed Methane:	CONFIRMED RESOURCE
Natural Gas:	CONFIRMED RESOURCE
Coal:	CONFIRMED RESOURCE
Propane:	

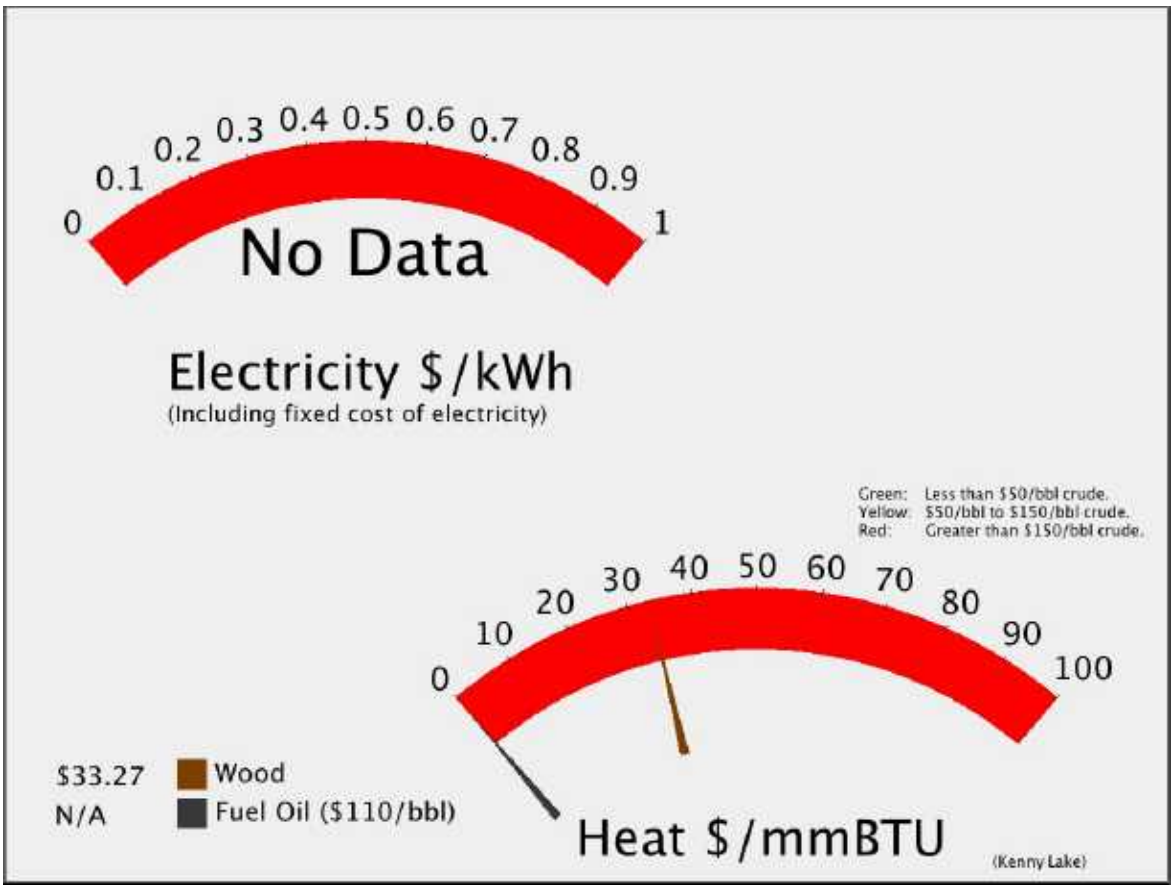
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kenny Lake

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	411
Transportation	Per capita		
Electricity:	Per capita		



Kenny Lake

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 411 LATITUDE: 61d 43m N LONGITUDE: 144d 56m **Unorganized**

LOCATION Kenny Lake lies off of the Richardson Highway, between mile 1 and 22 on the Edgerton Highway, and between mile 1 and 11 of the Old Edgerton Highway. It is along the preferred route into the Wrangell-St. Elias National Park.

ECONOMY Agricultural crops such as hay and vegetables are grown locally, and cattle are raised as well. A school, sawmill and lumber business, a fur farm, a feed and seed supplier, a glass company and a construction company are located in Kenny Lake. Horse backpacking trips are available for visitors.

HISTORY The Ahtna people have occupied the region historically. The area was settled in the 1960s by a number of homesteaders due to the rich fertile soil and agricultural potential. However, a number of homesteaders cleared 20 acres of land, built a cabin and lived there for 6 months of every year for five years as required to obtain ownership, then subdivided and sold the property. There are still four original homesteaders farming their land. Until the 1970s the Old Edgerton Highway was the only road into Kenny Lake.

Alternative Energy Resources

Hydro

Installed KW **1500**
kW-hr/year **2000000**
Site **Unnamed creek s. of Tonsina R**
Study plan effort **reconnaissance**
Plant Factor %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$15,178,160**		
Annual Capital	**$623,375**	$0.31	$91.32
Annual OM	**$92,000**	$0.05	$13.48
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$715,375**	$0.36	**$104.80**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**
kW-hr/year **580592**
Met Tower? **no**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **8.10** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,438,000**		
Annual Capital	**$163,872**	$0.28	$82.70
Annual OM	**$27,239**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$191,111**	$0.33	**$96.45**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Kenny Lake

Tidal:	
Wave:	
Coal Bed Methane:	NO POSITIVE INDICATION OF POTENTIAL
Natural Gas:	NO POSITIVE INDICATION OF POTENTIAL
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

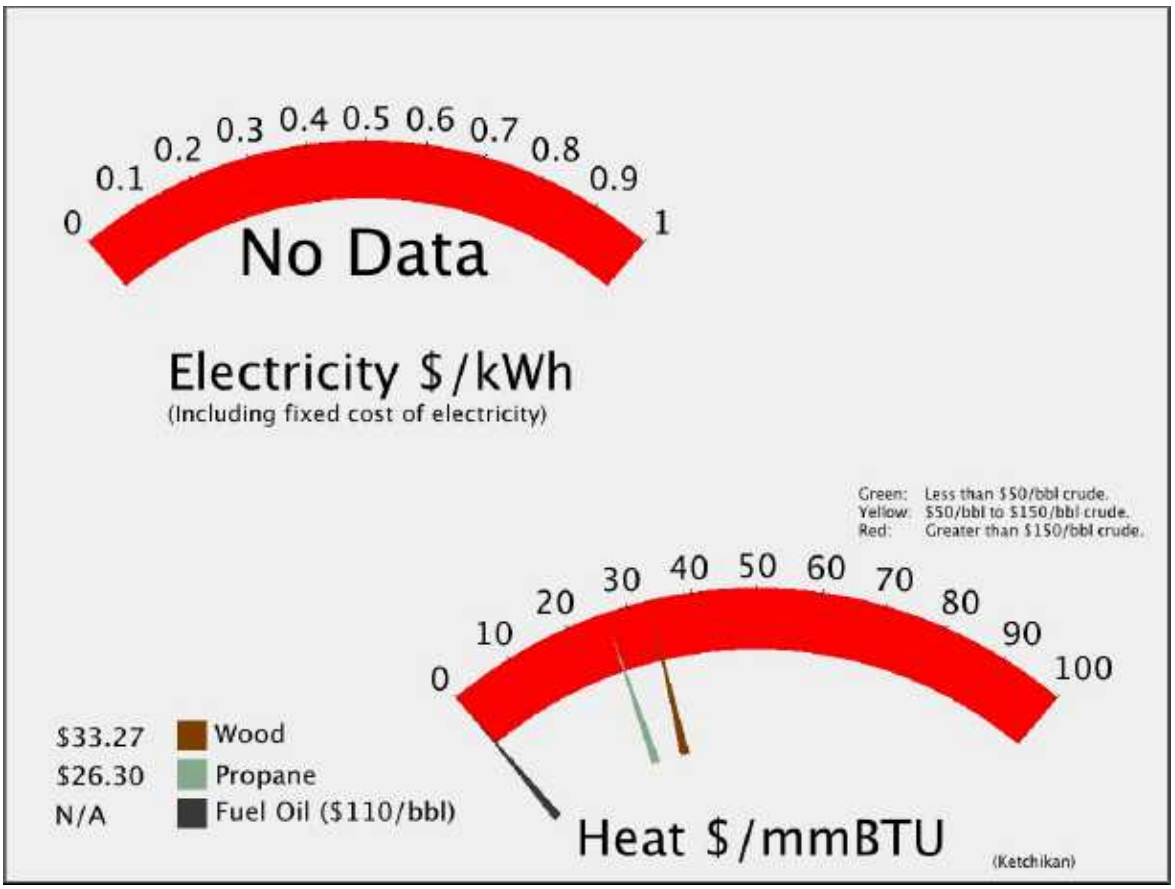
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kenny Lake Wood Heating Construction has been submitted by: Copper River School District for a Biomass project. The total project budget is: $1,200,000 with $1,200,000 requested in grant funding and no matching funds.

Ketchikan

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	7732
Transportation	Per capita		
Electricity:	Per capita		



Ketchikan

Regional Corporation
Sealaska Corporation

House 1
Senate : **A**

POPULATION 7732 LATITUDE: 55d 20m N LONGITUDE: 131d 38m **Ketchikan Gateway Bor**

LOCATION Ketchikan is located on the southwestern coast of Revillagigedo Island, opposite Gravina Island, near the southern boundary of Alaska. It is 679 miles north of Seattle and 235 miles south of Juneau. The 2.2 million acre Misty Fiords National Monument lies 22 air miles east of Ketchikan. It is the first Alaska port of call for northbound cruise ships and State ferries.

ECONOMY Ketchikan is an industrial center and a major port of entry in Southeast Alaska, with a diverse economy. Ketchikan is supported by a large fishing fleet, fish processing, tourism and timber. 401 area residents hold commercial fishing permits. Several processing and cold storage facilities support the fishing industry. The state operates the Deer Mountain Hatchery which produces over 450,000 King, Coho, Steelhead and Rainbow Trout annually. Cruise ships bring over 650,000 visitors, and another 50,000 independent travelers visit Ketchikan each year. The Ketchikan Visitors Assoc. office building provides a visitor center and retail space for 20 tourism operators.

HISTORY Tongass and Cape Fox Tlingits have used Ketchikan Creek as a fish camp which they called "kitschk-hin," meaning creek of the "thundering wings of an eagle." The abundant fish and timber resources attracted non-Natives to Ketchikan. In 1885, Mike Martin bought 160 acres from Chief Kyan, which later became the township. The first cannery opened in 1886 near the mouth of Ketchikan Creek and four more were built by 1912. The Ketchikan Post Office was established in 1892, and the City was incorporated in 1900. By this time, nearby gold and copper discoveries briefly brought activity to Ketchikan as a mining supply center. During 1936, seven canneries were in operation, producing 1.5 million cases of salmon. The need for lumber for new construction and packing boxes spawned the Ketchikan Spruce Mills in 1903, which operated for over 70 years. Spruce was in high demand during World War II, and Ketchikan became a supply center for area logging. A $55 million pulp mill was constructed at Ward Cove near Ketchikan in 1954. Its operation fueled the growth of the community. The mill's 50-year contract with the U.S. Forest service for timber was canceled, and the pulp mill closed in March 1997.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **4800**
kW-hr/year **4706529**
Met Tower? **no**
Homer Data? **no**
Wind Class **7**
Avg wind speed **4.23** m/s

			Heat Cost $/MMBtu :
Capital cost	**$22,591,339**	per kW-hr	
Annual Capital	**$1,518,493**	$0.32	$94.53
Annual OM	**$220,813**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,739,306**	$0.37	**$108.28**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Ketchikan

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Integrated Resource Plan_FDPPA has been submitted by: The Four Dam Pool Power Agency for a Other project. The total project budget is: $312,000 with $252,000 requested in grant funding and $60,000 as matching funds.

A project titled: Ketchikan Biomass Gasification Construction has been submitted by: Diesel Brewing Company, LLC dba Diesel Brewing of Ketchikan for a Biofuels project. The total project budget is: $25,625,000 with $20,500,000 requested in grant funding and $5,125,000 as matching funds.

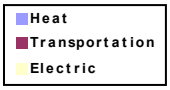
A project titled: Ketchikan Waste Gasification Reconnaissance Study has been submitted by: Alaska Recycling Energy, LLC for a Biofuels project. The total project budget is: $ with $105,620 requested in grant funding and $ as matching funds.

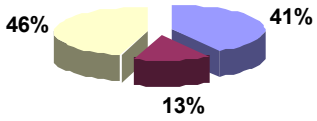
A project titled: Whitman Lake Hydro Construction has been submitted by: Ketchikan Public Utilities- Electric Division for a Hydro project. The total project budget is: $17,750,000 with $1,300,000 requested in grant funding and $320,000 as matching funds.

A project titled: Whitman Lake Hydro Construction_KPU has been submitted by: Ketchikan Public Utilities for a Hydro project. The total project budget is: $17,750,000 with $12,020,000 requested in grant funding and $3,000,000 as matching funds.

Kiana

Energy Used





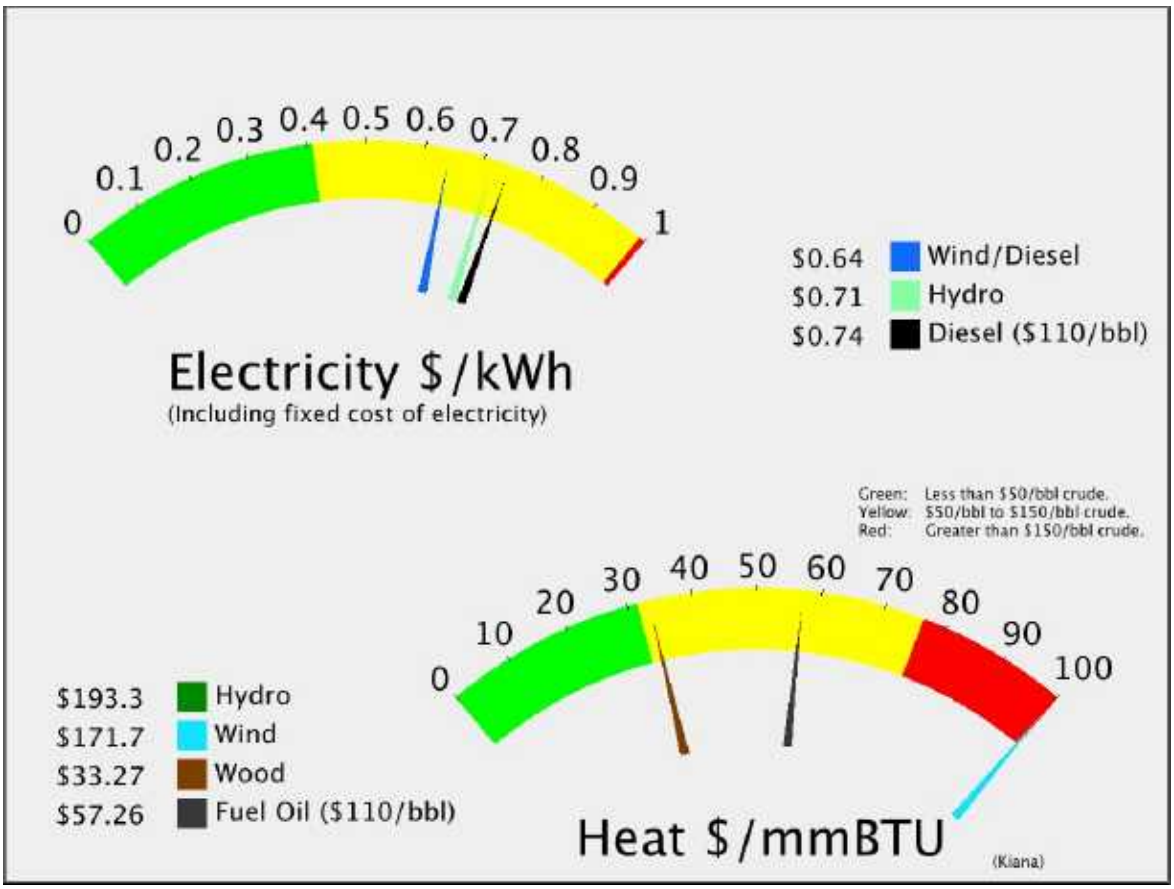
Total: **$6,104** Per capita

Heat **$2,530** Per capita

Transportation **$811** Per capita

Electricity: **$2,763** Per capita

POPULATION: 391



Kiana

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 391 LATITUDE: 66d 58m N LONGITUDE: 160d 26m **Northwest Arctic Borou**

LOCATION Kiana is located on the north bank of the Kobuk River, 57 air miles east of Kotzebue.

ECONOMY The economy depends on traditional subsistence activities, augmented by a cash economy. Chum salmon, freshwater fish, moose, caribou, waterfowl and berries are harvested. The school, City, and Maniilaq Association provide the majority of year-round jobs. The Red Dog Mine also offers area employment. Kiana is one of the more modern villages in the Borough, and has three general stores. Two residents hold commercial fishing permits; seasonal employment also includes work on river barges, BLM fire-fighting and jade mining. There is local interest in constructing a whitefish and turbot value-added processing plant. The City is also interested in developing eco-tourism, primarily guided river trips to the Great Kobuk Sand Dunes.

HISTORY Kiana means "a place where three rivers meet." It was established long ago as the central village of the Kobuk River Kowagmiut Inupiat Eskimos. In 1909, it became a supply center for the Squirrel River placer mines. A post office was established in 1915. The City government was incorporated in 1964. Prior to the formation of the Northwest Arctic Borough in 1976, the BIA high school taught students from Noatak, Shungnak and Ambler, who boarded with local residents.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.72**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.33**
Consumption in 200	**128,267**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$29,432**
Average Load	**168**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$382,619**
Estimated peak loa	**335.98**	kW	Total	**$0.74**		Current Fuel Costs	**$683,394**
Average Sales	**1,471,613**	kW-hours				**Total Electric**	**$1,095,445**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**156,310**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$6.33**		
Wood:	**6%**	$/MMBtu delivered to user	**$57.39**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**18,757**		**$989,113**

Transportation (Estimated)

Estimated Diesel:	**50,106**	gal	Estimated cost	**$6.33**	**Total Transportation** **$317,064**

Energy Total **$2,401,622**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$1,300,000**			
Powerhouse Module			Annual Capital cost	**$108,897**	$0.07	/kw-hr	
Status	**Pending**		Estimated Diesel OM	**$29,432**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$669,489**	$0.45		**Savings**
New Fuel use	**125,657**		Avg Non-Fuel Costs:	**$412,052**	$0.26		**($94,992)**
			New cost of electricity		**$0.73** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**			Capital cost	**$470,379**		
Is it working now? **Y**			Annual ID	**$39,402**		
BLDGs connected and working:			Annual OM	**$9,408**		
Powerhouse Only		Value	Total Annual costs	**$48,810**		**Savings**
Water Jacket	**19,240** gal	**$121,749**	Heat cost	**$22.96**	$/MMBtu	**$72,940**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**
kW-hr/year **952783**
Met Tower? **no**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **8.10** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,674,330**		
Annual Capital	**$246,973**	$0.26	$75.95
Annual OM	**$44,701**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$291,674**	$0.31	**$89.70**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		65%	
New Community COE		**$0.63**	

(includes non-fuel and diesel costs)

Savings
$169,866

Alternative Energy Resources

Hydro

Installed KW **460**
kW-hr/year **479477**
Site **Canyon Creek**
Study plan effort **reconnaissance**
Plant Factor **30** %
Penetration **0.40**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,022,280**		
Annual Capital	**$331,269**	$0.69	$202.43
Annual OM	**$127,880**	$0.27	$78.15
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$459,149**	$0.96	**$280.58**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.24**	
% Community energy		33%	
New Community COE		**$0.71**	

(includes non-fuel and diesel costs)

Savings
$50,146

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	13.6%

Other Resources

Kiana

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

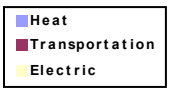
Renewable Fund Project List:

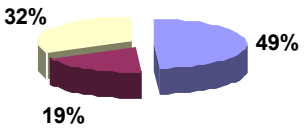
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Upper Kobuk Region Hydroelectric Final Design has been submitted by: Alaska Village Electric Cooperative for a Hydro project.

King Cove

Energy Used





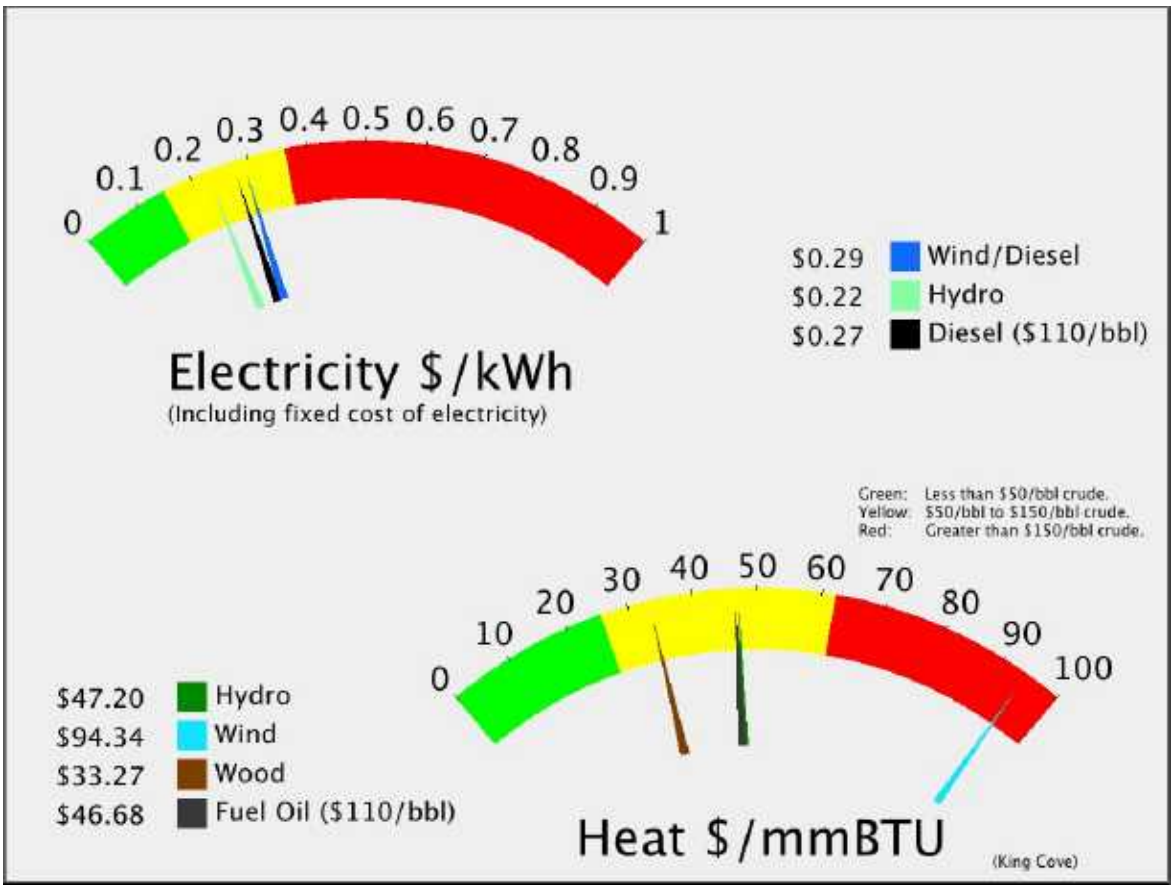
Total: **$3,893** Per capita

Heat **$1,901** Per capita

Transportation **$752** Per capita

Electricity: **$1,241** Per capita

POPULATION: 756



King Cove

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 756 LATITUDE: 55d 03m N LONGITUDE: 162d 19m **Aleutians East Borough**

LOCATION King Cove is located on the south side of the Alaska Peninsula, on a sand spit fronting Deer Passage and Deer Island. It is 18 miles southeast of Cold Bay and 625 miles southwest of Anchorage.

ECONOMY King Cove's economy depends almost completely on the year-round commercial fishing and seafood processing industries. The Peter Pan Seafoods facility is one of the largest cannery operations under one roof in Alaska. Up to 500 non-residents are brought up to work in the cannery as needed. 62 residents hold commercial fishing permits. Income is supplemented by subsistence activities. Salmon, caribou, geese and ptarmigan provide food sources.

HISTORY King Cove was founded in 1911 when Pacific American Fisheries built a salmon cannery. Early settlers were Scandinavian, European and Unangan fishermen. Of the first ten founding families, five consisted of a European father and an Aleut mother. The City was incorporated in 1949. The cannery operated continuously between 1911and 1976, when it was partially destroyed by fire. The adoption of the 200-mile fisheries limit spurred rebuilding. King Cove remains tied to fishing and fish processing.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.16** /kw-hr

Current efficiency	**13.73**	kW-hr/gal	Fuel COE	**$0.23**	/kw-hr	Estimated Diesel OM	**$68,713**
Consumption in 200	**192,391**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$70,467**
Average Load	**392**	kW	NF COE:	**$0.02**	/kw-hr	Current Fuel Costs	**$800,000**
Estimated peak loa	**784.4**	kW	Total	**$0.27**		**Total Electric**	
Average Sales	**3,435,659**	kW-hours				**$939,180**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**278,545**	gal	
Fuel Oil:	**85%**	Estimated heating fuel cost/gallon	**$5.16**		
Wood:	**0%**	$/MMBtu delivered to user	**$46.78**		**Total Heating Oil**
Electricity:	**15.1%**	Community heat needs in MMBtu	**33,425**		**$1,436,790**

Transportation (Estimated)

Estimated Diesel: **110,170** gal Estimated cost **$5.16**

Total Transportation **$568,281**

Energy Total **$2,944,251**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14.8** kW-

New Fuel use **179,108**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$68,713**	$0.02	
New fuel cost	**$744,766**	$0.22	
Avg Non-Fuel Costs:	**$139,180**	$0.02	
New cost of electricity	**$0.32** per kW-hr		

Savings **$54,606**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**28,859**	gal	**$148,859**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,098,156**

Annual ID **$91,989**

Annual OM **$21,963**

Total Annual costs **$113,952**

Heat cost **$35.74** $/MMBtu

Savings **$34,907**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1218860**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.23	$68.73
Annual OM	**$57,184**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$343,096**	$0.28	**$82.48**
Non-Fuel Costs		$0.04	
Alternative COE:		**$0.32**	
% Community energy		35%	
New Community COE		**$0.28**	

(includes non-fuel and diesel costs)

Savings

($34,905)

Alternative Energy Resources

Hydro

Installed KW **375**

kW-hr/year **1400000**

Site **Delta Creek (upper) Waterfall**

Study plan effort **reconnaissance**

Plant Factor %

Penetration **1.00**

			Heat Cost $/MMBtu :
Capital cost	**$3,700,000**	per kW-hr	
Annual Capital	**$143,802**	$0.10	$30.10
Annual OM	**$25,000**	$0.02	$5.23
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$168,802**	$0.12	**$35.33**
Non-Fuel Costs		$0.04	
Alternative COE:		**$0.16**	
% Community energy		41%	
New Community COE		**$0.22**	

(includes non-fuel and diesel costs)

Savings

$185,167

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	7.6%

Other Resources

King Cove

Tidal: SOME POTENTIAL

Wave: SOME POTENTIAL

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

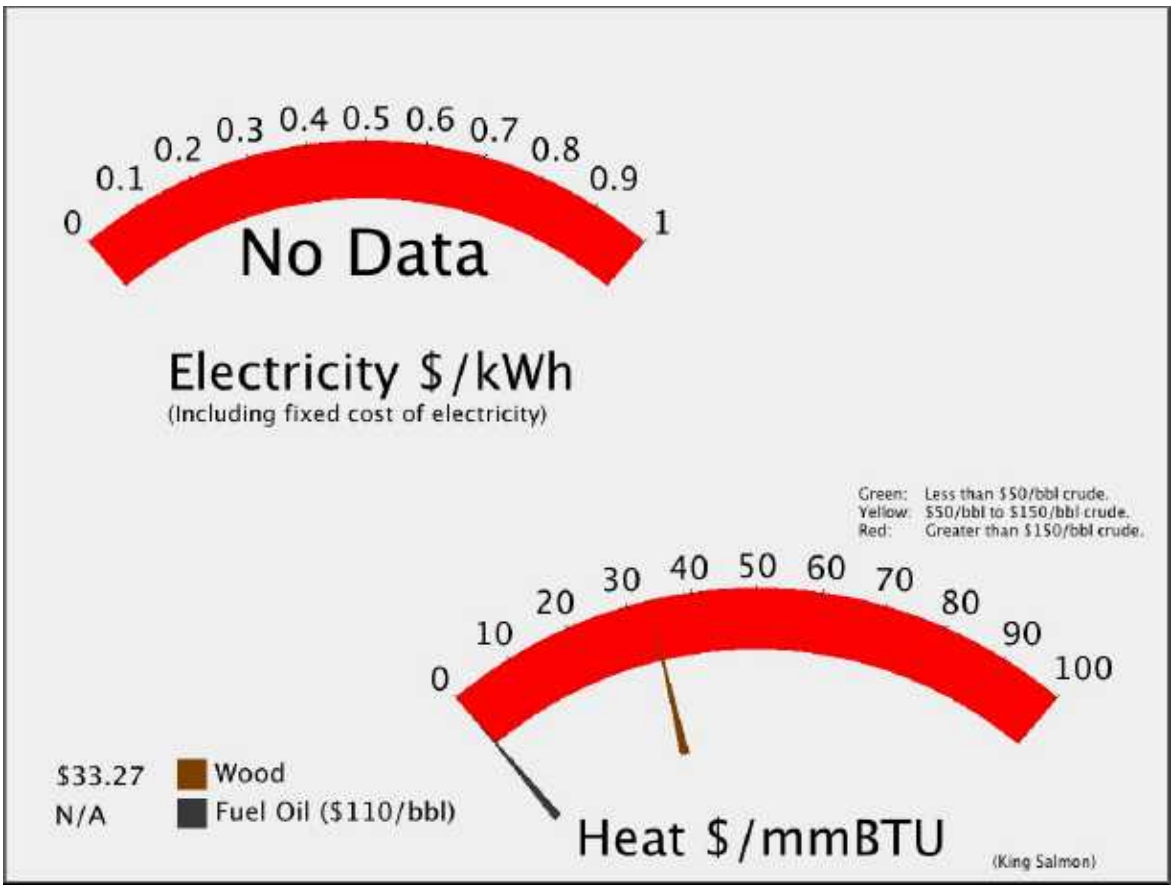
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

King Salmon

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	426
Transportation	Per capita		
Electricity:	Per capita		



King Salmon

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 426 LATITUDE: 58d 41m N LONGITUDE: 156d 39m **Bristol Bay Borough**

LOCATION King Salmon is located on the north bank of the Naknek River on the Alaska Peninsula, about 15 miles upriver from Naknek. It is 284 miles southwest of Anchorage.

ECONOMY Government jobs, transportation and fishing-related employment are the mainstays of the King Salmon economy. 36 residents hold commercial fishing permits. Air services employ a large portion of the community, as King Salmon is a major air transportation point for Bristol Bay salmon. The Bristol Bay red salmon fishery is the largest in the world, although there have been relatively poor seasons, such as in the early 1970s, 1982, and 1997. Salmon prices have declined in recent years. King Salmon is also a departure point for the Katmai National Park and Preserve, which includes the McNeil River State Game Sanctuary, Brooks Camp, and the Valley of Ten Thousand Smokes. Fishing for all five species of salmon and rainbow trout are one of this area's top attractions. King Salmon airport is the summer hub for wilderness and fishing adventures in the area. The Air Force Base has been closed, although it is maintained under contract by Chugach Development Corp.

HISTORY Present-day tribal members are descendents of a group that was forced to relocate to King Salmon due to the eruption of Mount Katmai, on the east coast of the Peninsula. In the 1930s, an air navigation silo was built at King Salmon. At the beginning of World War II, the U.S. built an Air Force base. It was maintained by the Federal Aviation Administration throughout the war. In 1949, a post office was established, and the U.S. Army Corps of Engineers constructed a road to Naknek. Other government quarters, such as National Park Service, Fish & Game, and the weather bureau, were developed. The King Salmon Inn opened in 1956. The community has grown as a government, transportation, and service center for the commercial red salmon and recreational visitor industries. In 1993, the Air Force Station went into a caretaker status. It is being maintained and operated under contract for the Air Force by the Chugach Development Corporation, and supports daily military activities, including Air Force, Army and Marine training missions, North American Air Defense (NORAD) missions and US Coast Guard law enforcement and search and rescue missions. As well, the Bristol Bay Borough and the State of Alaska are using several buildings on the base.

Alternative Energy Resources

Hydro

Installed KW **4000**
kW-hr/year
Site **Idavain Lake**
Study plan effort **reconnaissance**
Plant Factor **50** %
Penetration

Capital cost **$38,265,100** per kW-hr
Annual Capital **$1,487,192**
Annual OM **$508,000**
Fuel cost: **$0**
Total Annual Cost **$1,995,192**
Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Heat Cost $/MMBtu :

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **331727**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **4.09** m/s

Capital cost	**$1,760,485**	per kW-hr	Heat Cost $/MMBtu :
Annual Capital	**$118,332**	$0.36	$104.52
Annual OM	**$15,563**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$133,896**	$0.40	**$118.26**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

King Salmon

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

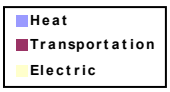
Renewable Fund Project List:

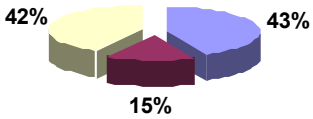
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Pike's Ridge Geothermal Final Design has been submitted by: Naknek Electric Association for a Geothermal project. The total project budget is: $10,020,000 with $5,000,000 requested in grant funding and $5,000,000 as matching funds.

Kipnuk

Energy Used





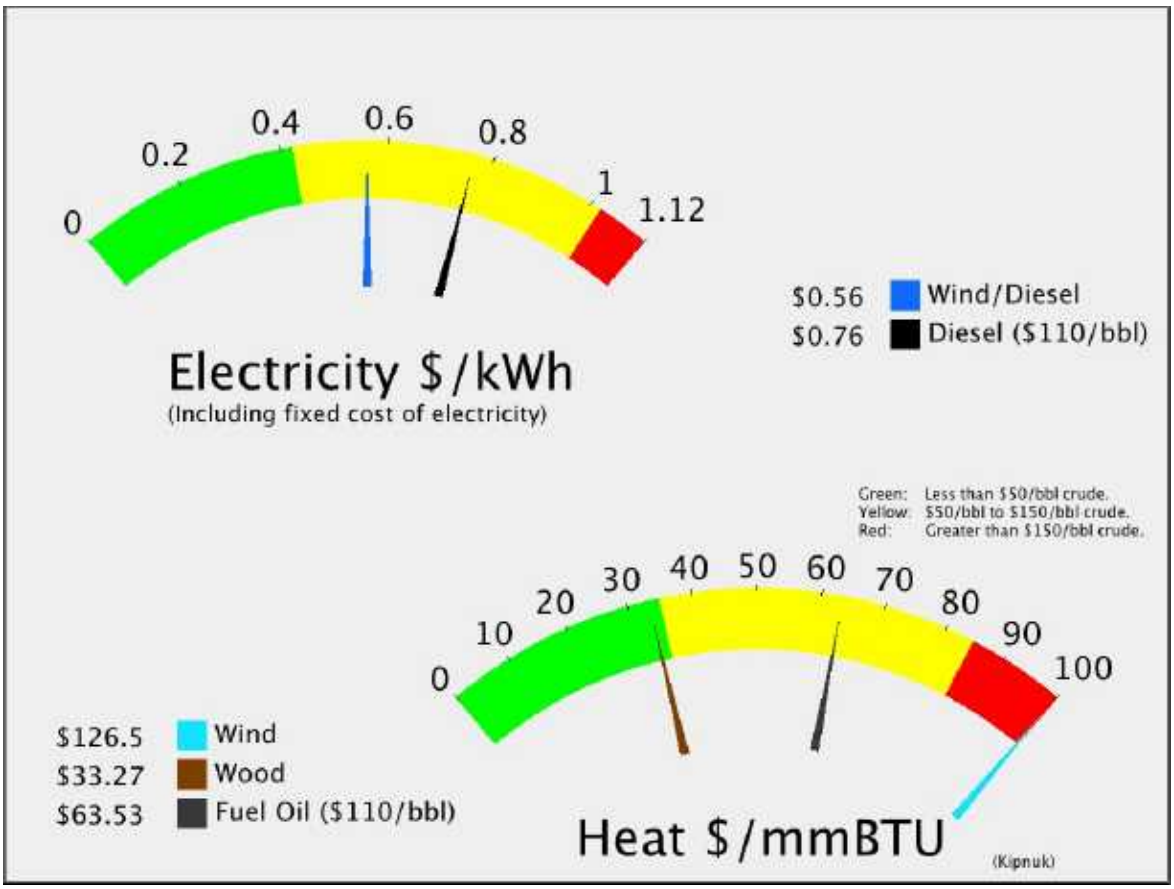
Total: **$4,478** Per capita

Heat **$1,923** Per capita

Transportation **$688** Per capita

Electricity: **$1,867** Per capita

POPULATION: 664



Kipnuk

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 664 LATITUDE: 59d 56m N LONGITUDE: 164d 03m **Unorganized**

LOCATION Kipnuk is located on the west bank of the Kugkaktlik River in the Yukon-Kuskokwim Delta, 85 air miles southwest of Bethel. It lies four miles inland from the Bering Sea coast.

ECONOMY Most employment in Kipnuk is in seasonal activities such as commercial fishing and construction. Subsistence activities are a major component of the Kipnuk lifestyle. 97 residents hold commercial fishing permits. Coastal Villages Seafood, Inc., processes halibut and salmon in Kipnuk. Income is also obtained by trapping. The community is also interested in an arts and crafts marketing cooperative.

HISTORY Yup'ik Eskimos have inhabited the region for thousands of years. According to early BIA records, the village was established around 1922.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.02** /kw-hr

Current efficiency	**12.41**	kW-hr/gal	Fuel COE	**$0.61**	/kw-hr	Estimated Diesel OM	**$29,762**
Consumption in 200	**150,582**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$203,678**
Average Load	**170**	kW	NF COE:	**$0.14**	/kw-hr	Current Fuel Costs	**$906,519**
Estimated peak loa	**339.75**	kW	Total	**$0.77**		**Total Electric**	
Average Sales	**1,488,114**	kW-hours				**$1,139,959**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**181,896**	gal	
Fuel Oil:	**99%**	Estimated heating fuel cost/gallon	**$7.02**		
Wood:	**0%**	$/MMBtu delivered to user	**$63.67**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**21,827**		**$1,276,925**

Transportation (Estimated)

Estimated Diesel:	**65,069**	gal	Estimated cost	**$7.02**	**Total Transportation**
					$456,793

Energy Total **$2,873,678**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Design In Pro**

Acheivable efficiency **14** kW-

New Fuel use **133,428**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.17	/kw-hr
Estimated Diesel OM	**$29,762**	$0.02	
New fuel cost	**$803,248**	$0.54	
Avg Non-Fuel Costs:	**$233,441**	$0.14	
New cost of electricity	**$0.76** per kW-hr		

Savings

($148,029)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, City Council Office

			Value
Water Jacket	**22,587**	gal	**$158,565**
Stack Heat	**0**	gal	**$0**

Capital cost **$475,653**

Annual ID **$39,844**

Annual OM **$9,513**

Total Annual costs **$49,357**

Heat cost **$19.78** $/MMBtu

Savings

$109,208

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **905623**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.80
Annual OM	**$42,489**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,946**	$0.27	**$80.54**
Non-Fuel Costs		$0.16	
Alternative COE:		**$0.43**	
% Community energy		61%	
New Community COE		**$0.55**	

(includes non-fuel and diesel costs)

Savings

$320,811

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	11.7%

Other Resources

Kipnuk

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

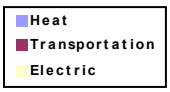
Renewable Fund Project List:

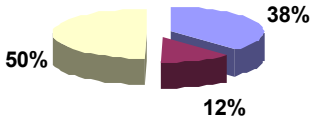
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: High Penetration Wind Diesel Heat_Kipnuk has been submitted by: Kipnuk Light Plant for a Wind Diesel Hybrid project. The total project budget is: $10,188,000 with $8,588,000 requested in grant funding and $1,600,000 as matching funds.

Kivalina

Energy Used





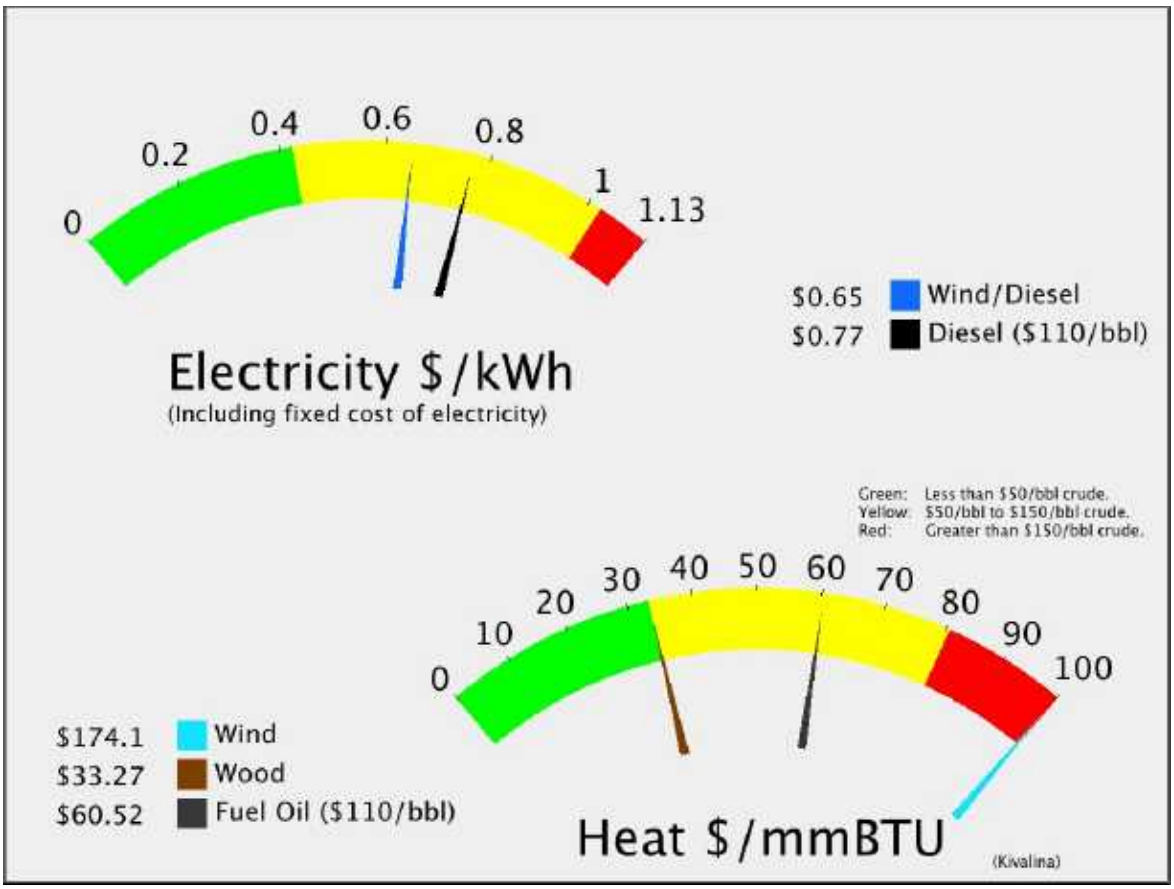
Total: **$4,610** Per capita

Heat **$1,757** Per capita

Transportation **$563** Per capita

Electricity: **$2,290** Per capita

POPULATION: 398



Kivalina

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 398 LATITUDE: 67d 43m N LONGITUDE: 164d 32m **Northwest Arctic Borou**

LOCATION Kivalina is at the tip of an 8-mile barrier reef located between the Chukchi Sea and Kivalina River. It lies 80 air miles northwest of Kotzebue.

ECONOMY Kivalina's economy depends on subsistence practices. Seal, walrus, whale, salmon, whitefish and caribou are utilized. The school, City, Maniilaq Association, village council, airlines and local stores provide year-round jobs. The Red Dog Mine also offers some employment. Six residents hold commercial fishing permits. Native carvings and jewelry are produced from ivory and caribou hooves. The community is interested in developing an Arts and Crafts Center that could be readily moved to the new city site.

HISTORY Kivalina has long been a stopping-off place for seasonal travelers between arctic coastal areas and Kotzebue Sound communities. It is the only village in the region where people hunt the bowhead whale. At one time, the village was located at the north end of the Kivalina Lagoon. It was reported as "Kivualinagmut" in 1847 by Lt. Zagoskin of the Russian Navy. Lt. G.M. Stoney of the U.S. Navy reported the village as "Kuveleek" in 1885. A post office was established in 1940. An airstrip was built in 1960. Kivalina incorporated as a City in 1969. During the 1970s, new houses, a new school and an electric system were constructed in the village. Prior to 1976, high school students from Noatak would attend school in Kivalina, and board with local families. Due to severe erosion and wind-driven ice damage, the City intends to relocate to a new site 7.5 miles away. Relocation alternatives have been studied and a new site has been designed and engineered. The relocation is estimated to cost $102 million.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.69** /kw-hr

Current efficiency	**13.75**	kW-hr/gal	Fuel COE	**$0.49**	/kw-hr	Estimated Diesel OM	**$23,005**
Consumption in 200	**99,221**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$299,059**
Average Load	**131**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$564,329**
Estimated peak loa	**262.61**	kW	Total	**$0.77**		**Total Electric**	
Average Sales	**1,150,226**	kW-hours				**$886,393**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**104,549**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$6.69**		
Wood:	**0%**	$/MMBtu delivered to user	**$60.66**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,546**	**$699,180**	

Transportation (Estimated)

Estimated Diesel:	**33,513**	gal	Estimated cost	**$6.69**	**Total Transportation** **$224,125**

Energy Total **$1,809,697**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **97,431**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.22	/kw-hr
Estimated Diesel OM	**$23,005**	$0.02	
New fuel cost	**$554,150**	$0.48	
Avg Non-Fuel Costs:	**$322,063**	$0.26	
New cost of electricity		**$0.90**	per kW-hr

Savings **($241,120)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**14,883**	gal	**$99,533**
Stack Heat	**0**	gal	**$0**

Capital cost	**$367,652**		
Annual ID	**$30,797**		
Annual OM	**$7,353**		
Total Annual costs	**$38,150**		
Heat cost	**$23.20**	$/MMBtu	

Savings **$61,383**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **771598**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.27	$78.40
Annual OM	**$36,201**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$242,658**	$0.31	**$92.14**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		67%	
New Community COE (includes non-fuel and diesel costs)		**$0.64**	

Savings

$151,330

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	20.3%

Other Resources

Kivalina

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

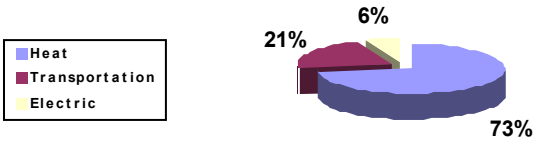
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Klawock

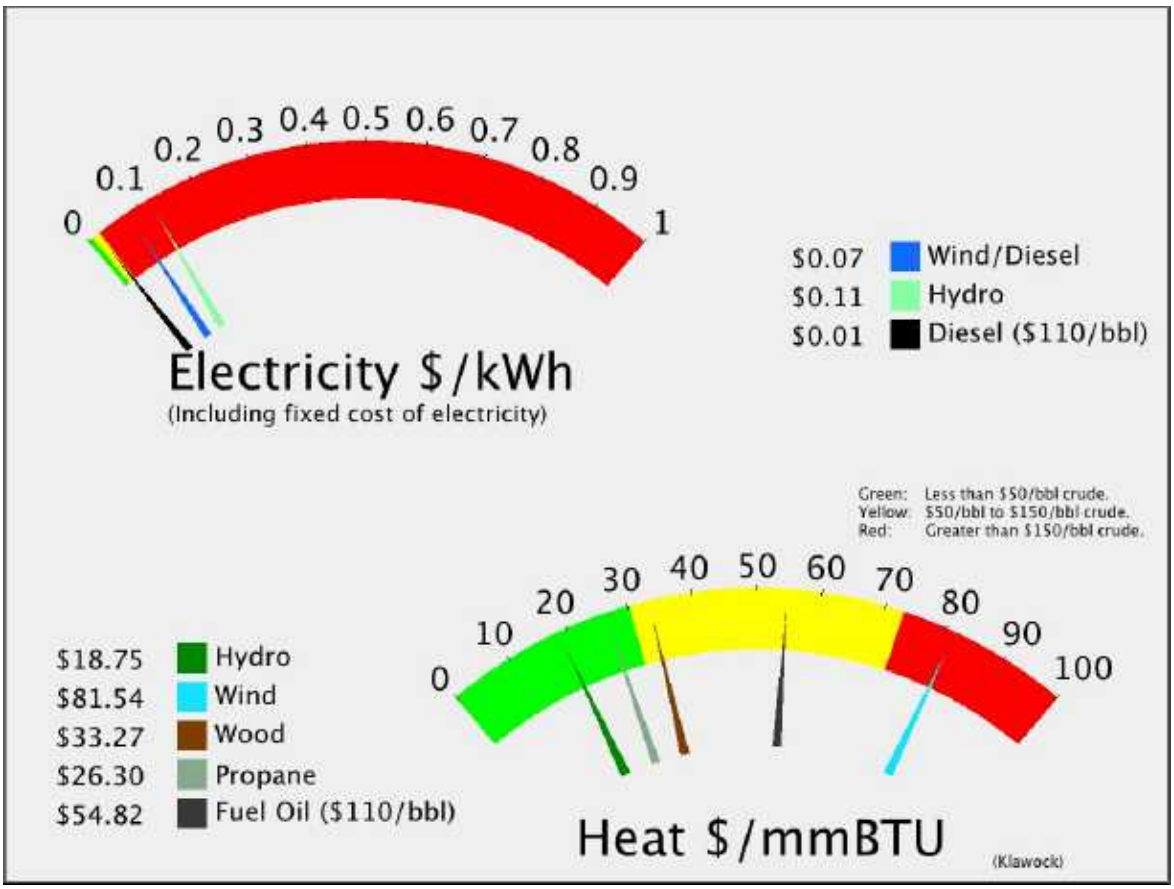
Energy Used



Total: **$3,197** Per capita

Heat	**$2,336**	Per capita
Transportation	**$672**	Per capita
Electricity:	**$189**	Per capita

POPULATION: 743



Klawock

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 743 LATITUDE: 55d 33m N LONGITUDE: 133d 05m **Unorganized**

LOCATION Klawock is located on the west coast of Prince of Wales Island, on Klawock Inlet, across from Klawock Island. It is 7 miles road north of Craig, 24 road miles from Hollis, and 56 air miles west of Ketchikan.

ECONOMY The economy has been dependent on fishing and cannery operations in the past, however the timber industry has become increasingly important. Sealaska's logging operations through a contract with Shaan-Seet, Inc. provide employment in logging and ship-loading in the Klawock and Craig area. 47 residents hold commercial fishing permits. The state operates a fish hatchery on Klawock Lake that contributes to the local salmon population. Cannery operations were closed in the late 1980s. City and School District employment are also significant. Subsistence foods include deer, salmon, halibut, shrimp and crab.

HISTORY Early inhabitants were from Tuxekan, a Tlingit winter village to the north. Klawock was used as a summer fishing camp, and has been known as Klawerak, Tlevak, Clevak and Klawak. The history of Klawock is closely tied to the fishing industry. A trading post and salmon saltery were established in 1868, and the first cannery in Alaska was built here by a San Francisco firm in 1878. The subsequent canneries that sprouted in the area were operated under contract with Chinese laborers. A hatchery for red salmon operated at Klawock Lake between 1897 and 1917. In 1929, Klawock incorporated as a City, and a school was constructed. In 1934, Klawock received federal funds under the Wheeler Howard Act to develop a local cannery, on the condition that residents vote to be liquor-free. In 1971 the Alaska Timber Corp. build a sawmill. Soon after, the Klawock-Heenya Village Corp., the Shaan Seet Corp. of Craig, and Sealaska Timber Corp. expanded area facilities with a log sort yard outside of Klawock and a deep-water dock on Klawock Island. The State constructed a salmon hatchery on Klawock Lake in 1978, very near the former hatchery site.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.06** /kw-hr

Current efficiency		kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$175,091**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**($19,599)**
Average Load	**999**	kW	NF COE:	**$0.00**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**1998.8**	kW	Total	**$0.02**		**Total Electric**	
Average Sales	**8,754,542**	kW-hours				**$155,492**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**286,486**	gal	
Fuel Oil:	**75%**	Estimated heating fuel cost/gallon	**$6.06**		
Wood:	**11%**	$/MMBtu delivered to user	**$54.94**		**Total Heating Oil**
Electricity:	**1.9%**	Community heat needs in MMBtu	**34,378**		**$1,735,416**

Transportation (Estimated)

Estimated Diesel:	**82,403**	gal	Estimated cost	**$6.06**	**Total Transportation**
					$499,164

Energy Total **$2,390,071**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14.8** kW-

New Fuel use

Capital cost **$7,500**

Annual Capital cost **$628** $0.00 /kw-hr

Estimated Diesel OM **$175,091** $0.02

New fuel cost

Avg Non-Fuel Costs: **$155,492** $0.00

New cost of electricity **$0.36** per kW-hr

Savings

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

		Value
Water Jacket	**0** gal	**$0**
Stack Heat	**0** gal	**$0**

Capital cost **$2,798,255**

Annual ID **$234,400**

Annual OM **$55,965**

Total Annual costs **$290,365**

Heat cost **#Div/0!** $/MMBtu

Savings

($290,365)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**1000**		Capital cost	**$6,410,697**	per kW-hr
kW-hr/year	**2017714**		Annual Capital	**$430,900**	$0.21
Met Tower?	**no**		Annual OM	**$94,664**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**6**		Total Annual Cost	**$525,563**	$0.26
Avg wind speed	**8.10**	m/s	Non-Fuel Costs		$0.02
			Alternative COE:		**$0.28**
			% Community energy		23%
			New Community COE		**$0.07**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu :

$62.57

$13.75

$76.32

Savings

($485,338)

Alternative Energy Resources

Hydro

Installed KW	**5000**		Capital cost	**$17,145,000**	per kW-hr
kW-hr/year	**15000000**		Annual Capital	**$666,349**	$0.04
Site	**Reynolds Creek**		Annual OM	**$225,000**	$0.02
Study plan effort			Fuel cost:	**$0**	$0.00
Plant Factor	**44**	%	Total Annual Cost	**$891,349**	$0.06
Penetration	**0.52**		Non-Fuel Costs		$0.02
			Alternative COE:		**$0.08**
			% Community energy		171%
			New Community COE		**$0.12**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu :

$13.02

$4.40

$17.41

Savings

($735,857)

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr
kW-hr/year			Annual Capital		
Installation Type			Annual OM		
Electric Wood cost			Fuel cost:		
Wood Required		Cd/Y	Total Annual Cost		
Stove Wood cost		$/Cd	Non-Fuel Costs		$0.02
			Alternative COE:		
			% Community energy		
			New Community COE		
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu :

-90

$29.76

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	7.4%

Other Resources

Klawock

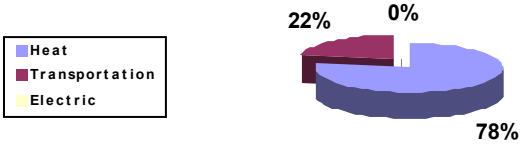
Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

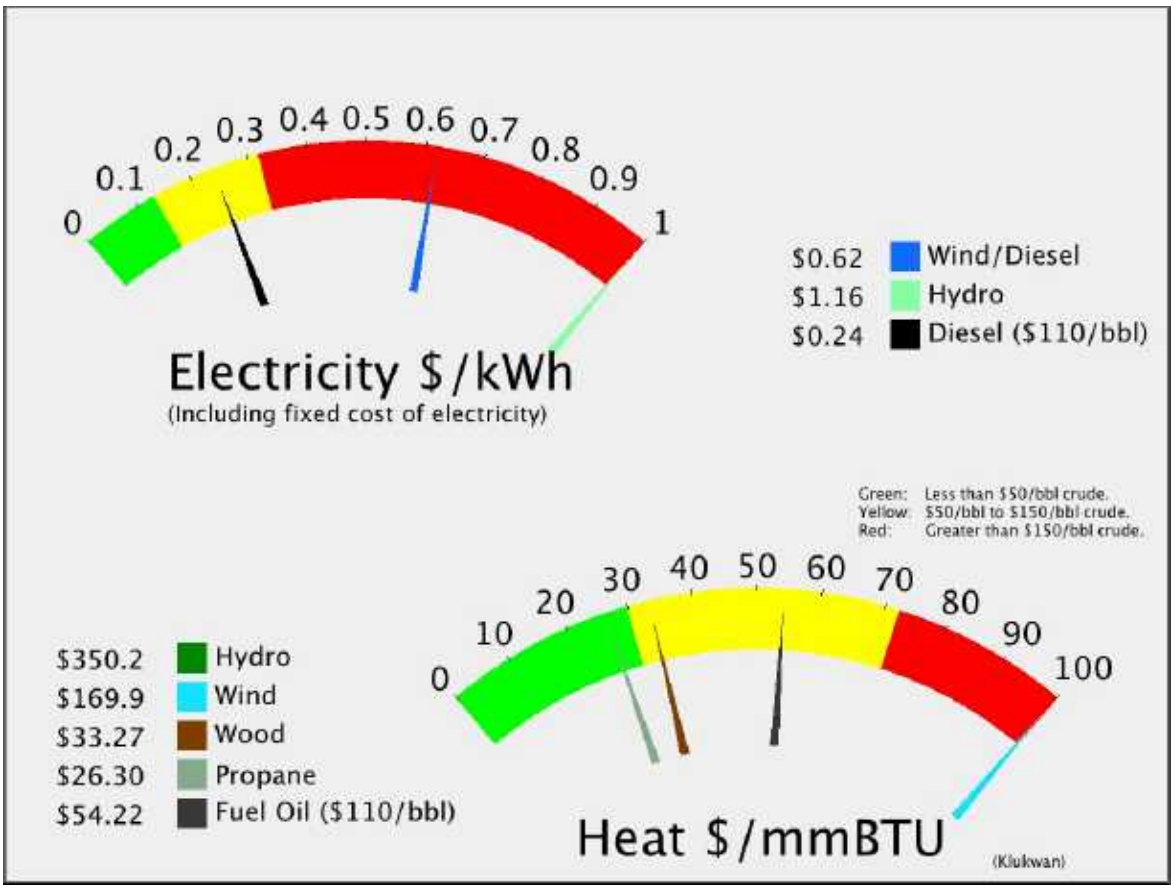
Klukwan

Energy Used



Total:		Per capita
Heat	**$2,491**	Per capita
Transportation	**$716**	Per capita
Electricity:		Per capita

POPULATION: 101



Klukwan

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 101 LATITUDE: 59d 24m N LONGITUDE: 135d 53m **Unorganized**

LOCATION Klukwan is located on the north bank of the Chilkat River, about 22 miles north of Haines, off the Haines Highway. It lies at the junction of the Kleheni and Tsirku Rivers, 100 miles northeast of Juneau. It is the only inland settlement in Southeast Alaska.

ECONOMY Logging on village corporation lands on Prince of Wales Island provides seasonal jobs. The community is also dependent on subsistence. Salmon, halibut, shellfish, deer, mountain sheep, bear and berries are harvested in season. Several residents participate in blanket weaving, jewelry making and moccasin sewing. The village wants to develop a Cultural Heritage Center and Museum to attract tourism, featuring Tlingit artifacts and a bald eagle observatory.

HISTORY In 1880, the U.S. Navy reported the name of the village as "Chilcat of Klukquan," which is said to mean "the old town." The Chilkat tightly controlled the trails to trade with Interior Indians. At that time, the Chilkat numbered approximately 1,000 among five area villages. In 1881, the Willard mission and school was constructed in Haines. Four canneries were built in the area by the turn of the century. In the late 1890s, the Dalton Trail from Chilkat Inlet to Whitehorse offered an easier route for wagons and cattle to the Klondike gold fields. However, the Chilkoot Trail out of Skagway was used by most prospectors. By the early 1900s, Klukwan was the last remaining Chilkat village in the area.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency		kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.99**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$7,219**
Average Load	**41**	kW	NF COE:		/kw-hr	Other Non-Fuel Costs:	
Estimated peak loa	**82.413**	kW	Total			Current Fuel Costs	**$0**
Average Sales	**360,969**	kW-hours				**Total Electric**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**41,983**	gal
Fuel Oil:	**71%**	Estimated heating fuel cost/gallon	**$5.99**	
Wood:	**24%**	$/MMBtu delivered to user	**$54.35**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,038**	**$251,558**

Transportation (Estimated)

Estimated Diesel:	**12,076**	gal	Estimated cost	**$5.99**	**Total Transportation** **$72,356**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**		
#N/A			Annual Capital cost	**$0**	$0.00 /kw-hr	
Status	**IPEC**		Estimated Diesel OM	**$7,219**	$0.02	
Acheivable efficiency	**14**	kW-	New fuel cost			**Savings**
New Fuel use			Avg Non-Fuel Costs:			
			New cost of electricity		per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**			Capital cost	**$115,378**	
Is it working now? **N**			Annual ID	**$9,665**	
BLDGs connected and working:			Annual OM	**$2,308**	
None					
		Value	Total Annual costs	**$11,972**	**Savings**
Water Jacket	**0** gal	**$0**			
Stack Heat	**0** gal	**$0**	Heat cost	**#Div/0!** $/MMBtu	**($11,972)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		Capital cost	**$1,760,485**	per kW-hr
kW-hr/year	**403550**		Annual Capital	**$118,332**	$0.29
Met Tower?	**no**		Annual OM	**$18,933**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**6**		Total Annual Cost	**$137,265**	$0.34
Avg wind speed	**8.10**	m/s	Non-Fuel Costs		
			Alternative COE:		
			% Community energy	112%	
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $85.92 | $13.75 | **$99.66**

Savings

Alternative Energy Resources

Hydro

Installed KW	**270**		Capital cost	**$5,468,430**	per kW-hr
kW-hr/year	**350000**		Annual Capital	**$266,181**	$0.76
Site	**Walker Creek**		Annual OM	**$282,150**	$0.81
Study plan effort	**reconnaissance**		Fuel cost:	**$0**	$0.00
Plant Factor		%	Total Annual Cost	**$548,331**	$1.57
Penetration	**0.48**		Non-Fuel Costs		
			Alternative COE:		
			% Community energy	97%	
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $222.83 | $236.20 | **$459.03**

Savings

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr
kW-hr/year			Annual Capital		
Installation Type			Annual OM		
Electric Wood cost			Fuel cost:		
Wood Required		Cd/Y	Total Annual Cost		
Stove Wood cost		$/Cd	Non-Fuel Costs		
			Alternative COE:		
			% Community energy		
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	50.6%

Other Resources

Klukwan

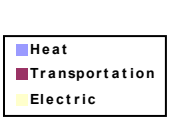
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

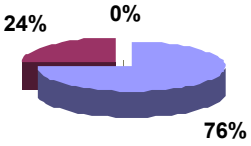
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kobuk

Energy Used

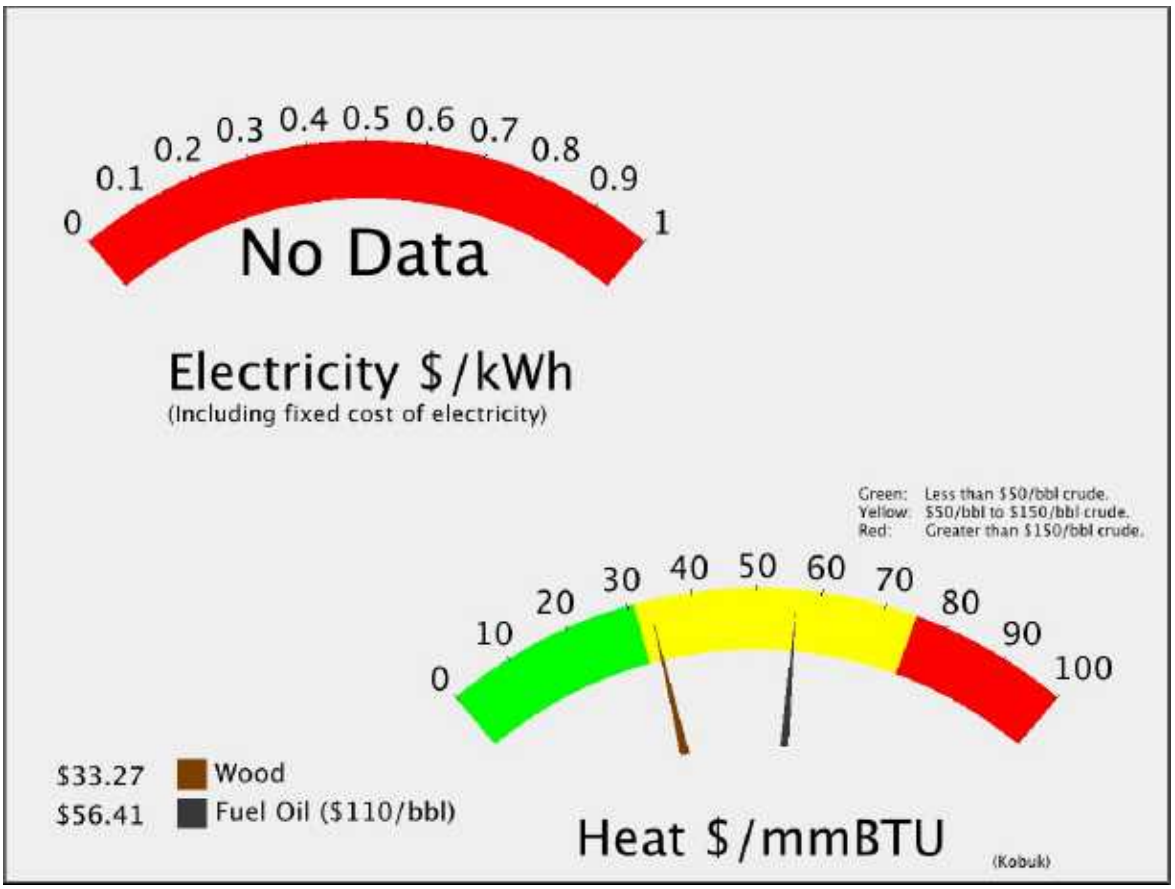




Total: Per capita

Heat	**$1,874**	Per capita
Transportation	**$601**	Per capita
Electricity:		Per capita

POPULATION: 119



Kobuk

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 119 LATITUDE: 66d 55m N LONGITUDE: 156d 52m **Northwest Arctic Borou**

LOCATION Kobuk is located on the right bank of the Kobuk River, about 7 miles northeast of Shungnak and 128 air miles northeast of Kotzebue. It is the smallest village in the Northwest Arctic Borough.

ECONOMY The economy of Kobuk is based on subsistence. Whitefish, caribou and moose provide the majority of meat sources. Cash employment is limited to the school, City and Maniilaq clinic. Seasonal construction and BLM fire fighting provide some income.

HISTORY Kobuk was founded in 1899 as a supply point for mining activities in the Cosmos Hills to the north, and was then called Shungnak. A trading post, school, and Friends Mission drew area residents to the settlement. Due to river erosion and flooding, the village was relocated in the 1920s to a new site 10 miles downstream, which was called Kochuk now Shungnak. The few who remained at the village renamed it Kobuk. Ice jams on the River cause high water each year. In May 1973, a flood covered the entire village. In October 1973, the City was incorporated.

Alternative Energy Resources

Hydro

Installed KW
kW-hr/year **300000**
Site **Kogoluktuk River**
Study plan effort **permit applic.**
Plant Factor %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost			
Annual Capital	**$0**	$0.00	$0.00
Annual OM			
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$0**	$0.00	**$0.00**
Non-Fuel Costs			
Alternative COE:			
% Community energy	65%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**
kW-hr/year **1158743**
Met Tower? **no**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **7.00** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$4,253,640**		
Annual Capital	**$285,911**	$0.25	$72.30
Annual OM	**$54,364**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$340,275**	$0.29	**$86.04**
Non-Fuel Costs			
Alternative COE:			
% Community energy	253%		**Savings**
New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	59.4%

Other Resources

Kobuk

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

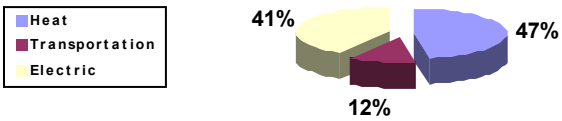
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kobuk River Valley Woody Biomass Feasibility Study has been submitted by: Northwest Inupiat Housing Authority for a Biomass project.

A project titled: Upper Kobuk Region Hydroelectric Final Design has been submitted by: Alaska Village Electric Cooperative for a Hydro project. The total project budget is: $1,500,000 with $1,025,000 requested in grant funding and $50,625 as matching funds.

Kokhanok

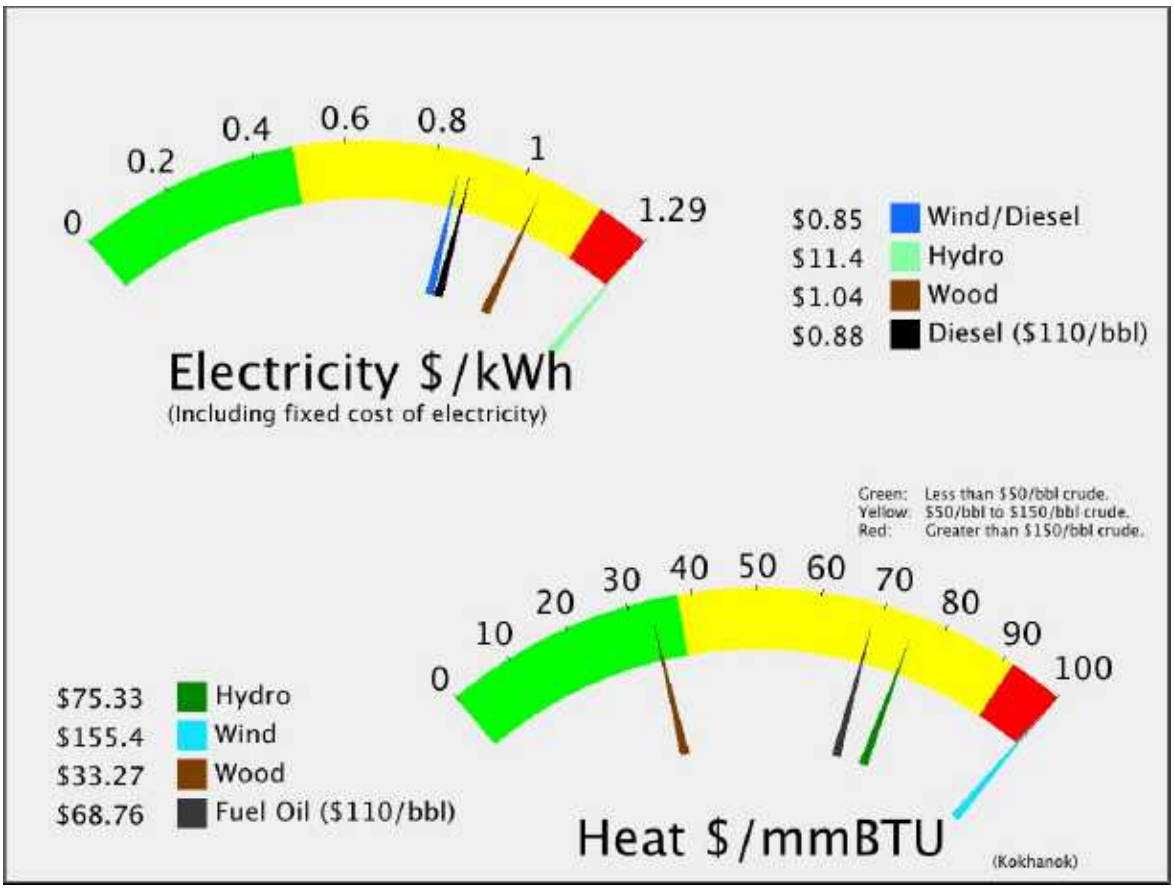
Energy Used



Total: **$4,678** Per capita

Heat	**$2,213**	Per capita
Transportation	**$541**	Per capita
Electricity:	**$1,924**	Per capita

POPULATION: 175



Kokhanok

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 175 LATITUDE: 59d 26m N LONGITUDE: 154d 45m **Lake & Peninsula Borou**

LOCATION Kokhanok is located on the south shore of Iliamna Lake, 22 miles south of Iliamna and 88 miles northeast of King Salmon.

ECONOMY The school is the largest employer in Kokhanok. Commercial fishing has declined since several limited entry permits were sold. Some residents travel to the Bristol Bay area each summer to fish; eight persons currently hold commercial fishing permits. People heavily rely on subsistence activities; many families have a summer fish camp near the Gibraltar River. Salmon, trout, grayling, moose, bear, rabbit, porcupine and seal are utilized.

HISTORY This fishing village was first listed in the U.S. Census in 1890 by A.B. Schanz. The community was relocated to higher ground a few years ago when the rising level of Iliamna Lake threatened several community buildings.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.42**	kW-hr/gal	Fuel COE	**$0.67**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$6.60**
Consumption in 200	**38,375**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$7,574**
Average Load	**43**	kW	NF COE:	**$0.19**	/kw-hr	Other Non-Fuel Costs:	**$73,645**
Estimated peak loa	**86.456**	kW	Total	**$0.88**		Current Fuel Costs	**$253,194**
Average Sales	**378,675**	kW-hours				**Total Electric**	**$334,413**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**50,978**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$7.60**		
Wood:	**4%**	$/MMBtu delivered to user	**$68.91**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,117**		**$387,324**

Transportation (Estimated)

Estimated Diesel:	**12,458**	gal	Estimated cost	**$7.60**	**Total Transportation** **$94,651**

Energy Total **$816,388**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **34,034**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$7,574**	$0.02	
New fuel cost	**$224,552**	$0.59	
Avg Non-Fuel Costs:	**$81,218**	$0.19	
New cost of electricity	**$0.69** per kW-hr		

Savings **$28,015**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**5,756**	gal	**$43,735**
Stack Heat	**0**	gal	**$0**

Capital cost	**$121,038**		
Annual ID	**$10,139**		
Annual OM	**$2,421**		
Total Annual costs	**$12,560**		
Heat cost	**$19.75**	$/MMBtu	

Savings **$31,176**

Alternative Energy Resources

Wood

Installed KW **55**
kW-hr/year **409527**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **518** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,704,182**		
Annual Capital	**$114,548**	$0.28	
Annual OM	**$121,765**	$0.30	
Fuel cost:	**$77,628**	$0.19	-90
Total Annual Cost	**$313,941**	$0.77	**$29.76**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.98**	
% Community energy		108%	
New Community COE		**$1.04**	

(includes non-fuel and diesel costs)

Savings
$20,472

Alternative Energy Resources

Hydro

Installed KW **24000**
kW-hr/year **429494**
Site **American Creek**
Study plan effort **reconnaissance**
Plant Factor **47** %
Penetration **1.13**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$91,059,000**		
Annual Capital	**$3,539,053**	$8.24	$2,414.34
Annual OM	**$698,500**	$1.63	$476.52
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$4,237,553**	$9.87	**$2,890.85**
Non-Fuel Costs		$0.21	
Alternative COE:		**$10.08**	
% Community energy		113%	
New Community COE		**$11.40**	

(includes non-fuel and diesel costs)

Savings
($3,903,140)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**
kW-hr/year **767484**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,071,563**		
Annual Capital	**$206,457**	$0.27	$78.82
Annual OM	**$36,008**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$242,465**	$0.32	**$92.57**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.53**	
% Community energy		203%	
New Community COE		**$0.85**	

(includes non-fuel and diesel costs)

Savings
$91,948

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	41.7%

Other Resources

Kokhanok

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

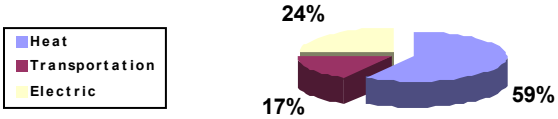
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wood Heating Final Design has been submitted by: Lake and Peninsula Borough for a Biomass project.

Koliganek

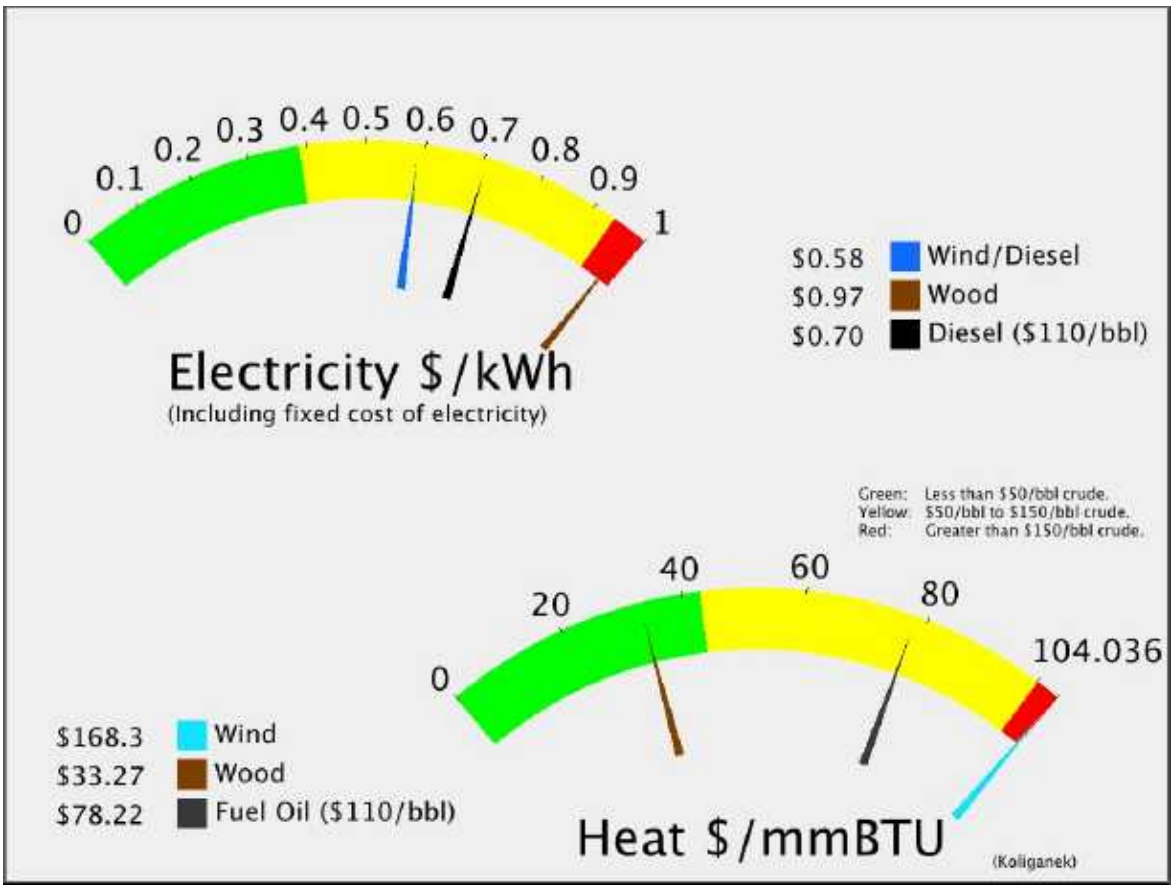
Energy Used



Total: **$7,368** Per capita

Heat	**$4,327**	Per capita
Transportation	**$1,270**	Per capita
Electricity:	**$1,772**	Per capita

POPULATION: 192



Koliganek

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 192 LATITUDE: 59d 48m N LONGITUDE: 157d 25m **Unorganized**

LOCATION Koliganek is located on the left bank of the Nushagak River, and lies 65 miles northeast of Dillingham. The village hopes to get its own zip code. It currently shares one with Dillingham.

ECONOMY The school and village organization provide most year-round employment. 18 residents hold commercial fishing permits. Many residents trap, and subsistence activities are an important part of the economy. Residents are employed in sales and office work, management and professional, production and transportation, and service occupations. The town center contains the school, health clinic, two general stores, fuel storage, power generation building, and the village counsil building. A new health care clinic is scheduled to be constructed in 2006 and the existing facility will be remodeled for a family resource center. The IGAP program operates a recycling center.

HISTORY It is an Eskimo village first listed in the 1880 Census as Kalignak." The name is local recorded by the U.S. Geological Survey in 1930. Since that time the village has moved four miles downstream from the original site."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**9.93**	kW-hr/gal	Fuel COE	**$0.47**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$7.64**
Consumption in 200	**27,709**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$9,105**
Average Load	**52**	kW	NF COE:	**$0.22**	/kw-hr	Other Non-Fuel Costs:	**$99,748**
Estimated peak loa	**103.94**	kW	Total	**$0.70**		Current Fuel Costs	**$211,791**
Average Sales	**455,255**	kW-hours				**Total Electric**	**$320,645**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**96,112**	gal	
Fuel Oil:	**70%**	Estimated heating fuel cost/gallon	**$8.64**		
Wood:	**26%**	$/MMBtu delivered to user	**$78.40**		**Total Heating Oil**
Electricity:	**3.7%**	Community heat needs in MMBtu	**11,533**		**$830,733**

Transportation (Estimated)

Estimated Diesel:	**28,214**	gal	Estimated cost	**$8.64**	**Total Transportation** **$243,868**

Energy Total **$1,395,246**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **19,652**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.24	/kw-hr
Estimated Diesel OM	**$9,105**	$0.02	
New fuel cost	**$150,211**	$0.33	
Avg Non-Fuel Costs:	**$108,854**	$0.22	
New cost of electricity	**$1.02** per kW-hr		

Savings

($47,316)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

None

			Value
Water Jacket	**4,156**	gal	**$35,925**
Stack Heat	**0**	gal	**$0**

Capital cost	**$145,515**		
Annual ID	**$12,189**		
Annual OM	**$2,910**		
Total Annual costs	**$15,100**		
Heat cost	**$32.88**	$/MMBtu	

Savings

$20,825

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		
kW-hr/year	**409993**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**6**		
Avg wind speed	**8.10**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$84.57
Annual OM	**$19,235**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,568**	$0.34	**$98.31**
Non-Fuel Costs		$0.24	
Alternative COE:		**$0.57**	
% Community energy		90%	
New Community COE		**$0.57**	

(includes non-fuel and diesel costs)

Savings

$61,384

Alternative Energy Resources

Wood

Installed KW	**54**	
kW-hr/year	**398953**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**504**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,697,379**	per kW-hr	
Annual Capital	**$114,091**	$0.29	
Annual OM	**$121,347**	$0.30	
Fuel cost:	**$75,624**	$0.19	-90
Total Annual Cost	**$311,061**	$0.78	**$29.76**
Non-Fuel Costs		$0.24	
Alternative COE:		**$1.02**	
% Community energy		88%	
New Community COE		**$0.96**	

(includes non-fuel and diesel costs)

Savings

($117,484)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.1%

Other Resources

Koliganek

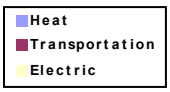
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

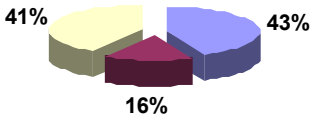
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kongiganak

Energy Used





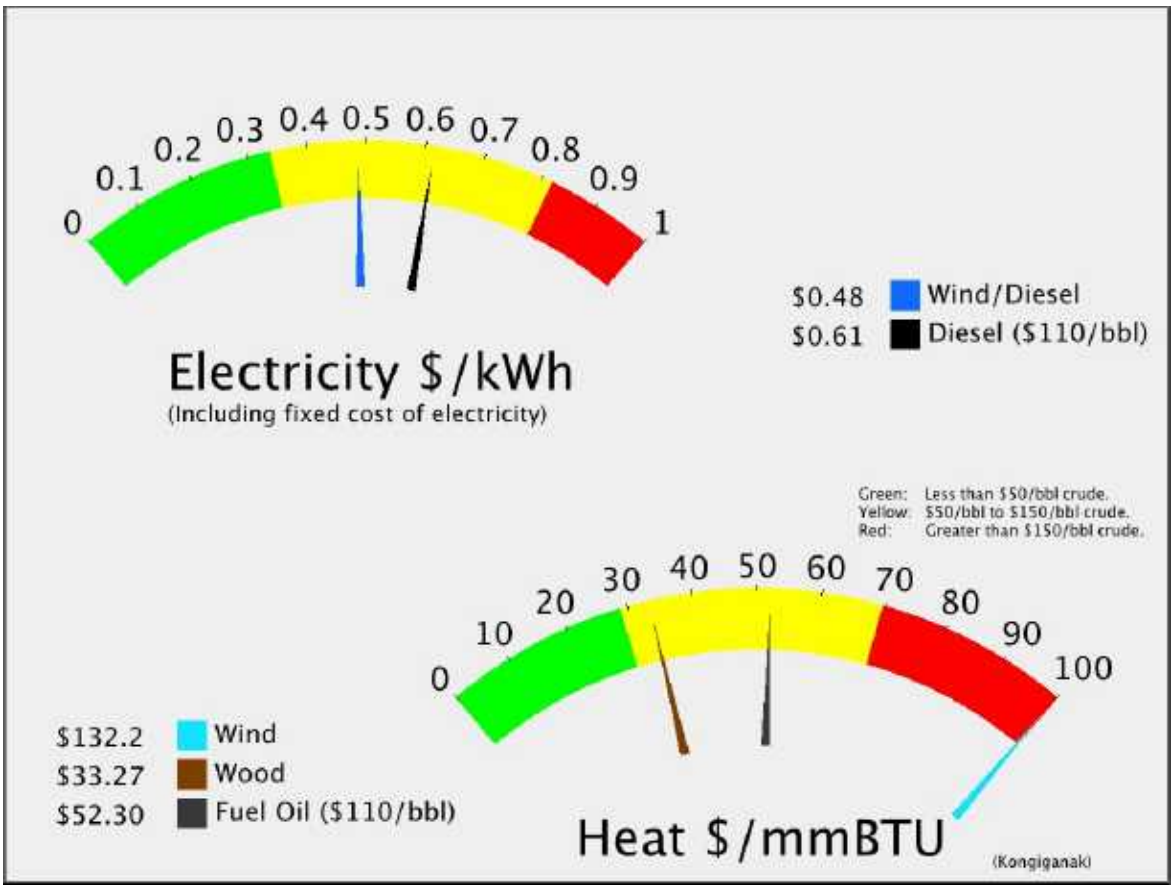
Total: **$3,222** Per capita

Heat **$1,399** Per capita

Transportation **$501** Per capita

Electricity: **$1,322** Per capita

POPULATION: 436



Kongiganak

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 436 LATITUDE: 59d 52m N LONGITUDE: 163d 02m **Unorganized**

LOCATION Kongiganak is located on the west shore of Kuskokwim Bay, west of the mouth of the Kuskokwim River. It lies 70 miles southwest of Bethel and 451 miles west of Anchorage.

ECONOMY Approximately half of the employment in Kongiganak is at the school. The remaining employment is with village services, stores, and commercial fishing. 28 residents hold commercial fishing permits. Poor returns and reduced salmon prices in recent years have affected the economy. Subsistence activities are important supplements to income. Some trapping occurs.

HISTORY The area has been occupied historically by Yup'ik Eskimos. The village was permanently settled in the late 1960s by former residents of Kwigillingok, who were seeking higher ground to escape periodic flooding.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.78** /kw-hr

Current efficiency	**11.34**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$17,276**
Consumption in 200	**81,658**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$123,598**
Average Load	**99**	kW	NF COE:	**$0.14**	/kw-hr	Current Fuel Costs	**$390,252**
Estimated peak loa	**197.22**	kW	Total	**$0.61**		**Total Electric**	
Average Sales	**863,804**	kW-hours				**$531,125**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**105,580**	gal	
Fuel Oil:	**98%**	Estimated heating fuel cost/gallon	**$5.78**		
Wood:	**0%**	$/MMBtu delivered to user	**$52.42**	**Total Heating Oil**	
Electricity:	**2.4%**	Community heat needs in MMBtu	**12,670**	**$610,156**	

Transportation (Estimated)

Estimated Diesel:	**37,769**	gal	Estimated cost	**$5.78**	**Total Transportation**
					$218,271

Energy Total **$1,359,552**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **66,169**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$17,276**	$0.02	
New fuel cost	**$316,226**	$0.37	
Avg Non-Fuel Costs:	**$140,874**	$0.14	
New cost of electricity		**$0.51**	per kW-hr

Savings

$73,397

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Washeteria, Water Plant

			Value
Water Jacket	**12,249**	gal	**$70,786**
Stack Heat	**0**	gal	**$0**

Capital cost	**$276,102**		
Annual ID	**$23,128**		
Annual OM	**$5,522**		
Total Annual costs	**$28,650**		
Heat cost	**$21.17**	$/MMBtu	

Savings

$42,136

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **679248**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.16	
Alternative COE:		**$0.45**	
% Community energy		79%	
New Community COE (includes non-fuel and diesel costs)		**$0.47**	

Savings

$124,688

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	20.1%

Other Resources

Kongiganak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

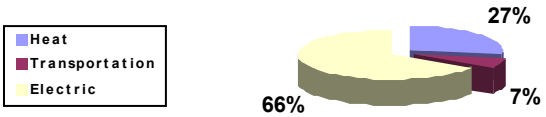
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kongiganak Wind Farm Construction has been submitted by: Puvurnaq Power Company for a Wind Diesel Hybrid project. The total project budget is: $3,200,000 with $1,700,000 requested in grant funding and $1,500,000 as matching funds.

Kotlik

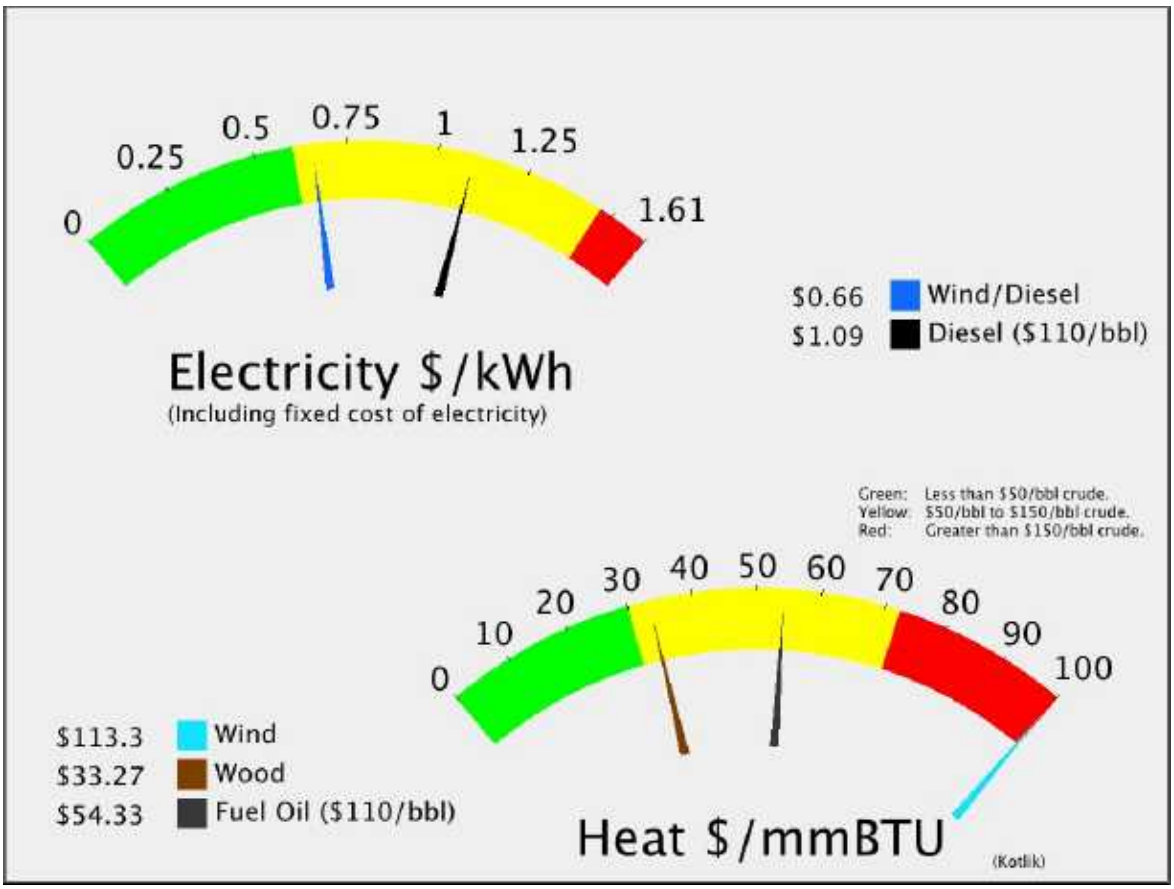
Energy Used



Total: **$4,013** Per capita

Heat	**$1,068**	Per capita
Transportation	**$293**	Per capita
Electricity:	**$2,652**	Per capita

POPULATION: 600



Kotlik

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 600 LATITUDE: 63d 02m N LONGITUDE: 163d 33m **Unorganized**

LOCATION Kotlik is located on the east bank of the Kotlik Slough, 35 miles northeast of Emmonak in the Yukon-Kuskokwim Delta. It lies 165 air miles northwest of Bethel, and 460 miles from Anchorage.

ECONOMY Kotlik has a seasonal economy. Fishing and fish processing are the primary income generators. 79 residents hold commercial fishing permits. The community is interested in developing a local seafood processing facility, and an arts and crafts project. Kotlik's residents rely heavily on subsistence foods, and many families have fish camps on the Yukon River. Salmon, moose, beluga whale and seal are harvested. Income is also derived from trapping.

HISTORY The community grew during the mid-1960s when a BIA school was constructed at Kotlik, and residents of the nearby villages of Channiliut, Hamilton, Bill Moore's Slough, and Pastolaik relocated. Due to its location with easy access by large riverboats and barges, Kotlik became one of the larger ports and commercial centers of the lower Yukon River. Many residents are descendants of Russian traders that settled in the area surrounding Saint Michael after 1867. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.27**	kW-hr/gal	Fuel COE	**$0.99**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.00**
Consumption in 200	**290,300**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$29,448**
Average Load	**168**	kW	NF COE:	**$0.09**	/kw-hr	Other Non-Fuel Costs:	**$136,233**
Estimated peak loa	**336.16**	kW	Total	**$1.10**		Current Fuel Costs	**$1,452,661**
Average Sales	**1,472,383**	kW-hours				**Total Electric**	**$1,618,342**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**106,748**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$6.00**		
Wood:	**10%**	$/MMBtu delivered to user	**$54.46**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,810**		**$640,916**

Transportation (Estimated)

Estimated Diesel:	**29,251**	gal	Estimated cost	**$6.00**	**Total Transportation** **$175,622**

Energy Total **$2,434,880**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$1,300,000**				
Powerhouse Module		Annual Capital cost	**$108,897**	$0.07	/kw-hr		
Status	**Completed**	Estimated Diesel OM	**$29,448**	$0.02			
Acheivable efficiency	**14** kW-	New fuel cost	**$1,273,429**	$0.86		**Savings**	
New Fuel use	**254,482**	Avg Non-Fuel Costs:	**$165,681**	$0.09		**$70,335**	
		New cost of electricity	**$0.54** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**			Capital cost	**$470,625**			
Is it working now? **Y**			Annual ID	**$39,423**			
BLDGs connected and working:			Annual OM	**$9,412**			
Water Plant, Washeteria, Community Hall, Repair Shop		Value					
			Total Annual costs	**$48,835**		**Savings**	
Water Jacket	**43,545** gal	**$261,444**					
Stack Heat	**0** gal	**$0**	Heat cost	**$10.15**	$/MMBtu	**$212,609**	

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **907550**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.65
Annual OM	**$42,579**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$249,036**	$0.27	**$80.40**
Non-Fuel Costs		$0.11	
Alternative COE:		**$0.39**	
% Community energy		62%	
New Community COE		**$0.65**	

(includes non-fuel and diesel costs)

Savings

$664,537

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	19.9%

Other Resources

Kotlik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

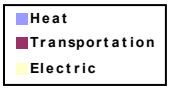
Renewable Fund Project List:

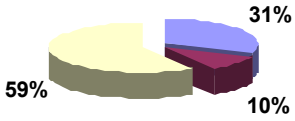
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kotlik Pellet Stove_KYE has been submitted by: Kotlik Yupik Enterprise for a Biomass project. The total project budget is: $626,400 with $626,400 requested in grant funding and $50,000 as matching funds.

Kotzebue

Energy Used





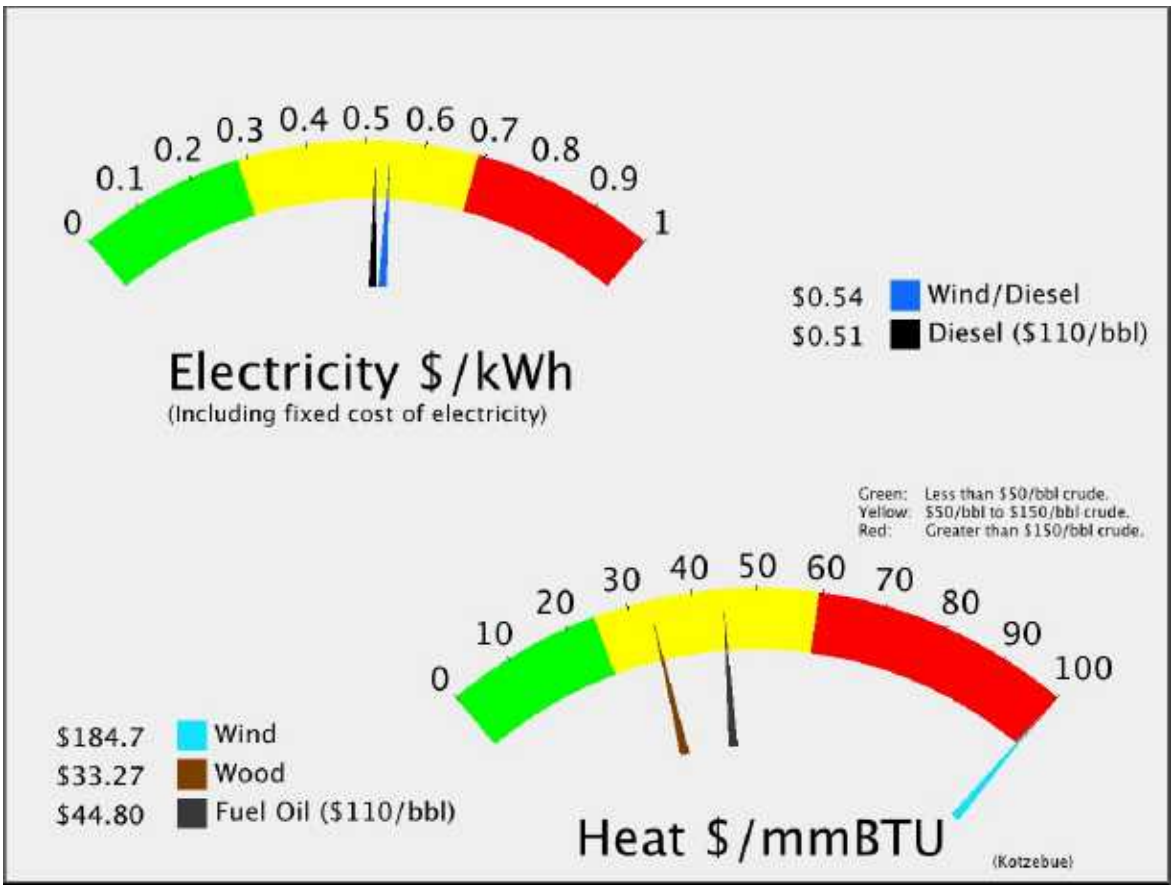
Total: **$5,860** Per capita

Heat **$1,806** Per capita

Transportation **$579** Per capita

Electricity: **$3,475** Per capita

POPULATION: 3135



Kotzebue

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 3135 LATITUDE: 66d 54m N LONGITUDE: 162d 35m **Northwest Arctic Borou**

LOCATION Kotzebue is on the Baldwin Peninsula in Kotzebue Sound, on a 3-mile-long spit, which ranges in width from 1,100 to 3,600 feet. It is located near the discharges of the Kobuk, Noatak and Ssezawick Rivers, 549 air miles northwest of Anchorage and 26 miles above the Arctic Circle.

ECONOMY Kotzebue is the service and transportation center for all villages in the northwest region. It has a healthy cash economy, a growing private sector, and a stable public sector. Due to its location at the confluence of three river drainages, Kotzebue is the transfer point between ocean and inland shipping. It is also the air transport center for the region. Activities related to oil and minerals exploration and development have contributed to the economy. The majority of income is directly or indirectly related to government employment, such as the School District, Maniilaq Association, the City and Borough. The Cominco Alaska Red Dog Mine is a significant regional employer. Commercial fishing for chum salmon provides some seasonal employment. 128 residents hold commercial fishing permits. Most residents rely on subsistence to supplement income.

HISTORY This site has been occupied by Inupiat Eskimos for at least 600 years. Kikiktagruk" was the hub of ancient arctic trading routes long before European contact due to its coastal location near a number of rivers. The German Lt. Otto Von Kotzebue "discovered" Kotzebue Sound in 1818 for Russia. The community was named after the Kotzebue Sound in 1899 when a post office was established. Since the turn of the century expansion of economic activities and services in the area have enabled Kotzebue to develop relatively rapidly. The City was formed in 1958. An Air Force Base and White Alice Communications System were later constructed."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**14.64**	kW-hr/gal	Fuel COE	**$0.27**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$3.95** /kw-hr
Consumption in 200	**1,423,571**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$418,204**
Average Load	**2,387**	kW	NF COE:	**$0.23**	/kw-hr	Other Non-Fuel Costs:	**$4,754,167**
Estimated peak loa	**4774.0**	kW	Total	**$0.52**		Current Fuel Costs	**$5,624,671**
Average Sales	**20,910,203**	kW-hours				**Total Electric**	**$10,797,042**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,143,731**	gal	
Fuel Oil:	**88%**	Estimated heating fuel cost/gallon	**$4.95**		
Wood:	**3%**	$/MMBtu delivered to user	**$44.91**		**Total Heating Oil**
Electricity:	**3.2%**	Community heat needs in MMBtu	**137,248**		**$5,662,727**

Transportation (Estimated)

Estimated Diesel:	**366,627**	gal	Estimated cost	**$4.95**	**Total Transportation** **$1,815,206**

Energy Total **$18,274,975**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**				
#N/A		Annual Capital cost	**$0**	$0.00	/kw-hr		
Status	**NA**	Estimated Diesel OM	**$418,204**	$0.02			
Acheivable efficiency	**14.8** kW-	New fuel cost	**$5,584,099**	$0.27		**Savings**	
New Fuel use	**1,413,302**	Avg Non-Fuel Costs:	**$5,172,371**	$0.23		**$40,573**	
		New cost of electricity	**$0.52** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**213,536**	gal	**$1,057,236**
Stack Heat	**142,357**	gal	**$704,824**

Capital cost **$6,683,627**
Annual ID **$559,865**
Annual OM **$133,673**
Total Annual costs **$693,537**
Heat cost **$17.64** $/MMBtu

Savings **$1,068,524**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5000**

kW-hr/year **4668831**

Met Tower? **no**

Homer Data? **no**

Wind Class **6**

Avg wind speed **5.52** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$23,344,156**		
Annual Capital	**$1,569,094**	$0.34	$98.47
Annual OM	**$219,045**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,788,139**	$0.38	**$112.22**
Non-Fuel Costs		$0.25	
Alternative COE:		**$0.63**	
% Community energy		22%	**Savings**
New Community COE (includes non-fuel and diesel costs)		**$0.54**	**($439,090)**

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	1.9%

Other Resources

Kotzebue

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kotzebue HR and Ammonia Power Cycle has been submitted by: Kotzebue Electric Association for a Heat Recovery project. The total project budget is: $1,215,627 with $915,627 requested in grant funding and $300,000 as matching funds.

A project titled: Kotzebue Solid Waste_City of Kotzebue has been submitted by: Municipal Government for a Biofuels project. The total project budget is: $1,520,000 with $15,000 requested in grant funding and $5,000 as matching funds.

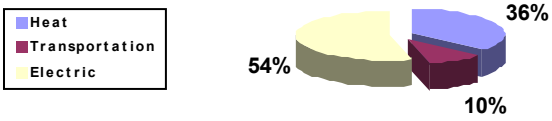
A project titled: Kotzebue Wind Farm Expansion Construction has been submitted by: Kotzebue Electric Association for a Wind Diesel Hybrid project. The total project budget is: $14,807,535 with $12,075,535 requested in grant funding and $2,800,000 as matching funds.

A project titled: Kotzebue Wind Farm Red-Ox Flow Battery Storage Construction has been submitted by: Kotzebue Electric Association for a Wind Diesel Hybrid project. The total project budget is: $3,930,399 with $3,144,399 requested in grant funding and $786,000 as matching funds.

A project titled: Solar Hot Water NWAB_NIHA has been submitted by: Northwest Inupiat Housing Authority for a Solar project. The total project budget is: $996,000 with $986,000 requested in grant funding and $10,000 as matching funds.

Koyuk

Energy Used



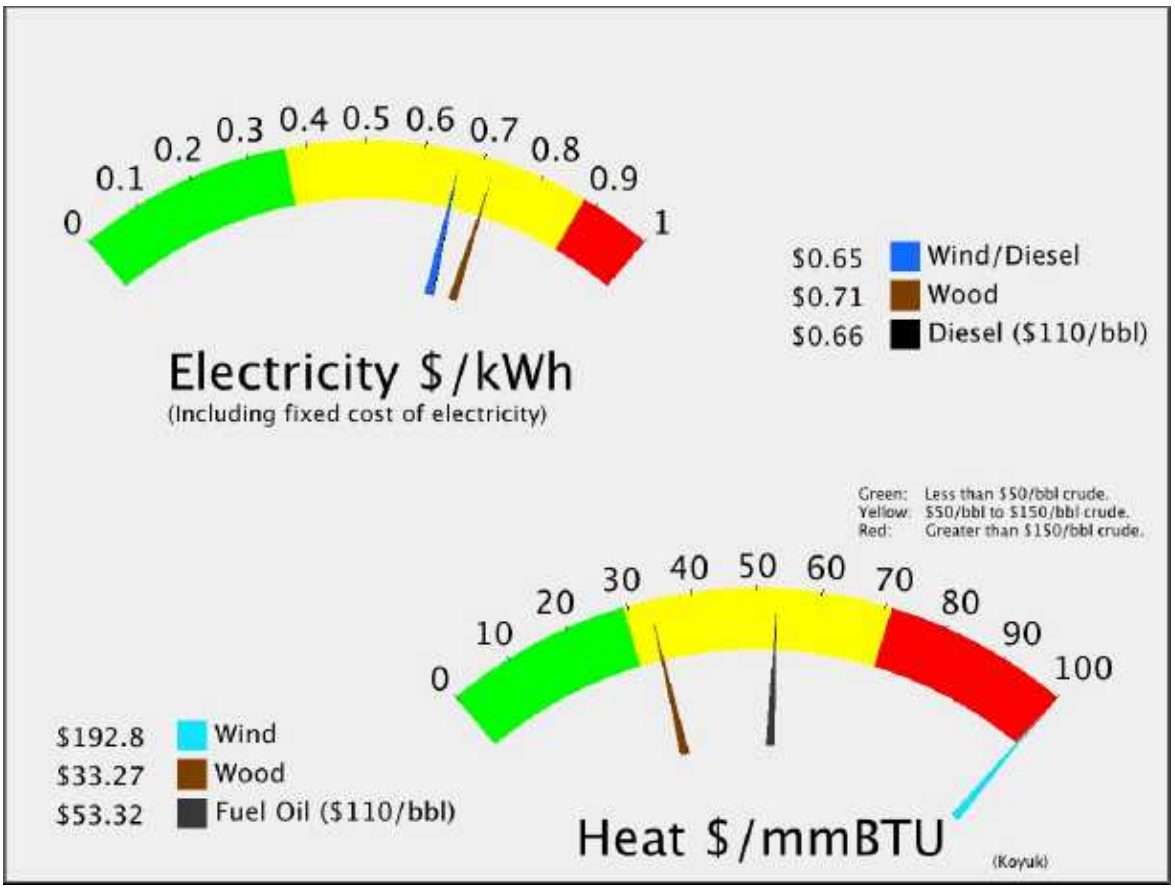
Total: **$4,639** Per capita

Heat **$1,687** Per capita

Transportation **$456** Per capita

Electricity: **$2,496** Per capita

POPULATION: 347



Koyuk

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 347 LATITUDE: 64d 56m N LONGITUDE: 161d 09m **Unorganized**

LOCATION Koyuk is located at the mouth of the Koyuk River, at the northeastern end of Norton Bay on the Seward Peninsula, 90 air miles northeast of Nome.

ECONOMY The Koyuk economy is based on subsistence, supplemented by limited part-time jobs. Unemployment is high. There is a small amount of commercial fishing, primarily for herring, and some income is derived from reindeer herding. Thirteen residents hold commercial fishing permits. The main sources of meat are fish, reindeer, seal, beluga whale and moose.

HISTORY The site of "Iyatayet" on Cape Denbigh to the south has traces of early man that are 6,000 to 8,000 years old. The villagers were historically nomadic. Lt. Zagoskin of the Russian Navy noted the village of "Kuynkhak-miut" here in 1842-44. A Western Union Telegraph expedition in 1865 found the village of "Konyukmute." Around 1900, the present townsite began to be populated, where supplies could easily be lightered to shore. Two boom towns grew up in the Koyuk region around 1914: Dime Landing and Haycock. The "Norton Bay Station," 40 miles upriver, was established to supply miners and residents in 1915. In addition to gold, coal was mined a mile upriver to supply steam ships and for export to Nome. The first school began in the church in 1915; the U.S. government built a school in Koyuk in 1928. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.89** /kw-hr

Current efficiency	**13.81**	kW-hr/gal	Fuel COE	**$0.38**	/kw-hr	Estimated Diesel OM	**$26,220**
Consumption in 200	**101,994**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$340,866**
Average Load	**150**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$498,944**
Estimated peak loa	**299.32**	kW	Total	**$0.66**		**Total Electric**	
Average Sales	**1,311,023**	kW-hours				**$866,031**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**99,353**	gal	
Fuel Oil:	**92%**	Estimated heating fuel cost/gallon	**$5.89**		
Wood:	**8%**	$/MMBtu delivered to user	**$53.44**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,922**	**$585,376**	

Transportation (Estimated)

Estimated Diesel: **26,884** gal Estimated cost **$5.89**

Total Transportation **$158,397**

Energy Total **$1,609,804**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **100,642**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$26,220**	$0.02	
New fuel cost	**$492,330**	$0.38	
Avg Non-Fuel Costs:	**$367,087**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings **$5,986**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, School

			Value
Water Jacket	**15,299**	gal	**$90,141**
Stack Heat	**0**	gal	**$0**

Capital cost	**$419,049**		
Annual ID	**$35,102**		
Annual OM	**$8,381**		
Total Annual costs	**$43,483**		
Heat cost	**$25.72**	$/MMBtu	

Savings **$46,658**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**300**			
kW-hr/year	**494635**			
Met Tower?	**yes**			
Homer Data?	**yes**			
Wind Class	**6**			
Avg wind speed	**4.01**	m/s		

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.33	$97.07
Annual OM	**$23,206**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$187,078**	$0.38	**$110.82**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.66**	
% Community energy		38%	
New Community COE (includes non-fuel and diesel costs)		**$0.65**	

Savings

$11,068

Alternative Energy Resources

Wood

Installed KW	**172**	
kW-hr/year	**1283390**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**1622**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,470,387**	per kW-hr	
Annual Capital	**$166,049**	$0.13	
Annual OM	**$156,316**	$0.12	
Fuel cost:	**$243,274**	$0.19	-90
Total Annual Cost	**$565,638**	$0.44	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.72**	
% Community energy		98%	
New Community COE (includes non-fuel and diesel costs)		**$0.70**	

Savings

($51,494)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	21.4%

Other Resources

Koyuk

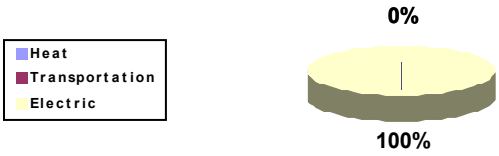
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	SOME POTENTIAL
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Koyukuk

Energy Used



Total:

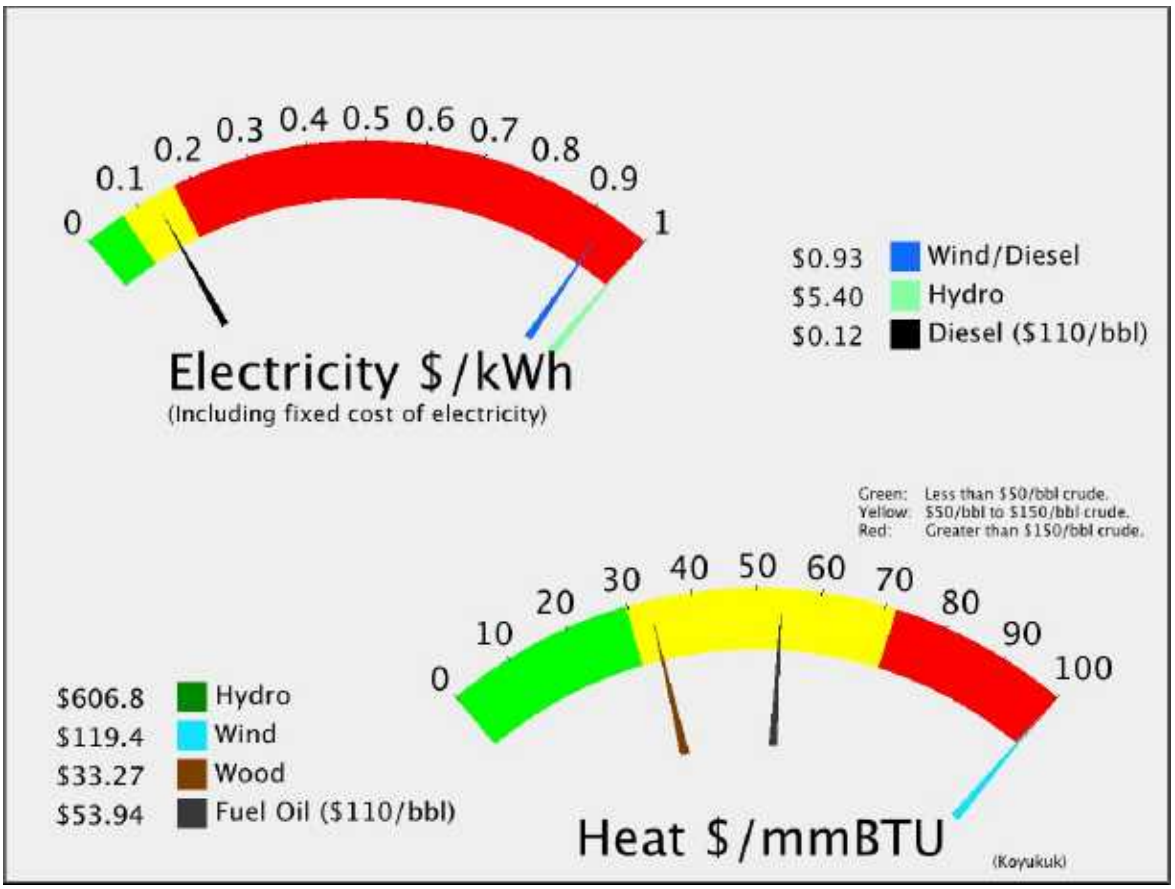
Per capita

Heat — Per capita

Transportation — Per capita

Electricity: **$208** — Per capita

POPULATION: 89



Koyukuk

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 89 LATITUDE: 64d 53m N LONGITUDE: 157d 42m **Unorganized**

LOCATION Koyukuk is located on the Yukon River near the mouth of the Koyukuk River, 30 miles west of Galena and 290 air miles west of Fairbanks. It lies adjacent to the Koyukuk National Wildlife Refuge and the Innoko National Wildlife Refuge.

ECONOMY There are few full-time jobs in the community; the city, tribe, clinic, school and store provide the only year-round employment. BLM fire fighting, construction work, and other seasonal jobs often conflict with subsistence opportunities. Two residents hold commercial fishing permits. Trapping and beadwork supplement incomes. Subsistence foods include salmon, whitefish, moose, waterfowl and berries.

HISTORY The Koyukon Athabascans traditionally had spring, summer, fall, and winter camps, and moved as the wild game migrated. There were 12 summer fish camps located on the Yukon River between the Koyukuk River and the Nowitna River. Friendships and trading between the Koyukon and Inupiat Eskimos of the Kobuk area has occurred for generations. A Russian trading post was established at nearby Nulato in 1838. A smallpox epidemic, the first of several major epidemics, struck the Koyukon in 1839. A military telegraph line was constructed along the north side of the Yukon around 1867, and Koyukuk became the site of a telegraph station. A trading post opened around 1880, just before the gold rush of 1884-85. The population of Koyukuk at this time was approximately 150. Missionary activity was intense along the Yukon, and a Roman Catholic Mission and school opened downriver in Nulato in 1887. A post office operated from 1898 to 1900. Steamboats on the Yukon, which supplied gold prospectors, peaked in 1900 with 46 boats in operation. A measles epidemic and food shortages during 1900 tragically reduced the Native population by one-third. Gold seekers left the Yukon after 1906, but other mining activity, such as the Galena lead mines, began operating in 1919. The first school was constructed in 1939. After the school was built, families began to live at Koyukuk year-round. The City was incorporated in 1973. The community has experienced severe flooding from both the Yukon and Koyukuk Rivers, and residents want to relocate.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.96** /kw-hr

Current efficiency	**11.50**	kW-hr/gal	Fuel COE	**$0.04**	/kw-hr	Estimated Diesel OM	**$3,285**
Consumption in 200	**1,328**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$11,132**
Average Load	**19**	kW	NF COE:	**$0.07**	/kw-hr	Current Fuel Costs	**$6,588**
Estimated peak loa	**37.495**	kW	Total	**$0.13**		**Total Electric**	**$21,005**
Average Sales	**164,226**	kW-hours					

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**15%**	Estimated heating fuel cost/gallon	**$5.96**	
Wood:	**85%**	$/MMBtu delivered to user	**$54.07**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$5.96**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **1,091**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$3,285**	$0.02	
New fuel cost	**$5,410**	$0.03	
Avg Non-Fuel Costs:	**$14,417**	$0.07	
New cost of electricity	**$0.45** per kW-hr		

Savings

$550

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**199**	gal	**$1,187**
Stack Heat	**0**	gal	**$0**

Capital cost	**$52,492**		
Annual ID	**$4,397**		
Annual OM	**$1,050**		
Total Annual costs	**$5,447**		
Heat cost	**$247.46**	$/MMBtu	

Savings

($4,259)

Alternative Energy Resources

Wood

Installed KW	**0**	
kW-hr/year	**0**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**0**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$0**	per kW-hr	
Annual Capital	**$0**	#Num!	
Annual OM	**$105,573**	#Div/0!	
Fuel cost:	**$0**	#Num!	-90
Total Annual Cost	**$105,573**	#Div/0!	**$29.76**
Non-Fuel Costs		$0.09	
Alternative COE:		**#Error**	
% Community energy		0%	
New Community COE (includes non-fuel and diesel costs)			

Savings

Alternative Energy Resources

Hydro

Installed KW	**157**	
kW-hr/year	**228581**	
Site	**E. Trib. Of Nulato River**	
Study plan effort	**reconnaissance**	
Plant Factor	**32**	%
Penetration	**0.52**	

			Heat Cost $/MMBtu :
Capital cost	**$15,104,250**	per kW-hr	
Annual Capital	**$681,390**	$2.98	$873.42
Annual OM	**$191,250**	$0.84	$245.15
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$872,640**	$3.82	**$1,118.57**
Non-Fuel Costs		$0.09	
Alternative COE:		**$3.91**	
% Community energy		139%	
New Community COE (includes non-fuel and diesel costs)		**$5.40**	

Savings

($851,635)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	
kW-hr/year	**433661**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**3**	
Avg wind speed	**6.40**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.27	$79.95
Annual OM	**$20,346**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,678**	$0.32	**$93.70**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.41**	
% Community energy		264%	
New Community COE (includes non-fuel and diesel costs)		**$0.93**	

Savings

($117,673)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	
Cords/day:	**1.8**		
Hours per year	**6000**		
Wood (cordwood or willows)	**$225**	$/cord	

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Koyukuk

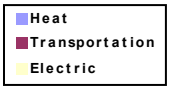
Tidal:	
Wave:	
Coal Bed Methane:	NO POSITIVE INDICATION OF POTENTIAL
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

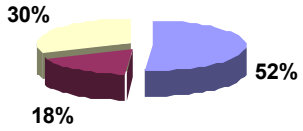
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kwethluk

Energy Used

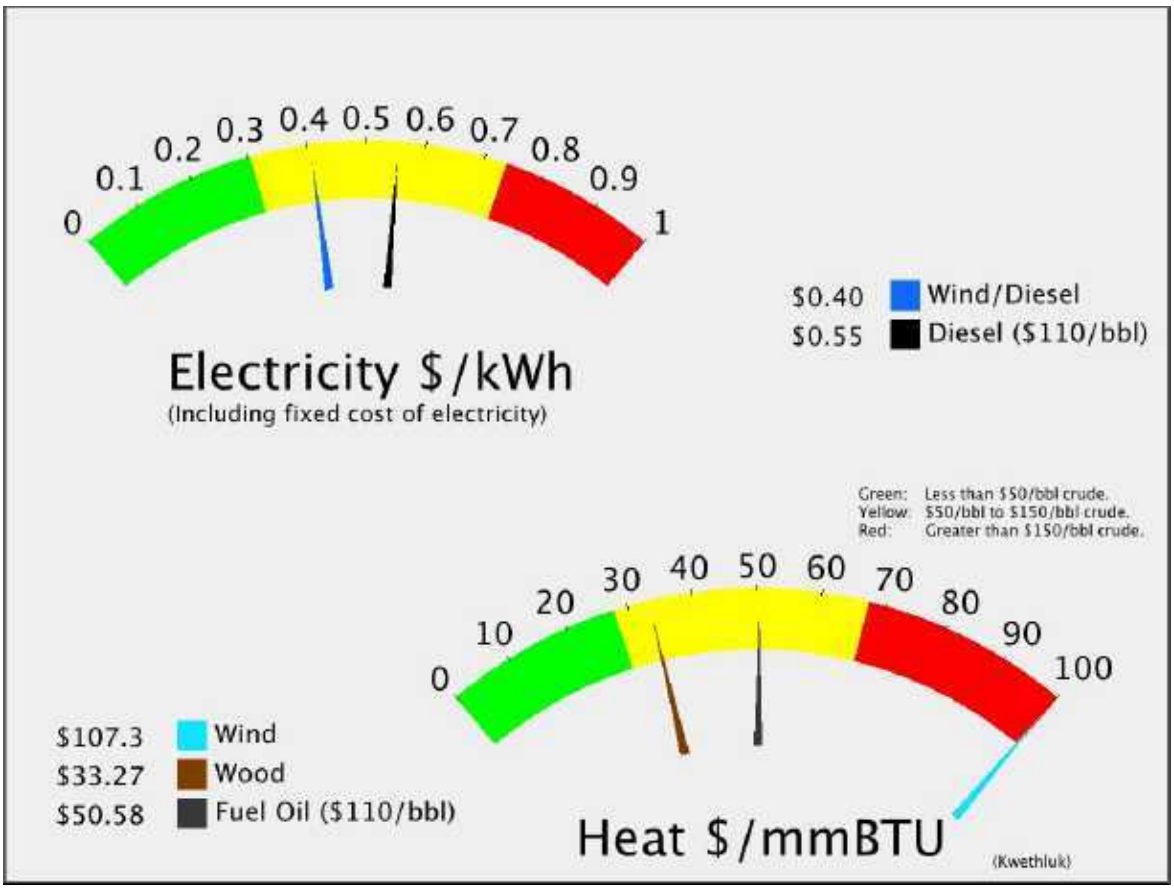




Total: **$2,989** Per capita

Heat	**$1,530**	Per capita
Transportation	**$547**	Per capita
Electricity:	**$911**	Per capita

POPULATION: 721



Kwethluk

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 721 LATITUDE: 60d 49m N LONGITUDE: 161d 26m **Unorganized**

LOCATION This is a Yup'ik community located 12 air miles east of Bethel on the Kwethluk River at its junction with the Kuskokwim. The village is the second largest along the Lower Kuskokwim River, following Bethel.

ECONOMY The largest employers are the school district, village corporation, store and health clinic. 61 residents hold commercial fishing permits. Subsistence activities play a central role in the lifestyle; salmon, moose and caribou are the staples of the diet. Seal meat and seal oil are obtained in trade with coastal relatives and neighbors. Most families travel to fish camps each summer.

HISTORY Archaeological evidence from a nearby site indicates that the area has been occupied since prehistoric times. The name Kwethluk is derived from "Kwikli," meaning "river." In the late 1800s, families from four villages on the Kwethluk River joined others living at the site. In 1889, an Eskimo lay worker for the Moravian Church was stationed at the village. A measles epidemic struck the village in the late 1890s. The Moravian Church built a chapel in 1896, followed by a Russian Orthodox Church in 1912. Discovery of gold in nearby creeks in 1909 attracted prospectors to the area, but the finds proved disappointing and most were gone by 1911. One placer deposit, discovered on the upper Kwethluk River, delivered a small yield and was worked until World War II. A Moravian orphanage was established three miles upriver. A BIA school with teacher's quarters was built in 1924. In 1939, the villagers owned 31,000 reindeers, used for food and skins. A tuberculosis epidemic at this time tragically reduced the population. A post office was established in 1947, and a Native-owned store opened in 1948. An airstrip was cleared in 1956. Snowmachines replaced dog teams in the 1960s as the principal form of winter transportation. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.59** /kw-hr

Current efficiency	**13.49**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Diesel OM	**$23,138**
Consumption in 200	**116,368**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$83,133**
Average Load	**132**	kW	NF COE:	**$0.07**	/kw-hr	Current Fuel Costs	**$534,083**
Estimated peak loa	**264.13**	kW	Total	**$0.55**		**Total Electric**	
Average Sales	**1,156,885**	kW-hours				**$640,354**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**197,388**	gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$5.59**		
Wood:	**9%**	$/MMBtu delivered to user	**$50.70**		**Total Heating Oil**
Electricity:	**5.2%**	Community heat needs in MMBtu	**23,687**		**$1,103,321**

Transportation (Estimated)

Estimated Diesel:	**70,612**	gal	Estimated cost	**$5.59**	**Total Transportation** **$394,690**

Energy Total **$2,138,365**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Construction**

Acheivable efficiency **14** kW-

New Fuel use **112,166**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.09	/kw-hr
Estimated Diesel OM	**$23,138**	$0.02	
New fuel cost	**$514,795**	$0.44	
Avg Non-Fuel Costs:	**$106,271**	$0.07	
New cost of electricity	**$0.51** per kW-hr		

Savings **($89,609)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**17,455**	gal	**$97,568**
Stack Heat	**0**	gal	**$0**

Capital cost	**$369,781**		
Annual ID	**$30,975**		
Annual OM	**$7,396**		
Total Annual costs	**$38,371**		
Heat cost	**$19.89**	$/MMBtu	

Savings **$59,197**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**
kW-hr/year	**907550**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**5**
Avg wind speed	**7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.65
Annual OM	**$42,579**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$249,036**	$0.27	**$80.40**
Non-Fuel Costs		$0.09	
Alternative COE:		**$0.37**	
% Community energy		78%	
New Community COE (includes non-fuel and diesel costs)		**$0.39**	

Savings

$188,058

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr
Cords/day:	**1.8**
Hours per year	**6000**
Wood (cordwood or willows)	**$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	10.8%

Other Resources

Kwethluk

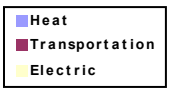
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

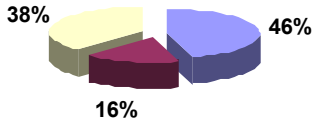
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Kwigillingok

Energy Used

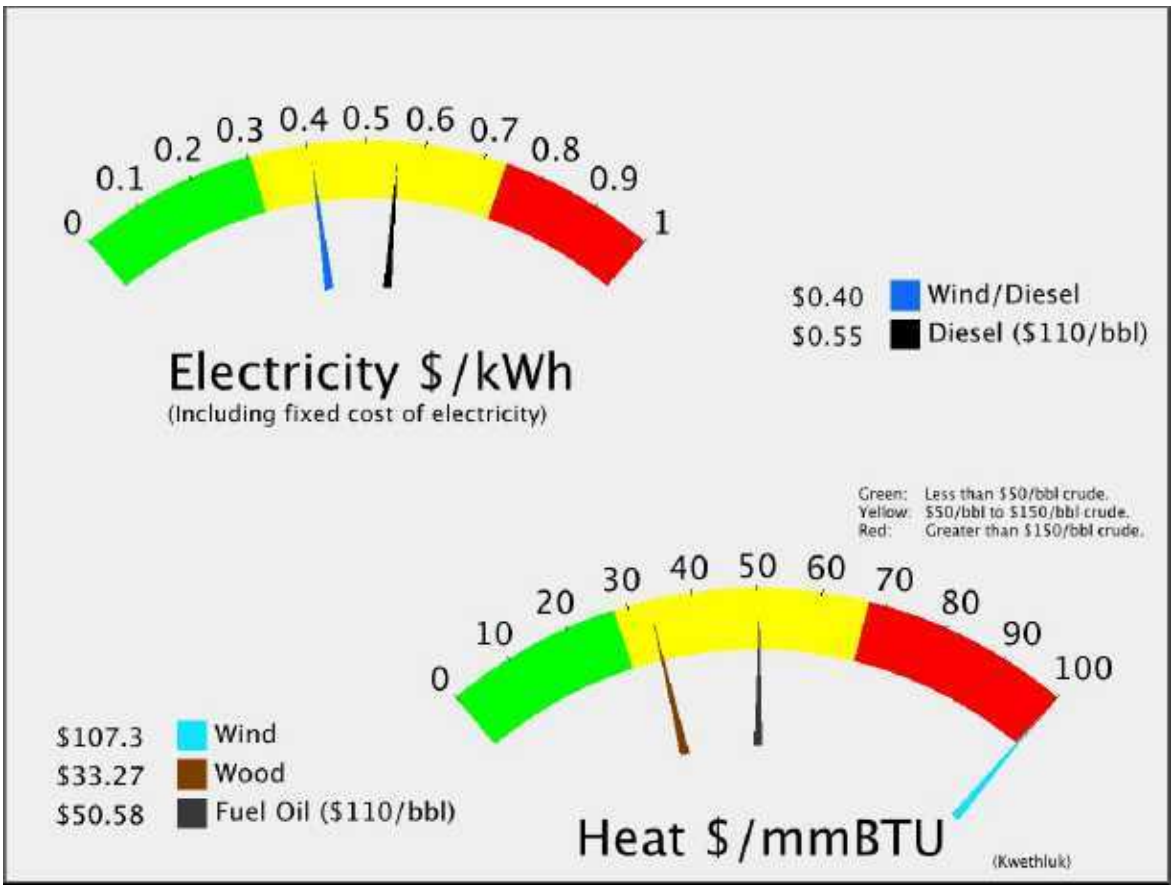




Total: **$3,153** Per capita

Heat	**$1,439**	Per capita
Transportation	**$515**	Per capita
Electricity:	**$1,200**	Per capita

POPULATION: 361



Kwigillingok

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 361 LATITUDE: 59d 51m N LONGITUDE: 163d 08m **Unorganized**

LOCATION Kwigillingok is on the western shore of Kuskokwim Bay near the mouth of the Kuskokwim River. It lies 77 miles southwest of Bethel and 388 miles west of Anchorage. The village of Kongiganak is nearby.

ECONOMY Most employment in Kwigillingok is with the school, village government, stores or commercial fishing. Income is supplemented by subsistence activities. 37 residents hold commercial fishing permits. A local arts and crafts cooperative markets local handicrafts; the village would like to expand the cooperative.

HISTORY The area has long been occupied by the Yup'ik Eskimos. The first record of the village was in 1927 on an Alaska map, when it was noted as Quillingok." A Moravian Church was established around 1920."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.45** /kw-hr

Current efficiency	**13.04**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$14,937**
Consumption in 200	**67,633**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$110,905**
Average Load	**85**	kW	NF COE:	**$0.15**	/kw-hr	Current Fuel Costs	**$301,231**
Estimated peak loa	**170.52**	kW	Total	**$0.57**		**Total Electric**	
Average Sales	**746,856**	kW-hours				**$427,073**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**95,251**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.45**		
Wood:	**3%**	$/MMBtu delivered to user	**$49.47**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,430**		**$519,491**

Transportation (Estimated)

Estimated Diesel:	**34,074**	gal	Estimated cost	**$5.45**	**Total Transportation**
					$185,837

Energy Total **$1,132,401**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Status

Acheivable efficiency	**14**	kW-	Capital cost	**$0**		
New Fuel use	**62,983**		Annual Capital cost	**$0**	$0.00 /kw-hr	
			Estimated Diesel OM	**$14,937**	$0.02	
			New fuel cost	**$280,520**	$0.38	**Savings**
			Avg Non-Fuel Costs:	**$125,843**	$0.15	**$20,711**
			New cost of electricity		**$0.49** per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**10,145**	gal	**$55,330**
Stack Heat	**0**	gal	**$0**

Capital cost	**$238,721**		
Annual ID	**$19,997**		
Annual OM	**$4,774**		
Total Annual costs	**$24,771**		**Savings**
Heat cost	**$22.10**	$/MMBtu	**$30,558**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **679248**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.17	
Alternative COE:		**$0.46**	
% Community energy		91%	
New Community COE		**$0.45**	

(includes non-fuel and diesel costs)

Savings

$91,785

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.3%

Other Resources

Kwigillingok

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

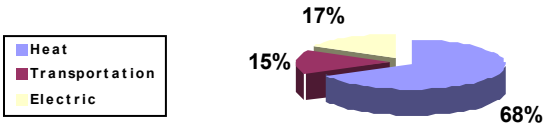
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kwigillingok Wind Farm Construction has been submitted by: Puvurnaq Power Company for a Wind Diesel Hybrid project. The total project budget is: $3,200,000 with $1,700,000 requested in grant funding and $1,500,000 as matching funds.

Larsen Bay

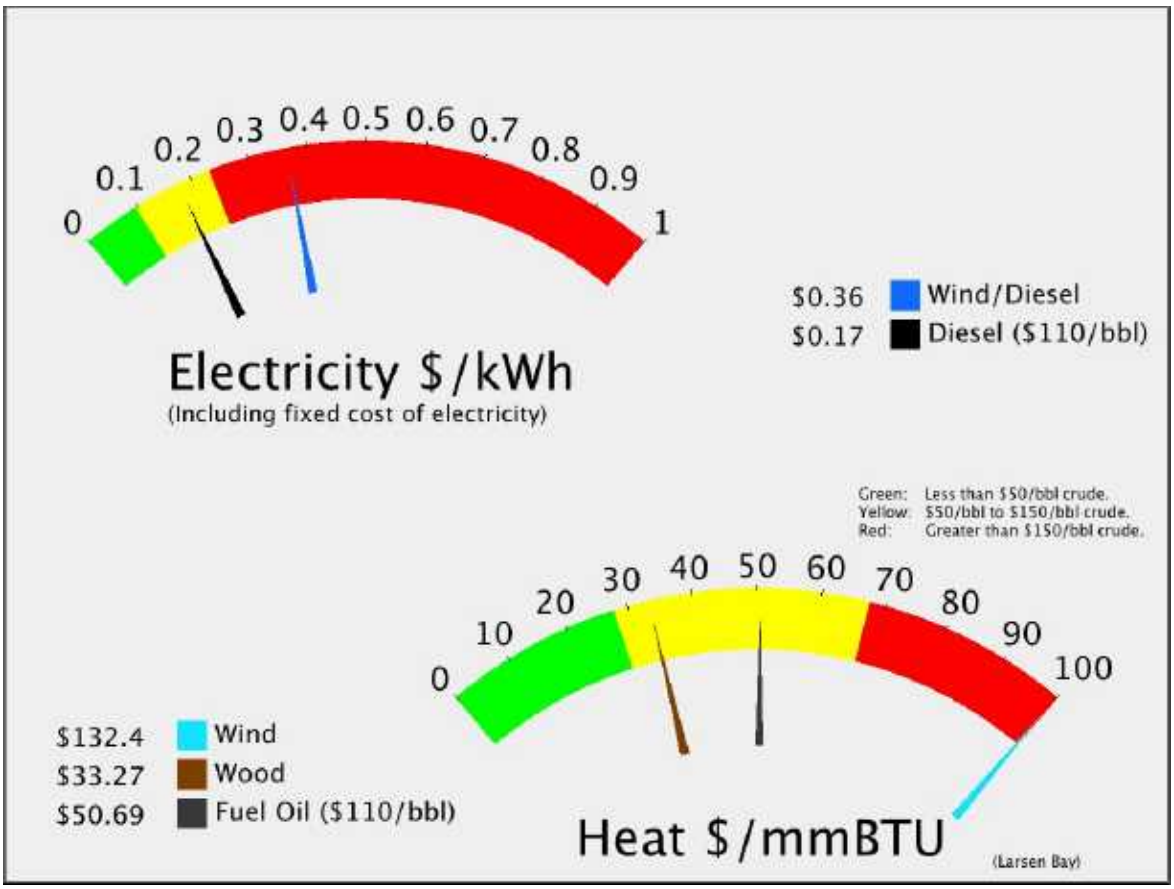
Energy Used



Total: **$5,965** Per capita

Heat	**$4,062**	Per capita
Transportation	**$886**	Per capita
Electricity:	**$1,017**	Per capita

POPULATION: 83



Larsen Bay

Regional Corporation
Koniag, Incorporated

House 36
Senate : **R**

POPULATION 83 LATITUDE: 57d 32m N LONGITUDE: 153d 58m **Kodiak Island Borough**

LOCATION Larsen Bay is located on Larsen Bay, on the northwest coast of Kodiak Island. It is 60 miles southwest of the City of Kodiak and 283 miles southwest of Anchorage.

ECONOMY The economy of Larsen Bay is primarily based on fishing. 17 residents hold commercial fishing permits. There are very few year-round employment positions. A large majority of the population depends on subsistence activities. Salmon, halibut, seal, sea lion, clams, crab and deer are utilized. Five lodges provide tourist guide service.

HISTORY The area is thought to have been inhabited for at least 2,000 years. Hundreds of artifacts have been uncovered in the area. Russian fur traders frequented the Island in the mid-1700s. The bay was named for Peter Larsen, an Unga Island furrier, hunter and guide. In the early 1800s, there was a tannery in Uyak Bay. The present-day Natives are Alutiiq (Russian-Aleuts). Alaska Packers Association built a cannery in the village in 1911. The City was incorporated in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.60** /kw-hr

Current efficiency	**10.16**	kW-hr/gal	Fuel COE	**$0.07**	/kw-hr	Estimated Diesel OM	**$11,265**
Consumption in 200	**9,051**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$45,928**
Average Load	**64**	kW	NF COE:	**$0.08**	/kw-hr	Current Fuel Costs	**$41,645**
Estimated peak loa	**128.59**	kW	Total	**$0.18**		**Total Electric**	
Average Sales	**563,228**	kW-hours					**$98,838**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**60,185**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.60**		
Wood:	**0%**	$/MMBtu delivered to user	**$50.80**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**7,222**		**$337,111**

Transportation (Estimated)

Estimated Diesel:	**13,132**	gal	Estimated cost	**$5.60**	**Total Transportation** **$73,552**

Energy Total **$509,501**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Design In Pro**

Acheivable efficiency **14** kW-

New Fuel use **6,569**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.19	/kw-hr
Estimated Diesel OM	**$11,265**	$0.02	
New fuel cost	**$30,224**	$0.05	
Avg Non-Fuel Costs:	**$57,193**	$0.08	
New cost of electricity	**$0.62** per kW-hr		

Savings **($97,475)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**1,358**	gal	**$7,604**
Stack Heat	**0**	gal	**$0**

Capital cost	**$180,027**		
Annual ID	**$15,080**		
Annual OM	**$3,601**		
Total Annual costs	**$18,681**		
Heat cost	**$124.52**	$/MMBtu	

Savings **($11,076)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **389605**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.99
Annual OM	**$18,279**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,611**	$0.35	**$102.74**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.45**	
% Community energy		69%	
New Community COE (includes non-fuel and diesel costs)		**$0.35**	

Savings

($99,978)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	35.3%

Other Resources

Larsen Bay

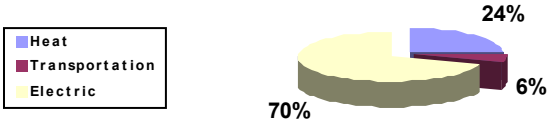
Tidal:	SOME POTENTIAL
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Levelock

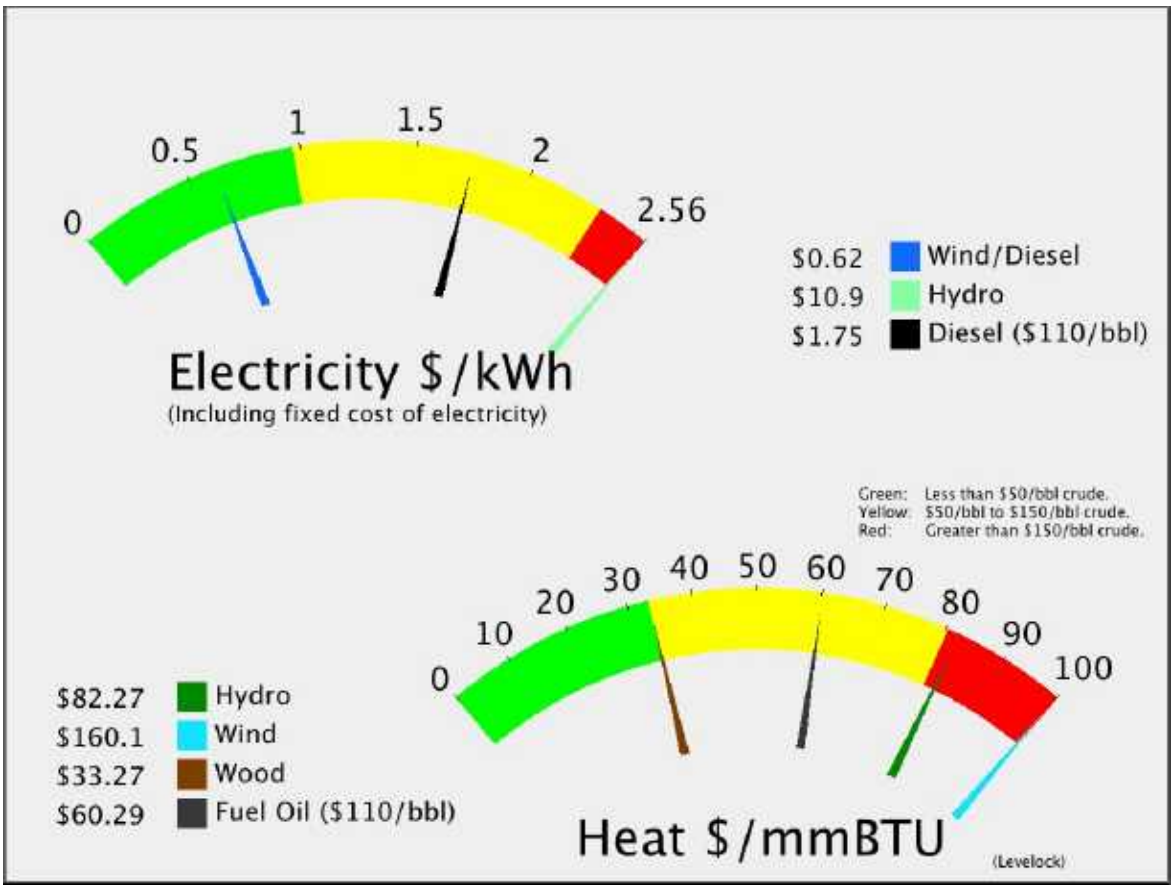
Energy Used



Total: $12,567 Per capita

Heat	**$3,062**	Per capita
Transportation	**$748**	Per capita
Electricity:	**$8,757**	Per capita

POPULATION: 71



Levelock

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 71 LATITUDE: 59d 07m N LONGITUDE: 156d 51m **Lake & Peninsula Borou**

LOCATION Levelock is located on the west bank of the Kvichak River, 10 miles inland from Kvichak Bay. It lies 40 miles north of Naknek and 278 air miles southwest of Anchorage. It is located near the Alagnak Wild and Scenic River Corridor.

ECONOMY Fifteen residents hold commercial fishing permits. Most travel to Naknek to fish or work in the canneries during the summer season. Several seasonal lodges operate in the area. The community relies upon subsistence activities for a large portion of its diet. Salmon, trout, moose, caribou and berries are harvested.

HISTORY Early Russian explorers reported the presence of Levelock, which they called "Kvichak." The smallpox epidemic of 1837 killed more than half of the residents of the Bristol Bay region, and left entire villages abandoned. Kvichak was mentioned during the 1890 census, although the population was not measured. A measles epidemic hit the region in 1900. A 1908 survey of Russian missions identified "Lovelock's Mission" at this site. The worldwide influenza epidemic in 1918-19 again devastated area villages. Koggiung Packers operated a cannery at Levelock in 1925-26. A large fire, attributed to a cannery worker's careless cigarette, threatened the entire village in 1926, but residents dug fire lines which saved their homes. The fire depleted the scarce wood resources used to heat homes. A second cannery operated from 1928-29. In 1930 the first school was built, and a post office was established in 1939. By this time, families had converted their homes to oil heat. Moose first appeared in the area in the 1930s. During the early 1950s, another cannery was in operation.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**9.03**	kW-hr/gal	Fuel COE	**$1.55**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.66**
Consumption in 200	**89,397**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,537**
Average Load	**37**	kW	NF COE:	**$0.18**	/kw-hr	Other Non-Fuel Costs:	**$59,977**
Estimated peak loa	**74.625**	kW	Total	**$1.75**		Current Fuel Costs	**$506,211**
Average Sales	**326,858**	kW-hours				**Total Electric**	**$572,725**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**32,626**	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$6.66**		
Wood:	**0%**	$/MMBtu delivered to user	**$60.43**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,915**		**$217,369**

Transportation (Estimated)

Estimated Diesel:	**7,973**	gal	Estimated cost	**$6.66**	**Total Transportation** **$53,119**

Energy Total **$843,213**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Design In Pro**

Acheivable efficiency **14** kW-

New Fuel use **57,659**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.03	/kw-hr
Estimated Diesel OM	**$6,537**	$0.02	
New fuel cost	**$326,492**	$1.00	
Avg Non-Fuel Costs:	**$66,514**	$0.18	
New cost of electricity	**$0.63** per kW-hr		

Savings **$171,342**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Rainbow Hall, School

			Value
Water Jacket	**13,410**	gal	**$89,341**
Stack Heat	**0**	gal	**$0**

Capital cost	**$104,475**		
Annual ID	**$8,752**		
Annual OM	**$2,090**		
Total Annual costs	**$10,841**		
Heat cost	**$7.32**	$/MMBtu	

Savings **$78,500**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **399589**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$86.77
Annual OM	**$18,747**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,080**	$0.34	**$100.51**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.55**	
% Community energy		122%	
New Community COE (includes non-fuel and diesel costs)		**$0.62**	

Savings
$435,645

Alternative Energy Resources

Hydro

Installed KW **10000**
kW-hr/year **340002**
Site **Alagnak River**
Study plan effort **reconnaissance**
Plant Factor **52** %
Penetration **1.06**

			Heat Cost $/MMBtu :
Capital cost	**$75,946,000**	per kW-hr	
Annual Capital	**$2,951,679**	$8.68	$2,543.64
Annual OM	**$571,500**	$1.68	$492.50
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$3,523,179**	$10.36	**$3,036.13**
Non-Fuel Costs		$0.20	
Alternative COE:		**$10.57**	
% Community energy		104%	
New Community COE (includes non-fuel and diesel costs)		**$10.98**	

Savings
($2,950,454)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	65.1%

Other Resources

Levelock

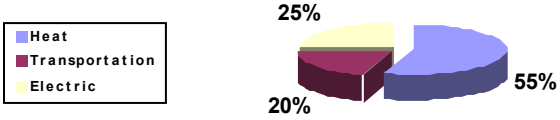
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Lime Village

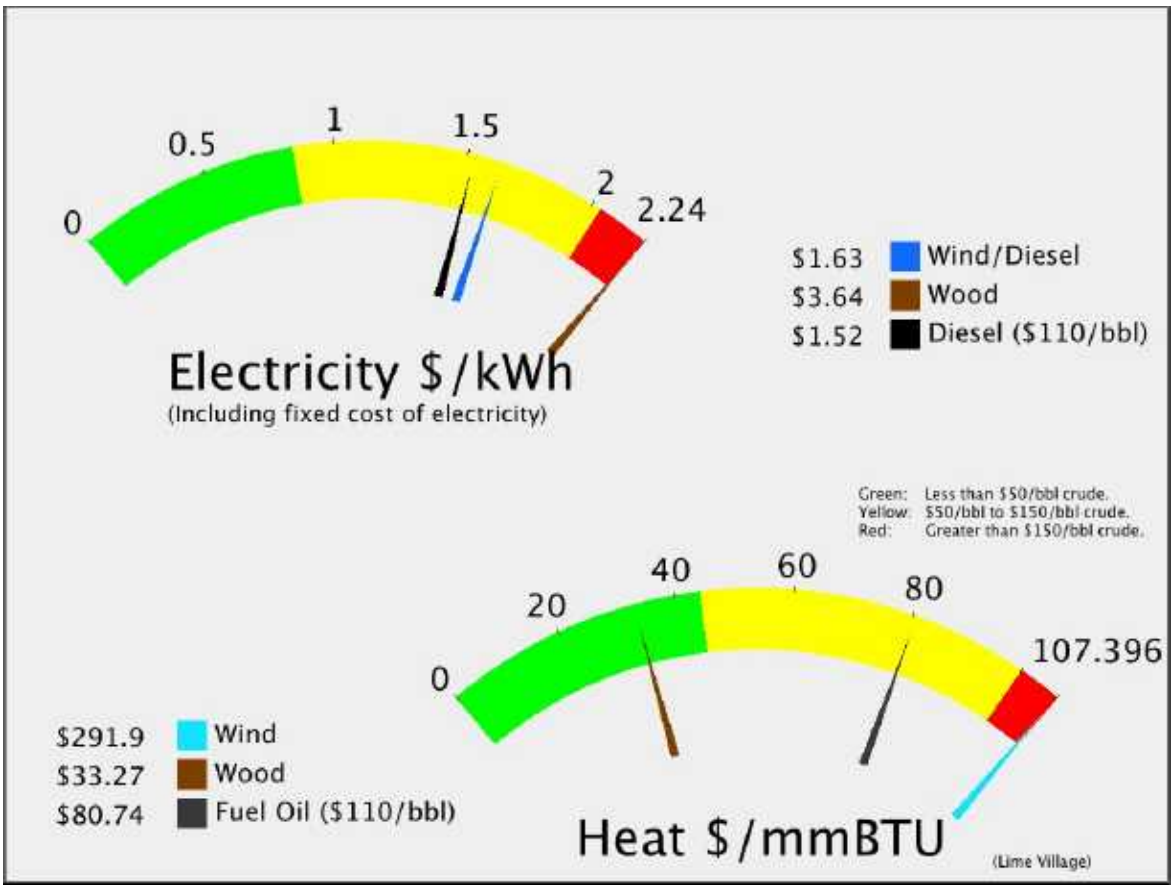
Energy Used



Total: $14,115 Per capita

Heat	**$7,778**	Per capita
Transportation	**$2,782**	Per capita
Electricity:	**$3,554**	Per capita

POPULATION: 26



Lime Village

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 26 LATITUDE: 61d 21m N LONGITUDE: 155d 28m **Unorganized**

LOCATION Lime Village is located on the south bank of the Stony River, 50 miles southeast of its junction with the Kuskokwim River. The village is 111 air miles south of McGrath, 137 miles east of Aniak, and 185 miles west of Anchorage.

ECONOMY Subsistence activities are essential. There is no store in Lime Village. Salmon, moose, bear, caribou, waterfowl and berries are utilized. Some seasonal work is found through BLM fire fighting or trapping. Income is primarily derived from public assistance programs.

HISTORY Lime Village was named for the nearby limestone hills. The earliest recorded settlement was in 1907, when Paul, Evan and Zacar Constantinoff were year-round residents. People from nearby Lake Clark used the area for a summer fish camp. The 1939 U.S. Census called the settlement "Hungry Village." A Russian Orthodox chapel, Saints Constantine and Helen, was built in 1960. A state school was constructed in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**9.87**	kW-hr/gal	Fuel COE	**$0.88**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$7.92**
Consumption in 200	**8,847**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$1,589**
Average Load	**9**	kW	NF COE:	**$0.63**	/kw-hr	Other Non-Fuel Costs:	**$49,874**
Estimated peak loa	**18.142**	kW	Total	**$1.53**		Current Fuel Costs	**$70,090**
Average Sales	**79,464**	kW-hours				**Total Electric**	**$121,553**

Space Heating (Estimated)

2000 Census Data	2008 Estimated Heating Fuel used:	**22,665**	gal	
Fuel Oil:	Estimated heating fuel cost/gallon	**$8.92**		
Wood:	$/MMBtu delivered to user	**$80.93**		**Total Heating Oil**
Electricity:	Community heat needs in MMBtu	**2,720**		**$202,230**

Transportation (Estimated)

Estimated Diesel:	**8,108**	gal	Estimated cost	**$8.92**	**Total Transportation**	**$72,344**

Energy Total **$396,127**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **6,240**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.13	/kw-hr
Estimated Diesel OM	**$1,589**	$0.02	
New fuel cost	**$49,437**	$0.62	
Avg Non-Fuel Costs:	**$51,463**	$0.63	
New cost of electricity	**$1.35** per kW-hr		

Savings **$10,183**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**1,327**	gal	**$11,841**
Stack Heat	**0**	gal	**$0**

Capital cost	**$25,399**		
Annual ID	**$2,128**		
Annual OM	**$508**		
Total Annual costs	**$2,636**		
Heat cost	**$17.97**	$/MMBtu	

Savings **$9,205**

Alternative Energy Resources

Wood

Installed KW **13**

kW-hr/year **98498**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **124** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,641,512**	per kW-hr	
Annual Capital	**$110,335**	$1.12	
Annual OM	**$109,467**	$1.11	
Fuel cost:	**$18,671**	$0.19	-90
Total Annual Cost	**$238,474**	$2.42	**$29.76**
Non-Fuel Costs		$0.65	
Alternative COE:		**$3.07**	
% Community energy		124%	
New Community COE		**$3.65**	

(includes non-fuel and diesel costs)

Savings

($116,921)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**

kW-hr/year **224572**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.30	$88.49
Annual OM	**$10,536**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$78,359**	$0.35	**$102.24**
Non-Fuel Costs		$0.65	
Alternative COE:		**$1.00**	
% Community energy		283%	
New Community COE		**$1.63**	

(includes non-fuel and diesel costs)

Savings

$43,194

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	93.8%

Other Resources

Lime Village

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

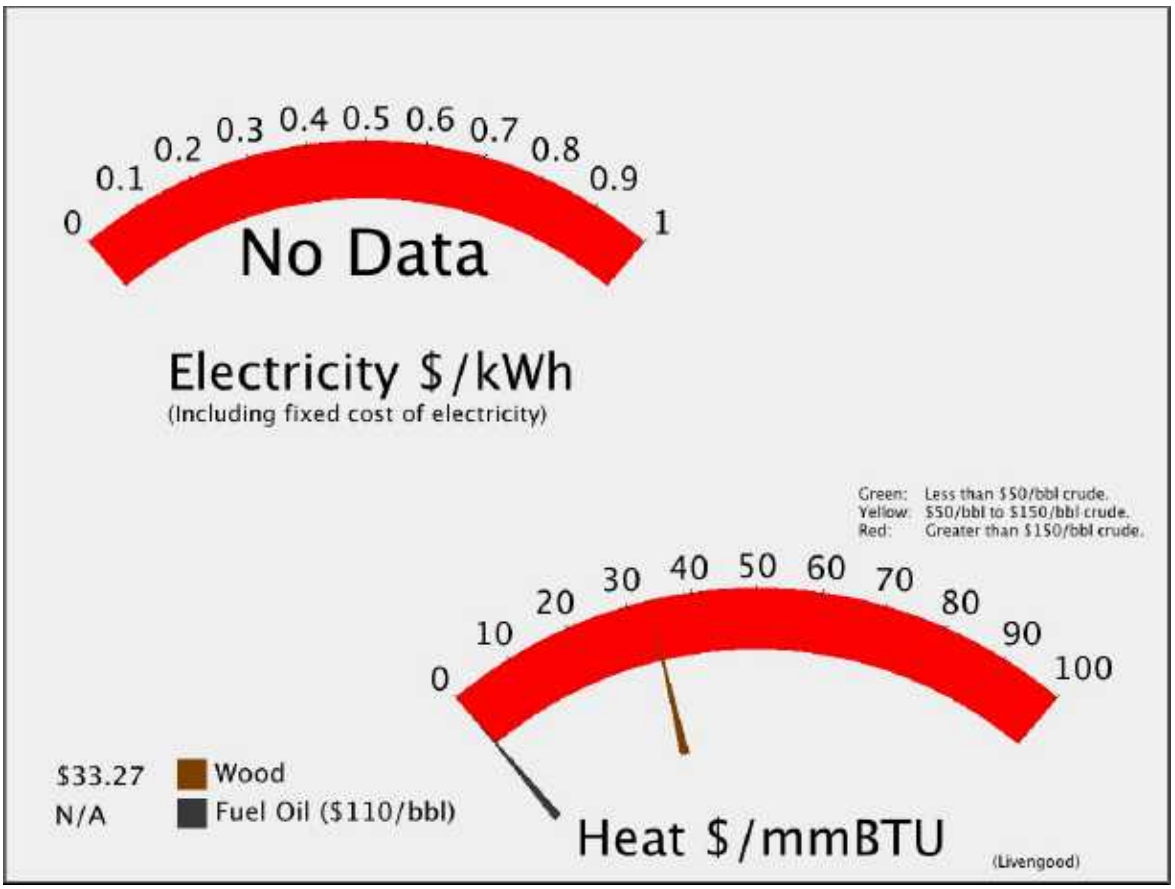
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Livengood

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	17
Transportation	Per capita		
Electricity:	Per capita		



Livengood

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 17 LATITUDE: 65d 31m N LONGITUDE: 148d 32m **Unorganized**

LOCATION Livengood lies 50 miles northwest of Fairbanks on the Dalton Highway, at its junction with the Elliott Highway.

ECONOMY Year-round employment is limited. Some residents are retired. The highway provides some roadside service opportunities.

HISTORY Gold was discovered on July 24, 1914, on Livengood Creek by N.R. Hudson and Jay Livengood. The village was founded near their claim as a mining camp during the winter of 1914-15, when hundreds of people came into the district. A post office was established in 1915 and was discontinued in 1957.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **454253**
Met Tower? **no**
Homer Data? **yes**
Wind Class **6**
Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.33
Annual OM	**$21,312**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,644**	$0.31	**$90.07**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Livengood

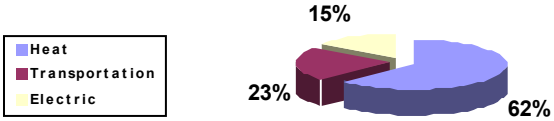
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Lower Kalskag

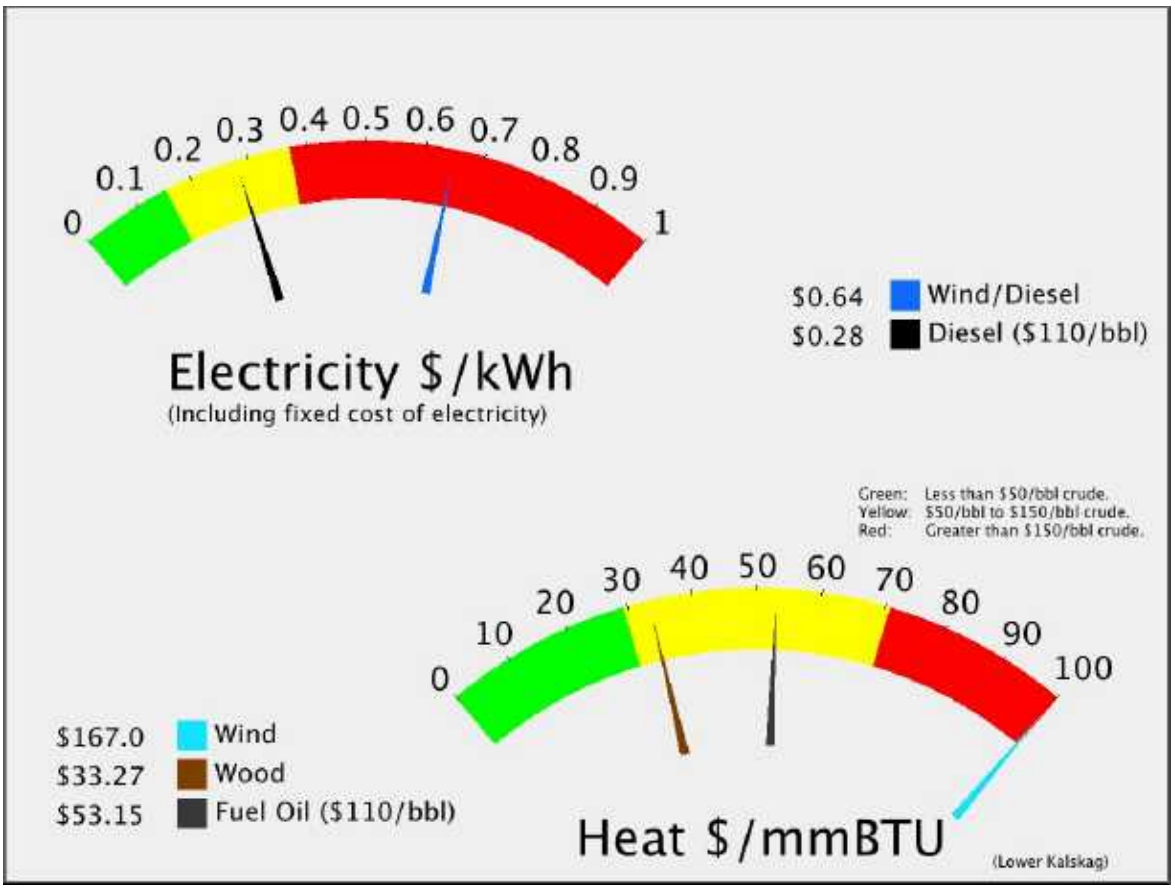
Energy Used



Total: **$3,889** Per capita

Heat	**$2,448**	Per capita
Transportation	**$876**	Per capita
Electricity:	**$565**	Per capita

POPULATION: 253



Lower Kalskag

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 253 LATITUDE: 61d 30m N LONGITUDE: 160d 21m **Unorganized**

LOCATION Lower Kalskag is located on the north bank of the Kuskokwim River, 2 miles downriver from Kalskag. It lies 26 miles west of Aniak, 89 miles northeast of Bethel, and 350 miles west of Anchorage.

ECONOMY Lower Kalskag's economy is predominantly based on subsistence activities. Salmon, moose, black bear, porcupine and waterfowl are utilized. Year-round employment is limited to the school district, AVCP, YKHC, and the Village of Lower Kalskag. Three residents hold commercial fishing permits. DNR and BLM fire fighting can provide seasonal income.

HISTORY The site was originally used as a fish camp for families of Kalskag, two miles to the northeast. In 1930, people began to establish year-round homes. The Russian Orthodox residents of Kalskag, a predominantly Roman Catholic village, moved to Lower Kalskag in the 1930s because of religious differences. The Russian Orthodox Chapel of St. Seraphim was built in 1940. A school was built in 1959, followed by a post office in 1962, a sawmill in 1965, and a power plant in 1969. A new church was built in the late 1970s. The City of Lower Kalskag was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.87** /kw-hr

Current efficiency	**13.60**	kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$10,572**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$137,435**
Average Load	**60**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**120.68**	kW	Total	**$0.28**		**Total Electric**	
Average Sales	**528,597**	kW-hours				**$148,007**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**105,436**	gal	
Fuel Oil:	**83%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**17%**	$/MMBtu delivered to user	**$53.28**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,652**		**$619,333**

Transportation (Estimated)

Estimated Diesel:	**37,718**	gal	Estimated cost	**$5.87**	**Total Transportation**
					$221,553

Energy Total **$988,894**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **0**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$10,572**	$0.02	
New fuel cost	**$0**	$0.00	
Avg Non-Fuel Costs:	**$148,007**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings

($628)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**0**	gal	**$0**
Stack Heat	**0**	gal	**$0**

Capital cost	**$168,958**	
Annual ID	**$14,153**	
Annual OM	**$3,379**	
Total Annual costs	**$17,532**	
Heat cost	**#Div/0!** $/MMBtu	

Savings

($17,532)

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr	Heat Cost $/MMBtu :
kW-hr/year			Annual Capital			
Installation Type	**Wood ORC**		Annual OM			
Electric Wood cost	**$150/cd**		Fuel cost:			-90
Wood Required		Cd/Y	Total Annual Cost			**$29.76**
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs	$0.28		
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**300**		Capital cost	**$2,438,000**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**673716**		Annual Capital	**$163,872**	$0.24	$71.27
Met Tower?	**no**		Annual OM	**$31,608**	$0.05	$13.75
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00	
Wind Class	**7**		Total Annual Cost	**$195,480**	$0.29	**$85.01**
Avg wind speed	**8.50**	m/s	Non-Fuel Costs		$0.28	
			Alternative COE:		**$0.57**	**Savings**
			% Community energy		127%	
			New Community COE (includes non-fuel and diesel costs)		**$0.65**	**($47,473)**

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	20.2%

Other Resources

Lower Kalskag

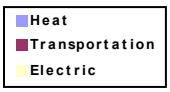
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

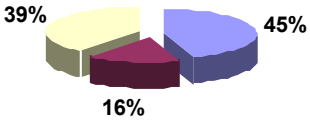
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Manley Hot Springs

Energy Used





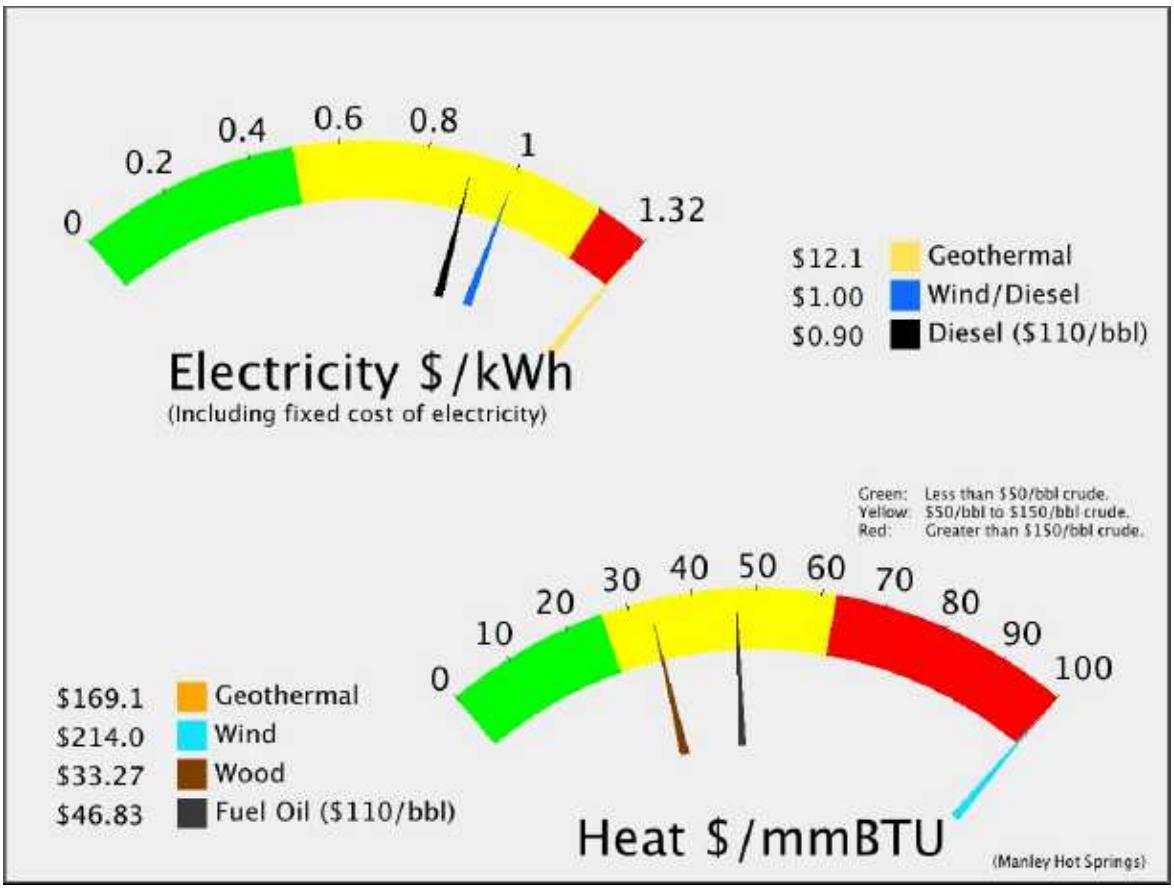
Total: **$7,294** Per capita

Heat **$3,254** Per capita

Transportation **$1,176** Per capita

Electricity: **$2,864** Per capita

POPULATION: 72



Manley Hot Springs

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 72 LATITUDE: 65d 00m N LONGITUDE: 150d 38m **Unorganized**

LOCATION Manley Hot Springs is located about 5 miles north of the Tanana River on Hot Springs Slough, at the end of the Elliott Highway, 160 road miles west of Fairbanks.

ECONOMY The local economy is based on a wide variety of small businesses, with many residents having 3 or 4 means of income. The Tribe operates the clinic. The Manely Roadhouse is open during summer months. A barter system thrives between residents. Government employment accounts for about one quarter of the total. Nine residents hold commercial fishing permits. Gardening, hunting and fishing provide food sources. Salmon and moose provide the primary meat sources.

HISTORY In 1902 John Karshner, a mining prospector, claimed several hot springs and began a homestead and vegetable farm on 278 acres. At the same time, a U.S. Army telegraph station and trading post were built. The area became a service and supply point for miners in the Eureka and Tofty Mining Districts, and was known as Baker's Hot Springs, after nearby Baker Creek. In 1903, Sam's Rooms and Meals, now called the Manley Roadhouse, opened in the community. Ambitious farming and livestock operations in the area produced fresh meat, poultry and produce for sale. In 1907, miner Frank Manley built the Hot Springs Resort Hotel. The resort was a large four-story building with 45 guest rooms, steam heat, electric lights, hot baths, bar, restaurant, billiard room, bowling alley, barber shop and an Olympic-size indoor swimming pool which used heated water from the hot springs. During the summer, the hotel's private launch transported guests from steamers on the Tanana River. In the winter, an overland stagecoach trip from Fairbanks took two days. Due to the resort and area mining, the town of "Hot Springs" prospered with an Alaska Commercial Company store, a local newspaper, bakery, clothing stores and other businesses. Local estimates of the area's population in 1910 was more than 500. In 1913, this thriving resort burned to the ground. Mining was also declining and by 1920 only 29 residents lived in Hot Springs. The name was changed to Manley Hot Springs in 1957. A small school re-opened in 1958. In 1959, completion of the Elliott Highway gave Manley a road link with Fairbanks during the summer. In 1982, the state began maintaining the Highway for year-round use. A new resort with a small swimming pool opened in 1985, but closed in 1997.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.65**	kW-hr/gal	Fuel COE	**$0.49**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.17**
Consumption in 200	**27,741**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$4,706**
Average Load	**27**	kW	NF COE:	**$0.39**	/kw-hr	Other Non-Fuel Costs:	**$91,981**
Estimated peak loa	**53.717**	kW	Total	**$0.90**		Current Fuel Costs	**$115,808**
Average Sales	**235,282**	kW-hours				**Total Electric**	**$212,495**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**45,278**	gal	
Fuel Oil:	**54%**	Estimated heating fuel cost/gallon	**$5.17**		
Wood:	**46%**	$/MMBtu delivered to user	**$46.93**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,433**		**$234,298**

Transportation (Estimated)

Estimated Diesel:	**16,358**	gal	Estimated cost	**$5.17**	**Total Transportation** **$84,645**

Energy Total **$531,437**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **21,096**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.04	/kw-hr
Estimated Diesel OM	**$4,706**	$0.02	
New fuel cost	**$88,066**	$0.37	
Avg Non-Fuel Costs:	**$96,687**	$0.39	
New cost of electricity	**$0.74** per kW-hr		

Savings **$19,365**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Store, Garage, Hangar

			Value
Water Jacket	**4,161**	gal	**$21,532**
Stack Heat	**0**	gal	**$0**

Capital cost	**$75,204**		
Annual ID	**$6,300**		
Annual OM	**$1,504**		
Total Annual costs	**$7,804**		
Heat cost	**$16.97**	$/MMBtu	

Savings **$13,729**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **433880**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.27	$79.91
Annual OM	**$20,356**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,688**	$0.32	**$93.66**
Non-Fuel Costs		$0.41	
Alternative COE:		**$0.73**	
% Community energy		184%	
New Community COE		**$1.00**	

(includes non-fuel and diesel costs)

Savings
$73,806

Alternative Energy Resources

Geothermal

Installed KW **2000**
kW-hr/year **16644000**
Site Name **Manley - Deep**
Project Capatcity **375+gpm**
Shallow Resource **0** Feet
Shallow Temp **60.00** C

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$28,500,000**		
Annual Capital	**$1,915,648**	$0.12	$33.72
Annual OM	**$855,000**	$0.05	$15.05
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,770,648**	$0.17	**$48.77**
Non-Fuel Costs		$0.41	
Alternative COE:		**$0.58**	
% Community energy		7074%	
New Community COE		**$12.19**	

(includes non-fuel and diesel costs)

Savings
($2,558,153)

Alternative Energy Resources

Geothermal

Installed KW **1000**
kW-hr/year **8322000**
Site Name **Manley - Shallow**
Project Capatcity **375+gpm**
Shallow Resource **0** Feet
Shallow Temp **60.00** C

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$28,500,000**		
Annual Capital	**$1,915,648**	$0.23	$67.45
Annual OM	**$855,000**	$0.10	$30.10
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,770,648**	$0.33	**$97.55**
Non-Fuel Costs		$0.41	
Alternative COE:		**$0.74**	
% Community energy		3537%	
New Community COE		**$12.19**	

(includes non-fuel and diesel costs)

Savings
($2,558,153)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	46.9%

Other Resources

Manley Hot Springs

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

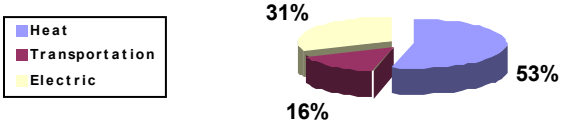
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Manley Village Council Geothermal has been submitted by: Manley Village Council for a Geothermal project. The total project budget is: $187,361 with $144,107 requested in grant funding and $43,254 as matching funds.

Manokotak

Energy Used



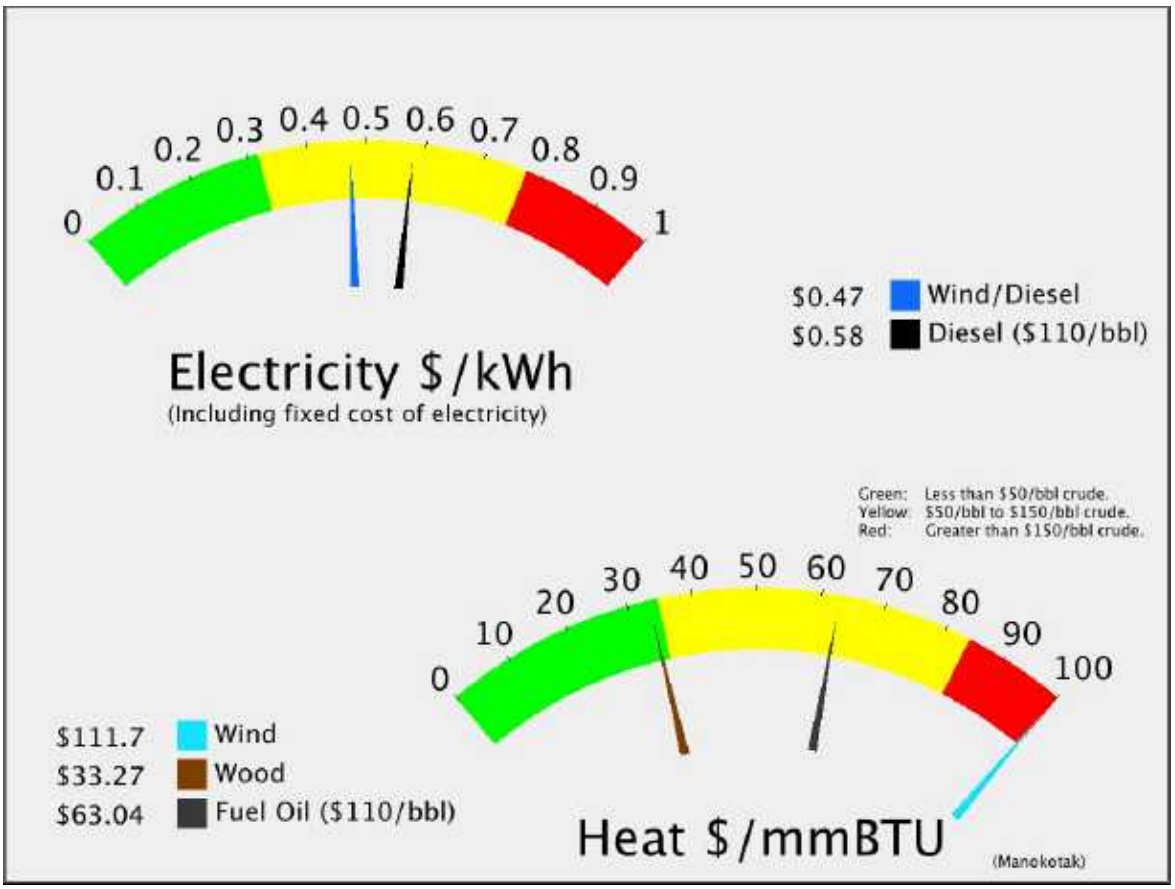
Total: **$5,108** Per capita

Heat **$2,732** Per capita

Transportation **$802** Per capita

Electricity: **$1,573** Per capita

POPULATION: 431



Manokotak

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 431 LATITUDE: 58d 58m N LONGITUDE: 159d 03m **Unorganized**

LOCATION Manokotak is located 25 miles southwest of Dillingham on the Igushik River. It lies 347 miles southwest of Anchorage.

ECONOMY 96 residents hold commercial fishing permits for salmon and herring fisheries. Many residents also trap fox, beaver, mink and otter. Most villagers leave Manokotak during the fishing season. Everyone depends heavily on fishing and subsistence activities, and usually move to Igushik or Ekuk each summer. Salmon, herring, sea lion, beluga whale, trout, ptarmigan, duck and berries are harvested. Sharing relationships exist with several area villages, especially Togiak and Twin Hills. The government provides 83% of the employment in the area.

HISTORY Manokotak is one of the newer villages in the Bristol Bay region. It became a permanent settlement in 1946-47 with the consolidation of the villages of Igushik and Tuklung. People also migrated from Kulukak, Togiak and Aleknagik. Igushik is now used as a summer fish camp by many of the residents of Manokotak. School was conducted in a church constructed in 1949. A school was built in 1958-59. A post office was established in 1960. Trapping has been an attractive lure to the area, although it has declined since the 1960s. The City was incorporated in 1970. Manokotak is the fourth most poplulated village in the Dillingham census area.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.97** /kw-hr

Current efficiency	**6.12**	kW-hr/gal	Fuel COE	**$0.52**	/kw-hr	Estimated Diesel OM	**$22,497**
Consumption in 200	**97,618**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$47,715**
Average Load	**128**	kW	NF COE:	**$0.04**	/kw-hr	Current Fuel Costs	**$582,467**
Estimated peak loa	**256.82**	kW	Total	**$0.58**		**Total Electric**	
Average Sales	**1,124,852**	kW-hours				**$652,679**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**169,019**	gal	
Fuel Oil:	**98%**	Estimated heating fuel cost/gallon	**$6.97**		
Wood:	**0%**	$/MMBtu delivered to user	**$63.19**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**20,282**		**$1,177,519**

Transportation (Estimated)

Estimated Diesel:	**49,617**	gal	Estimated cost	**$6.97**	**Total Transportation**
					$345,670

Energy Total **$2,175,867**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Status

Acheivable efficiency	**14**	kW-	Capital cost	**$0**		
New Fuel use	**42,649**		Annual Capital cost	**$0**	$0.00 /kw-hr	
			Estimated Diesel OM	**$22,497**	$0.02	
			New fuel cost	**$254,478**	$0.23	**Savings**
			Avg Non-Fuel Costs:	**$70,212**	$0.04	**$327,990**
			New cost of electricity		**$0.49** per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**14,643**	gal	**$102,013**
Stack Heat	**0**	gal	**$0**

Capital cost	**$359,542**		
Annual ID	**$30,118**		
Annual OM	**$7,191**		
Total Annual costs	**$37,308**		**Savings**
Heat cost	**$23.06**	$/MMBtu	**$64,704**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **602593**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.27	$79.68
Annual OM	**$28,271**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$192,143**	$0.32	**$93.43**
Non-Fuel Costs		$0.06	
Alternative COE:		**$0.38**	
% Community energy		54%	
New Community COE		**$0.46**	

(includes non-fuel and diesel costs)

Savings

$131,929

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.6%

Other Resources

Manokotak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

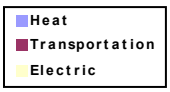
Propane:

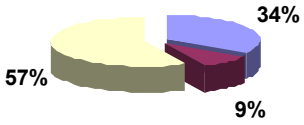
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Marshall

Energy Used





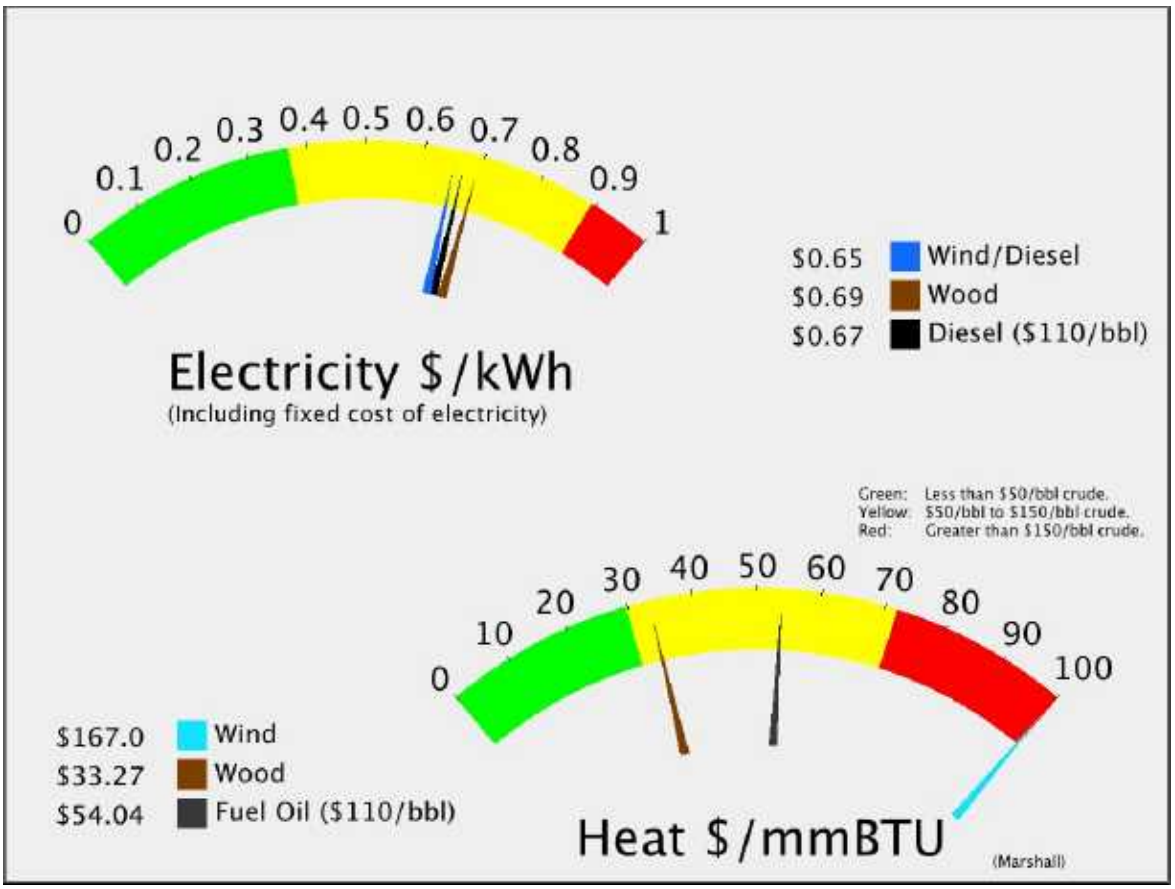
Total: **$3,548** Per capita

Heat **$1,194** Per capita

Transportation **$327** Per capita

Electricity: **$2,026** Per capita

POPULATION: 388



Marshall

Regional Corporation
Calista Corporation

House 6
Senate : **C**

POPULATION 388 LATITUDE: 61d 53m N LONGITUDE: 162d 05m **Unorganized**

LOCATION Marshall is located on the north bank of Polte Slough, north of Arbor Island, on the east bank of the Yukon River in the Yukon-Kuskokwim Delta. It lies on the northeastern boundary of the Yukon Delta National Wildlife Refuge.

ECONOMY Marshall has a seasonal economy with most activity during the summer. Fishing, fish processing and BLM fire fighting positions are available seasonally. 39 residents hold commercial fishing permits. Subsistence activities supplement income. Salmon, moose, bear, and waterfowl are harvested. Trapping provides some income.

HISTORY An expedition came upon an Eskimo village at this site in 1880, called "Uglovaia." Gold was discovered on nearby Wilson Creek in 1913. "Fortuna Ledge" became a placer mining camp, named after the first child born at the camp, Fortuna Hunter. Its location on a channel of the Yukon River was convenient for riverboat landings. A post office was established in 1915, and the population grew to over 1,000. Later the village was named for Thomas Riley Marshall, Vice President of the United States under Woodrow Wilson from 1913-21. The community became known as "Marshall's Landing." When the village incorporated as a second-class city in 1970, it was named Fortuna Ledge, but was commonly referred to as Marshall. The name was officially changed to Marshall in 1984.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.97** /kw-hr

Current efficiency	**13.91**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$22,317**
Consumption in 200	**87,685**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$290,127**
Average Load	**127**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$435,952**
Estimated peak loa	**254.77**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**1,115,874**	kW-hours				**$748,397**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**77,602**	gal	
Fuel Oil:	**88%**	Estimated heating fuel cost/gallon	**$5.97**		
Wood:	**12%**	$/MMBtu delivered to user	**$54.16**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,312**		**$463,421**

Transportation (Estimated)

Estimated Diesel:	**21,264**	gal	Estimated cost	**$5.97**	**Total Transportation** **$126,986**

Energy Total **$1,338,804**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **87,125**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.10	/kw-hr
Estimated Diesel OM	**$22,317**	$0.02	
New fuel cost	**$433,169**	$0.39	
Avg Non-Fuel Costs:	**$312,445**	$0.26	
New cost of electricity	**$0.73** per kW-hr		

Savings **($106,113)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**13,153**	gal	**$78,546**
Stack Heat	**0**	gal	**$0**

Capital cost	**$356,672**		
Annual ID	**$29,877**		
Annual OM	**$7,133**		
Total Annual costs	**$37,011**		
Heat cost	**$25.47**	$/MMBtu	

Savings **$41,535**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**300**		
kW-hr/year	**673716**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**7**		
Avg wind speed	**8.50**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.27
Annual OM	**$31,608**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,480**	$0.29	**$85.01**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		60%	
New Community COE		**$0.60**	

(includes non-fuel and diesel costs)

Savings

$81,171

Alternative Energy Resources

Wood

Installed KW	**149**	
kW-hr/year	**1108057**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**1400**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,348,588**	per kW-hr	
Annual Capital	**$157,862**	$0.14	
Annual OM	**$149,383**	$0.13	
Fuel cost:	**$210,038**	$0.19	-90
Total Annual Cost	**$517,284**	$0.47	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.75**	
% Community energy		99%	
New Community COE		**$0.73**	

(includes non-fuel and diesel costs)

Savings

($62,182)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	27.4%

Other Resources

Marshall

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

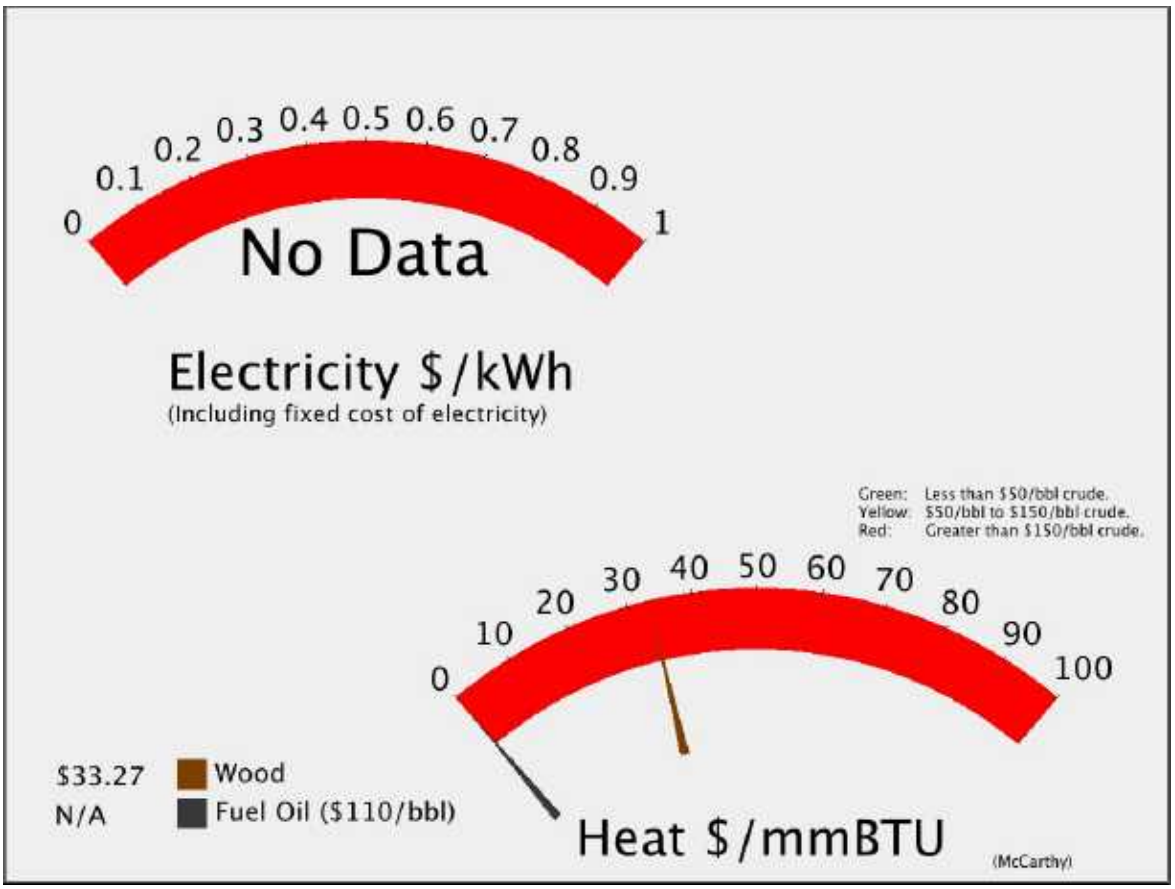
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Marshall Wood Fired Boiler_Ohogamiut Traditional Council has been submitted by: Ohogamiut Traditional Council for a Biofuels project. The total project budget is: $357,152 with $339,452 requested in grant funding and $17,700 as matching funds.

McCarthy

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	54
Transportation	Per capita		
Electricity:	Per capita		



McCarthy

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 54 LATITUDE: 61d 26m N LONGITUDE: 142d 55m **Unorganized**

LOCATION McCarthy lies 61 miles east of Chitina off the Edgerton Highway. It is on the Kennicott River at the mouth of McCarthy Creek, 12 miles northeast of the junction of the Nizina and Chitina Rivers, in the heart of the Wrangell-St. Elias National Park and Preserve.

ECONOMY Employment is limited and seasonal. Local businesses include lodges, a museum, a small store, gift shop, and guide services.

HISTORY The Kennecott copper mines and camp were established about 1908 across from the Kennicott Glacier, 4.5 miles up the mountain from McCarthy. An early misspelling named the mine and mining company Kennecott, while the town, river and glacier are spelled Kennicott. In 1911, the Copper River & Northwestern Railway carried its first car load of ore from Kennecott to Cordova. Since no gambling or drinking were allowed at the town of Kennicott, nearby McCarthy developed as a colorful diversion for the miners. It provided a newspaper, stores, hotels, restaurants, saloons, a red light district, housing over 800 residents. Kennicott became a company town with homes, a school, hospital, gym, tennis court and silent movie theater. Over its 30-year operation, $200 million in ore was extracted from Kennecott, the richest concentration of copper ore known in the world. In 1938, the mines closed and both towns were abandoned.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **396087**
Met Tower? **no**
Homer Data? **yes**
Wind Class **5**
Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.30	$87.53
Annual OM	**$18,583**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,915**	$0.35	**$101.28**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

McCarthy

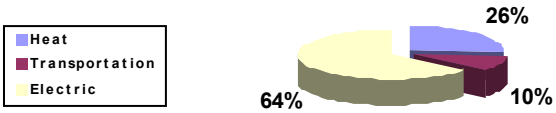
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal: COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

McGrath

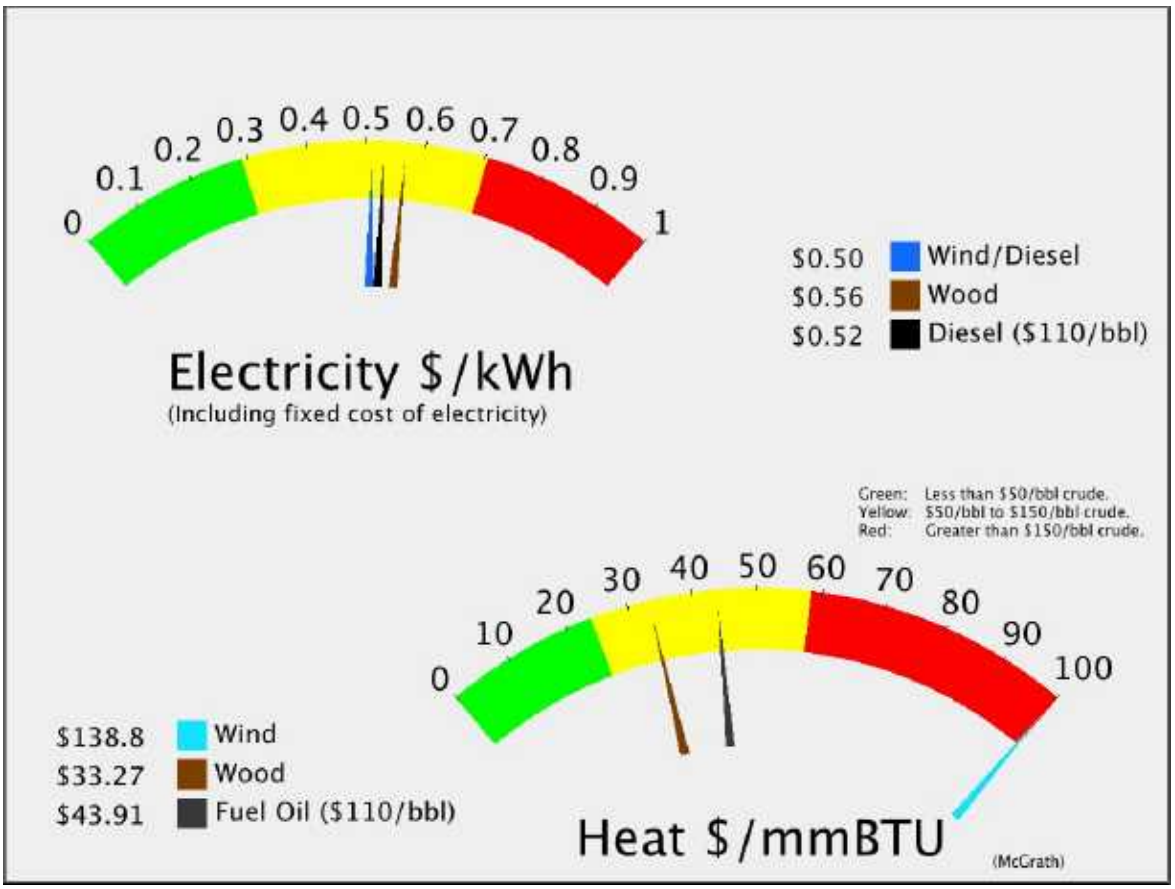
Energy Used



Total: **$5,624** Per capita

Heat	**$1,481**	Per capita
Transportation	**$535**	Per capita
Electricity:	**$3,608**	Per capita

POPULATION: 315



McGrath

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 315 LATITUDE: 62d 57m N LONGITUDE: 155d 35m **Unorganized**

LOCATION McGrath is located 221 miles northwest of Anchorage and 269 miles southwest of Fairbanks in Interior Alaska. It is adjacent to the Kuskokwim River directly south of its confluence with the Takotna River.

ECONOMY McGrath functions as a transportation, communications, and supply center in Interior Alaska. It has a diverse cash economy, and many families rely upon subsistence. Salmon, moose, caribou, bear, and rabbits are utilized. Some residents trap and tend gardens. The Nixon Fork gold mine, located 30 miles northeast of McGrath, ceased operating due to low gold prices.

HISTORY McGrath was a seasonal Upper Kuskokwim Athabascan village which was used as a meeting and trading place for Big River, Nikolai, Telida and Lake Minchumina residents. The Old Town McGrath site, was originally located across the river. In 1904, Abraham Appel established a trading post at the old site. In 1906, gold was discovered in the Innoko District, and at Ganes Creek in 1907. Since McGrath is the northernmost point on the Kuskokwim River accessible by large riverboats, it became a regional supply center. By 1907, a town was established, and was named for Peter McGrath, a local U.S. Marshal. In 1909, the Alaska Commercial Company opened a store. The Iditarod Trail also contributed to McGrath's role as a supply center. From 1911 to 1920, hundreds of people walked and mushed over the Trail on their way to the Ophir gold districts. Mining sharply declined after 1925. After a major flood in 1933, some residents decided to move to the south bank of the River. Changes in the course of the River eventually left the old site on a slough, useless as a river stop. In 1937, the Alaska Commercial Company opened a store at the new location. In 1940, an airstrip was cleared, the FAA built a communications complex, and a school was opened. McGrath became an important refueling stop during World War II, as part of the Lend-Lease Program between the U.S. and Russia. In 1964, a new high school was built, attracting boarding students from nearby villages. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$3.85** /kw-hr

Current efficiency	**13.34**	kW-hr/gal	Fuel COE	**$0.33**	/kw-hr	Estimated Diesel OM	**$50,653**
Consumption in 200	**216,145**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$456,424**
Average Load	**289**	kW	NF COE:	**$0.18**	/kw-hr	Current Fuel Costs	**$832,763**
Estimated peak loa	**578.23**	kW	Total	**$0.53**		**Total Electric**	
Average Sales	**2,532,642**	kW-hours				**$1,339,840**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**96,150**	gal	
Fuel Oil:	**54%**	Estimated heating fuel cost/gallon	**$4.85**		
Wood:	**43%**	$/MMBtu delivered to user	**$44.01**		**Total Heating Oil**
Electricity:	**1.4%**	Community heat needs in MMBtu	**11,538**		**$466,599**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **34,736** gal Estimated cost **$4.85** **$168,569**

Energy Total **$1,975,008**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **195,491**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.00	/kw-hr
Estimated Diesel OM	**$50,653**	$0.02	
New fuel cost	**$753,190**	$0.30	
Avg Non-Fuel Costs:	**$507,077**	$0.18	
New cost of electricity	**$0.46** per kW-hr		

Savings

$71,197

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

FAA

			Value
Water Jacket	**32,422**	gal	**$157,336**
Stack Heat	**0**	gal	**$0**

Capital cost	**$809,520**		
Annual ID	**$67,811**		
Annual OM	**$16,190**		
Total Annual costs	**$84,001**		
Heat cost	**$23.45**	$/MMBtu	

Savings

$73,335

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		
kW-hr/year	**909776**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**4**		
Avg wind speed	**7.00**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.49
Annual OM	**$42,683**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$249,141**	$0.27	**$80.24**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.47**	
% Community energy		36%	
New Community COE		**$0.50**	

(includes non-fuel and diesel costs)

Savings

$68,259

Alternative Energy Resources

Wood

Installed KW	**349**	
kW-hr/year	**2599465**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**3285**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$3,375,163**	per kW-hr	
Annual Capital	**$226,864**	$0.09	
Annual OM	**$208,351**	$0.08	
Fuel cost:	**$492,743**	$0.19	-90
Total Annual Cost	**$927,958**	$0.36	**$29.76**
Non-Fuel Costs		$0.20	
Alternative COE:		**$0.56**	
% Community energy		103%	
New Community COE		**$0.57**	

(includes non-fuel and diesel costs)

Savings

$411,883

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	22.1%

Other Resources

McGrath

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: McGrath Biomass Feasibility has been submitted by: McGrath Traditional Council for a Biomass project. The total project budget is: $43,940 with $34,740 requested in grant funding and $9,200 as matching funds.

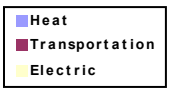
A project titled: McGrath Central Wood Heating Construction has been submitted by: McGrath Power and Light for a Biomass project. The total project budget is: $4,005,000 with $3,052,000 requested in grant funding and $953,000 as matching funds.

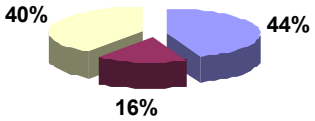
A project titled: McGrath District Heat_MPL has been submitted by: McGrath Power and Light for a Biomass project.The total project budget is: $1,590,092 with $822,950 requested in grant funding and $767,142 as matching funds.

A project titled: McGrath Heat Recovery Construction has been submitted by: McGrath Light & Power, Co. For a Heat Recovery project. The total project budget is: $991,815 with $824,815 requested in grant funding and $167,000 as matching funds.

Mekoryuk

Energy Used





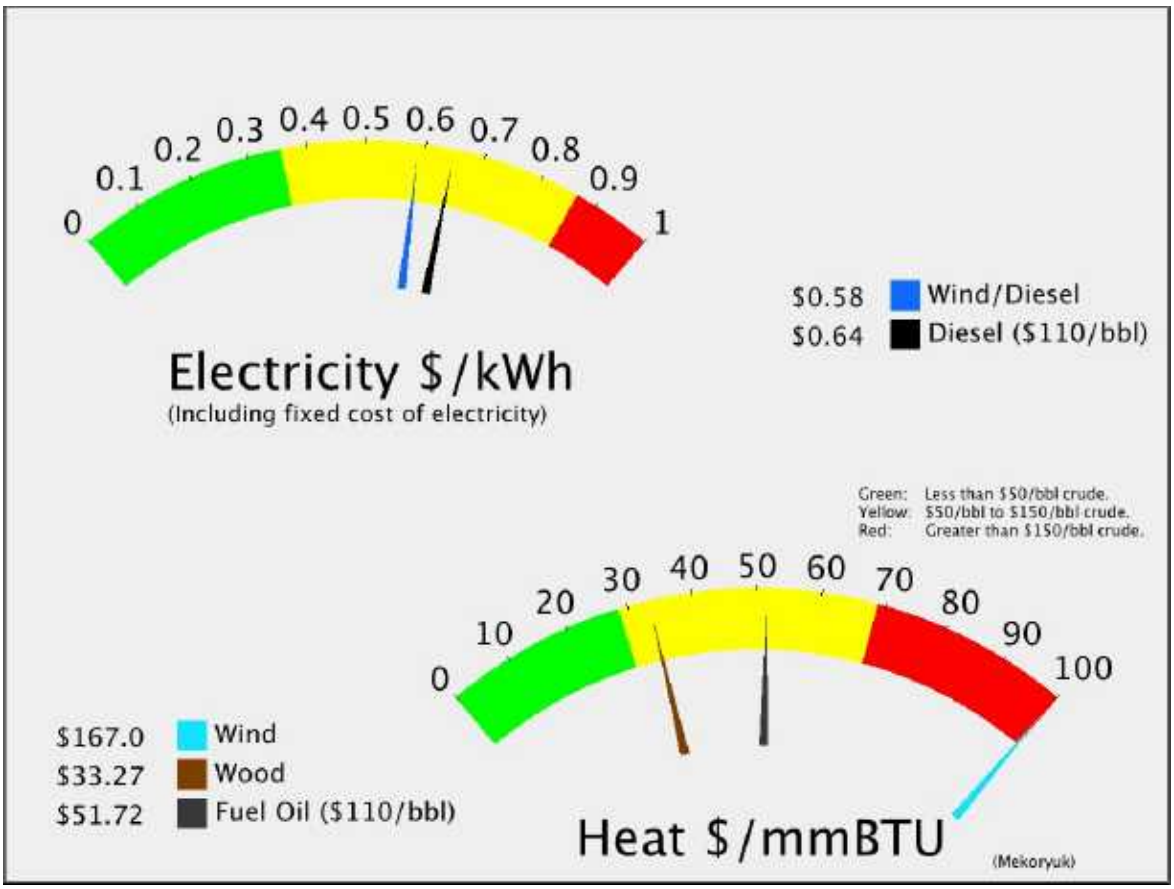
Total: **$6,954** Per capita

Heat **$3,059** Per capita

Transportation **$1,094** Per capita

Electricity: **$2,801** Per capita

POPULATION: 208



Mekoryuk

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 208 LATITUDE: 60d 23m N LONGITUDE: 166d 11m **Unorganized**

LOCATION Mekoryuk is at the mouth of Shoal Bay on the north shore of Nunivak Island in the Bering Sea. The Island lies 30 miles off the coast. It is 149 air miles west of Bethel and 553 miles west of Anchorage. Mekoryuk is part of the Yukon Delta National Wildlife Refuge.

ECONOMY Employment by the school, City, village corporation, commercial fishing, construction and service industries prevails. The Bering Sea Reindeer Products Co. is a major employer. Trapping and Native crafts, such as knitting qiviut (musk ox underwool), provide income to many families. 55 residents hold commercial fishing permits, primarily for halibut and herring roe. Coastal Villages Seafood, Inc. processes halibut and salmon in Mekoryuk. Almost all families engage in subsistence activities and most have fish camps. Salmon, reindeer, seal meat and oil are important staples.

HISTORY Nunivak Island has been inhabited for 2,000 years by the Nuniwarmiut people, or Cup'ik (Choop'ik) Eskimos. The first outside contact was in 1821 by the Russian American Company, who recorded 400 people living in 16 villages on the Island. A summer camp called "Koot" was noted at the current site of Mekoryuk in 1874. In 1891, Ivan Petroff found 702 Eskimos in 9 villages, including 117 people at "Koot." An epidemic in 1900 decimated the population, leaving only four surviving families in the village. In the 1930s, the Evangelical Covenant Church was built by an Eskimo missionary, followed by a BIA school in 1939. People moved to the village from other areas of the Island to be near the school. Reindeer were introduced for commercial purposes in 1920 by an Eskimo-Russian trader. The operation was purchased by the BIA in the 1940s and a slaughterhouse was constructed in 1945. The reindeer were crossed with caribou from Denali Park; the resulting animals are larger and harder to handle than other reindeer in the state. 34 musk-ox from Greenland were transferred to the Island in 1934 in an effort to save the species from extinction. Today, the musk-ox herd numbers around 500, and calves from this herd have been relocated and introduced to other areas of Alaska. A post office was opened in 1940. In the 1940s, the women lived in semi-subterranean sod houses and the men stayed at one or more "kasigi", or men's community houses. At that time, traditional ceremonies and religious beliefs were still practiced. The 50s and 60s brought considerable change. An airstrip was built in 1957, and the Territorial Guard was formed. Men went to Fort Richardson near Anchorage for training. By this time, Mekoryuk was the only permanent community on the Island. During this time, many families moved to Bethel to be near the high school, returning during late Spring for fishing and sea mammal hunting. The City was incorporated in 1969. A high school was constructed in 1978.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.72** /kw-hr

Current efficiency	**13.90**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$17,530**
Consumption in 200	**68,647**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$227,891**
Average Load	**100**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$323,739**
Estimated peak loa	**200.11**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**876,503**	kW-hours				**$569,160**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**111,318**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.72**		
Wood:	**0%**	$/MMBtu delivered to user	**$51.84**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,358**		**$636,292**

Transportation (Estimated)

Estimated Diesel: **39,822** gal Estimated cost **$5.72**

Total Transportation **$227,620**

Energy Total **$1,433,073**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **68,176**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.29	/kw-hr
Estimated Diesel OM	**$17,530**	$0.02	
New fuel cost	**$321,517**	$0.37	
Avg Non-Fuel Costs:	**$245,421**	$0.26	
New cost of electricity		**$0.90**	per kW-hr

Savings **($249,078)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse, Living Quarters			Value
Water Jacket	**10,297**	gal	**$58,858**
Stack Heat	**0**	gal	**$0**

Capital cost **$280,161**

Annual ID **$23,468**

Annual OM **$5,603**

Total Annual costs **$29,071**

Heat cost **$25.55** $/MMBtu

Savings **$29,787**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **673716**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.27
Annual OM	**$31,608**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,480**	$0.29	**$85.01**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		77%	
New Community COE		**$0.57**	

(includes non-fuel and diesel costs)

Savings

$66,801

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat 19.1%

Other Resources

Mekoryuk

Tidal:

Wave:

Coal Bed Methane: NO POSITIVE INDICATION OF POTENTIAL

Natural Gas:

Coal: SOME POTENTIAL

Propane:

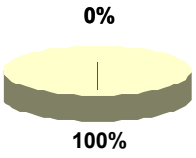
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Mekoryuk Wind Farm Construction has been submitted by: Alaska Village Electric Cooperative for a Wind Diesel Hybrid project. The total project budget is: $3,506,406 with $3,155,765 requested in grant funding and $350,641 as matching funds.

Mentasta Lake

Energy Used



Total:

Per capita

Heat

Per capita

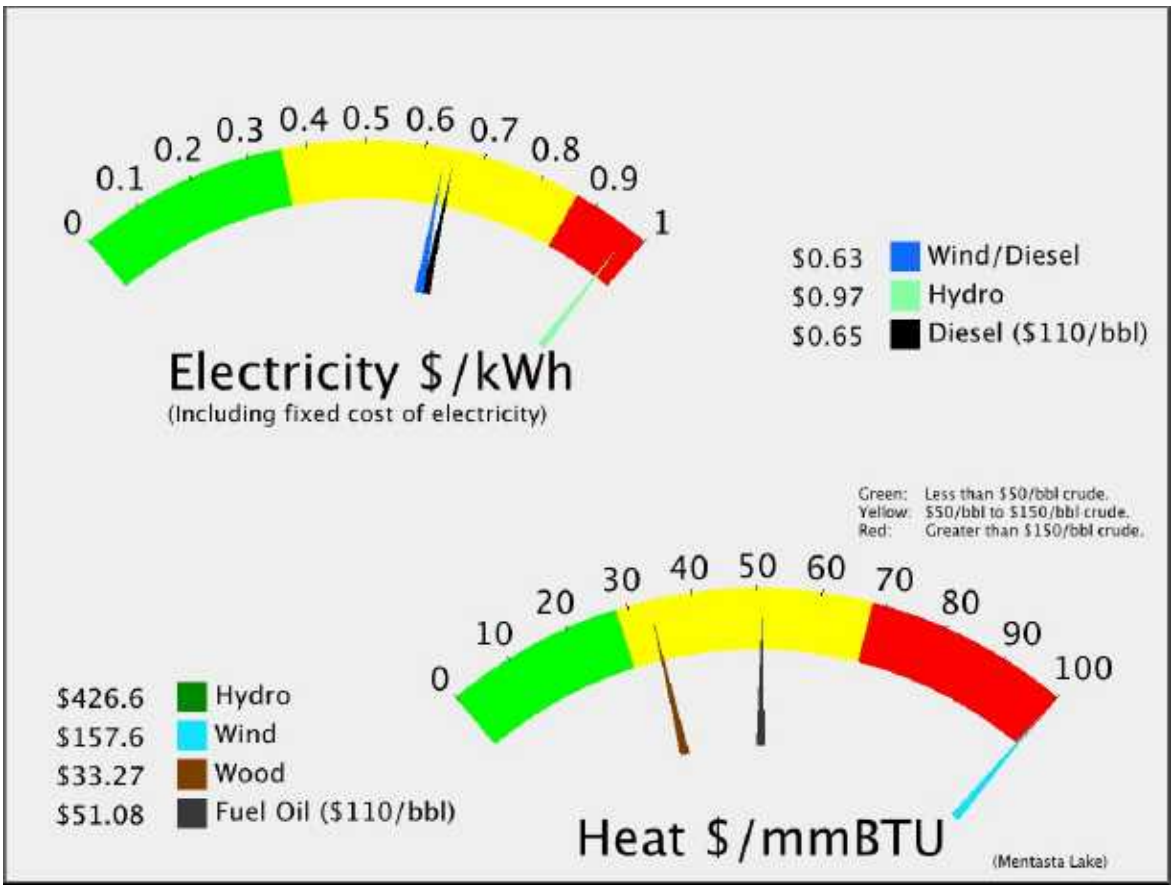
POPULATION: 109

Transportation

Per capita

Electricity: **$1,485**

Per capita



Mentasta Lake

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 109 LATITUDE: 62d 54m N LONGITUDE: 143d 45m **Unorganized**

LOCATION Mentasta Lake is located 6 miles off the Tok-Slana Cutoff of the Glenn Highway on the west side of Mentasta Pass, 38 miles southwest of Tok Junction.

ECONOMY Subsistence hunting, fishing, trapping and gathering make up much of Mentasta Lake's economy. Cash employment is limited and seasonal.

HISTORY The area is reported to have been the best-known route of Native immigration across the Alaska Range. Early village settlements have been located at various sites around the lake. The families that presently reside in Mentasta Lake come from Nabesna, Suslota, Slana and other villages within the area. The U.S. Army Signal Corps established a telegraph station at Mentasta Pass in 1902. A post office was established at the village in 1947, but was discontinued in 1951.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.64** /kw-hr

Current efficiency	**11.63**	kW-hr/gal	Fuel COE	**$0.47**	/kw-hr	Estimated Diesel OM	**$6,039**
Consumption in 200	**30,469**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$48,759**
Average Load	**34**	kW	NF COE:	**$0.16**	/kw-hr	Current Fuel Costs	**$141,504**
Estimated peak loa	**68.933**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**301,928**	kW-hours				**$196,301**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**41%**	Estimated heating fuel cost/gallon	**$5.64**		
Wood:	**50%**	$/MMBtu delivered to user	**$51.19**	**Total Heating Oil**	
Electricity:	**8.9%**	Community heat needs in MMBtu			

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$5.64**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **25,314**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.36	/kw-hr
Estimated Diesel OM	**$6,039**	$0.02	
New fuel cost	**$117,564**	$0.39	
Avg Non-Fuel Costs:	**$54,797**	$0.16	
New cost of electricity	**$0.87** per kW-hr		

Savings

($84,957)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**4,570**	gal	**$25,796**
Stack Heat	**0**	gal	**$0**

Capital cost	**$96,507**		
Annual ID	**$8,084**		
Annual OM	**$1,930**		
Total Annual costs	**$10,014**		
Heat cost	**$19.83**	$/MMBtu	

Savings

$15,782

Alternative Energy Resources

Hydro

Installed KW **84**

kW-hr/year **120766**

Site **right tributary of Slana River**

Study plan effort **reconnaissance**

Plant Factor **39** %

Penetration **0.42**

			Heat Cost $/MMBtu :
Capital cost	**$4,979,300**	per kW-hr	
Annual Capital	**$224,455**	$1.86	$544.57
Annual OM	**$141,400**	$1.17	$343.06
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$365,855**	$3.03	**$887.63**

Non-Fuel Costs $0.18

Alternative COE: $3.21

% Community energy 40%

New Community COE **$0.96**

(includes non-fuel and diesel costs)

Savings

($94,939)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **382279**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$90.70
Annual OM	**$17,935**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,267**	$0.36	**$104.44**

Non-Fuel Costs $0.18

Alternative COE: $0.54

% Community energy 127%

New Community COE **$0.63**

(includes non-fuel and diesel costs)

Savings

$60,034

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Mentasta Lake

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: NO POSITIVE INDICATION OF POTENTIAL

Coal: NO POSITIVE INDICATION OF POTENTIAL

Propane:

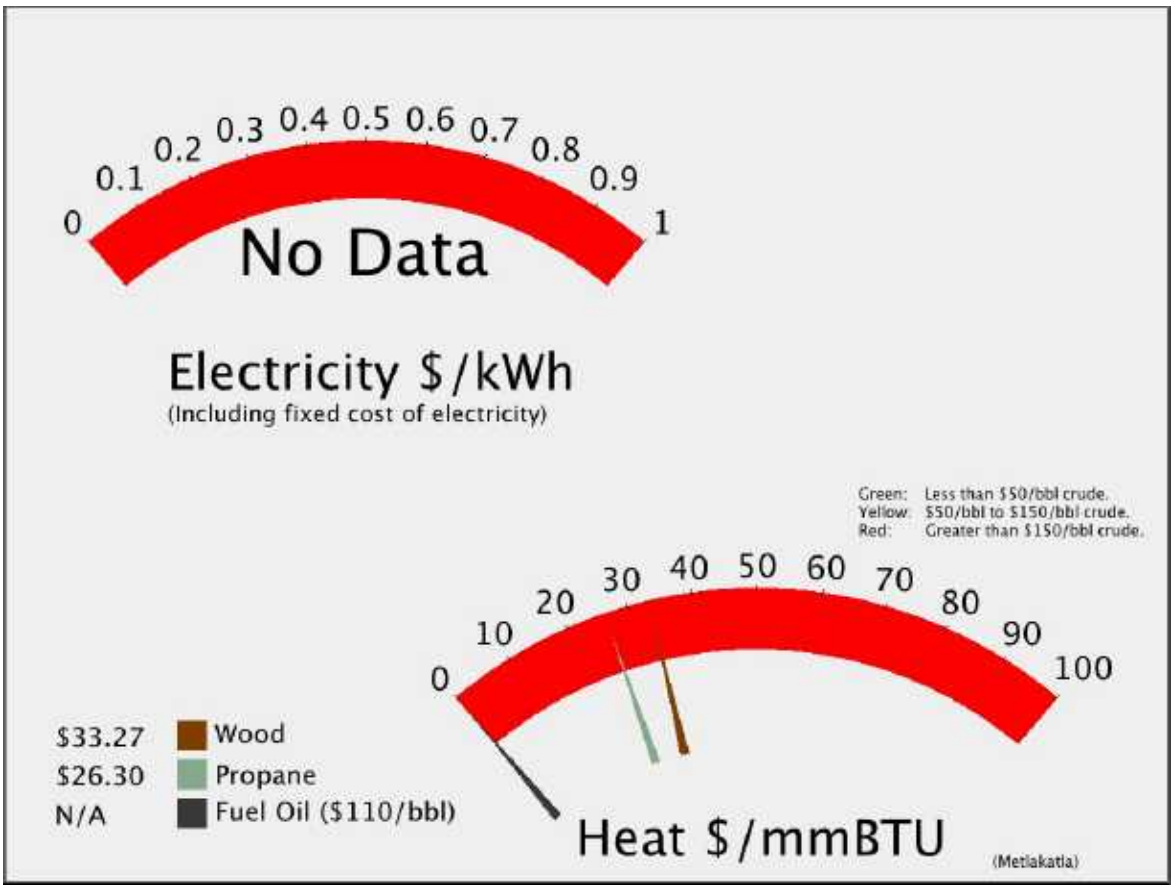
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Metlakatla

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	1404
Transportation	Per capita		
Electricity:	Per capita		



Metlakatla

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 1404 LATITUDE: 55d 07m N LONGITUDE: 131d 34m **Unorganized**

LOCATION Metlakatla is located at Port Chester on the west coast of Annette Island, 15 miles south of Ketchikan. By air, it is 3.5 hours from Anchorage and 1.5 hours from Seattle.

ECONOMY Metlakatla's economy is based primarily on fishing, fish processing and services. Because it is a federal Indian reservation, there are no local taxes. The community built a salmon hatchery on Tamgas Creek which releases millions of fry of all five salmon species. The largest employer is the Metlakatla Indian Community, which operates the hatchery, the tribal court, and all local services. Annette Island Packing Co. is a cold storage facility owned by the community. The cannery and two sawmills no longer operate. 49 residents hold commercial fishing permits. The community is interested in developing tourism. Residents rely on salmon, halibut, clams and waterfowl for food.

HISTORY Metlakatla means saltwater channel passage and was founded by a group of Canadian Tsimshians who migrated from Prince Rupert, British Columbia in 1887 seeking religious freedom. They were led by a Scottish lay priest in the Anglican Church (Church of England), Reverend William Duncan, who had begun his missionary work with the Tsimshians at Fort Simpson, B.C., in 1857. Rev. Duncan traveled to Washington D.C. around 1886 to personally request land from President Grover Cleveland for the Tsimshians. The Island was selected by a local search committee, and by 1890, there were 823 residents. Congress declared Annette Island a federal Indian reservation in 1891. Residents built a church, a school, a sawmill and a cannery, and constructed homes in an orderly grid pattern. Duncan continued to inspire and lead his followers until his death in 1918. In 1927, the community built a hydroelectric plant. During World War II, the U.S. Army constructed a large air base a few miles from town, which was later used for commercial amphibian flights to Ketchikan. The U.S. Coast Guard also maintained a base on the Island until 1976. The Annette Island Reserve remains the only federal reservation for indigenous peoples in Alaska.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**800**		Capital cost	**$5,359,034**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**1594767**		Annual Capital	**$360,211**	$0.23	$66.18
Met Tower?	**no**		Annual OM	**$74,821**	$0.05	$13.75
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00	
Wind Class	**7**		Total Annual Cost	**$435,032**	$0.27	**$79.93**
Avg wind speed	**8.50**	m/s	Non-Fuel Costs			
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW	**3000**		Capital cost	**$40,272,000**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**7500000**		Annual Capital	**$1,693,914**	$0.23	$66.18
Site	**Triangle (aka Hassler) Lake**		Annual OM	**$249,600**	$0.03	$9.75
Study plan effort	**feasibilty**		Fuel cost:	**$0**	$0.00	
Plant Factor	%		Total Annual Cost	**$1,943,514**	$0.26	**$75.93**
Penetration			Non-Fuel Costs			
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Alternative Energy Resources

Hydro

Installed KW	**3900**		Capital cost	**$3,488,000**	per kW-hr	Heat Cost $/MMBtu :
kW-hr/year	**8000000**		Annual Capital	**$135,563**	$0.02	$4.96
Site	**Purple Lake Rehab**		Annual OM	**$211,200**	$0.03	$7.74
Study plan effort	**reconnaissance**		Fuel cost:	**$0**	$0.00	
Plant Factor	%		Total Annual Cost	**$346,763**	$0.04	**$12.70**
Penetration			Non-Fuel Costs			
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Metlakatla

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

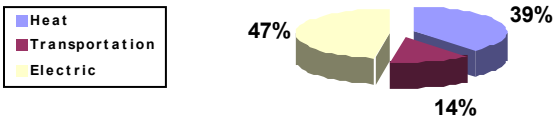
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Metlakatla-Ketchikan Intertie Construction has been submitted by: Metlakatla Indian Community for a Transmission project. The total project budget is: $7,652,000 with $7,152,000 requested in grant funding and $500,000 as matching funds.

A project titled: Triangle Lake_Metlakatla Indian Community has been submitted by: Metlakatla Indian Community (MIC) for a Hydro project. The total project budget is: $17,722,000 with $500,000 requested in grant funding and $ as matching funds.

Minto

Energy Used



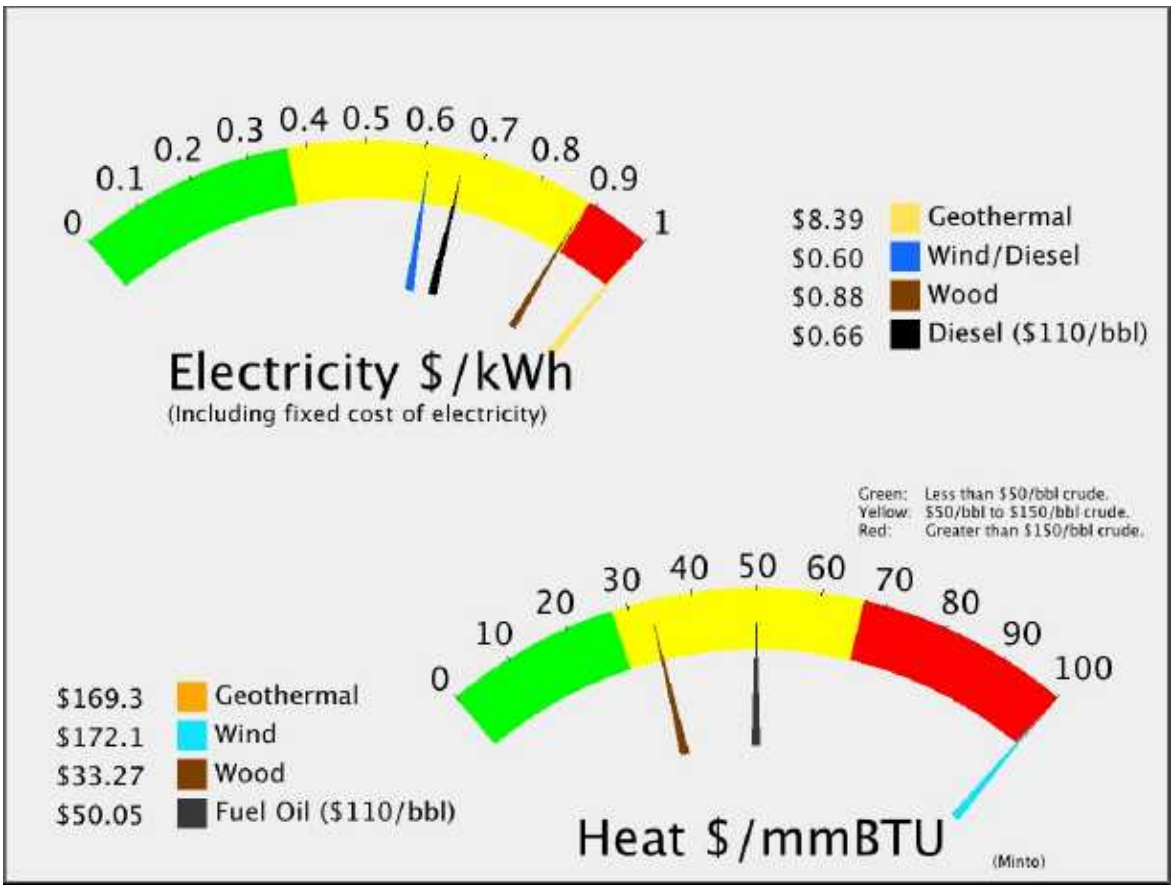
Total: **$4,066** Per capita

Heat **$1,570** Per capita

Transportation **$567** Per capita

Electricity: **$1,929** Per capita

POPULATION: 180



Minto

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 180 LATITUDE: 64d 53m N LONGITUDE: 149d 11m **Unorganized**

LOCATION Minto is located on the west bank of the Tolovana River, 130 miles northwest of Fairbanks. It lies on an 11-mile spur road off of the Elliott Highway.

ECONOMY Most of the year-round employment is with the school, lodge, clinic or village council. Many residents work during summers fire fighting for the BLM. Some residents trap or work in the arts and crafts center, making birch-bark baskets and beaded skin and fur items. Subsistence is an important part of the local economy. Most families travel to fish camp each summer. Minto Flats is one of the most popular duck hunting spots in Alaska. Salmon, whitefish, moose, bear, small game, waterfowl and berries are utilized.

HISTORY Minto is in the western-most portion of traditional Tanana Athabascan territory. During the late 1800s, some members of the Minto band traveled to Tanana, Rampart and Fort Yukon to trade furs for manufactured goods, tea and flour. With the discovery of gold north of Fairbanks in 1902, steamboats began to navigate the Tanana River, bringing goods and new residents into the area. Old Minto became a permanent settlement when some members of the Minto band built log cabins there, on the bank of the Tanana River. Other families lived in tents on a seasonal basis. A BIA school was established in 1937, but most families still did not live in Minto year-round until the 1950s. The Minto band was eventually joined by families from Nenana, Toklat, Crossjacket and Chena. The village was relocated to its present location, 40 miles north of the old site, in 1969 due to repeated flooding and erosion. The present site had been used as a fall and winter camp since the early 1900s. New housing and a new school were completed by 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.26**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.53**
Consumption in 200	**52,301**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$12,224**
Average Load	**70**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$158,913**
Estimated peak loa	**139.54**	kW	Total	**$0.67**		Current Fuel Costs	**$236,960**
Average Sales	**611,203**	kW-hours				**Total Electric**	**$408,097**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**51,099**	gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**10%**	$/MMBtu delivered to user	**$50.16**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,132**		**$282,612**

Transportation (Estimated)

Estimated Diesel:	**18,461**	gal	Estimated cost	**$5.53**	**Total Transportation** **$102,100**

Energy Total **$792,809**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$1,300,000**				
Powerhouse Module		Annual Capital cost	**$108,897**	$0.18	/kw-hr		
Status	**Pending**	Estimated Diesel OM	**$12,224**	$0.02			
Acheivable efficiency	**14** kW-	New fuel cost	**$207,532**	$0.34		**Savings**	
New Fuel use	**45,806**	Avg Non-Fuel Costs:	**$171,137**	$0.26		**($79,469)**	
		New cost of electricity	**$0.78** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working: **None**

			Value
Water Jacket	**7,845**	gal	**$43,389**
Stack Heat	**0**	gal	**$0**

Capital cost	**$195,362**		
Annual ID	**$16,365**		
Annual OM	**$3,907**		
Total Annual costs	**$20,272**		**Savings**
Heat cost	**$23.39**	$/MMBtu	**$23,117**

Alternative Energy Resources

Geothermal

Installed KW	**1000**		Capital cost	**$51,000,000**	per kW-hr
kW-hr/year	**8322000**		Annual Capital	**$3,428,001**	$0.41
Site Name	**Minto - Shallow**		Annual OM	**$1,530,000**	$0.18
Project Capatcity	**480 lpm**		Fuel cost:	**$0**	$0.00
Shallow Resource	**0**	Feet	Total Annual Cost	**$4,958,001**	$0.60
Shallow Temp	**62.00**	C	Non-Fuel Costs		$0.28
			Alternative COE:		**$0.88**
			% Community energy		1362%
			New Community COE		**$8.39**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $120.69 | $53.87 | **$174.56**

Savings

($4,549,904)

Alternative Energy Resources

Wood

Installed KW	**88**		Capital cost	**$1,706,126**	per kW-hr
kW-hr/year	**654071**		Annual Capital	**$114,678**	$0.18
Installation Type	**Wood ORC**		Annual OM	**$131,434**	$0.20
Electric Wood cost	**$150/cd**		Fuel cost:	**$123,983**	$0.19
Wood Required	**827**	Cd/Y	Total Annual Cost	**$370,095**	$0.57
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs		$0.28
			Alternative COE:		**$0.85**
			% Community energy		107%
			New Community COE		**$0.89**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

$38,002

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		Capital cost	**$1,760,485**	per kW-hr
kW-hr/year	**454253**		Annual Capital	**$118,332**	$0.26
Met Tower?	**no**		Annual OM	**$21,312**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**6**		Total Annual Cost	**$139,644**	$0.31
Avg wind speed	**8.10**	m/s	Non-Fuel Costs		$0.28
			Alternative COE:		**$0.59**
			% Community energy		74%
			New Community COE		**$0.59**
			(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : $76.33 | $13.75 | **$90.07**

Savings

$45,559

Alternative Energy Resources

Geothermal

Installed KW **2000**

kW-hr/year **16644000**

Site Name **Minto - Deep**

Project Capatcity **480 lpm**

Shallow Resource **0** Feet

Shallow Temp **62.00** C

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$51,000,000**		
Annual Capital	**$3,428,001**	$0.21	$60.35
Annual OM	**$1,530,000**	$0.09	$26.93
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$4,958,001**	$0.30	**$87.28**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.58**	
% Community energy		2723%	
New Community COE		**$8.39**	

(includes non-fuel and diesel costs)

Savings

($4,549,904)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	41.6%

Other Resources

Minto

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

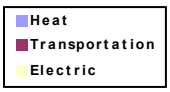
Propane:

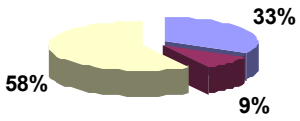
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Mountain Village

Energy Used





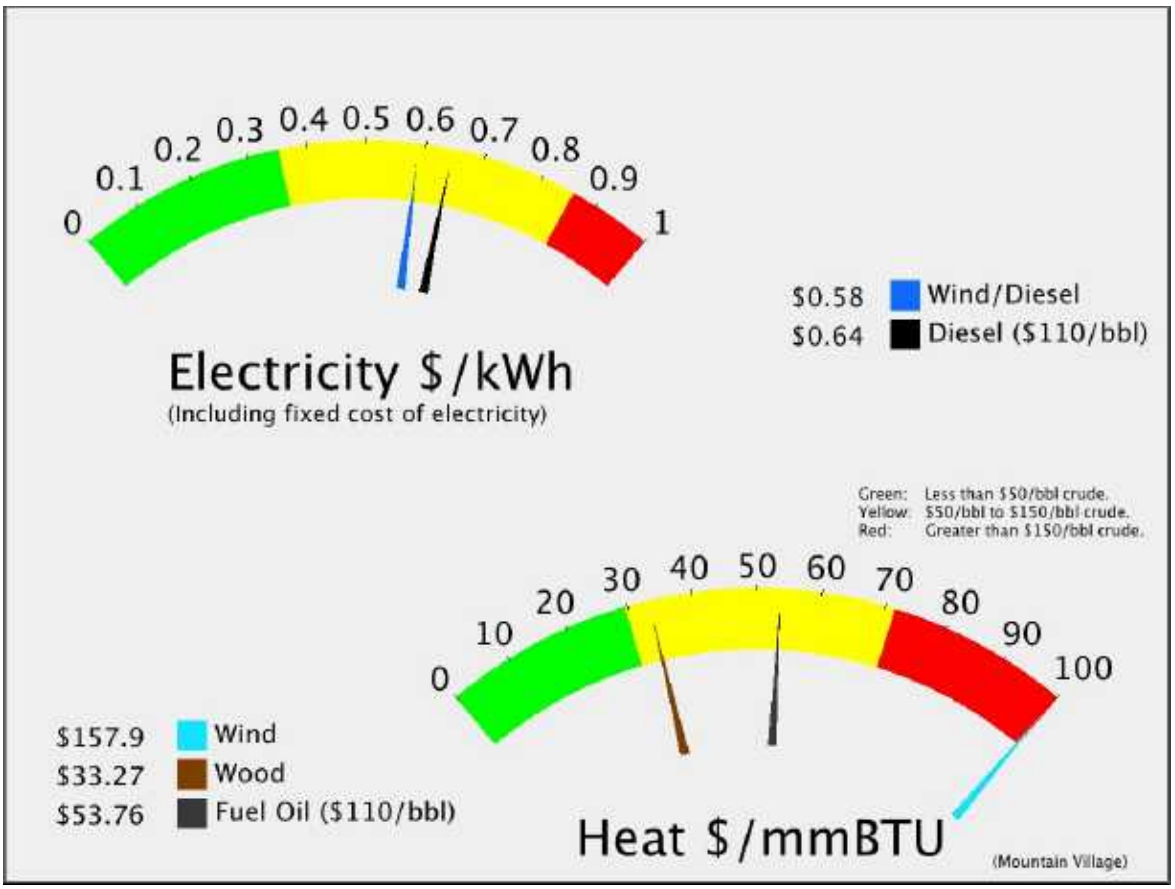
Total: **$3,584** Per capita

Heat **$1,172** Per capita

Transportation **$321** Per capita

Electricity: **$2,091** Per capita

POPULATION: 784



Mountain Village

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 784 LATITUDE: 62d 05m N LONGITUDE: 163d 43m **Unorganized**

LOCATION Mountain Village is on the north bank of the Yukon River, approximately 20 miles west of St. Mary's and 470 miles northwest of Anchorage. It is at the foot of the 500' Azachorok Mountain, the first mountain encountered by those traveling up the Yukon.

ECONOMY Mountain Village has a seasonal economy based on fishing and subsistence. 92 residents hold commercial fishing permits. There are a few full-time positions with the City, school district, federal government and native corporation. Subsistence foods are relied upon, including salmon, moose and waterfowl. Some residents trap for additional income.

HISTORY Mountain Village was a summer fish camp until the opening of a general store in 1908. This prompted residents of Liberty Landing and Johnny's Place to immigrate. A Covenant Church missionary school was also built in that same year. A post office was established in 1923, followed by a salmon saltery in 1956 and a cannery in 1964. All three have since ceased operating. The City government was incorporated in 1967. Mountain Village became a regional education center in 1976 when it was selected as headquarters for the Lower Yukon School District.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.94** /kw-hr

Current efficiency	**14.36**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Diesel OM	**$50,080**
Consumption in 200	**184,681**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$651,041**
Average Load	**286**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$912,472**
Estimated peak loa	**571.69**	kW	Total	**$0.64**		**Total Electric**	
Average Sales	**2,504,002**	kW-hours				**$1,613,592**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**154,651**	gal	
Fuel Oil:	**85%**	Estimated heating fuel cost/gallon	**$5.94**		
Wood:	**13%**	$/MMBtu delivered to user	**$53.88**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**18,558**		**$918,753**

Transportation (Estimated)

Estimated Diesel:	**42,377**	gal	Estimated cost	**$5.94**	**Total Transportation** **$251,755**

Energy Total **$2,784,101**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:
Complete Powerhouse
Status **Pending**
Acheivable efficiency **14.8** kW-
New Fuel use **179,841**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.10	/kw-hr
Estimated Diesel OM	**$50,080**	$0.02	
New fuel cost	**$888,561**	$0.35	
Avg Non-Fuel Costs:	**$701,121**	$0.26	
New cost of electricity	**$0.72** per kW-hr		

Savings **($227,388)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**
Is it working now? **Y**
BLDGs connected and working:
Powerhouse Only

			Value
Water Jacket	**27,702**	gal	**$164,573**
Stack Heat	**0**	gal	**$0**

Capital cost	**$800,366**		
Annual ID	**$67,044**		
Annual OM	**$16,007**		
Total Annual costs	**$83,051**		
Heat cost	**$27.13**	$/MMBtu	

Savings **$81,522**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1347431**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.21	$62.17
Annual OM	**$63,217**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$349,128**	$0.26	**$75.92**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		54%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings

$168,840

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	13.7%

Other Resources

Mountain Village

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

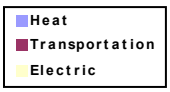
Renewable Fund Project List:

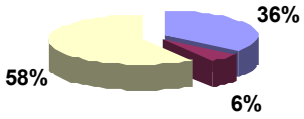
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Mountain Village Wind_City and Tribe has been submitted by: Asa'carsarmuit Tribal Council for a Wind Diesel Hybrid project. The total project budget is: $133,255 with $122,100 requested in grant funding and $11,155 as matching funds.

Naknek

Energy Used





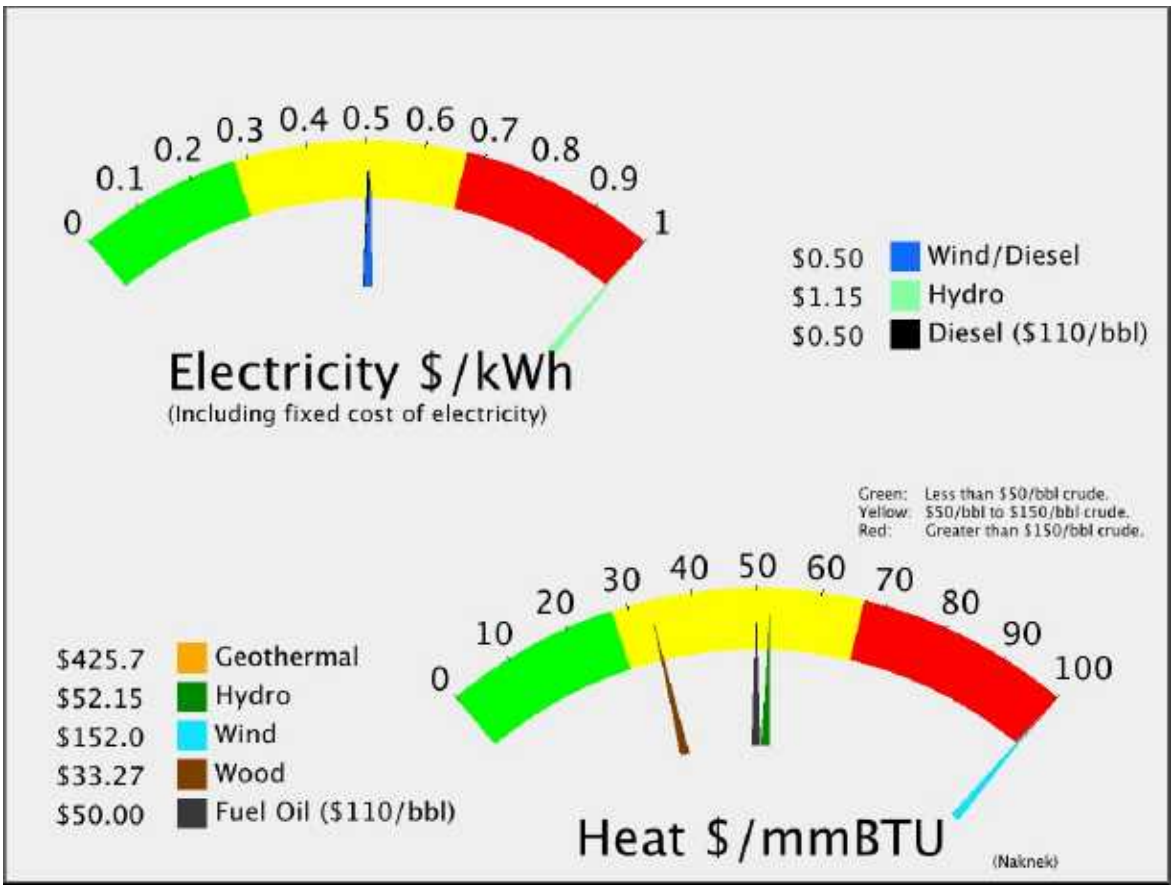
Total: $15,119 Per capita

Heat $5,375 Per capita

Transportation $834 Per capita

Electricity: $8,911 Per capita

POPULATION: 543



Naknek

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 543 LATITUDE: 58d 43m N LONGITUDE: 157d 00m **Bristol Bay Borough**

LOCATION Naknek is located on the north bank of the Naknek River, at the northeastern end of Bristol Bay. It is 297 miles southwest of Anchorage.

ECONOMY The economy is based on government employment, salmon fishing and processing. Naknek has a seasonal economy as a service center for the huge red salmon fishery in Bristol Bay. 115 residents hold commercial fishing permits, and several thousand people typically flood the area during the fishing season. Millions of pounds of salmon are trucked over Naknek-King Salmon road each summer, where jets transport the fish to the lower 48. Trident Seafoods, North Pacific Processors, Ocean Beauty and other fish processors operate facilities in Naknek. Naknek is also the seat of the Bristol Bay Borough.

HISTORY This region was first settled over 6,000 years ago by Yup'ik Eskimos and Athabascan Indians. In 1821, the original Eskimo village of Naugeik" was noted by Capt. Lt. Vasiliev. By 1880 the village was called Kinuyak. It was later spelled Naknek by the Russian Navy. The Russians built a fort near the village and fur trappers inhabited the area for some time prior to the U.S. purchase of Alaska. The first salmon cannery opened on the Naknek River in 1890. By 1900 there were approximately 12 canneries in Bristol Bay. The Homestead Act enabled canneries to acquire land for their plants and also made land available to other institutions and individuals. The parcel owned by the Russian Orthodox Church on the north bank of the River was the first land recorded in Naknek. Squatters built shelters on the church property and were eventually sold lots in what became the center of Naknek. A post office was established in 1907. Naknek has developed over the years as a major fishery center."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**14.58**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.53** /kw-hr
Consumption in 200	**1,574,517**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$388,605**
Average Load	**2,218**	kW	NF COE:	**$0.12**	/kw-hr	Other Non-Fuel Costs:	**$2,256,082**
Estimated peak loa	**4436.1**	kW	Total	**$0.50**		Current Fuel Costs	**$7,125,004**
Average Sales	**19,430,258**	kW-hours				**Total Electric**	**$9,769,692**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**528,198**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**1%**	$/MMBtu delivered to user	**$50.11**		**Total Heating Oil**
Electricity:	**1.7%**	Community heat needs in MMBtu	**63,384**		**$2,918,397**

Transportation (Estimated)

Estimated Diesel:	**81,975**	gal	Estimated cost	**$5.53**	**Total Transportation** **$452,930**

Energy Total **$13,141,020**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**			
#N/A		Annual Capital cost	**$0**	$0.00	/kw-hr	
Status	**Intertie**	Estimated Diesel OM	**$388,605**	$0.02		
Acheivable efficiency	**14.8** kW-	New fuel cost	**$7,044,548**	$0.36		**Savings**
New Fuel use	**1,556,737**	Avg Non-Fuel Costs:	**$2,644,688**	$0.12		**$80,457**
		New cost of electricity	**$0.44** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

5 Residential Homes, Swimming Pool, School Superintendent Office, Elementary and High Schools, Clinic

Capital cost **$6,210,585**

Annual ID **$520,239**

Annual OM **$124,212**

			Value
Water Jacket	**236,178**	gal	**$1,304,928**
Stack Heat	**0**	gal	**$0**

Total Annual costs **$644,451**

Heat cost **$24.69** $/MMBtu

Savings **$660,477**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5000**
kW-hr/year **4668831**
Met Tower? **no**
Homer Data? **no**
Wind Class **4**
Avg wind speed **6.71** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$23,344,156**		
Annual Capital	**$1,569,094**	$0.34	$98.47
Annual OM	**$219,045**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,788,139**	$0.38	**$112.22**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.52**	
% Community energy		24%	
New Community COE (includes non-fuel and diesel costs)		**$0.50**	

Savings
$17,313

Alternative Energy Resources

Hydro

Installed KW **108000**
kW-hr/year **19713007**
Site **Naknek Lake/River**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.83**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$479,520,000**		
Annual Capital	**$18,636,782**	$0.95	$277.00
Annual OM	**$1,202,500**	$0.06	$17.87
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$19,839,282**	$1.01	**$294.88**
Non-Fuel Costs		$0.14	
Alternative COE:		**$1.14**	
% Community energy		101%	
New Community COE (includes non-fuel and diesel costs)		**$1.16**	

Savings
($10,069,590)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	4.0%

Other Resources

Naknek

Tidal:
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas: Basin has industrial-scale exploration potential
Coal:
Propane:

Renewable Fund Project List:

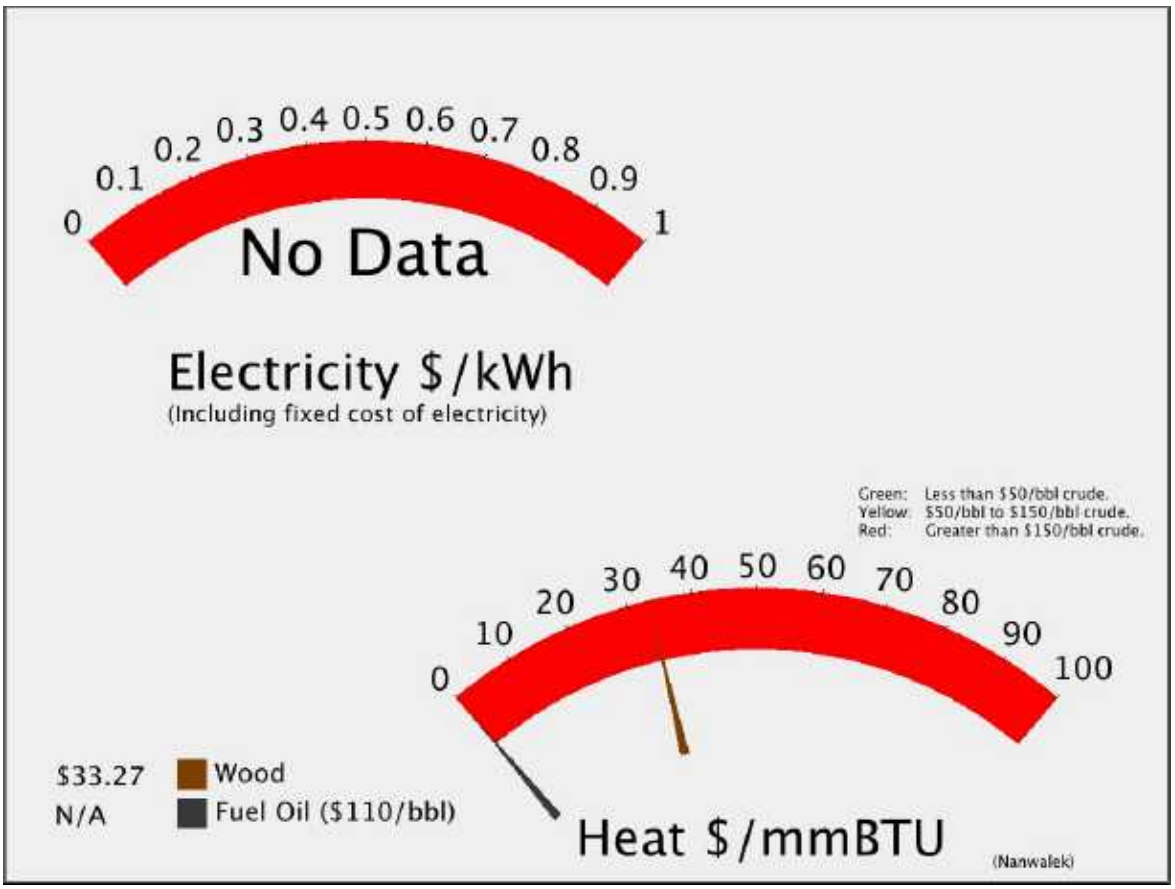
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Pike's Ridge Geothermal Final Design has been submitted by: Naknek Electric Association for a Geothermal project.

Nanwalek

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	217
Transportation	Per capita		
Electricity:	Per capita		



Nanwalek

Regional Corporation
Chugach Alaska Corporation

House 35
Senate : **R**

POPULATION 217 LATITUDE: 59d 21m N LONGITUDE: 151d 55m **Kenai Peninsula Boroug**

LOCATION Nanwalek is located at the southern tip of the Kenai Peninsula, 10 miles southwest of Seldovia and east of Port Graham.

ECONOMY The school, subsistence activities, and summer employment at the Port Graham cannery provide income. Seven residents hold commercial fishing permits.

HISTORY The village was originally the site of a Russian Trading Post called Alexandrovsk. It was later called "Odinochka," meaning "a person living in solitude." A Russian Orthodox Church was built in the community in 1870. In 1930, a replacement Church was constructed, and it is a designated national historic site. In 1991, locals changed the community name of English Bay to Nanwalek, meaning "place by lagoon." Many of the current residents are of mixed Russian and Sugpiaq (Alutiiq) lineage. Villagers speak Sugtestun, a dialect of Eskimo similar to Yup'ik.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Nanwalek

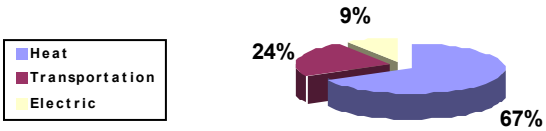
Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Napakiak

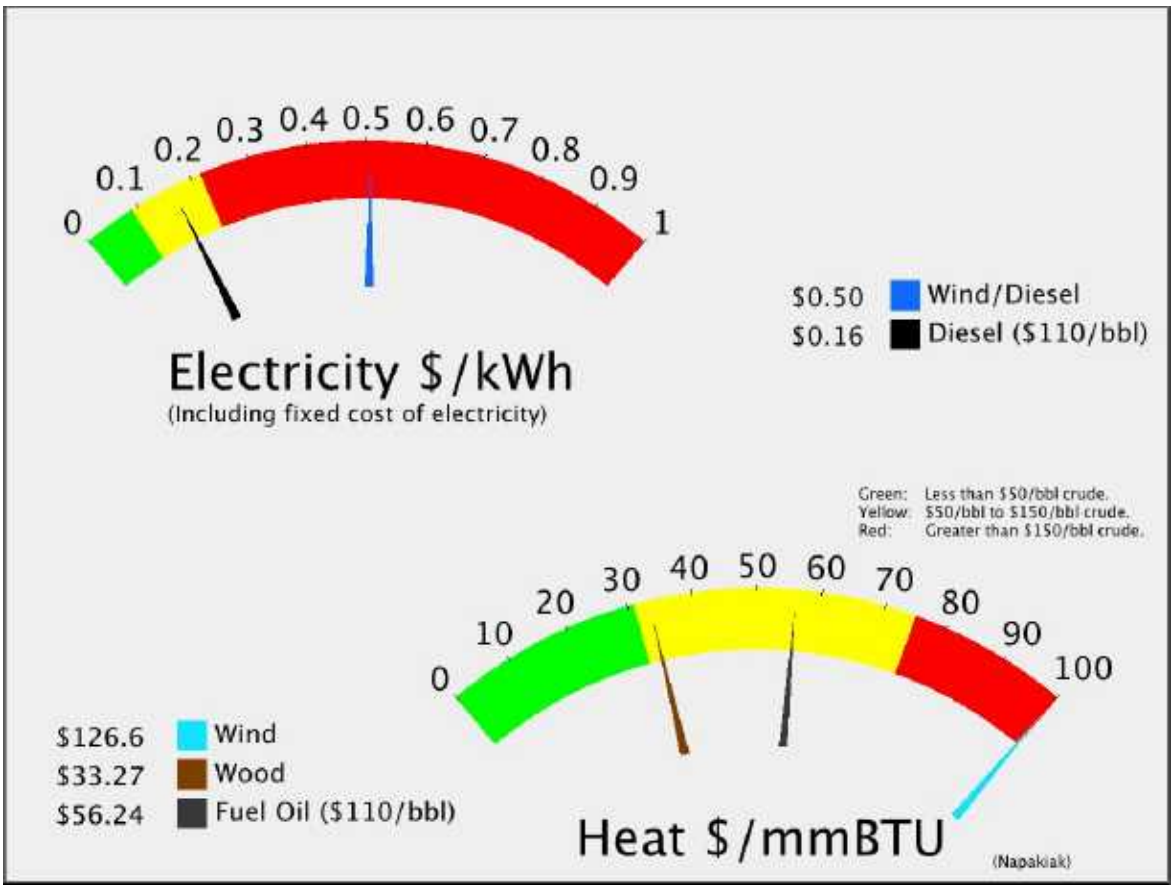
Energy Used



Total: **$2,731** Per capita

Heat	**$1,835**	Per capita
Transportation	**$656**	Per capita
Electricity:	**$240**	Per capita

POPULATION: 378



Napakiak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 378 LATITUDE: 60d 41m N LONGITUDE: 162d 07m **Unorganized**

LOCATION Napakiak is on the north bank of the Kuskokwim River, 15 miles southwest of Bethel. It is located on an island between the Kuskokwim River and Johnson's Slough. It lies 407 miles west of Anchorage.

ECONOMY Napakiak's primary employers include the school and local, state, and federal governments. Seasonal commercial fishing, construction projects, trapping and crafts also provide income. 43 residents hold commercial fishing permits, primarily for herring roe and salmon net fisheries. Subsistence foods provide an estimated 50% of the local diet. Most families have fish camps. Salmon, waterfowl, moose, bear and seals provide meat.

HISTORY Yup'ik Eskimos have lived in this region since 1,000 A.D. The village was first reported in 1878 by E.W. Nelson, although it was downriver, at the mouth of the Johnson River. In 1884, Moravian explorers mention Napakiak as being close to Napaskiak, which suggests that the new village site may have been occupied by that time. By 1910, the village had a population of 166. In 1926, the Moravian Church had a lay worker in the village who began constructing a chapel; funds were raised for construction by the Ohio Moravian Association. It took three years to complete the work, and in August 1929, people came from many villages in the area to attend the dedication ceremony. In 1939, a BIA school began operating, and in 1946 a Native-owned village cooperative store was opened. A post office was established in 1951. The National Guard Armory was built in 1960. The City was incorporated in 1970. The first airstrip was completed in 1973, enabling year-round access. The City's primary priority at this time is to relocate all public facilities and homes to a bluff across Johnson's Slough. The sandbar on which the City was built is severely eroding.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.22** /kw-hr

Current efficiency	**14.97**	kW-hr/gal	Fuel COE	**$0.02**	/kw-hr	Estimated Diesel OM	**$10,798**
Consumption in 200	**1,926**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$67,256**
Average Load	**62**	kW	NF COE:	**$0.12**	/kw-hr	Current Fuel Costs	**$10,045**
Estimated peak loa	**123.26**	kW	Total	**$0.16**		**Total Electric**	
Average Sales	**539,882**	kW-hours				**$88,099**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**111,605**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$6.22**		
Wood:	**0%**	$/MMBtu delivered to user	**$56.37**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,393**		**$693,668**

Transportation (Estimated)

Estimated Diesel:	**39,924**	gal	Estimated cost	**$6.22**	**Total Transportation**
					$248,145

Energy Total **$1,029,912**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **2,060**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.02	/kw-hr
Estimated Diesel OM	**$10,798**	$0.02	
New fuel cost	**$10,744**	$0.02	
Avg Non-Fuel Costs:	**$78,054**	$0.12	
New cost of electricity	**$0.53** per kW-hr		

Savings

($9,076)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**289**	gal	**$1,796**
Stack Heat	**0**	gal	**$0**

Capital cost	**$172,565**		
Annual ID	**$14,455**		
Annual OM	**$3,451**		
Total Annual costs	**$17,906**		
Heat cost	**$560.93**	$/MMBtu	

Savings

($16,111)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **680659**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.54
Annual OM	**$31,934**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,806**	$0.29	**$84.29**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.43**	
% Community energy		126%	
New Community COE (includes non-fuel and diesel costs)		**$0.51**	

Savings

($107,707)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	19.0%

Other Resources

Napakiak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

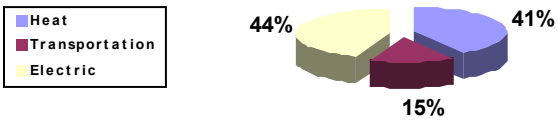
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Napaskiak

Energy Used



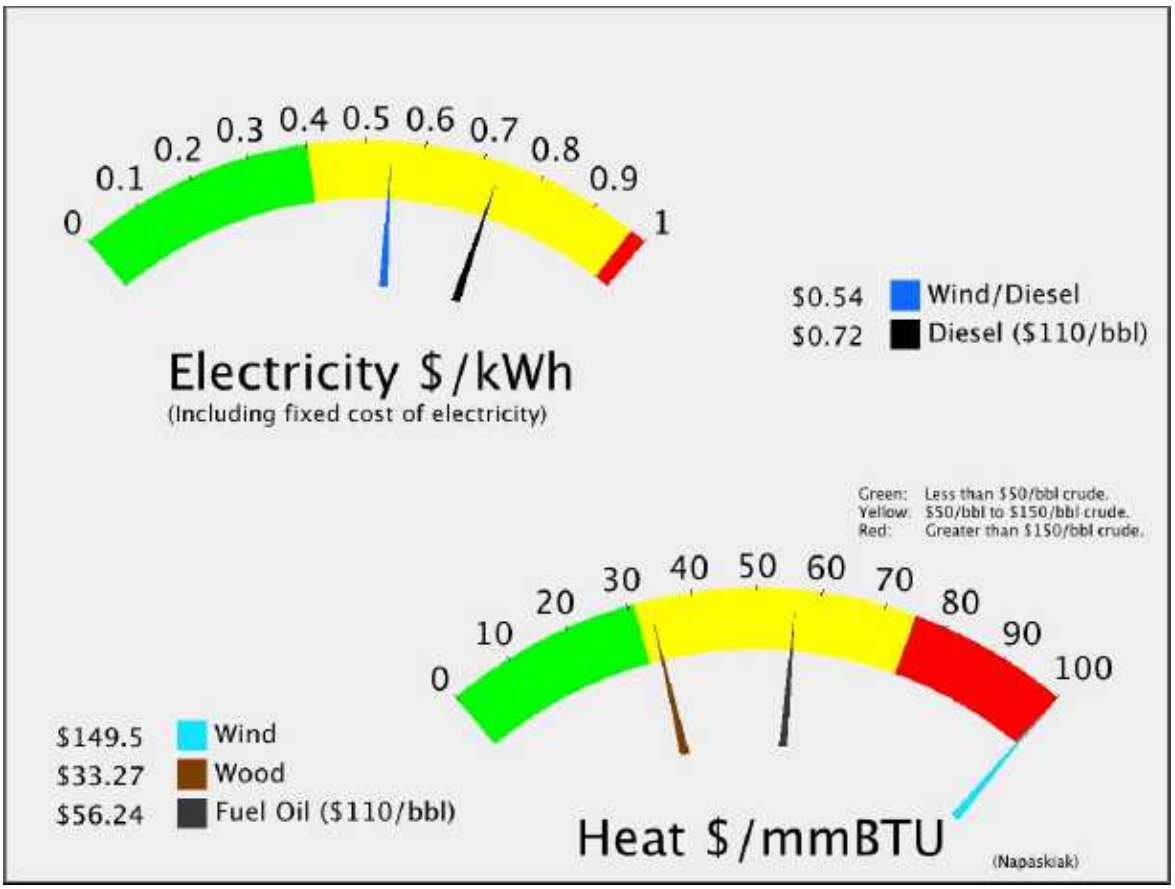
Total: **$3,071** Per capita

Heat **$1,266** Per capita

Transportation **$453** Per capita

Electricity: **$1,353** Per capita

POPULATION: 434



Napaskiak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 434 LATITUDE: 60d 42m N LONGITUDE: 161d 54m **Unorganized**

LOCATION Napaskiak is located on the east bank of the Kuskokwim River, along the Napaskiak Slough, 7 miles southeast of Bethel.

ECONOMY The school, local businesses and some commercial fishing provide employment. 39 residents hold commercial fishing permits for salmon drift netting. Subsistence activities are a part of the culture and supplement cash earnings.

HISTORY The area has historically been occupied by Yup'ik Eskimos. Napaskiak was first reported by the U.S. Coast & Geodetic Survey in 1867. The 1880 U.S. Census reported a population of 196. By 1890, the numbers had dropped to 97, and were as low as 67 in 1939. The City was incorporated in 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.22** /kw-hr

Current efficiency	**11.85**	kW-hr/gal	Fuel COE	**$0.51**	/kw-hr	Estimated Diesel OM	**$15,980**
Consumption in 200	**77,735**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$161,846**
Average Load	**91**	kW	NF COE:	**$0.20**	/kw-hr	Current Fuel Costs	**$405,419**
Estimated peak loa	**182.42**	kW	Total	**$0.73**		**Total Electric**	
Average Sales	**799,010**	kW-hours				**$583,246**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**88,366**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$6.22**		
Wood:	**0%**	$/MMBtu delivered to user	**$56.37**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**10,604**	**$549,228**	

Transportation (Estimated)

Estimated Diesel:	**31,611**	gal	Estimated cost	**$6.22**	**Total Transportation** **$196,475**

Energy Total **$1,328,948**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **65,798**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.01	/kw-hr
Estimated Diesel OM	**$15,980**	$0.02	
New fuel cost	**$343,164**	$0.43	
Avg Non-Fuel Costs:	**$177,827**	$0.20	
New cost of electricity	**$0.61** per kW-hr		

Savings **$53,879**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**11,660**	gal	**$72,473**
Stack Heat	**0**	gal	**$0**

Capital cost	**$255,391**		
Annual ID	**$21,393**		
Annual OM	**$5,108**		
Total Annual costs	**$26,501**		
Heat cost	**$20.57**	$/MMBtu	

Savings **$45,972**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **680659**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.54
Annual OM	**$31,934**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,806**	$0.29	**$84.29**
Non-Fuel Costs		$0.22	
Alternative COE:		**$0.51**	
% Community energy		85%	
New Community COE		**$0.53**	

(includes non-fuel and diesel costs)

Savings

$163,127

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	24.0%

Other Resources

Napaskiak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

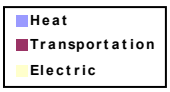
Renewable Fund Project List:

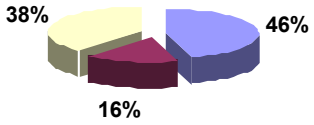
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Napaskiak Wind Farm Feasibility Study has been submitted by: Napaskiak Utility (electric) - City of Napaskiak for a Wind Diesel Hybrid project.

Naukati Bay

Energy Used





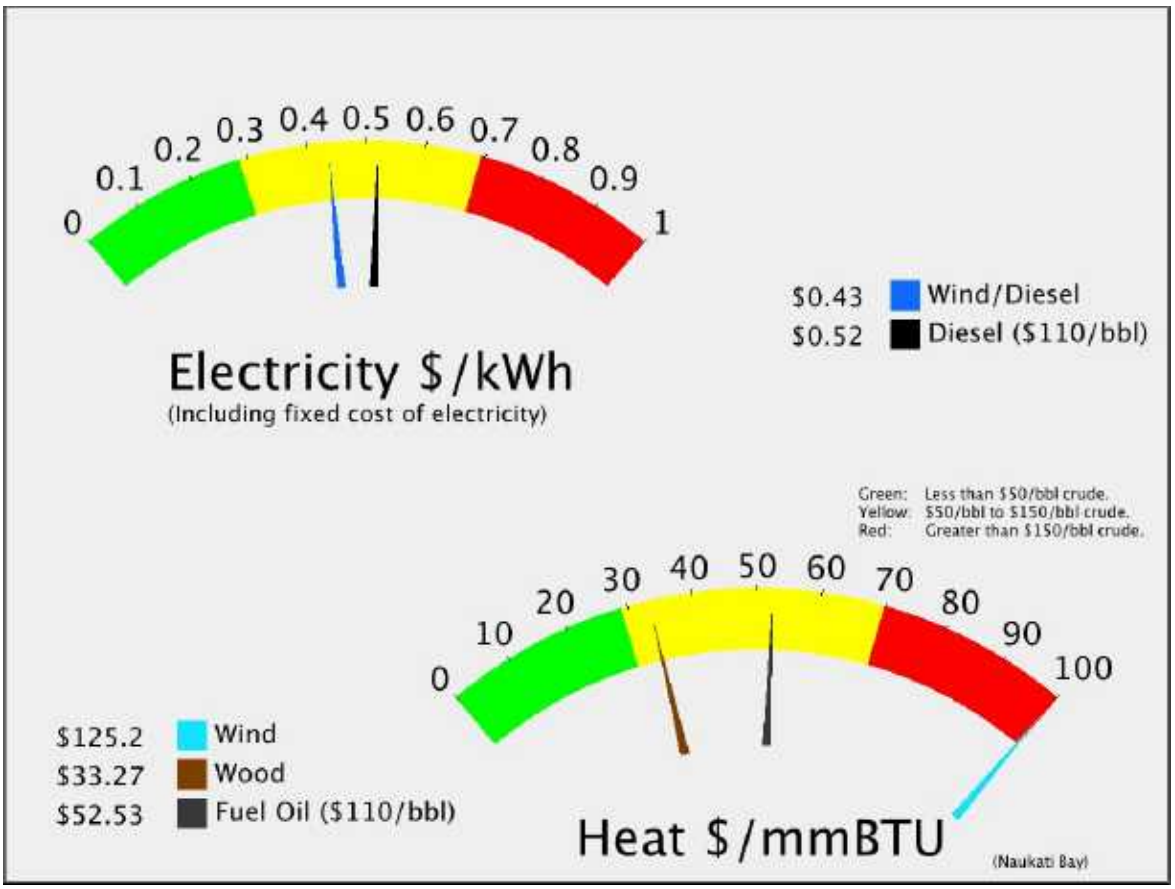
Total: **$5,604** Per capita

Heat **$2,537** Per capita

Transportation **$922** Per capita

Electricity: **$2,145** Per capita

POPULATION: 131



Naukati Bay

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 131 LATITUDE: 55d 51m N LONGITUDE: 133d 11m **Unorganized**

LOCATION Naukati Bay is located on the west coast of Prince of Wales Island in Southeast Alaska.

ECONOMY Small sawmills and related logging and lumber services are the sole income sources. Employment is seasonal. Naukati is a log transfer site for several smaller camps on the Island. Homesteading families arrived in the 1990s.

HISTORY Named Naukatee Bay" in 1904 by the U.S. Coast & Geodetic Survey who recorded it as the local Indian name. It was a logging camp at one time but later was settled as a Department of Natural Resources land disposal site."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.42**	kW-hr/gal	Fuel COE	**$0.42**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.80**
Consumption in 200	**40,756**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$9,256**
Average Load	**53**	kW	NF COE:	**$0.08**	/kw-hr	Other Non-Fuel Costs:	**$35,655**
Estimated peak loa	**105.66**	kW	Total	**$0.52**		Current Fuel Costs	**$195,812**
Average Sales	**462,791**	kW-hours				**Total Electric**	**$240,723**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**57,248**	gal	
Fuel Oil:	**56%**	Estimated heating fuel cost/gallon	**$5.80**		
Wood:	**38%**	$/MMBtu delivered to user	**$52.65**		**Total Heating Oil**
Electricity:	**3.3%**	Community heat needs in MMBtu	**6,870**		**$332,297**

Transportation (Estimated)

Estimated Diesel:	**20,810**	gal	Estimated cost	**$5.80**	**Total Transportation** **$120,790**

Energy Total **$693,811**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**				
		Annual Capital cost	**$0**	$0.00	/kw-hr		
Status		Estimated Diesel OM	**$9,256**	$0.02			
Acheivable efficiency	**14**	kW- New fuel cost	**$173,734**	$0.38		**Savings**	
		Avg Non-Fuel Costs:	**$44,911**	$0.08		**$22,078**	
New Fuel use	**36,161**	New cost of electricity		**$0.44**	per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?			Capital cost	**$147,924**		
Is it working now?			Annual ID	**$12,391**		
BLDGs connected and working:			Annual OM	**$2,958**		
		Value	Total Annual costs	**$15,350**		**Savings**
Water Jacket	**6,113** gal	**$35,485**	Heat cost	**$22.72**	$/MMBtu	**$20,136**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **417173**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$83.11
Annual OM	**$19,572**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,904**	$0.33	**$96.86**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.43**	
% Community energy		90%	
New Community COE (includes non-fuel and diesel costs)		**$0.42**	

Savings

$46,955

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	37.1%

Other Resources

Naukati Bay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

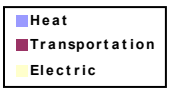
Propane:

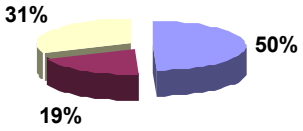
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nelson Lagoon

Energy Used

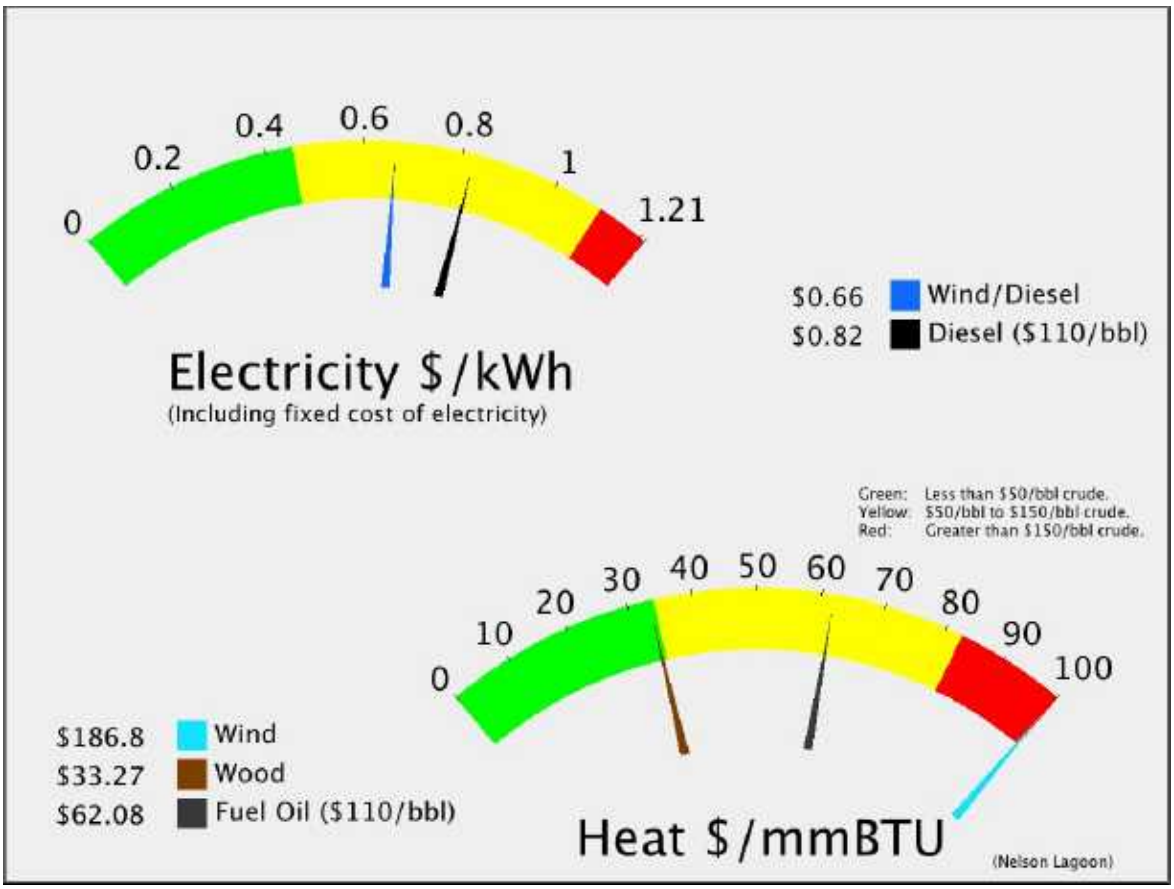




Total: $14,401 Per capita

Heat	**$7,074**	Per capita
Transportation	**$2,798**	Per capita
Electricity:	**$4,530**	Per capita

POPULATION: 69



Nelson Lagoon

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 69 LATITUDE: 56d 00m N LONGITUDE: 161d 00m **Aleutians East Borough**

LOCATION Nelson Lagoon is located on the northern coast of the Alaska Peninsula, on a narrow sand spit that separates the lagoon from the Bering Sea. It is 580 miles southwest of Anchorage.

ECONOMY Nelson Lagoon is situated in the middle of a rich and productive salmon fisheries area. 24 residents hold commercial fishing permits, primarily salmon gillnet. Subsistence activities balance the seasonal nature of the fishery. Some trapping occurs. Residents are interested in developing a small seafood processing and cold storage facility.

HISTORY Nelson Lagoon has been used historically as an Unangan summer fish camp. The resources of the lagoon and nearby Bear River are excellent. The lagoon was named in 1882 for Edward William Nelson of the U.S. Signal Corps, an explorer in the Yukon Delta region between 1877 and 1920. A salmon saltery operated from 1906 to 1917, which attracted Scandinavian fishermen, but there has been no cannery since. In 1965 a school was built and the community began to be occupied year-round.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.86** /kw-hr

Current efficiency	**11.23**	kW-hr/gal	Fuel COE	**$0.53**	/kw-hr	Estimated Diesel OM	**$7,510**
Consumption in 200	**33,829**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$104,990**
Average Load	**43**	kW	NF COE:	**$0.28**	/kw-hr	Current Fuel Costs	**$198,241**
Estimated peak loa	**85.727**	kW	Total	**$0.83**		**Total Electric**	
Average Sales	**375,483**	kW-hours				**$310,741**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**71,150**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$6.86**		
Wood:	**0%**	$/MMBtu delivered to user	**$62.22**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,538**		**$488,096**

Transportation (Estimated)

Estimated Diesel: **28,141** gal Estimated cost **$6.86**

Total Transportation **$193,052**

Energy Total **$991,890**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **27,135**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.13	/kw-hr
Estimated Diesel OM	**$7,510**	$0.02	
New fuel cost	**$159,012**	$0.42	
Avg Non-Fuel Costs:	**$112,499**	$0.28	
New cost of electricity		**$0.85**	per kW-hr

Savings **($11,030)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**5,074**	gal	**$34,811**
Stack Heat	**0**	gal	**$0**

Capital cost	**$120,017**		
Annual ID	**$10,053**		
Annual OM	**$2,400**		
Total Annual costs	**$12,454**		
Heat cost	**$22.21**	$/MMBtu	

Savings **$22,357**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **406290**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$85.34
Annual OM	**$19,062**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,394**	$0.34	**$99.08**
Non-Fuel Costs		$0.30	
Alternative COE:		**$0.64**	
% Community energy		108%	
New Community COE		**$0.67**	

(includes non-fuel and diesel costs)

Savings

$173,347

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	29.9%

Other Resources

Nelson Lagoon

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

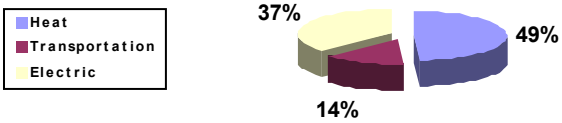
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

New Stuyahok

Energy Used



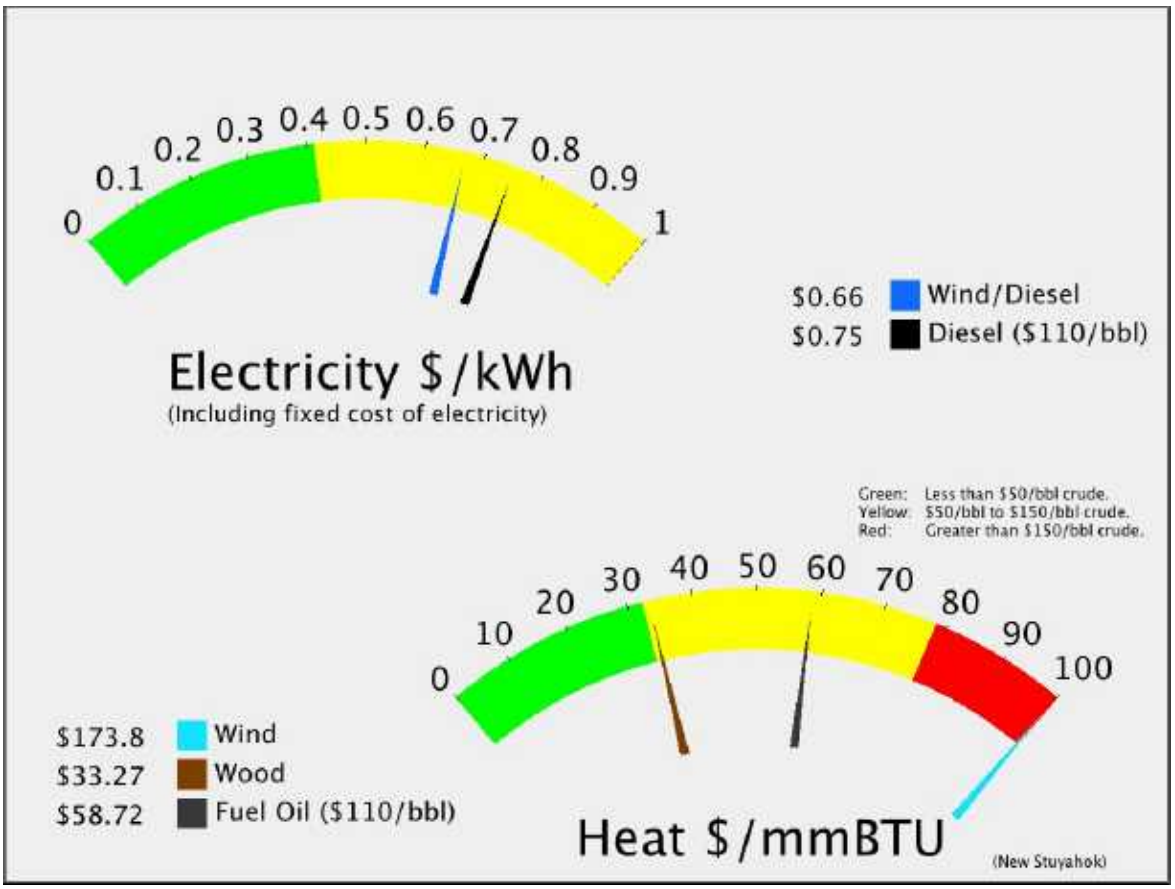
Total: **$5,045** Per capita

Heat **$2,470** Per capita

Transportation **$725** Per capita

Electricity: **$1,850** Per capita

POPULATION: 448



New Stuyahok

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 448 LATITUDE: 59d 29m N LONGITUDE: 157d 20m **Unorganized**

LOCATION New Stuyahok is located on the Nushagak River, about 12 miles upriver from Ekwok and 52 miles northeast of Dillingham. The village has been constructed at two elevations -- one 25 feet above river level, and one about 40 feet above river level.

ECONOMY The primary economic base in New Stuyahok is the salmon fishery; 43 residents hold commercial fishing permits. Many trap as well. The entire community relies upon subsistence foods. Subsistence items are often traded between communities. Salmon, moose, caribou, rabbit, ptarmigan, duck and geese are the primary sources of meat.

HISTORY The present location is the third site that villagers can remember. The village moved downriver to the Mulchatna area from the Old Village" in 1918. During the 1920s and 30s the village was engaged in herding reindeer for the U.S. government. However by 1942 the herd had dwindled to nothing; the village had been subjected to flooding; and the site was too far inland even to receive barge service. So in 1942 the village moved downriver again to its present location. Stuyahok appropriately means "going downriver place." The first school was built in 1961. A post office was also established during that year. An airstrip was built soon thereafter and the 1960s saw a 40% increase in the village population. The City was incorporated in 1972."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.49** /kw-hr

Current efficiency	**13.42**	kW-hr/gal	Fuel COE	**$0.47**	/kw-hr	Estimated Diesel OM	**$23,469**
Consumption in 200	**100,707**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$305,102**
Average Load	**134**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$552,801**
Estimated peak loa	**267.92**	kW	Total	**$0.75**		**Total Electric**	
Average Sales	**1,173,468**	kW-hours				**$881,372**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**170,500**	gal	
Fuel Oil:	**93%**	Estimated heating fuel cost/gallon	**$6.49**		
Wood:	**4%**	$/MMBtu delivered to user	**$58.86**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**20,460**		**$1,106,407**

Transportation (Estimated)

Estimated Diesel: **50,052** gal Estimated cost **$6.49**

Total Transportation **$324,794**

Energy Total **$2,312,573**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **96,530**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.21	/kw-hr
Estimated Diesel OM	**$23,469**	$0.02	
New fuel cost	**$529,872**	$0.45	
Avg Non-Fuel Costs:	**$328,571**	$0.26	
New cost of electricity		**$0.89**	per kW-hr

Savings **($228,371)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**15,106**	gal	**$98,026**
Stack Heat	**0**	gal	**$0**

Capital cost	**$375,081**		
Annual ID	**$31,419**		
Annual OM	**$7,502**		
Total Annual costs	**$38,921**		
Heat cost	**$23.32**	$/MMBtu	

Savings **$59,105**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **614982**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.27	$78.07
Annual OM	**$28,853**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$192,725**	$0.31	**$91.82**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		52%	
New Community COE		**$0.66**	

(includes non-fuel and diesel costs)

Savings

$109,272

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.5%

Other Resources

New Stuyahok

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

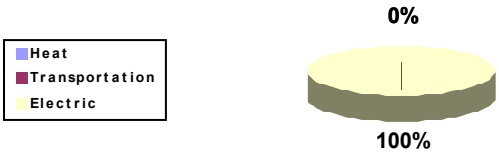
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: New Stuyahok Wind Analysis_AVEC has been submitted by: Alaska Village Cooperative (AVEC) for a Wind Diesel Hybrid project. The total project budget is: $4,436,800 with $117,610 requested in grant funding and $6,190 as matching funds.

Newtok

Energy Used



Total:

Per capita

Heat

Per capita

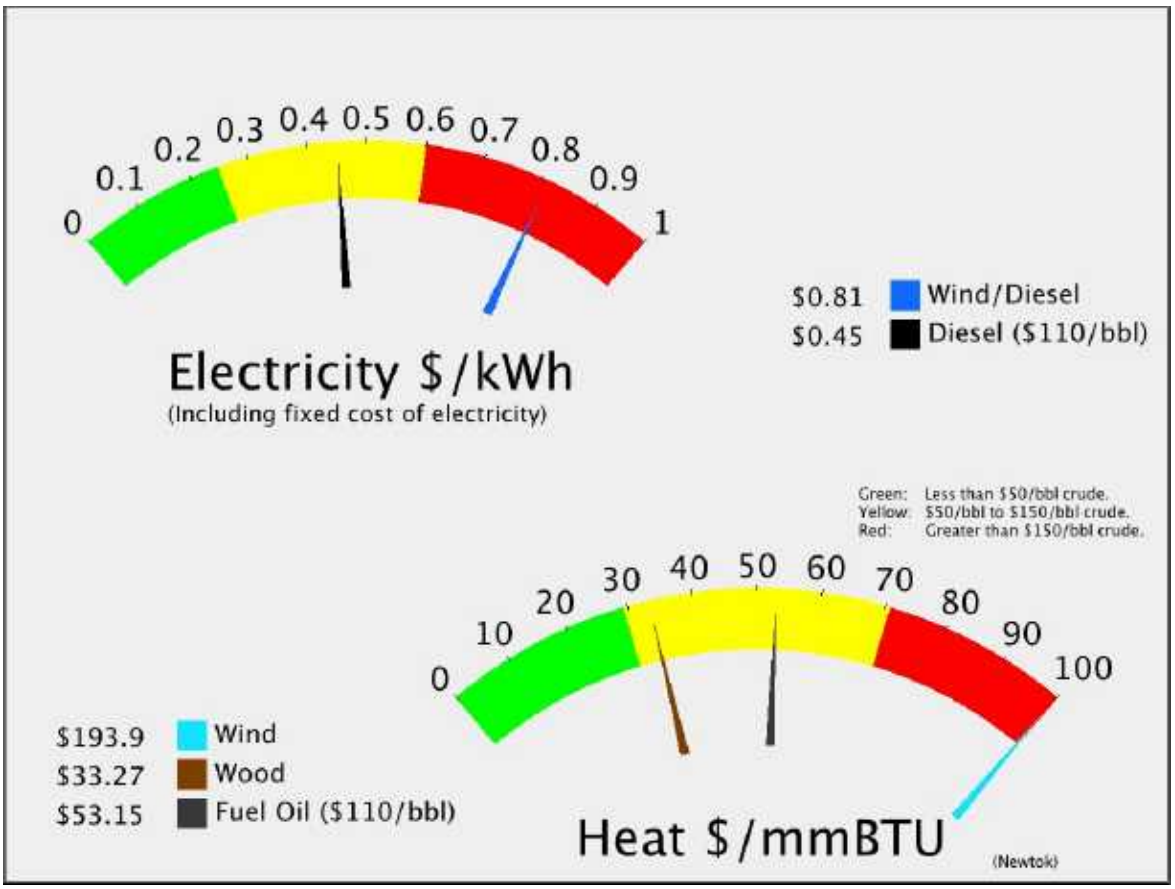
POPULATION: 353

Transportation

Per capita

Electricity: **$432**

Per capita



Newtok

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 353 LATITUDE: 60d 56m N LONGITUDE: 164d 38m **Unorganized**

LOCATION Newtok is on the Ninglick River north of Nelson Island in the Yukon-Kuskokwim Delta Region. It is 94 miles northwest of Bethel.

ECONOMY The school, clinic, village services, and commercial fishing provide employment. Subsistence activities and trapping supplement income. 27 residents hold commercial fishing permits.

HISTORY The people of Newtok share a heritage with Nelson Island communities; their ancestors have lived on the Bering Sea coast for at least 2,000 years. The people from the five villages are known as Qaluyaarmiut, or "dip net people." Only intermittent outside contact occurred until the 1920s. In the 1950s the Territorial Guard found volunteers from Newtok while they were traveling to Bethel. Tuberculosis was a major health problem during this period. In the late 1950s, the village was relocated from Old Kealavik ten miles away to its present location to escape flooding. A school was built in 1958, although high school students were required to travel to Bethel, St. Mary's, Sitka or Anchorage for their education. This was often their first exposure to the outside, and students returned with a good knowledge of the English language and culture. A high school was constructed in Newtok in the 1980s. A City was incorporated in 1976, but it was dissolved on Jan. 28, 1997. Due to severe erosion, the village wants to relocate to a new site called Taqikcaq, approximately 5 miles away on Nelson Island. In November 2003, the 108th Congress passed S. 924, allowing the village to relocate to Nelson Island. The legislation authorizes an exchange of lands between the U.S. Fish and Wildlife Service and the Newtok Native Corporation to allow villagers to relocate.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.87** /kw-hr

Current efficiency	**8.98**	kW-hr/gal	Fuel COE	**$0.09**	/kw-hr	Estimated Diesel OM	**$6,127**
Consumption in 200	**5,965**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$103,055**
Average Load	**35**	kW	NF COE:	**$0.34**	/kw-hr	Current Fuel Costs	**$29,073**
Estimated peak loa	**69.947**	kW	Total	**$0.45**		**Total Electric**	
Average Sales	**306,367**	kW-hours				**$138,255**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.28**	**Total Heating Oil**	
Electricity:	**14.3%**	Community heat needs in MMBtu			

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$5.87**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **3,824**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.36	/kw-hr
Estimated Diesel OM	**$6,127**	$0.02	
New fuel cost	**$18,639**	$0.06	
Avg Non-Fuel Costs:	**$109,182**	$0.34	
New cost of electricity	**$1.06** per kW-hr		

Savings

($98,462)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Tank

			Value
Water Jacket	**895**	gal	**$5,256**
Stack Heat	**0**	gal	**$0**

Capital cost	**$97,925**		
Annual ID	**$8,203**		
Annual OM	**$1,959**		
Total Annual costs	**$10,161**		
Heat cost	**$102.78**	$/MMBtu	

Savings

($4,906)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **457286**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$75.82
Annual OM	**$21,454**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,786**	$0.31	**$89.57**
Non-Fuel Costs		$0.36	
Alternative COE:		**$0.66**	
% Community energy		149%	
New Community COE		**$0.81**	

(includes non-fuel and diesel costs)

Savings

($1,531)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Newtok

Tidal: SOME POTENTIAL

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

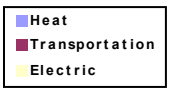
Propane:

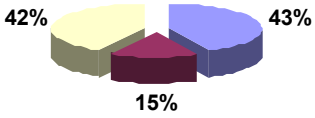
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nightmute

Energy Used





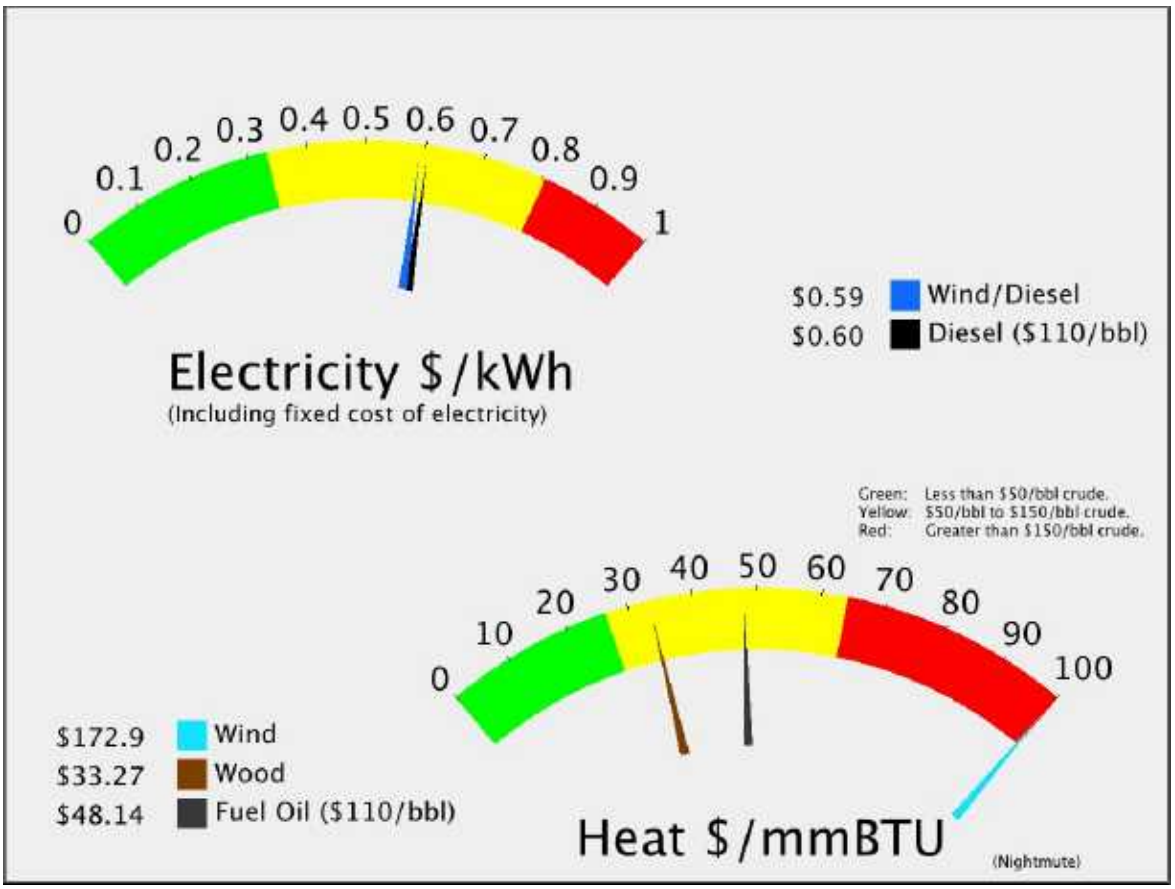
Total: **$3,316** Per capita

Heat **$1,417** Per capita

Transportation **$507** Per capita

Electricity: **$1,392** Per capita

POPULATION: 244



Nightmute

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 244 LATITUDE: 60d 28m N LONGITUDE: 164d 44m **Unorganized**

LOCATION Nightmute is located on Nelson Island, in western Alaska. It is 18 miles upriver from Toksook Bay and 100 miles west of Bethel.

ECONOMY The economy is a mixture of both subsistence and cash-generating activities. Employment is primarily with the City, school, services, commercial fishing and construction. Trapping and crafts also provide income. Almost all families engage in either commercial or subsistence fishing, and most have fish camps. 31 residents hold commercial fishing permits for herring roe, salmon drift and net fisheries.

HISTORY Nelson Island has been inhabited by the Qaluyaarmiut, or dip net people for 2,000 years. The area was relatively isolated from outside contact, and has kept its traditions and culture. Umkumiut is the traditional fish camp. In 1964, several residents moved to Toksook Bay to obtain more cost-effective goods. The City was incorporated in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.32** /kw-hr

Current efficiency	**12.62**	kW-hr/gal	Fuel COE	**$0.33**	/kw-hr	Estimated Diesel OM	**$10,624**
Consumption in 200	**40,016**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$138,116**
Average Load	**61**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$172,873**
Estimated peak loa	**121.28**	kW	Total	**$0.61**		**Total Electric**	
Average Sales	**531,216**	kW-hours				**$321,614**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**64,983**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.32**		
Wood:	**0%**	$/MMBtu delivered to user	**$48.25**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**7,798**	**$345,717**	

Transportation (Estimated)

Estimated Diesel:	**23,246**	gal	Estimated cost	**$5.32**	**Total Transportation**
					$123,673

Energy Total **$791,004**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **36,058**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$10,624**	$0.02	
New fuel cost	**$155,773**	$0.29	
Avg Non-Fuel Costs:	**$148,741**	$0.26	
New cost of electricity		**$0.59**	per kW-hr

Savings

$16,472

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**6,002**	gal	**$31,933**
Stack Heat	**0**	gal	**$0**

Capital cost	**$169,795**		
Annual ID	**$14,223**		
Annual OM	**$3,396**		
Total Annual costs	**$17,619**		
Heat cost	**$26.56**	$/MMBtu	

Savings

$14,314

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **449143**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		85%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings

$15,733

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	32.7%

Other Resources

Nightmute

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal: SOME POTENTIAL

Propane:

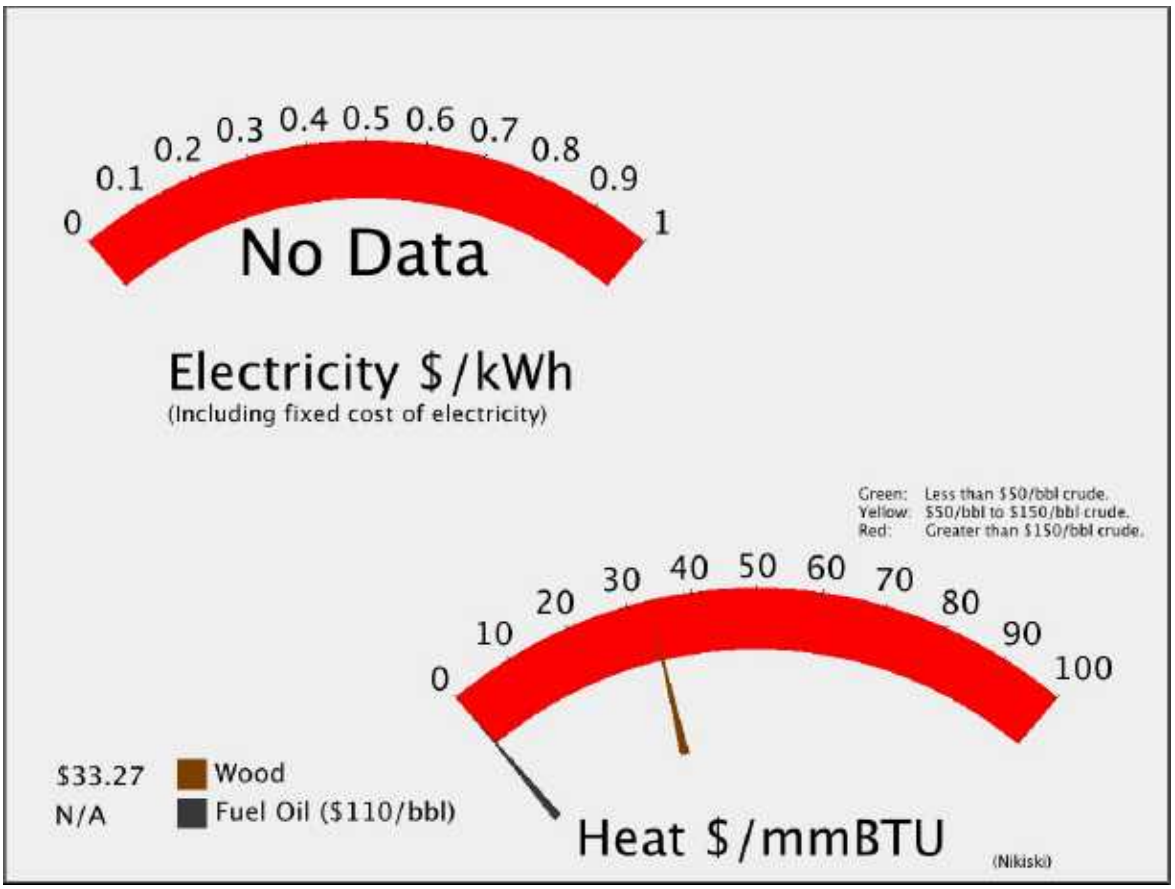
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nikiski

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	4345
Transportation	Per capita		
Electricity:	Per capita		



Nikiski

Regional Corporation
Cook Inlet Region, Inc.

House 34
Senate : **Q**

POPULATION 4345 LATITUDE: 60d 44m N LONGITUDE: 151d 19m **Kenai Peninsula Boroug**

LOCATION Nikiski is located on the Kenai Peninsula, 9 miles north of the City of Kenai, off of the Sterling Highway. It is also known as Port Nikiski and Nikishka.

ECONOMY Nikiski is the site of a Tesoro Alaska oil refinery, where Cook Inlet and some North Slope crude oil is processed into jet fuel, gasoline and diesel. BP has constructed a natural gas to liquid fuel pilot plant in Nikiski. Agrium, Inc. employs 500 residents at its fertilizer plant, producing 1 million tons of urea and 600,000 tons of ammonia annually. Timber, commercial and sport fishing, government, retail businesses and tourism-related services also provide employment. 56 residents hold commercial fishing permits. Alaska Petroleum Contractors and Natchiq Inc. are building portable modules in Nikiski to be shipped to the Alpine oil field in North Slope.

HISTORY Traditionally in Kenaitze Indian territory, the area was homesteaded in the 1940s, and grew with the discovery of oil on the Kenai Peninsula in 1957. By 1964, oil-related industries located here included Unocal, Phillips 66, Chevron and Tesoro.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Nikiski

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

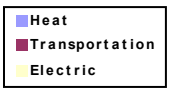
For detailed information, consult the AEA web site. akenergyauthority.org

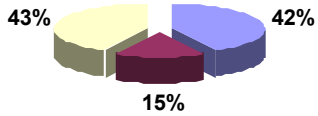
A project titled: Gustavus/Angoon/Wrangell/Nikiski Tidal Feasibility Study has been submitted by: Alaska Tidal Energy Company for a Tidal project.

A project titled: Kenai Winds_Nikiski has been submitted by: Kenai Winds, LLC for a Wind project. The total project budget is: $46,800,000 with $11,700,000 requested in grant funding and $35,100,000 as matching funds.

Nikolai

Energy Used





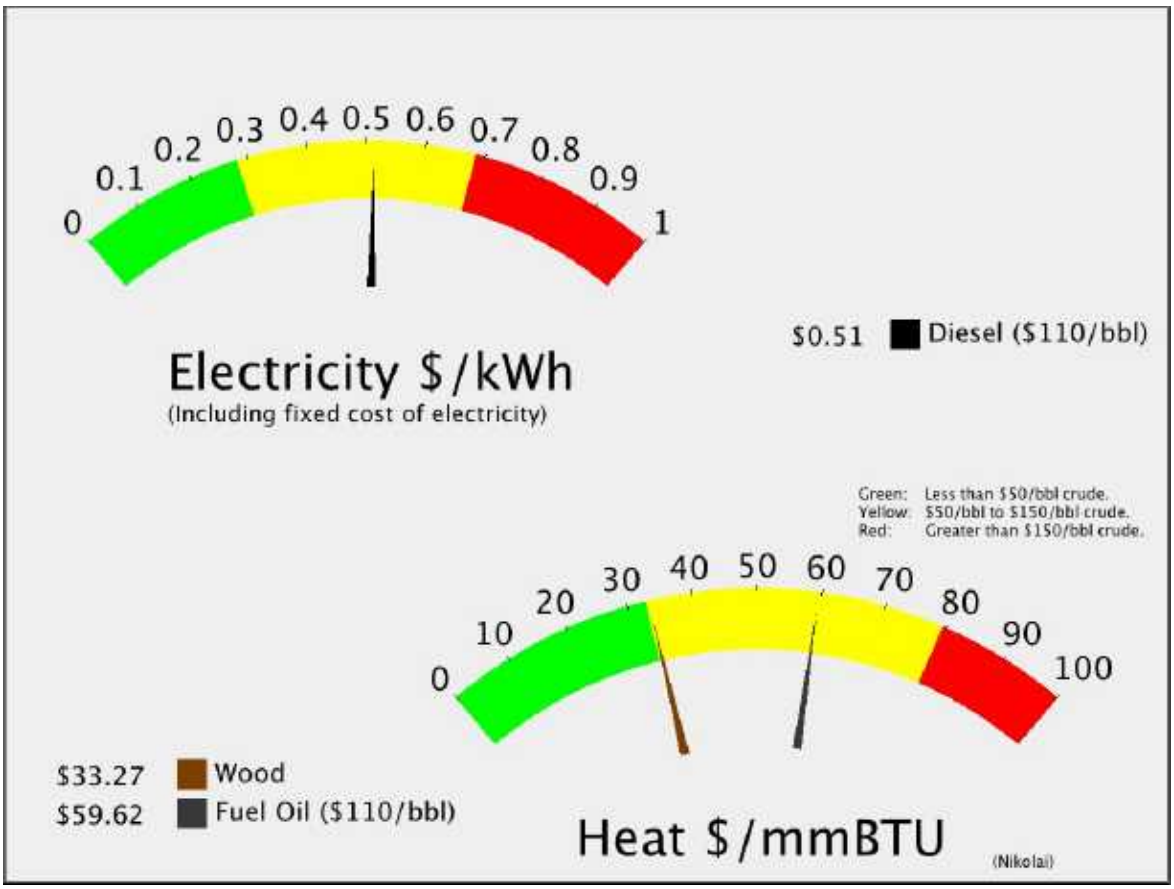
Total: **$3,431** Per capita

Heat **$1,449** Per capita

Transportation **$523** Per capita

Electricity: **$1,459** Per capita

POPULATION: 88



Nikolai

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 88 LATITUDE: 62d 58m N LONGITUDE: 154d 09m **Unorganized**

LOCATION Nikolai is located in Interior Alaska on the south fork of the Kuskokwim River, 46 air miles east of McGrath.

ECONOMY Village employment peaks during the summer when construction gets under way. City, state and federal governments provide the primary year-round employment. Residents rely heavily on subsistence activities for food and wood for heat. Some residents tend gardens. Salmon, moose, caribou, rabbits, and the occasional bear are utilized. Trapping and handicrafts also provide income.

HISTORY Nikolai is an Upper Kuskokwim Athabascan village, and has been relocated at least twice since the 1880s. One of the former sites was reported in 1899 to have a population of six males. The present site was established around 1918. Nikolai was the site of a trading post and roadhouse during the gold rush. It was situated on the Rainy Pass Trail, which connected the Ophir gold mining district to Cook Inlet. It became a winter trail station along the Nenana-McGrath Trail, which was used until 1926. By 1927, the St. Nicholas Orthodox Church was constructed. In 1948, a private school was established, and in 1949, a post office opened. Local residents cleared an airstrip in 1963, which heralded year-round accessibility to the community. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**5.43**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.59**
Consumption in 200	**20,968**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,528**
Average Load	**37**	kW	NF COE:	**$0.13**	/kw-hr	Other Non-Fuel Costs:	**$44,041**
Estimated peak loa	**74.52**	kW	Total	**$0.51**		Current Fuel Costs	**$117,171**
Average Sales	**326,397**	kW-hours				**Total Electric**	**$167,741**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**19,351**	gal	
Fuel Oil:	**78%**	Estimated heating fuel cost/gallon	**$6.59**		
Wood:	**22%**	$/MMBtu delivered to user	**$59.75**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,322**		**$127,487**

Transportation (Estimated)

Estimated Diesel:	**6,991**	gal	Estimated cost	**$6.59**	**Total Transportation** **$46,057**

Energy Total **$341,284**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Final Design**

Acheivable efficiency **14** kW-

New Fuel use **8,129**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.03	/kw-hr
Estimated Diesel OM	**$6,528**	$0.02	
New fuel cost	**$45,427**	$0.14	
Avg Non-Fuel Costs:	**$50,569**	$0.13	
New cost of electricity	**$0.58** per kW-hr		

Savings **$63,368**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Shop

			Value
Water Jacket	**3,145**	gal	**$20,721**
Stack Heat	**0**	gal	**$0**

Capital cost	**$104,328**		
Annual ID	**$8,739**		
Annual OM	**$2,087**		
Total Annual costs	**$10,826**		
Heat cost	**$31.15**	$/MMBtu	

Savings **$9,895**

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr	Heat Cost $/MMBtu :
kW-hr/year			Annual Capital			
Installation Type	**Wood ORC**		Annual OM			
Electric Wood cost	**$150/cd**		Fuel cost:			-90
Wood Required		Cd/Y	Total Annual Cost			**$29.76**
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs	$0.15		
			Alternative COE:			**Savings**
			% Community energy			
			New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	109.8%

Other Resources

Nikolai

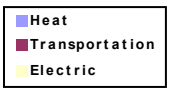
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

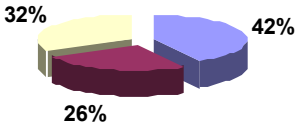
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nikolski

Energy Used





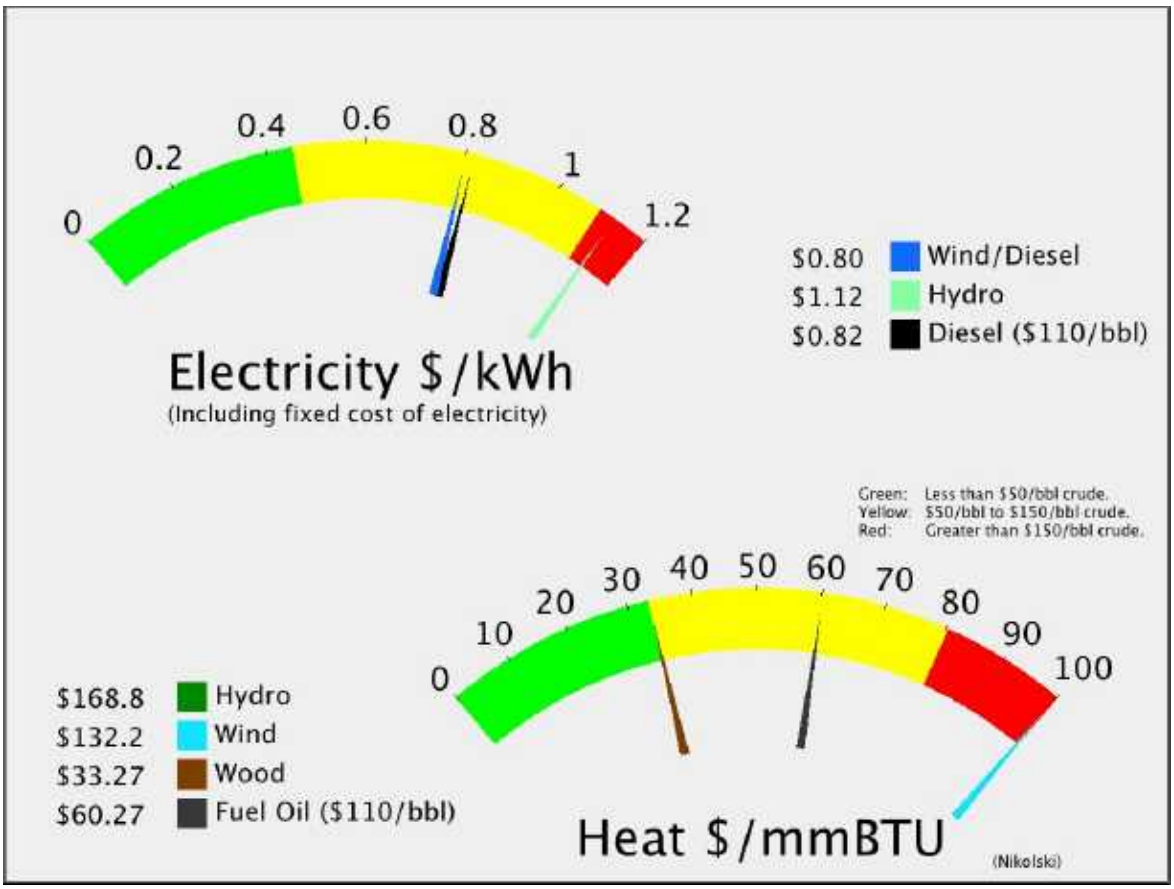
Total: $14,144 Per capita

Heat **$5,912** Per capita

Transportation **$3,704** Per capita

Electricity: **$4,528** Per capita

POPULATION: 33



Nikolski

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 33 LATITUDE: 52d 56m N LONGITUDE: 168d 51m **Unorganized**

LOCATION Nikolski is located on Nikolski Bay, off the southwest end of Umnak Island, one of the Fox Islands. It lies 116 air miles west of Unalaska, and 900 air miles from Anchorage.

ECONOMY Most residents support themselves by working outside the village at crab canneries and on processing ships. The lack of a harbor and dock have limited fisheries-related activities. The village is interested in developing a small value-added fish processing plant and a sport fishing lodge to attract former residents who left Nikolski for economic reasons. A sport-fishing charter boat was recently purchased by APICDA. Sheep, cattle and horses graze over much of the island. Income is supplemented by subsistence activities, which provide a substantial part of the villagers' diets. Salmon, halibut, seals and ducks are utilized.

HISTORY Nikolski is reputed by some to be the oldest continuously-occupied community in the world. Archaeological evidence from Ananiuliak Island, on the north side of Nikolski Bay, dates as far back as 8,500 years ago. The Chaluka archaeological site, in the village of Nikolski, indicates 4,000 years of virtually continuous occupation. People were living in Nikloski before the pyramids were built, the Mayan calendar was invented, or the Chinese language was written. In 1834, it was the site of sea otter hunting, and was recorded by the Russians as "Recheshnoe," which means "river." In 1920, a boom in fox farming occurred here. The Unangan became affluent enough to purchase a relatively large boat, the "Umnak Native," which was wrecked in 1933. A sheep ranch was established in 1926 as part of the Aleutian Livestock Company. In June 1942, when the Japanese attacked Unalaska and seized Attu and Kiska, residents were evacuated to the Ketchikan area. Locals were allowed to return in 1944, but the exposure to the outside world brought about many changes in the traditional lifestyle and community attitudes. In the 1950s, the Air Force constructed a White Alice radar communication site here, which provided some jobs. It was abandoned in late 1977.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.66** /kw-hr

Current efficiency	**9.46**	kW-hr/gal	Fuel COE	**$0.71**	/kw-hr	Estimated Diesel OM	**$3,975**
Consumption in 200	**24,825**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$18,518**
Average Load	**23**	kW	NF COE:	**$0.09**	/kw-hr	Current Fuel Costs	**$140,527**
Estimated peak loa	**45.374**	kW	Total	**$0.82**		**Total Electric**	
Average Sales	**198,740**	kW-hours				**$163,020**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**29,291**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$6.66**		
Wood:	**0%**	$/MMBtu delivered to user	**$60.41**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,515**		**$195,098**

Transportation (Estimated)

Estimated Diesel:	**18,351**	gal	Estimated cost	**$6.66**	**Total Transportation**
					$122,228

Energy Total **$480,346**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **16,767**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$3,975**	$0.02	
New fuel cost	**$94,911**	$0.48	
Avg Non-Fuel Costs:	**$22,493**	$0.09	
New cost of electricity		**$0.52**	per kW-hr

Savings

$44,987

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**3,724**	gal	**$24,803**
Stack Heat	**0**	gal	**$0**

Capital cost	**$63,524**		
Annual ID	**$5,321**		
Annual OM	**$1,270**		
Total Annual costs	**$6,592**		
Heat cost	**$16.02**	$/MMBtu	

Savings

$18,211

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **406290**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.29	$85.34
Annual OM	**$19,062**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,394**	$0.34	**$99.08**
Non-Fuel Costs		$0.11	
Alternative COE:		**$0.45**	
% Community energy		204%	
New Community COE (includes non-fuel and diesel costs)		**$0.80**	

Savings
$25,626

Alternative Energy Resources

Hydro

Installed KW **120**
kW-hr/year **223625**
Site **Sheep Creek**
Study plan effort **reconnaissance**
Plant Factor **62** %
Penetration **0.51**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,886,750**		
Annual Capital	**$122,689**	$0.55	$160.75
Annual OM	**$78,750**	$0.35	$103.18
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$201,439**	$0.90	**$263.93**
Non-Fuel Costs		$0.11	
Alternative COE:		**$1.01**	
% Community energy		113%	
New Community COE (includes non-fuel and diesel costs)		**$1.13**	

Savings
($38,419)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	72.5%

Other Resources

Nikolski

Tidal: SOME POTENTIAL
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

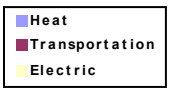
Renewable Fund Project List:

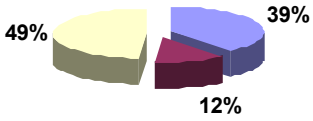
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Nikolski Wind Integration Construction has been submitted by: Umnak Power / Nikolski IRA Council for a Wind Diesel Hybrid project. The total project budget is: $451,030 with $409,430 requested in grant funding and $41,600 as matching funds.

Noatak

Energy Used





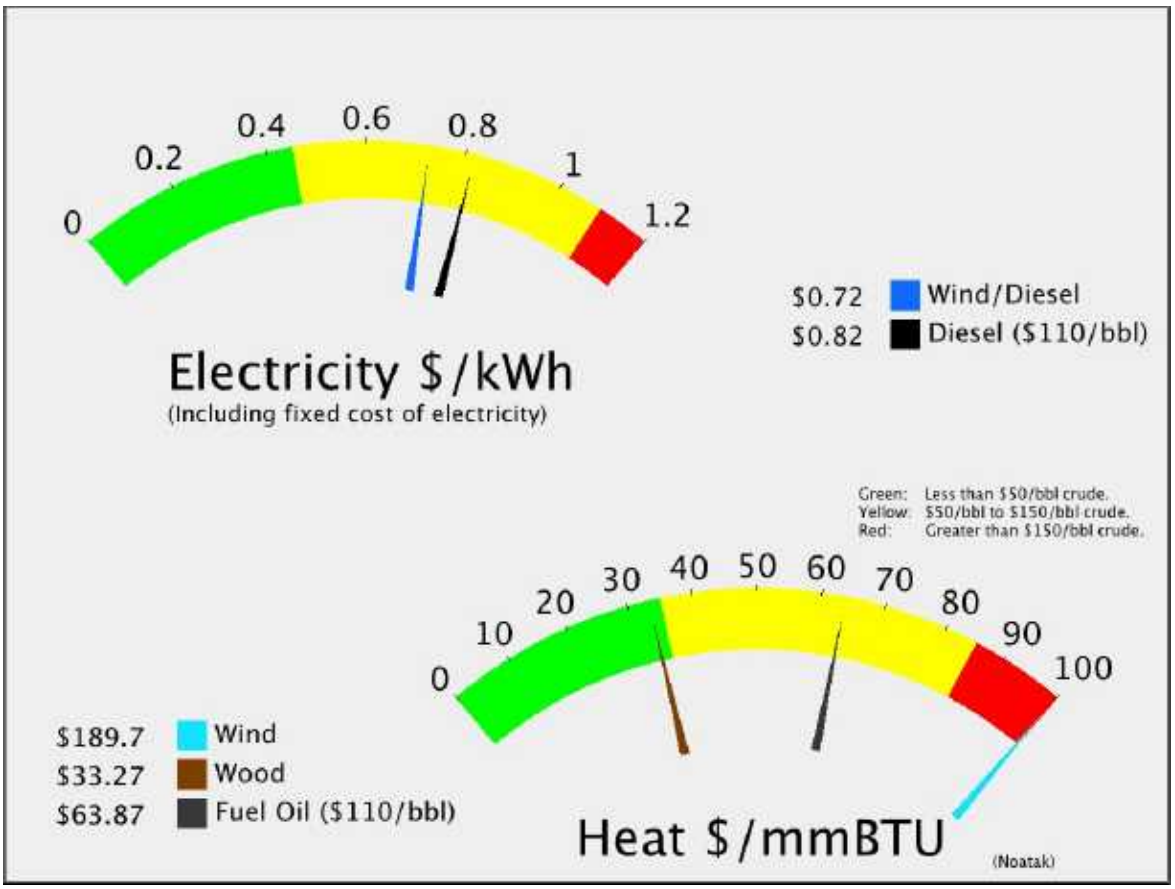
Total: **$5,343** Per capita

Heat **$2,080** Per capita

Transportation **$667** Per capita

Electricity: **$2,595** Per capita

POPULATION: 489



Noatak

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 489 LATITUDE: 67d 34m N LONGITUDE: 162d 58m **Northwest Arctic Borou**

LOCATION Noatak is located on the west bank of the Noatak River, 55 miles north of Kotzebue and 70 miles north of the Arctic Circle. This is the only settlement on the 396 mile-long Noatak River, just west of the 66-million acre Noatak National Preserve.

ECONOMY Noatak's economy is principally based on subsistence, although the available employment is diverse. The school district, City, Maniilaq and retail stores are the primary employers. Seven residents hold commercial fishing permits. During the summer, many families travel to seasonal fish camps at Sheshalik, and others find seasonal work in Kotzebue or fire-fighting. Chum salmon, whitefish, caribou, moose and waterfowl are harvested.

HISTORY It was established as a fishing and hunting camp in the 19th century. The rich resources of this region enabled the camp to develop into a permanent settlement. The 1880 census listed the site as Noatagamut, which means inland river people." A post office was established in 1940."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.06** /kw-hr

Current efficiency	**13.66**	kW-hr/gal	Fuel COE	**$0.54**	/kw-hr	Estimated Diesel OM	**$29,307**
Consumption in 200	**130,644**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$380,990**
Average Load	**167**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$791,376**
Estimated peak loa	**334.55**	kW	Total	**$0.82**		**Total Electric**	
Average Sales	**1,465,346**	kW-hours				**$1,201,673**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**144,139**	gal	
Fuel Oil:	**85%**	Estimated heating fuel cost/gallon	**$7.06**		
Wood:	**15%**	$/MMBtu delivered to user	**$64.01**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**17,297**		**$1,017,264**

Transportation (Estimated)

Estimated Diesel:	**46,204**	gal	Estimated cost	**$7.06**	**Total Transportation**
					$326,087

Energy Total **$2,545,024**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **127,437**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.07	/kw-hr
Estimated Diesel OM	**$29,307**	$0.02	
New fuel cost	**$771,952**	$0.53	
Avg Non-Fuel Costs:	**$410,297**	$0.26	
New cost of electricity	**$0.79** per kW-hr		

Savings

($89,472)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**19,597**	gal	**$138,303**
Stack Heat	**0**	gal	**$0**

Capital cost	**$468,375**		
Annual ID	**$39,234**		
Annual OM	**$9,368**		
Total Annual costs	**$48,602**		
Heat cost	**$22.44**	$/MMBtu	

Savings

$89,701

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **770303**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **3.76** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.32	$93.94
Annual OM	**$36,140**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$283,113**	$0.37	**$107.69**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.65**	
% Community energy		53%	
New Community COE (includes non-fuel and diesel costs)		**$0.72**	

Savings

$148,330

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	14.7%

Other Resources

Noatak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

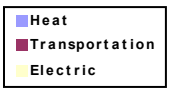
For detailed information, consult the AEA web site. akenergyauthority.org

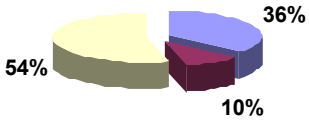
A project titled: Noatak Biomass_Native Village of Noatak has been submitted by: Native Village of Noatak for a Biomass project. The total project budget is: $50,000 with $50,000 requested in grant funding and $ as matching funds.

A project titled: Noatak Solar PV Construction has been submitted by: Alaska Village Electric Cooperative for a Solar PV project. The total project budget is: $605,000 with $550,000 requested in grant funding and $55,000 as matching funds.

Nome

Energy Used





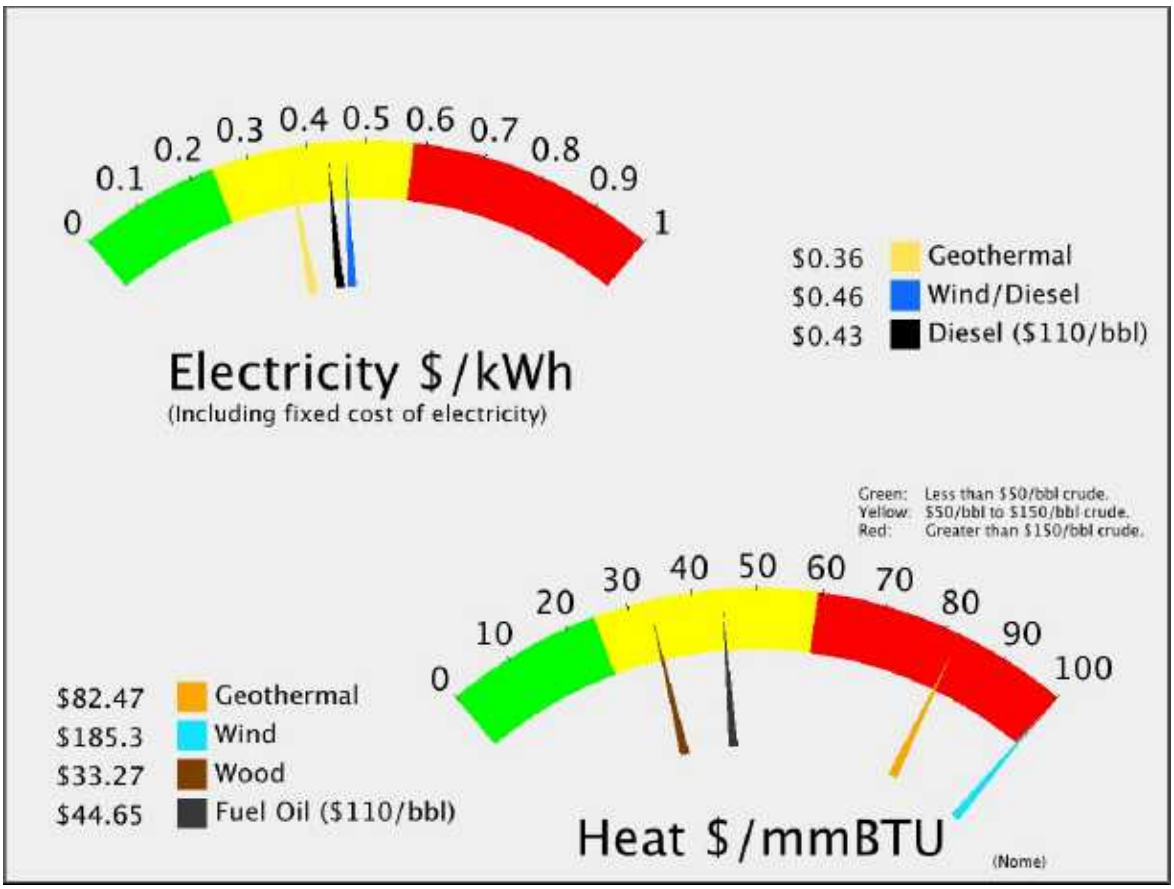
Total: **$6,610** Per capita

Heat **$2,406** Per capita

Transportation **$651** Per capita

Electricity: **$3,553** Per capita

POPULATION: 3497



Nome

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 3497 LATITUDE: 64d 30m N LONGITUDE: 165d 25m **Unorganized**

LOCATION Nome was built along the Bering Sea, on the south coast of the Seward Peninsula, facing Norton Sound. It lies 539 air miles northwest of Anchorage, a 75-minute flight. It lies 102 miles south of the Arctic Circle, and 161 miles east of Russia.

ECONOMY Nome is the supply, service and transportation center of the Bering Strait region. Government services provide the majority of employment. 60 residents hold commercial fishing permits. Retail services, transportation, mining, medical and other businesses provide year-round income. Several small gold mines continue to provide some employment. NovaGold Resource Inc.'s new mine at Rock Creek, 8 miles north of Nome, should be producing by 2006. The Rock Creek mine will require $40 million in capital investment, and is expected to create 100 jobs. Subsistence activities contribute to the local diet.

HISTORY Malemiut, Kauweramiut and Unalikmiut Eskimos have occupied the Seward Peninsula historically, with a well-developed culture adapted to the environment. Around 1870 to 1880, the caribou declined on the Peninsula and the Eskimos changed their diets. Gold discoveries in the Nome area had been reported as far back as 1865 by Western Union surveyors seeking a route across Alaska and the Bering Sea. But it was a $1500-to-the-pan gold strike on tiny Anvil Creek in 1898 by three Scandinavians, Jafet Lindeberg, Erik Lindblom, and John Brynteson, that brought thousands of miners to the "Eldorado." Almost overnight an isolated stretch of tundra fronting the beach was transformed into a tent-and-log cabin city of 20,000 prospectors, gamblers, claim jumpers, saloon keepers, and prostitutes. The gold-bearing creeks had been almost completely staked, when some entrepreneur discovered the "golden sands of Nome." With nothing more than shovels, buckets, rockers and wheel barrows, thousands of idle miners descended upon the beaches. Two months later the golden sands had yielded one million dollars in gold (at $16 an ounce). A narrow-gauge railroad and telephone line from Nome to Anvil Creek was built in 1900. The City of Nome was formed in 1901. By 1902 the more easily reached claims were exhausted and large mining companies with better equipment took over the mining operations. Since the first strike on tiny Anvil Creek, Nome's gold fields have yielded $136 million. The gradual depletion of gold, a major influenza epidemic in 1918, the depression, and finally World War II, each influenced Nome's population. A disastrous fire in 1934 destroyed most of the City.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$3.93** /kw-hr

Current efficiency	**15.93**	kW-hr/gal	Fuel COE	**$0.31**	/kw-hr	Estimated Diesel OM	**$571,770**
Consumption in 200	**2,219,328**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$3,107,027**
Average Load	**3,264**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$8,730,614**
Estimated peak loa	**6527.0**	kW	Total	**$0.43**		**Total Electric**	
Average Sales	**28,588,475**	kW-hours				**$12,409,411**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,705,314**	gal	
Fuel Oil:	**93%**	Estimated heating fuel cost/gallon	**$4.93**		
Wood:	**0%**	$/MMBtu delivered to user	**$44.75**		**Total Heating Oil**
Electricity:	**2.6%**	Community heat needs in MMBtu	**204,638**		**$8,413,846**

Transportation (Estimated)

Estimated Diesel:	**461,442**	gal	Estimated cost	**$4.93**	**Total Transportation**
					$2,276,711

Energy Total **$23,099,968**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**			
#N/A		Annual Capital cost	**$0**	$0.00	/kw-hr	
Status	**NA**	Estimated Diesel OM	**$571,770**	$0.02		
Acheivable efficiency	**14.8** kW-	New fuel cost	**$9,428,336**	$0.33		**Savings**
New Fuel use	**2,396,689**	Avg Non-Fuel Costs:	**$3,678,797**	$0.11		**($697,722)**
		New cost of electricity	**$0.40** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**332,899**	gal	**$1,642,491**
Stack Heat	**221,933**	gal	**$1,094,994**

Capital cost	**$9,137,869**		
Annual ID	**$765,448**		
Annual OM	**$182,757**		
Total Annual costs	**$948,205**		**Savings**
Heat cost	**$15.47**	$/MMBtu	**$1,789,280**

Alternative Energy Resources

Geothermal

Installed KW **5000**
kW-hr/year **41610000**
Site Name **Pilgrim - Shallow**
Project Capatcity **450 lpm**
Shallow Resource **160** Feet
Shallow Temp **90.00** C

			Heat Cost $/MMBtu :
Capital cost	**$70,000,000**	per kW-hr	
Annual Capital	**$4,705,100**	$0.11	$33.13
Annual OM	**$2,100,000**	$0.05	$14.79
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$6,805,100**	$0.16	**$47.92**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.29**	
% Community energy		146%	
New Community COE		**$0.37**	

(includes non-fuel and diesel costs)

Savings
$5,604,312

Alternative Energy Resources

Geothermal

Installed KW **6000**
kW-hr/year **49932000**
Site Name **Pilgrim - Deep**
Project Capatcity **450 lpm**
Shallow Resource **160** Feet
Shallow Temp **90.00** C

			Heat Cost $/MMBtu :
Capital cost	**$78,500,000**	per kW-hr	
Annual Capital	**$5,276,433**	$0.11	$30.96
Annual OM	**$2,355,000**	$0.05	$13.82
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$7,631,433**	$0.15	**$44.78**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.28**	
% Community energy		175%	
New Community COE		**$0.40**	

(includes non-fuel and diesel costs)

Savings
$4,777,978

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **6800**
kW-hr/year **4394414**
Met Tower? **no**
Homer Data? **no**
Wind Class **7**
Avg wind speed **4.99** m/s

			Heat Cost $/MMBtu :
Capital cost	**$29,882,018**	per kW-hr	
Annual Capital	**$2,008,541**	$0.46	$133.92
Annual OM	**$206,170**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,214,711**	$0.50	**$147.67**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.63**	
% Community energy		15%	
New Community COE		**$0.46**	

(includes non-fuel and diesel costs)

Savings
($784,972)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	1.2%

Other Resources

Nome

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Banner Wind Construction_Nome has been submitted by: Banner Wind, LLC for a Wind Diesel Hybrid project. The total project budget is: $5,157,000 with $4,126,000 requested in grant funding and $1,031,000 as matching funds.

A project titled: Geothermal Resource Assessment Seward Pen_AVEC has been submitted by: Alaska Village Electric Cooperative (AVEC) for a Geothermal project. The total project budget is: $4,600,000 with $4,301,950 requested in grant funding and $145,000 as matching funds.

A project titled: Nome Banner Peak Wind Farm Transmission Construction has been submitted by: City of Nome d/b/a Nome Joint Utilities System for a Transmission project. The total project budget is: $890,000 with $801,000 requested in grant funding and $89,000 as matching funds.

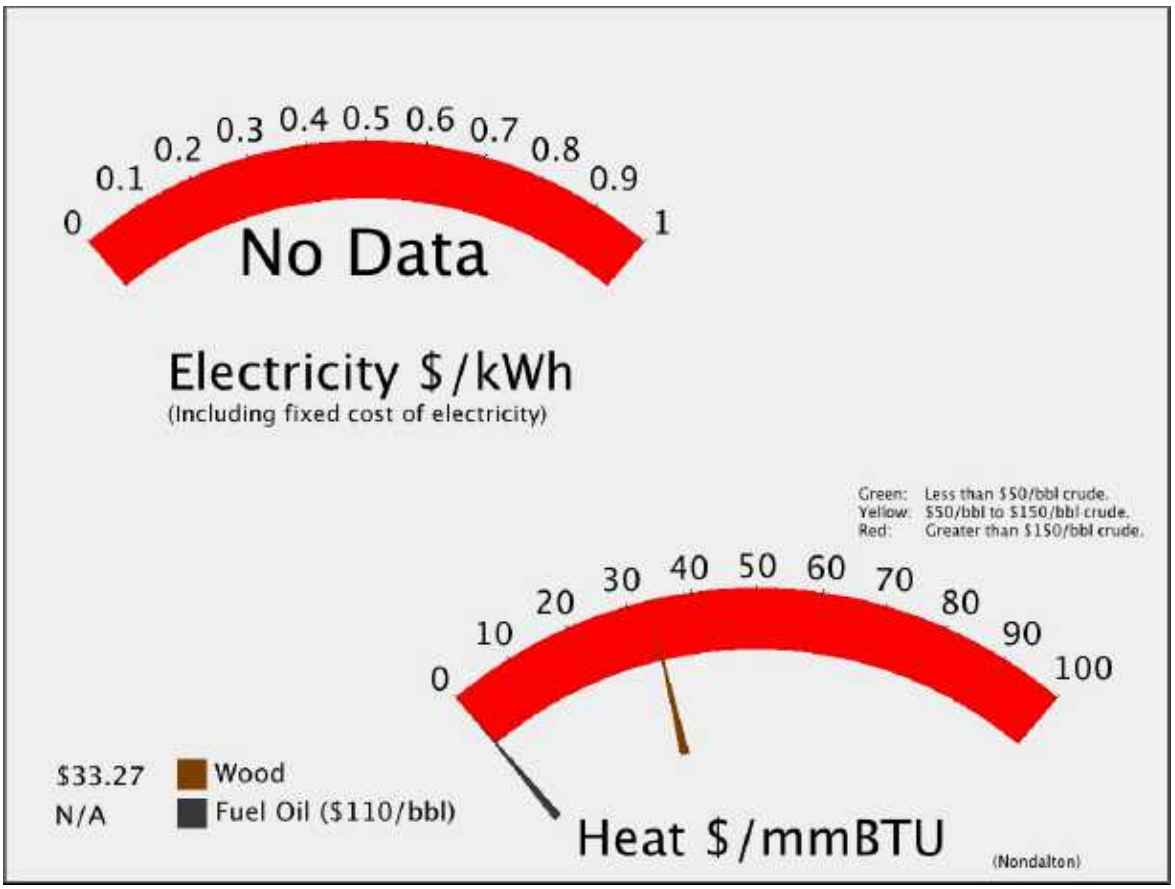
A project titled: Nome/Newton Peak Wind Farm Construction has been submitted by: City of Nome d/b/a Nome Joint Utility System (NJUS) for a Wind Diesel Hybrid project. The total project budget is: $15,534,309 with $13,952,326 requested in grant funding and $1,582,983 as matching funds.

A project titled: Pilgrim Hot Springs Assessment_ACEP has been submitted by: University of Alaska Fairbanks, Institute of Northern Engineering, Alaska Center for Energy and Power for a Geothermal project. The total project budget is: $2,349,751 with $2,349,751 requested in grant funding and $ as matching funds.

Nondalton

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	196
Transportation	Per capita		
Electricity:	Per capita		



Nondalton

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 196 LATITUDE: 59d 58m N LONGITUDE: 154d 51m **Lake & Peninsula Borou**

LOCATION Nondalton is located on the west shore of Six Mile Lake, between Lake Clark and Iliamna Lake, 190 miles southwest of Anchorage.

ECONOMY Fishing in Bristol Bay is an important source of income in Nondalton. 14 residents hold commercial fishing permits. One source of summer employment is firefighting. The community relies heavily on subsistence hunting and fishing. Many families travel to fish camp each summer. Salmon, trout, grayling, moose, caribou, bear, dall sheep, rabbit and porcupine are utilized.

HISTORY Nondalton is a Tanaina Indian name first recorded in 1909 by the U.S. Geological Survey. The village was originally located on the north shore of Six Mile Lake, but in 1940, wood depletion in the surrounding area and growing mud flats caused the village to move to its present location on the west shore. The post office, established in 1938, relocated with the villagers. Nondalton formed an incorporated city government in 1971.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**
kW-hr/year **575614**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,438,000**		
Annual Capital	**$163,872**	$0.28	$83.41
Annual OM	**$27,006**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$190,878**	$0.33	**$97.16**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Nondalton

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

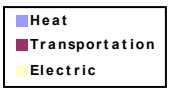
Renewable Fund Project List:

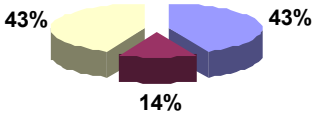
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wood Heating Final Design has been submitted by: Lake and Peninsula Borough for a Biomass project.

Noorvik

Energy Used





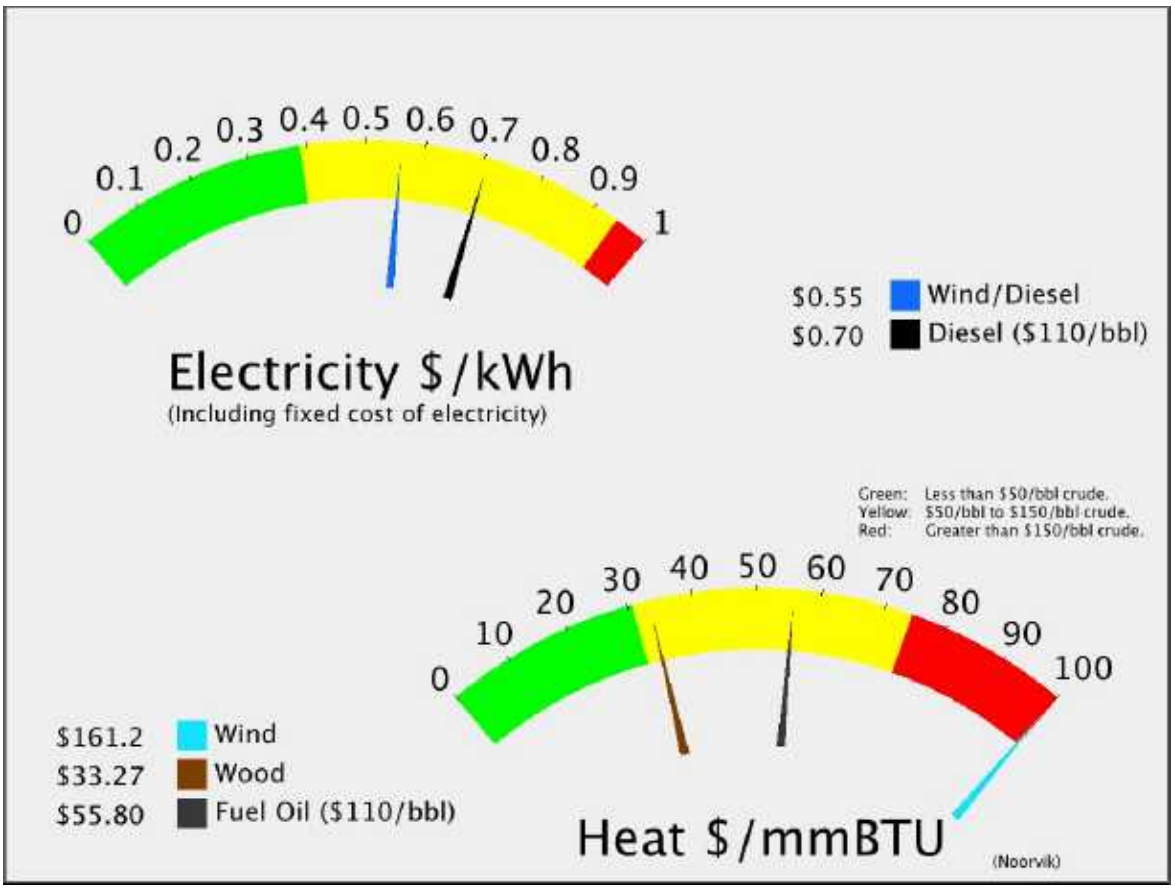
Total: **$4,776** Per capita

Heat **$2,054** Per capita

Transportation **$658** Per capita

Electricity: **$2,063** Per capita

POPULATION: 636



Noorvik

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 636 LATITUDE: 66d 50m N LONGITUDE: 161d 03m **Northwest Arctic Borou**

LOCATION Noorvik is located on the right bank of the Nazuruk Channel of the Kobuk River, 33 miles northwest of Selawik and 45 miles east of Kotzebue. The village is downriver from the 1.7-million acre Kobuk Valley National Park.

ECONOMY The primary local employers are the school district, the City, the Maniilaq health clinic, and two stores. Seasonal employment at the Red Dog Mine, BLM fire fighting, or work in Kotzebue supplement income. Seven residents hold commercial fishing permits. Caribou, fish, moose, waterfowl and berries are utilized.

HISTORY Noorvik means a place that is moved to." The village was established by Kowagmuit Inupiat Eskimo fishermen and hunters from Deering in the early 1900s. The village was also settled by people from Oksik a few miles upriver. A post office was established in 1937. The City government was incorporated in 1964."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.17** /kw-hr

Current efficiency	**13.31**	kW-hr/gal	Fuel COE	**$0.43**	/kw-hr	Estimated Diesel OM	**$37,306**
Consumption in 200	**154,406**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$484,980**
Average Load	**213**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$797,631**
Estimated peak loa	**425.87**	kW	Total	**$0.71**		**Total Electric**	
Average Sales	**1,865,309**	kW-hours				**$1,319,917**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**211,884**	gal	
Fuel Oil:	**91%**	Estimated heating fuel cost/gallon	**$6.17**		
Wood:	**7%**	$/MMBtu delivered to user	**$55.92**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**25,426**		**$1,306,431**

Transportation (Estimated)

Estimated Diesel:	**67,920**	gal	Estimated cost	**$6.17**	**Total Transportation**
					$418,781

Energy Total **$3,045,129**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **146,847**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.06	/kw-hr
Estimated Diesel OM	**$37,306**	$0.02	
New fuel cost	**$758,583**	$0.41	
Avg Non-Fuel Costs:	**$522,287**	$0.26	
New cost of electricity	**$0.71** per kW-hr		

Savings

($69,849)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**23,161**	gal	**$142,805**
Stack Heat	**0**	gal	**$0**

Capital cost	**$596,218**		
Annual ID	**$49,943**		
Annual OM	**$11,924**		
Total Annual costs	**$61,867**		
Heat cost	**$24.17**	$/MMBtu	

Savings

$80,938

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**

kW-hr/year **1928982**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$6,410,697**		
Annual Capital	**$430,900**	$0.22	$65.45
Annual OM	**$90,501**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$521,400**	$0.27	**$79.20**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.55**	
% Community energy		103%	
New Community COE		**$0.56**	

(includes non-fuel and diesel costs)

Savings

$798,517

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	10.0%

Other Resources

Noorvik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

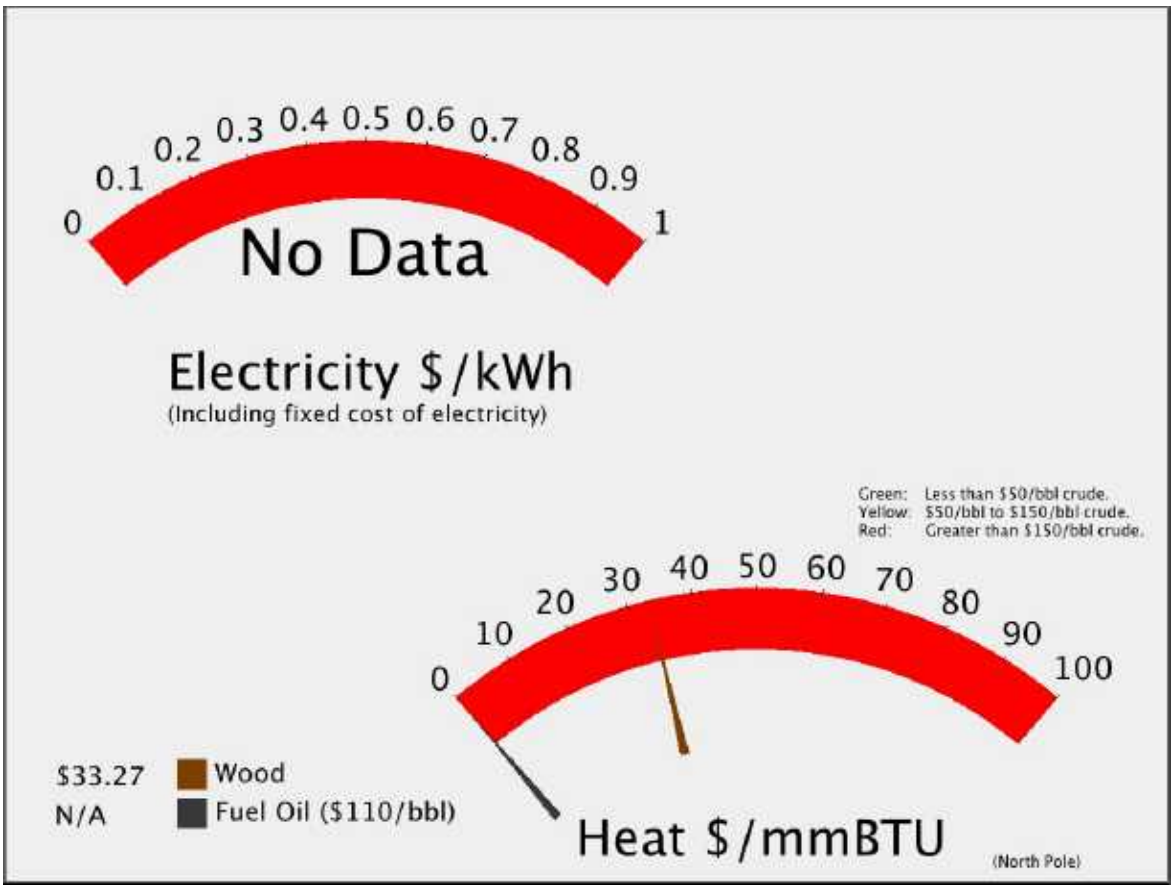
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Buckland/Deering/Noorvik Wind Farm Construction has been submitted by: Northwest Arctic Borough for a Wind Diesel Hybrid project.

North Pole

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	1946
Transportation	Per capita		
Electricity:	Per capita		



North Pole

Regional Corporation
Doyon, Limited
House 11
Senate : **F**

POPULATION 1946 LATITUDE: 64d 45m N LONGITUDE: 147d 21m **Fairbanks North Star Bo**

LOCATION North Pole is located 14 miles southeast of Fairbanks on the Richardson Highway. It lies 386 miles north of Anchorage and 2,347 miles north of Seattle.

ECONOMY Employment in the Fairbanks area is extremely diverse, including government, military, retail, medical, and other services. A Williams Alaska oil refinery produces jet fuel, heating oil, gasoline and diesel from North Slope crude oil. Fuel trains deliver 90% of the jet fuel produced at the plant to Ted Stevens International Airport. Petro Star also operates a small distillery. Nine residents hold commercial fishing permits. Every Christmas season, Santa's helpers are hired to respond to the thousands of letters mailed to the North Pole.

HISTORY In 1944, Bon Davis homesteaded this area. Dahl and Gaske Development Company later bought the Davis homestead, subdivided it, and named it North Pole, hoping to attract a toy manufacturer who would advertise products as being made in North Pole. The Santa Claus House was subsequently developed by Con Miller and his family. The City was incorporated in 1953. Growth from Fairbanks and the nearby Eielson Air Force Base have increased development over the years.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	
Cords/day:	**1.8**		
Hours per year	**6000**		
Wood (cordwood or willows)	**$225**	$/cord	

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

North Pole

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

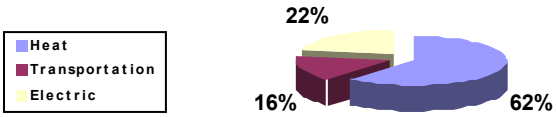
A project titled: Natural Gas Distribution_AGPA has been submitted by: Alaska Gasline Port Authority for a Gas project. The total project budget is: $30,000 with $30,000 requested in grant funding and $ as matching funds.

A project titled: North Pole Biomass Electricity/Heat Construction has been submitted by: Chena Power Utility, LLC for a Biofuels project. The total project budget is: $4,007,900 with $2,000,000 requested in grant funding and $2,007,900 as matching funds.

A project titled: North Pole Heat Recovery Construction has been submitted by: Golden Valley Electric Association for a Heat Recovery project. The total project budget is: $1,050,000 with $840,000 requested in grant funding and $210,000 as matching funds.

Northway

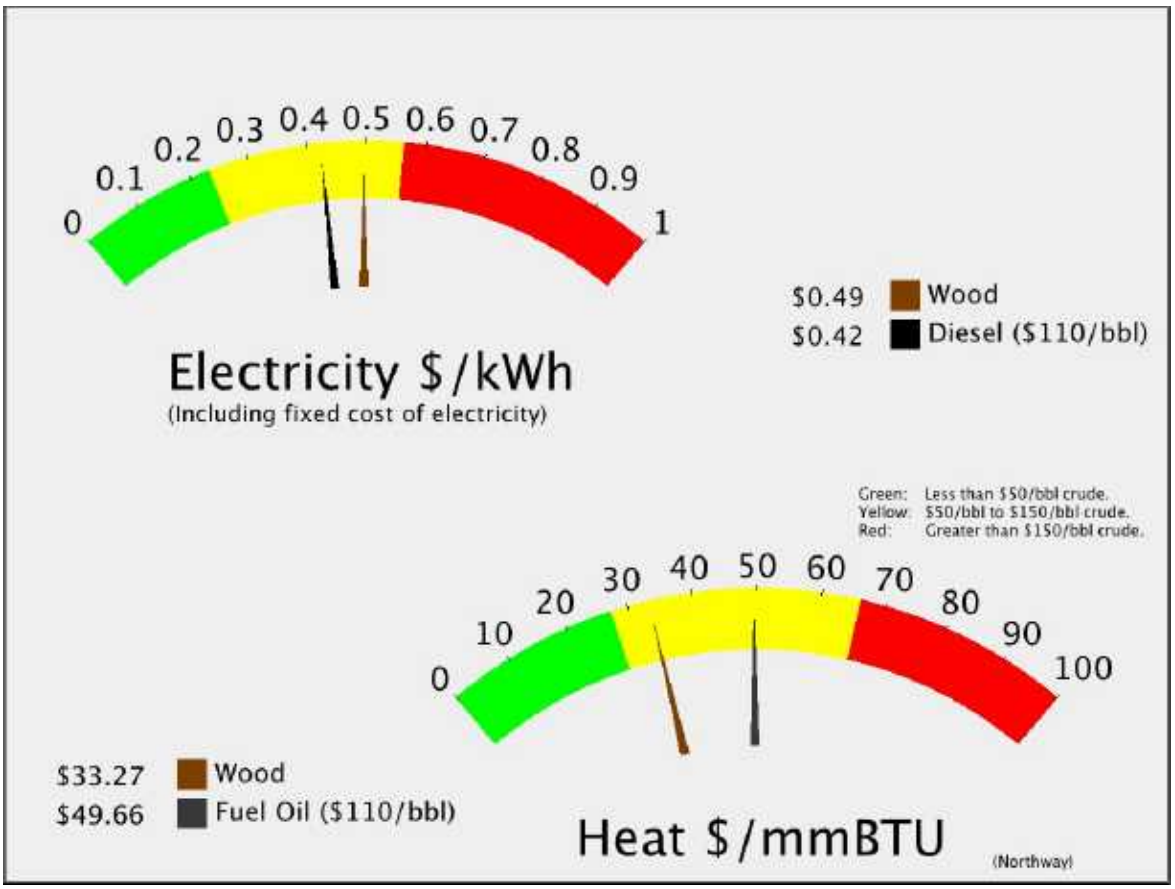
Energy Used



Total: $10,272 Per capita

Heat	**$6,325**	Per capita
Transportation	**$1,639**	Per capita
Electricity:	**$2,308**	Per capita

POPULATION: 81



Northway

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 81 LATITUDE: 62d 56m N LONGITUDE: 141d 52m **Unorganized**

LOCATION Northway is located on the east bank of Nabesna Slough, 50 miles southeast of Tok. It lies off the Alaska Highway on a 9-mile spur road, adjacent to the Northway airport. It is 42 miles from the Canadian border in the Tetlin National Wildlife Refuge. Northway presently consists of three dispersed settlements: Northway Junction, at milepost 1264, Northway, at the airport, and the Native village, 2 miles north.

ECONOMY Most wage employment is with facilities or services for the airport. An FAA Flight Service Station and U.S. Customs office are located at the airport. A motel, cafe, bar and pool hall, grocery store, and electric utility provide some employment. Fire fighting, construction and trapping also income. Subsistence is important to the Native population.

HISTORY The area around Northway was first utilized by semi-nomadic Athabascans who pursued seasonal subsistence activities in the vicinity of Scottie and Gardiner Creeks and Chisana, Nabesna, and Tanana Rivers. The Native settlement of Northway Village is located 2 miles south of Northway. The Native village was named in 1942 after Chief Walter Northway, who adopted his name from a Tanana and Nabesna riverboat captain. The development and settlement of Northway was due to construction of the airport during World War II. The Northway airport was a link in the Northwest Staging Route, a cooperative project between the U.S. and Canada. A chain of air bases through Canada to Fairbanks were used to supply an Alaska defense during World War II, and during the construction of the Alcan Highway. A post office was first established in 1941.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.13**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.49**
Consumption in 200	**101,609**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$25,672**
Average Load	**147**	kW	NF COE:	**$0.05**	/kw-hr	Other Non-Fuel Costs:	**$60,589**
Estimated peak loa	**293.06**	kW	Total	**$0.42**		Current Fuel Costs	**$456,011**
Average Sales	**1,283,584**	kW-hours				**Total Electric**	**$542,272**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**93,356**	gal	
Fuel Oil:	**71%**	Estimated heating fuel cost/gallon	**$5.49**		
Wood:	**29%**	$/MMBtu delivered to user	**$49.78**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,203**		**$512,327**

Transportation (Estimated)

Estimated Diesel:	**24,195**	gal	Estimated cost	**$5.49**	**Total Transportation** **$132,782**

Energy Total **$1,187,381**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **AP&T**

Acheivable efficiency **14** kW-

New Fuel use **95,267**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.04	/kw-hr
Estimated Diesel OM	**$25,672**	$0.02	
New fuel cost	**$427,550**	$0.33	
Avg Non-Fuel Costs:	**$86,261**	$0.05	
New cost of electricity	**$0.43** per kW-hr		

Savings **($21,799)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**15,241**	gal	**$83,643**
Stack Heat	**0**	gal	**$0**

Capital cost	**$410,278**		
Annual ID	**$34,368**		
Annual OM	**$8,206**		
Total Annual costs	**$42,573**		
Heat cost	**$25.28**	$/MMBtu	

Savings **$41,070**

Alternative Energy Resources

Wood

Installed KW **178**

kW-hr/year **1325327**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **1675** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,098,796**	per kW-hr	
Annual Capital	**$141,072**	$0.11	
Annual OM	**$157,974**	$0.12	
Fuel cost:	**$251,223**	$0.19	-90
Total Annual Cost	**$550,269**	$0.42	**$29.76**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.48**	
% Community energy		103%	
New Community COE (includes non-fuel and diesel costs)		**$0.50**	

Savings

($7,997)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat 22.8%

Other Resources

Northway

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal: COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE

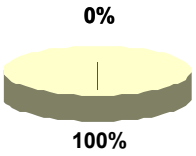
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nuiqsut

Energy Used



Total:

Per capita

Heat

Per capita

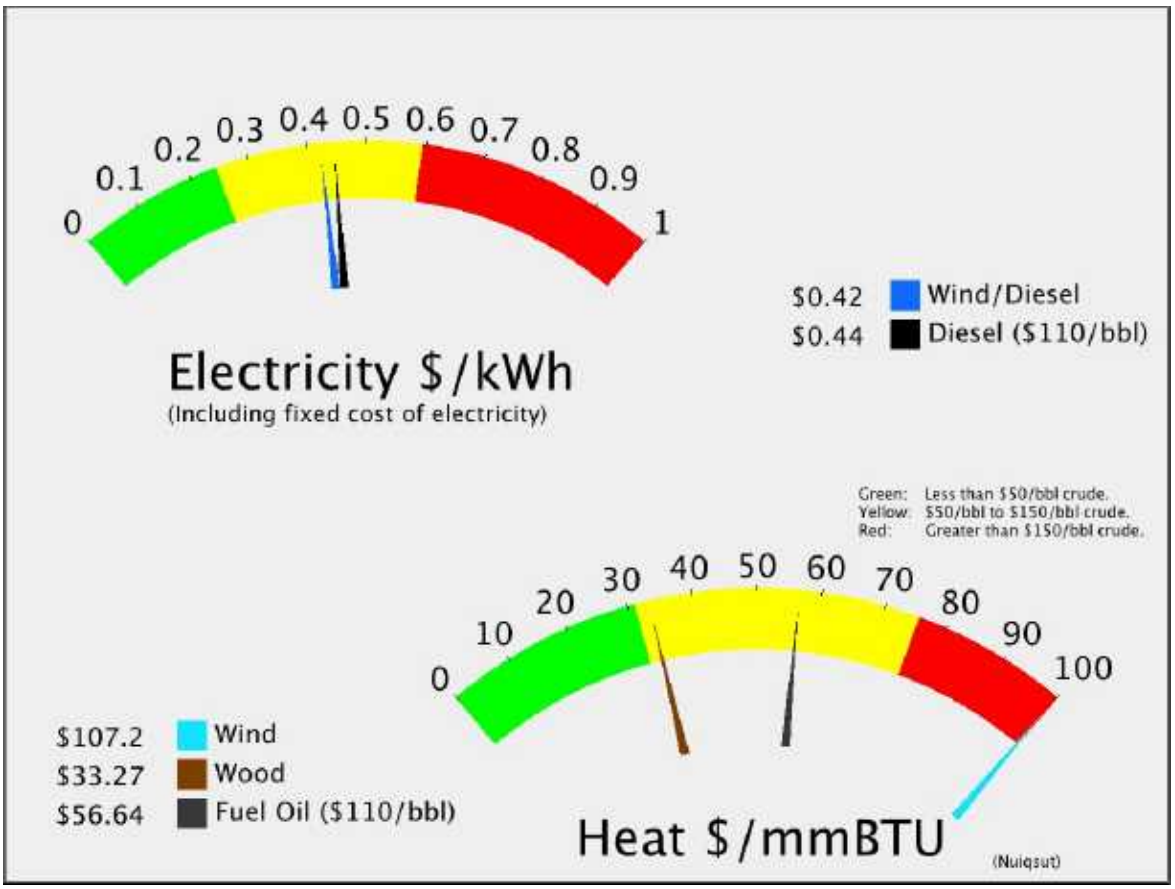
POPULATION: 403

Transportation

Per capita

Electricity: **$3,714**

Per capita



Nuiqsut

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 403 LATITUDE: 70d 11m N LONGITUDE: 151d 00m **North Slope Borough**

LOCATION Nuiqsut is located on the west bank of the Nechelik Channel of the Colville River Delta, about 35 miles from the Beaufort Sea coast.

ECONOMY Unemployment is high in Nuiqsut. The Kuukpik Native Corporation, school, borough services and the store provide most of the year-round employment in the village. Trapping and craft-making provide some income. Caribou, bowhead and beluga whale, seal, moose and fish are staples of the diet. Polar bears are also hunted.

HISTORY The Colville Delta has traditionally been a gathering and trading place for the Inupiat and has always offered good hunting and fishing. The old village of Nuiqsut (Itqilippaa) was abandoned in the late 1940s because there was no school. The village was resettled in 1973 by 27 families from Barrow. A school, housing and other facilities were constructed by federal agencies in the summer of 1973 and 1974; goods were hauled from Barrow by tractor and snowmachine. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.40**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$5.26** /kw-hr
Consumption in 200	**248,663**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$70,751**
Average Load	**404**	kW	NF COE:	**$0.06**	/kw-hr	Other Non-Fuel Costs:	**$200,057**
Estimated peak loa	**807.66**	kW	Total	**$0.45**		Current Fuel Costs	**$1,307,793**
Average Sales	**3,537,564**	kW-hours				**Total Electric**	**$1,578,601**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**98%**	Estimated heating fuel cost/gallon	**$6.26**		
Wood:	**0%**	$/MMBtu delivered to user	**$56.77**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu			

Transportation (Estimated)

Estimated Diesel:	gal	Estimated cost	**$6.26**	**Total Transportation**	

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$125,000**				
Generator Upgrade		Annual Capital cost	**$10,471**	$0.00	/kw-hr		
Status **Pending**		Estimated Diesel OM	**$70,751**	$0.02			
Acheivable efficiency	**14.8** kW-	New fuel cost	**$1,187,808**	$0.34		**Savings**	
New Fuel use	**225,849**	Avg Non-Fuel Costs:	**$270,808**	$0.06		**$109,514**	
		New cost of electricity	**$0.44** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**		Capital cost	**$1,130,728**				
Is it working now? **Y**		Annual ID	**$94,717**				
BLDGs connected and working:		Annual OM	**$22,615**				
School, Washeteria, Water Treatment	Value						
		Total Annual costs	**$117,332**			**Savings**	
Water Jacket	**37,299** gal **$233,468**	Heat cost	**$28.47** $/MMBtu			**$116,137**	
Stack Heat	**0** gal **$0**						

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **500**

kW-hr/year **1018828**

Met Tower? **no**

Homer Data? **yes**

Wind Class **3**

Avg wind speed **6.40** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.24	$71.03
Annual OM	**$47,800**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$294,772**	$0.29	**$84.77**
Non-Fuel Costs		$0.08	
Alternative COE:		**$0.37**	
% Community energy		29%	
New Community COE (includes non-fuel and diesel costs)		**$0.42**	

Savings

$102,229

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Nuiqsut

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: CONFIRMED RESOURCE

Coal:

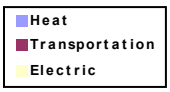
Propane:

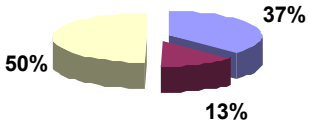
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nulato

Energy Used





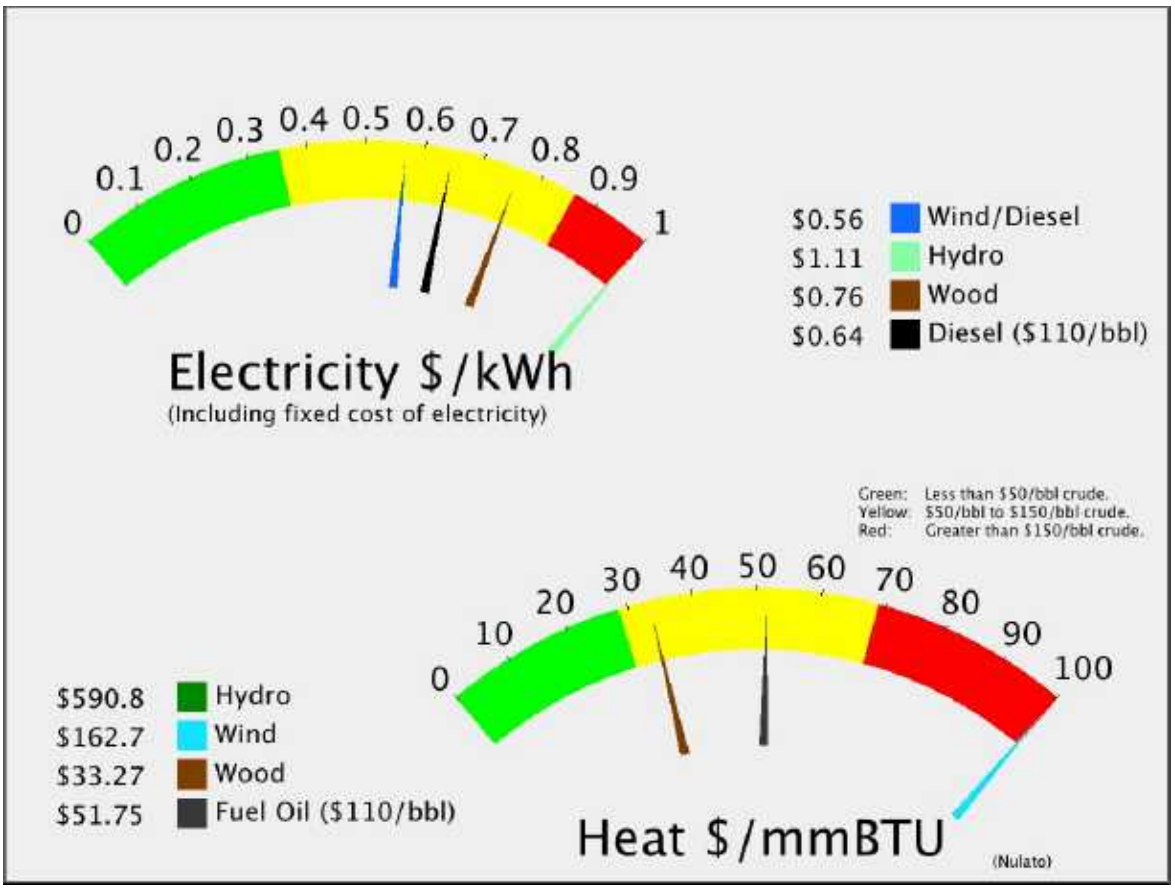
Total: **$4,169** Per capita

Heat **$1,541** Per capita

Transportation **$557** Per capita

Electricity: **$2,070** Per capita

POPULATION: 274



Nulato

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 274 LATITUDE: 64d 43m N LONGITUDE: 158d 06m **Unorganized**

LOCATION Nulato is located on the west bank of the Yukon River, 35 miles west of Galena and 310 air miles west of Fairbanks. It lies in the Nulato Hills, across the River from the Innoko National Wildlife Refuge.

ECONOMY Most of the full-time employment in Nulato is with the City, Tribe, school, clinic and store. During the summer, BLM fire-fighting positions, construction work and fish processing are important sources of cash. 12 residents hold commercial fishing permits. Trapping provides an income source in winter. Subsistence foods are a major portion of the diet, and many families travel to fish camp each summer. Salmon, moose, bear, small game and berries are utilized.

HISTORY The Koyukon Athabascans traditionally had spring, summer, fall, and winter camps, and moved as the wild game migrated. There were 12 summer fish camps located on the Yukon River between the Koyukuk River and the Nowitna River. Nulato was the trading site between Athabascans and Inupiat Eskimos from the Kobuk area. Western contact increased rapidly after the 1830s. The Russian explorer Malakov established a trading post at Nulato in 1839. A small pox epidemic, the first of several major epidemics, struck the region in 1839. Disputes over local trade may have been partly responsible for the Nulato massacre of 1851, in which Koyukuk River Natives decimated a large portion of the Nulato Native population. The Western Union Telegraph Company explored the area around 1867. Nulato was a center of missionary activity, and many area Natives moved to the village after a Roman Catholic mission and school, Our Lady of Snows Mission, was completed in 1887. Epidemics took heavy tolls on Native lives after the onset of the Yukon and Koyukuk gold rush in 1884. For instance, food shortages and a measles epidemic combined to kill as much as one-third of the Nulato population during 1900. In 1900, steamboat traffic peaked, with 46 boats in operation. Through the turn of the century, two steamers a day would stop at Nulato to purchase firewood. A post office was opened in 1897. Gold seekers left the Yukon after 1906. Lead mining began in the Galena area in 1919. Nulato incorporated as a City in 1963. A clinic, water supply, new school, telephone and television services were developed through the 1970s. In 1981, large-scale housing development began at a new townsite on the hills north of the City, about 2 miles from the old townsite.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.72** /kw-hr

Current efficiency	**13.38**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$20,597**
Consumption in 200	**79,908**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$267,756**
Average Load	**118**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$377,086**
Estimated peak loa	**235.12**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**1,029,833**	kW-hours				**$665,439**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**73,851**	gal	
Fuel Oil:	**56%**	Estimated heating fuel cost/gallon	**$5.72**		
Wood:	**42%**	$/MMBtu delivered to user	**$51.87**	**Total Heating Oil**	
Electricity:	**2.2%**	Community heat needs in MMBtu	**8,862**	**$422,356**	

Transportation (Estimated)

Estimated Diesel:	**26,680**	gal	Estimated cost	**$5.72**	**Total Transportation**
					$152,585

Energy Total **$1,240,380**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **76,359**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.11	/kw-hr
Estimated Diesel OM	**$20,597**	$0.02	
New fuel cost	**$360,339**	$0.35	
Avg Non-Fuel Costs:	**$288,353**	$0.26	
New cost of electricity	**$0.72** per kW-hr		

Savings

($92,150)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**11,986**	gal	**$68,549**
Stack Heat	**0**	gal	**$0**

Capital cost	**$329,170**		
Annual ID	**$27,573**		
Annual OM	**$6,583**		
Total Annual costs	**$34,157**		
Heat cost	**$25.79**	$/MMBtu	

Savings

$34,392

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		
kW-hr/year	**903235**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**4**		
Avg wind speed	**7.00**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$66.97
Annual OM	**$42,377**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,834**	$0.28	**$80.72**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.56**	
% Community energy		88%	
New Community COE		**$0.55**	

(includes non-fuel and diesel costs)

Savings

$99,954

Alternative Energy Resources

Wood

Installed KW	**137**	
kW-hr/year	**1018755**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**1287**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,286,439**	per kW-hr	
Annual Capital	**$153,685**	$0.15	
Annual OM	**$145,853**	$0.14	
Fuel cost:	**$193,111**	$0.19	-90
Total Annual Cost	**$492,648**	$0.48	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.76**	
% Community energy		99%	
New Community COE		**$0.74**	

(includes non-fuel and diesel costs)

Savings

($99,265)

Alternative Energy Resources

Hydro

Installed KW	**381**	
kW-hr/year	**349297**	
Site	**Nulato River E. & W. Trib.**	
Study plan effort	**reconnaissance**	
Plant Factor	**26**	%
Penetration	**0.40**	

			Heat Cost $/MMBtu :
Capital cost	**$29,337,750**	per kW-hr	
Annual Capital	**$1,310,049**	$3.75	$1,098.91
Annual OM	**$202,500**	$0.58	$169.86
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,512,549**	$4.33	**$1,268.77**
Non-Fuel Costs		$0.28	
Alternative COE:		**$4.61**	
% Community energy		34%	
New Community COE		**$1.10**	

(includes non-fuel and diesel costs)

Savings

($471,704)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	28.8%

Other Resources

Nulato

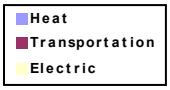
Tidal:	
Wave:	
Coal Bed Methane:	NEEDS MORE THOUGHT
Natural Gas:	
Coal:	CONFIRMED RESOURCE
Propane:	

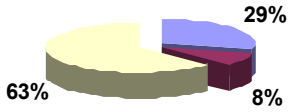
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nunam Iqua

Energy Used

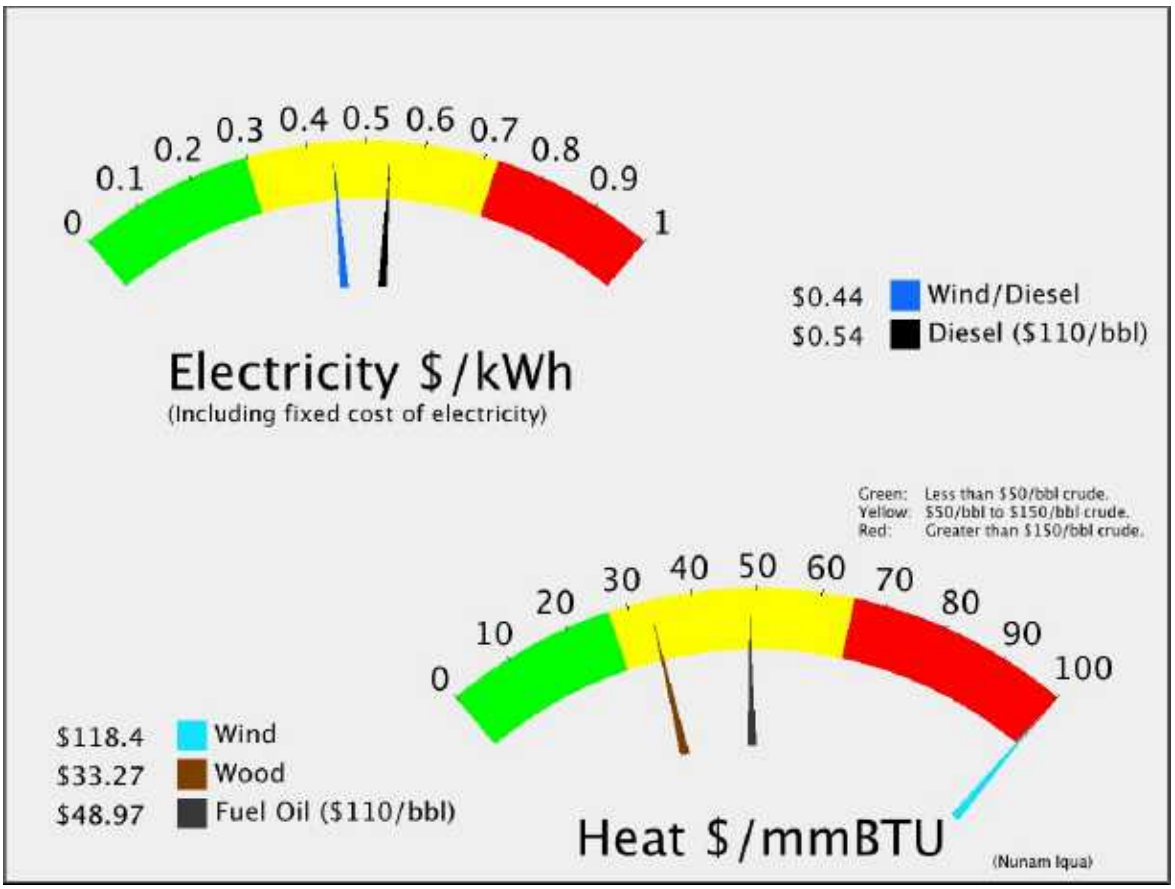




Total: **$2,958** Per capita

Heat	**$864**	Per capita
Transportation	**$237**	Per capita
Electricity:	**$1,858**	Per capita

POPULATION: 201



Nunam Iqua

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 201 LATITUDE: 62d 32m N LONGITUDE: 164d 52m **Unorganized**

LOCATION Nunam Iqua is on a south fork of the Yukon River, about 9 miles south of Alakanuk and 18 miles southwest of Emmonak on the Yukon-Kuskokwim Delta. It lies 500 miles northwest of Anchorage.

ECONOMY Commercial fishing is the economic foundation of the community. 24 residents hold commercial fishing permits. There are a few year-round positions with government organizations and the private sector. Subsistence activities and trapping supplement income. Salmon, beluga whale, seal, moose, and waterfowl are harvested.

HISTORY Nunam Iqua was historically the location of summer fish camps, due to its location near the Black River. In Yup'ik, the name means end of the tundra." A man called Sheldon owned and operated a fish saltery at the site in the late 30s and early 40s. The saltry was later operated by Northern Commercial Company. The village was first measured in 1950 by the U.S. Census which recorded a population of 43 residents. The City of Sheldon Point was formed in 1974. In November 1999 residents voted to change their name to the City of Nunam Iqua."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.41** /kw-hr

Current efficiency	**12.07**	kW-hr/gal	Fuel COE	**$0.44**	/kw-hr	Estimated Diesel OM	**$12,885**
Consumption in 200	**64,978**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$49,282**
Average Load	**74**	kW	NF COE:	**$0.08**	/kw-hr	Current Fuel Costs	**$286,676**
Estimated peak loa	**147.09**	kW	Total	**$0.54**		**Total Electric**	
Average Sales	**644,263**	kW-hours				**$348,843**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**32,089**	gal	
Fuel Oil:	**84%**	Estimated heating fuel cost/gallon	**$5.41**		
Wood:	**16%**	$/MMBtu delivered to user	**$49.09**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,851**	**$173,661**	

Transportation (Estimated)

Total Transportation

Estimated Diesel: **8,793** gal Estimated cost **$5.41** **$47,586**

Energy Total **$570,091**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Status

Acheivable efficiency **14** kW-

New Fuel use **56,023**

Capital cost	**$0**		
Annual Capital cost	**$0**	$0.00	/kw-hr
Estimated Diesel OM	**$12,885**	$0.02	
New fuel cost	**$247,169**	$0.38	
Avg Non-Fuel Costs:	**$62,167**	$0.08	
New cost of electricity	**$0.41** per kW-hr		

Savings **$39,507**

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**9,747**	gal	**$52,748**
Stack Heat	**0**	gal	**$0**

Capital cost	**$205,929**		
Annual ID	**$17,250**		
Annual OM	**$4,119**		
Total Annual costs	**$21,369**		
Heat cost	**$19.84**	$/MMBtu	

Savings **$31,380**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **453775**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.41
Annual OM	**$21,289**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,622**	$0.31	**$90.15**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.40**	
% Community energy		70%	
New Community COE		**$0.43**	

(includes non-fuel and diesel costs)

Savings

$71,361

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	66.2%

Other Resources

Nunam Iqua

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

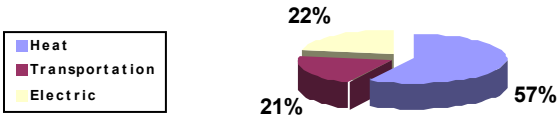
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Nunapitchuk

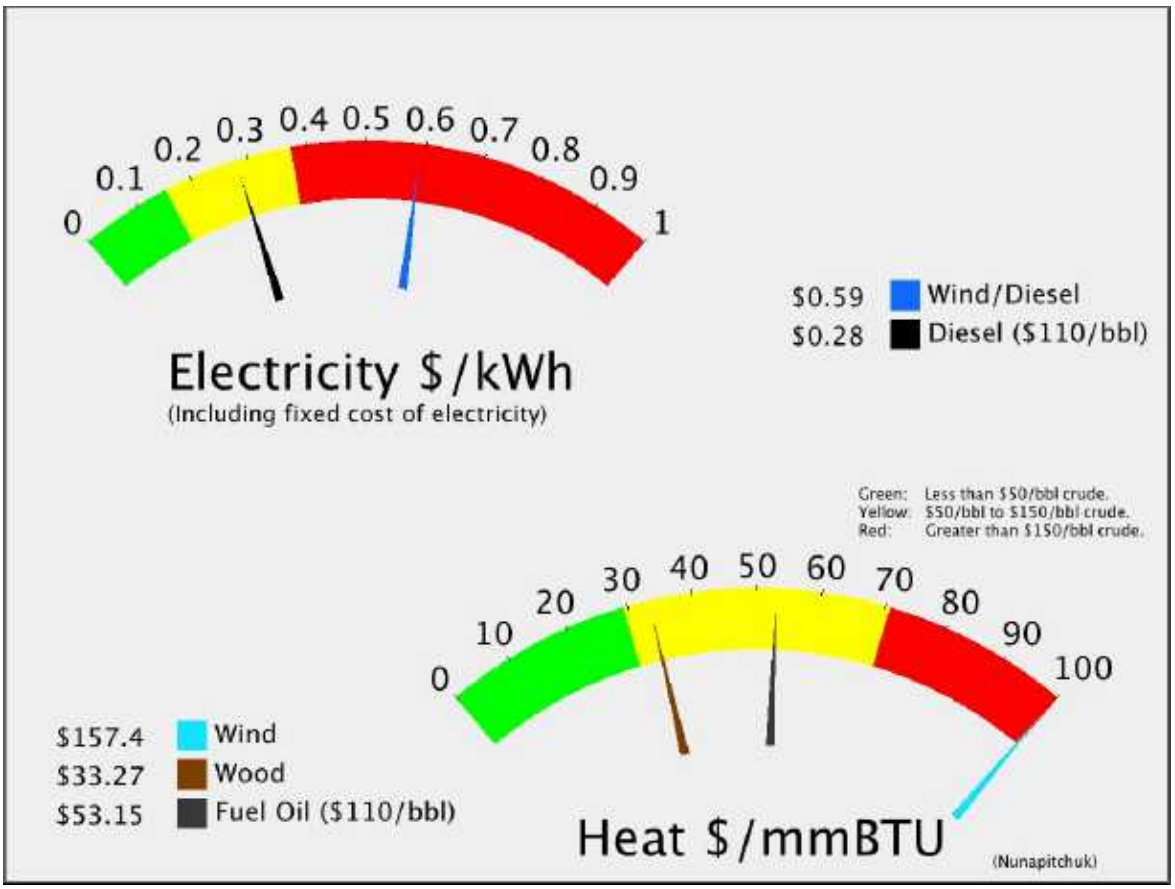
Energy Used



Total: **$2,776** Per capita

Heat	**$1,599**	Per capita
Transportation	**$572**	Per capita
Electricity:	**$605**	Per capita

POPULATION: 545



Nunapitchuk

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 545 LATITUDE: 60d 53m N LONGITUDE: 162d 29m **Unorganized**

LOCATION Nunapitchuk is located on the both banks of the Johnson River, 22 miles northwest of Bethel in the Yukon-Kuskokwim Delta.

ECONOMY The school, local businesses and the City provide most employment in Nunapitchuk. Commercial fishing and subsistence activities are a focal point of the culture. 58 residents hold commercial fishing permits for salmon and herring roe net fisheries and roe on kelp.

HISTORY It is an Eskimo village first listed in the 1939 U.S. Census with a population of 121. The community was incorporated as a second class city in 1969. During the 1970 U.S. Census, Nunapitchuk and the nearby villages of Atmautluak and Kasigluk were enumerated as Akolmiut.""

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.87** /kw-hr

Current efficiency	**13.37**	kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$22,456**
Consumption in 200	**64**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$291,931**
Average Load	**128**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$312**
Estimated peak loa	**256.35**	kW	Total	**$0.28**		**Total Electric**	
Average Sales	**1,122,812**	kW-hours				**$314,699**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**148,328**	gal	
Fuel Oil:	**98%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**2%**	$/MMBtu delivered to user	**$53.28**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**17,799**		**$871,279**

Transportation (Estimated)

Estimated Diesel:	**53,061**	gal	Estimated cost	**$5.87**	**Total Transportation**
					$311,682

Energy Total **$1,497,660**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **61**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$22,456**	$0.02	
New fuel cost	**$298**	$0.00	
Avg Non-Fuel Costs:	**$314,387**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings

($614)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**10**	gal	**$56**
Stack Heat	**0**	gal	**$0**

Capital cost	**$358,890**	
Annual ID	**$30,063**	
Annual OM	**$7,178**	
Total Annual costs	**$37,241**	
Heat cost	**$35,107.16**	$/MMBtu

Savings

($37,184)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1358496**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.21	$61.67
Annual OM	**$63,736**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$349,647**	$0.26	**$75.41**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		121%	
New Community COE		**$0.59**	

(includes non-fuel and diesel costs)

Savings

($34,948)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	14.3%

Other Resources

Nunapitchuk

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

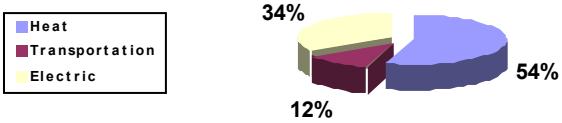
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Old Harbor

Energy Used



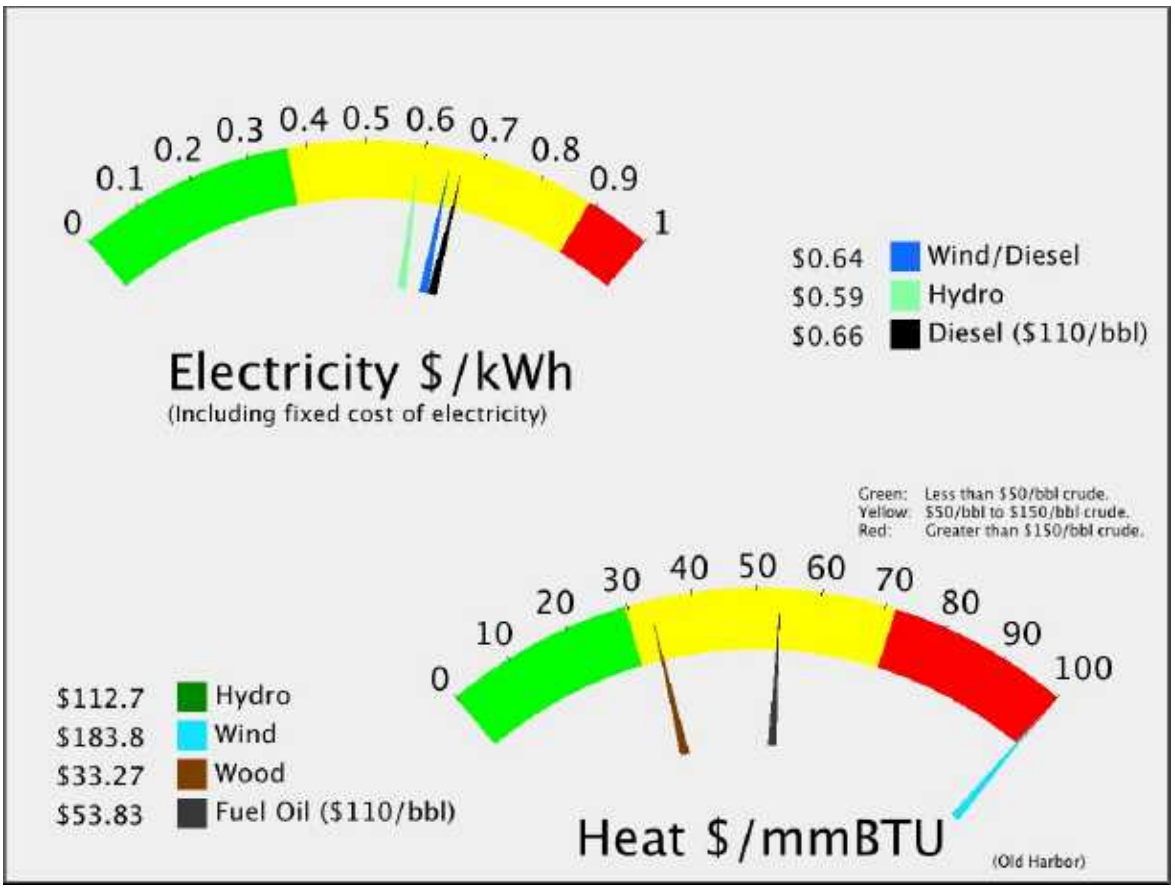
Total: **$6,557** Per capita

Heat **$3,579** Per capita

Transportation **$781** Per capita

Electricity: **$2,197** Per capita

POPULATION: 188



Old Harbor

Regional Corporation
Koniag, Incorporated

House 36
Senate : **R**

POPULATION 188 LATITUDE: 57d 12m N LONGITUDE: 153d 18m **Kodiak Island Borough**

LOCATION Old Harbor is located on the southeast coast of Kodiak Island, 70 miles southwest of the City of Kodiak and 322 miles southwest of Anchorage.

ECONOMY Many are commercial fishermen or crew; 32 residents hold commercial fishing permits. Most depend to some extent on subsistence activities for food sources, such as salmon, halibut, crab, deer, seal, rabbit, and bear.

HISTORY The area around Old Harbor is thought to have been inhabited for nearly 2,000 years. The area was visited by the Russian Grigori Shelikov and his "Three Saints" flagship in 1784. Three Saints Bay became the first Russian colony in Alaska. In 1788, a tsunami destroyed the settlement. Two more earthquakes struck before 1792. In 1793, the town relocated on the northeast coast to "Saint Paul's," now known as Kodiak. A settlement was reestablished at Three Saints Harbor in 1884. The town was recorded as "Staruigavan," meaning "old harbor" in Russian. The present-day Natives are Alutiiq (Russian-Aleuts.) The Old Harbor post office was opened in 1931. In 1964, the Good Friday earthquake and resulting tsunami destroyed the community; only two homes and the church remained standing. The community was rebuilt in the same location. The City government was incorporated in 1966.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.95** /kw-hr

Current efficiency	**12.99**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$13,492**
Consumption in 200	**52,827**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$175,390**
Average Load	**77**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$261,430**
Estimated peak loa	**154.01**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**674,578**	kW-hours				**$450,312**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**113,121**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.95**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.96**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,575**		**$672,936**

Transportation (Estimated)

Estimated Diesel:	**24,681**	gal	Estimated cost	**$5.95**	**Total Transportation**
					$146,824

Energy Total **$1,270,072**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **49,019**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.16	/kw-hr
Estimated Diesel OM	**$13,492**	$0.02	
New fuel cost	**$242,587**	$0.36	
Avg Non-Fuel Costs:	**$188,882**	$0.26	
New cost of electricity	**$0.79** per kW-hr		

Savings

($90,053)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**7,924**	gal	**$47,139**
Stack Heat	**0**	gal	**$0**

Capital cost	**$215,618**		
Annual ID	**$18,062**		
Annual OM	**$4,312**		
Total Annual costs	**$22,374**		
Heat cost	**$25.55**	$/MMBtu	

Savings

$24,765

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **393839**
Met Tower? **no**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.03
Annual OM	**$18,477**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,810**	$0.35	**$101.78**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.63**	
% Community energy		58%	
New Community COE		**$0.63**	

(includes non-fuel and diesel costs)

Savings
$23,688

Alternative Energy Resources

Hydro

Installed KW **300**
kW-hr/year **1125426**
Site **East Fk of Mountain Creek**
Study plan effort **feasibility**
Plant Factor **76** %
Penetration **0.56**

			Heat Cost $/MMBtu :
Capital cost	**$3,819,000**	per kW-hr	
Annual Capital	**$159,349**	$0.14	$41.49
Annual OM	**$50,000**	$0.04	$13.02
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$209,349**	$0.19	**$54.50**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.47**	
% Community energy		167%	
New Community COE		**$0.59**	

(includes non-fuel and diesel costs)

Savings
$240,964

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	18.8%

Other Resources

Old Harbor

Tidal: SOME POTENTIAL
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas:
Coal: SOME POTENTIAL
Propane:

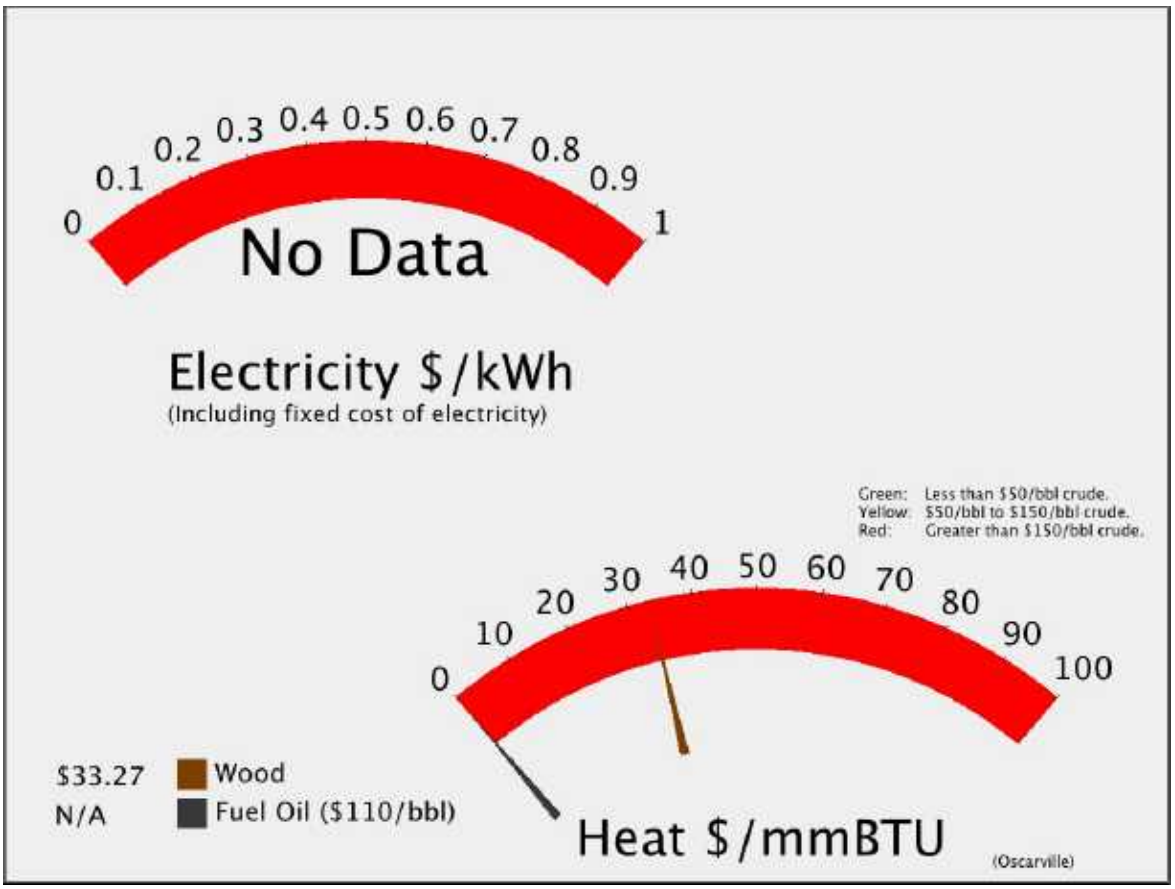
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Oscarville

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	80
Transportation	Per capita		
Electricity:	Per capita		



Oscarville

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 80 LATITUDE: 60d 43m N LONGITUDE: 161d 46m **Unorganized**

LOCATION Oscarville is located on the north bank of the Kuskokwim River opposite Napaskiak, 6 miles southwest of Bethel. It lies 401 miles west of Anchorage.

ECONOMY The school and health clinic are the only permanent sources of employment. Residents use the post office and airstrip at Napaskiak. One resident holds a commercial permit for the salmon net fishery. Trapping and handicrafts provide some income. Subsistence activities provide most food sources. Salmon, waterfowl, moose, bear, and seals are utilized.

HISTORY In 1908, Oscar Samuelson and his wife, an Eskimo from the Nushagak region, moved from Napaskiak across the River and opened a trading post. A few Native families settled nearby and the site came to be known as Oscarville. Samuelson managed the store for 45 years, until his death in 1953. By 1955, there were 13 homes and two warehouses in the village. The Samuelsons continued to operate the store until 1975 when it was sold; it was closed in the early 1980s. A school was built by the BIA in 1964.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **226888**
Met Tower? **no**
Homer Data? **yes**
Wind Class **5**
Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.30	$87.59
Annual OM	**$10,645**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$78,468**	$0.35	**$101.33**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Oscarville

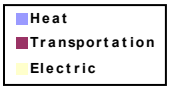
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

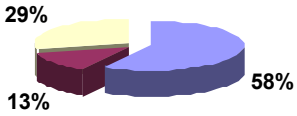
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Ouzinkie

Energy Used





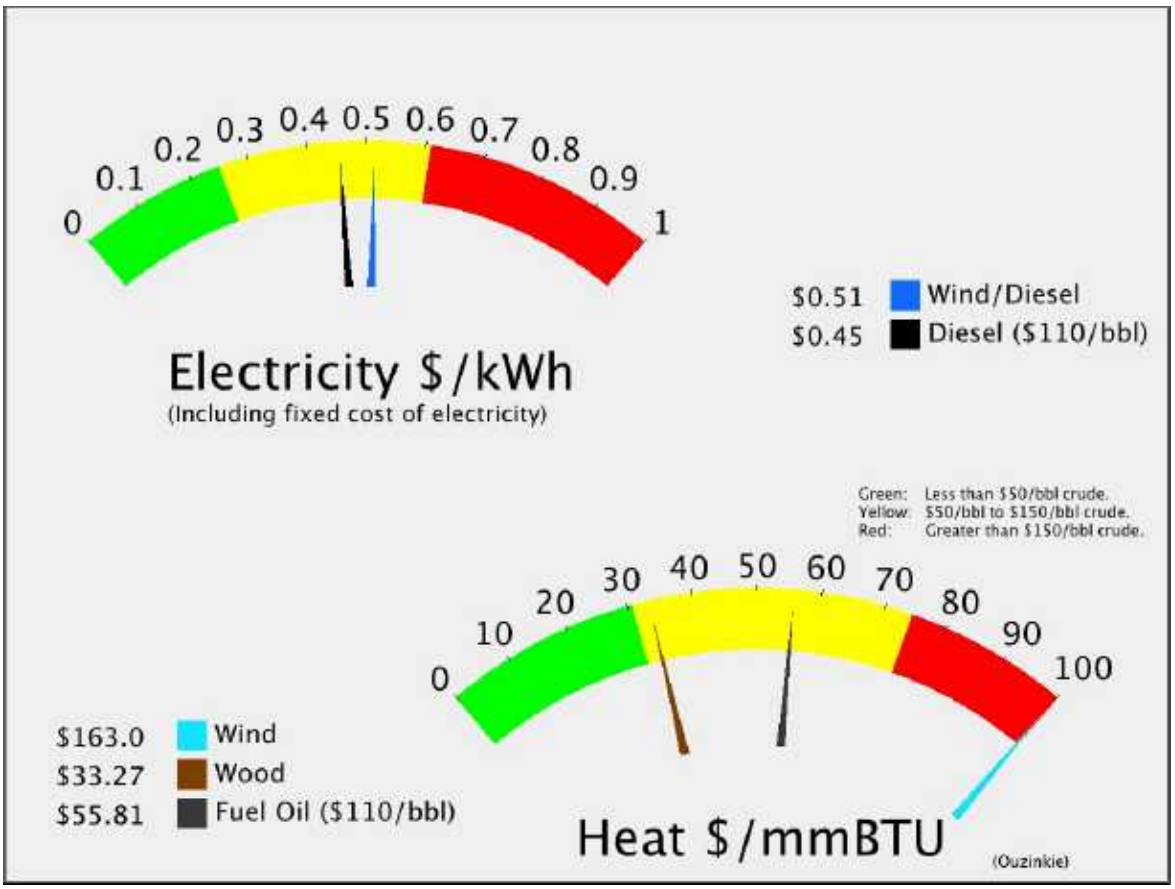
Total: **$5,645** Per capita

Heat **$3,276** Per capita

Transportation **$715** Per capita

Electricity: **$1,653** Per capita

POPULATION: 155



Ouzinkie

Regional Corporation
Koniag, Incorporated
House 36
Senate : **R**

POPULATION 155 LATITUDE: 57d 55m N LONGITUDE: 152d 29m **Kodiak Island Borough**

LOCATION Ouzinkie is located on the west coast of Spruce Island, adjacent to Kodiak Island. It lies northwest of the City of Kodiak and 247 air miles southwest of Anchorage.

ECONOMY Ouzinkie's economic base is primarily commercial salmon fishing. 26 residents hold commercial fishing permits. Almost all of the population depends to some extent on subsistence activities for various food sources. Salmon, crab, halibut, shrimp, clams, ducks, deer and rabbit are utilized.

HISTORY Ouzinkie became a retirement community for the Russian American Company. The Russians referred to the settlement in 1849 as "Uzenkiy," meaning "village of Russians and Creoles." In 1889, the Royal Packing Company constructed a cannery at Ouzinkie. Shortly afterward, the American Packing Company built another. In 1890, a Russian Orthodox Church was built, and in 1927, a post office was established. Cattle ranching was popular in the early 1900s. In 1964, the Good Friday earthquake and resulting tsunami destroyed the Ouzinkie Packing Company cannery. Following the disaster, Columbia Ward bought the remains and rebuilt the store and dock, but not the cannery. The City government was incorporated in 1967. In the late 1960s, the Ouzinkie Seafoods cannery was constructed. The operation was sold to Glacier Bay, and burned down in 1976 shortly after the sale. No canneries have operated since.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.36**	kW-hr/gal	Fuel COE	**$0.25**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$5.17** /kw-hr
Consumption in 200	**32,233**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$13,487**
Average Load	**77**	kW	NF COE:	**$0.19**	/kw-hr	Other Non-Fuel Costs:	**$127,465**
Estimated peak loa	**153.96**	kW	Total	**$0.46**		Current Fuel Costs	**$166,561**
Average Sales	**674,363**	kW-hours				**Total Electric**	**$307,513**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**82,345**	gal	
Fuel Oil:	**94%**	Estimated heating fuel cost/gallon	**$6.17**		
Wood:	**6%**	$/MMBtu delivered to user	**$55.94**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,881**		**$507,852**

Transportation (Estimated)

Estimated Diesel: **17,966** gal Estimated cost **$6.17**

Total Transportation **$110,806**

Energy Total **$926,171**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Status

Acheivable efficiency **14** kW-

New Fuel use **26,162**

Capital cost	**$0**		
Annual Capital cost	**$0**	$0.00	/kw-hr
Estimated Diesel OM	**$13,487**	$0.02	
New fuel cost	**$135,187**	$0.20	
Avg Non-Fuel Costs:	**$140,952**	$0.19	
New cost of electricity		**$0.58**	per kW-hr

Savings **$31,374**

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**4,835**	gal	**$29,819**
Stack Heat	**0**	gal	**$0**

Capital cost **$215,550**

Annual ID **$18,056**

Annual OM **$4,311**

Total Annual costs **$22,367**

Heat cost **$41.87** $/MMBtu

Savings **$7,452**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	Capital cost	**$1,760,485**	per kW-hr
kW-hr/year	**393839**	Annual Capital	**$118,332**	$0.30
Met Tower?	**no**	Annual OM	**$18,477**	$0.05
Homer Data?	**yes**	Fuel cost:	**$0**	$0.00
Wind Class	**4**	Total Annual Cost	**$136,810**	$0.35
Avg wind speed	**7.00** m/s	Non-Fuel Costs		$0.21
		Alternative COE:		**$0.56**
		% Community energy		58%
		New Community COE (includes non-fuel and diesel costs)		**$0.50**

Heat Cost $/MMBtu : $88.03 | $13.75 | **$101.78**

Savings

($31,663)

Alternative Energy Resources

Wood

Installed KW		Capital cost		per kW-hr
kW-hr/year		Annual Capital		
Installation Type		Annual OM		
Electric Wood cost		Fuel cost:		
Wood Required	Cd/Y	Total Annual Cost		
Stove Wood cost	$/Cd	Non-Fuel Costs		$0.21
		Alternative COE:		
		% Community energy		
		New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	25.8%

Other Resources

Ouzinkie

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

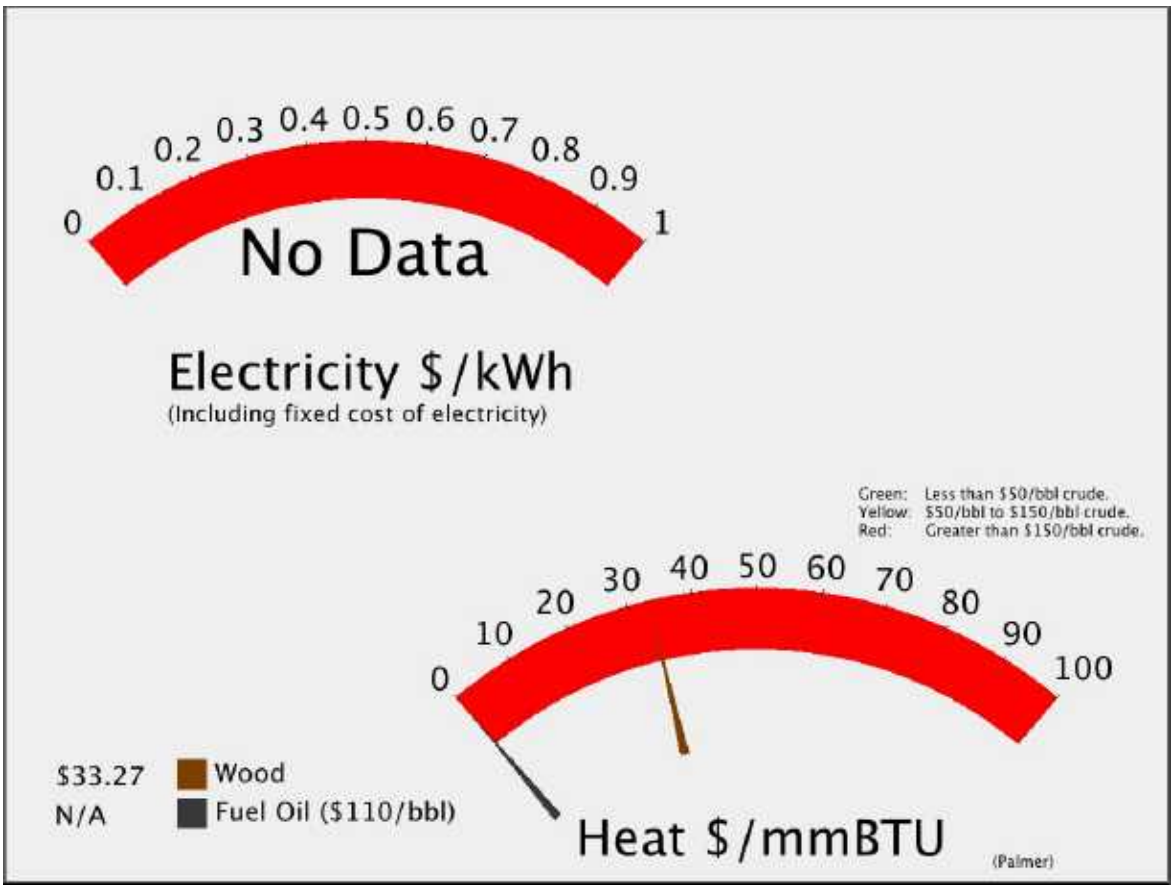
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Palmer

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	5506
Transportation	Per capita		
Electricity:	Per capita		



Palmer

Regional Corporation
Cook Inlet Region, Inc.
House 12
Senate : **F**

POPULATION 5506 LATITUDE: 61d 36m N LONGITUDE: 149d 06m **Matanuska-Susitna Bor**

LOCATION Palmer is located in the center of the lush farmlands of the Matanuska Valley, 42 miles northeast of Anchorage on the Glenn Highway.

ECONOMY Many residents commute to Anchorage for employment. Palmer's economy is based on a diversity of retail and other services, City, Borough, State and federal government. Some light manufacturing occurs. 73 area residents hold commercial fishing permits. Palmer is home to 200 musk ox whose underwool (qiviut) is knitted into garments by Alaska Native women from several rural villages. Between 2,500 and 3,500 garments are created each year by these women, and sold by an Anchorage cooperative. The 75-acre musk ox farm is also a tourist attraction. The University has an Agricultural and Forestry Experiment Station Office and a district Cooperative Extension Service office here. The University's Matanuska Research Farm is also located in Palmer.

HISTORY Two groups of Athabascans -- the Ahtna and Dena'ina -- have lived in this region for centuries. George Palmer is said to have arrived in 1875. He was a trader in Knik, and around 1890, established a trading post on the Matanuska River. A railway siding was constructed in Palmer in 1916. In 1935, Palmer became the site of one of the most unusual experiments in American history: the Matanuska Valley Colony. The Federal Emergency Relief Administration, one of the many New Deal relief agencies created by President Roosevelt, planned an agricultural colony in Alaska. 203 families, mostly from Michigan, Wisconsin and Minnesota, were invited to join the Colony. They arrived in Palmer in the early summer of 1935. Although the failure rate was high, many of their descendants still live in the Mat-Su Valley today. The City of Palmer was formed in 1951. Construction of the statewide road system, and the rapid development of Anchorage, has fueled growth in the Mat-Su valley.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Palmer

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Archangel Creek Hydro_AGP has been submitted by: Archangel Green power, LLC for a Hydro project. The total project budget is: $6,420,000 with $100,000 requested in grant funding and $60,000 as matching funds.

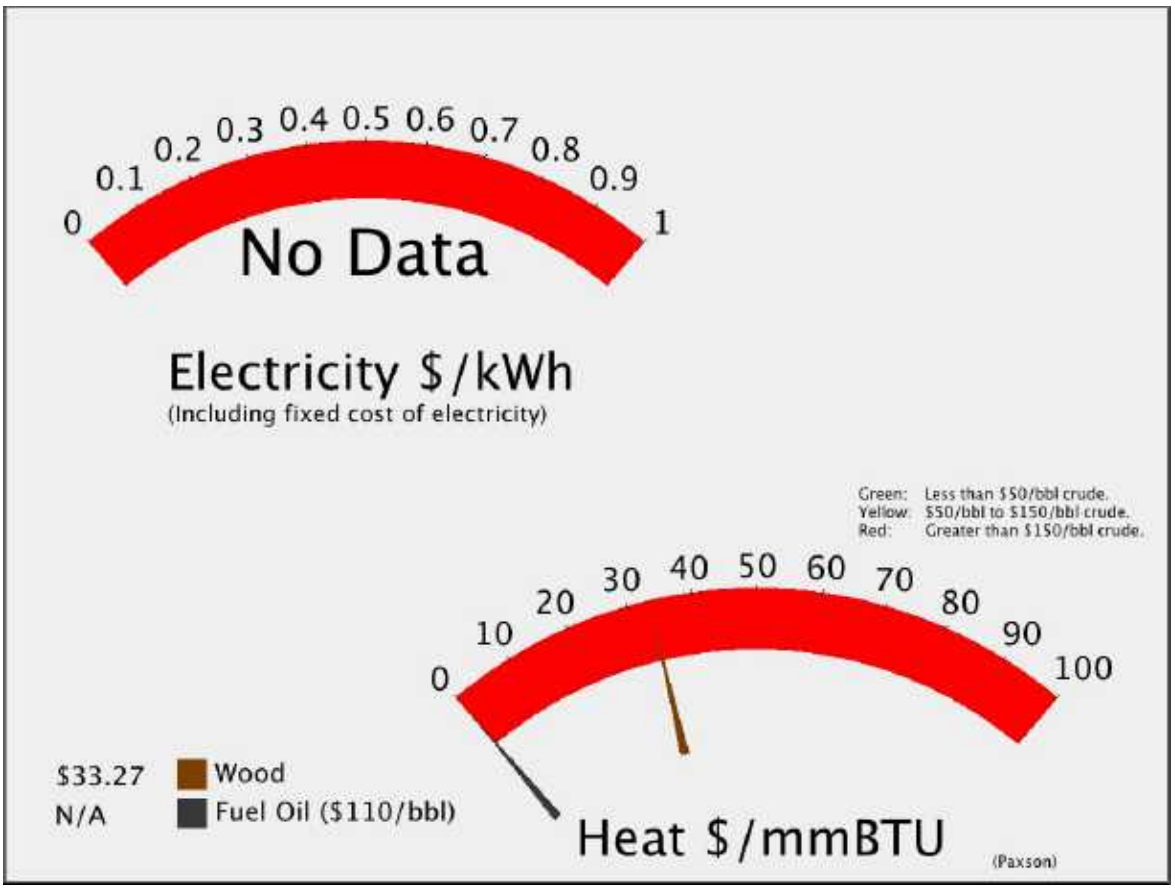
A project titled: Fishhook Hydroelectric Construction has been submitted by: Fishhook Renewable Energy, LLC for a Hydro project. The total project budget is: $4,555,922 with $2,142,961 requested in grant funding and $2,412,961 as matching funds.

A project titled: Palmer Waste Gasification Feasibility Study has been submitted by: Alaska Recycling Energy, LLC for a Biofuels project. The total project budget is: $60,000,000 with $650,000 requested in grant funding and $0 as matching funds.

Paxson

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	32
Transportation	Per capita		
Electricity:	Per capita		



Paxson

Regional Corporation
Ahtna, Incorporated
House 12
Senate : **F**

POPULATION 32 LATITUDE: 63d 02m N LONGITUDE: 145d 29m **Unorganized**

LOCATION Paxson lies on Paxson Lake, at mile 185 of the Richardson Highway, at its intersection with the Denali Highway. It is south of Delta Junction and 62 miles north of Gulkana.

ECONOMY There are five lodges with restaurants and bars in the area, several gift shops, a post office, gas station, grocery store and bunk house. This area has been a testing site for snowmachine companies for the past several years. Most income is generated during the summer months. One resident holds a commercial fishing permit. Hunting and other subsistence activities contribute to their livelihoods.

HISTORY More than 400 archeological sites indicate that this area has been inhabited for at least 10,000 years. In 1906 Alvin Paxson established the Timberline Roadhouse at mile 192, which consisted of a small cabin for a kitchen and two tents for bunkhouses. His cook, Charles Meier, later started Meier's Roadhouse at mile 174. Paxson then built a two-story roadhouse at mile 191. He later added a barn with a drying room, pump and sleeping quarters, two rooms and a bath. A post office, store, wood house and small ice room followed. The Denali Highway was built in the 1950s from Paxson to Cantwell and the Denali National Park. The 160-mile gravel road was the only access into the park prior to construction of the George Parks Highway. The Denali Highway also provides access to the Tangle Lakes Recreation Area, Summit Lake, and the largest active gold mine in Alaska.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **382279**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.31	$90.70
Annual OM	**$17,935**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,267**	$0.36	**$104.44**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Paxson

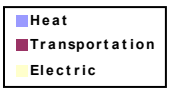
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

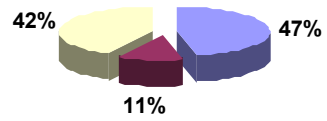
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Pedro Bay

Energy Used





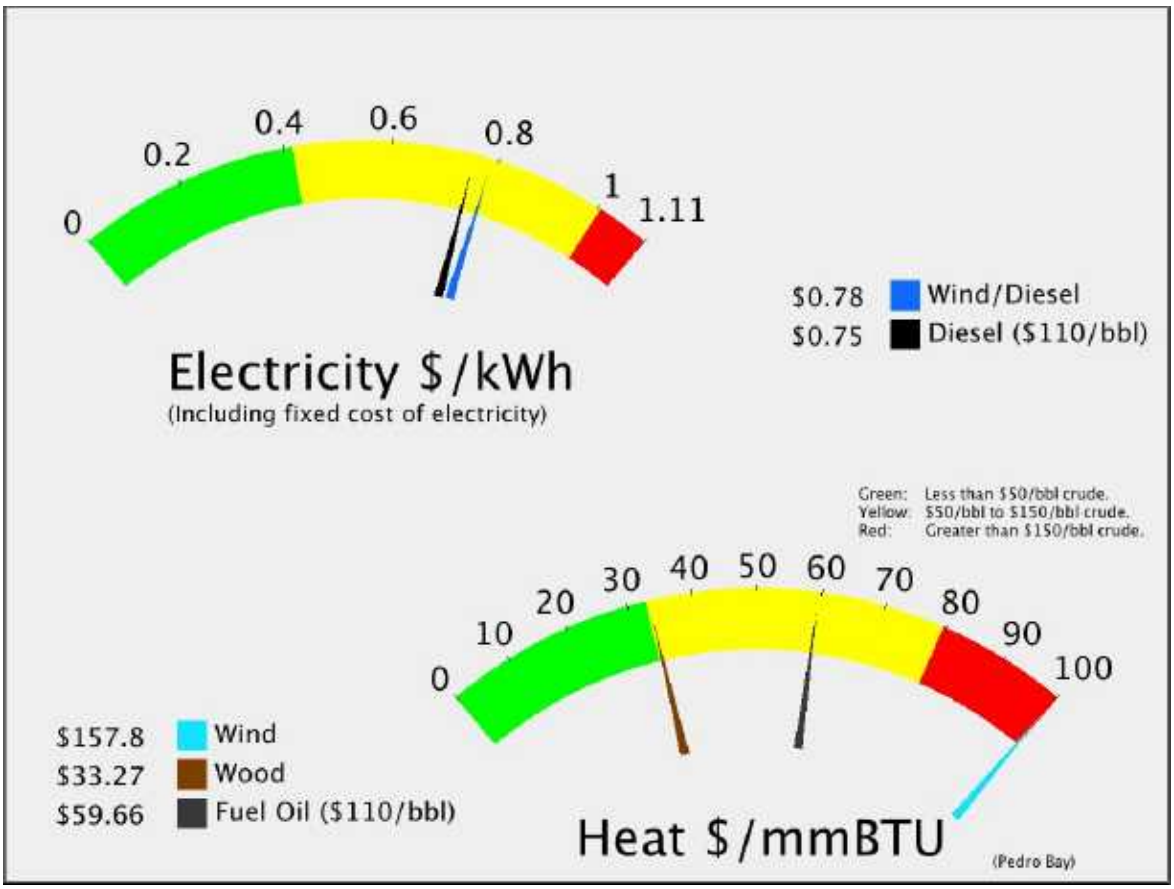
Total: **$7,941** Per capita

Heat **$3,693** Per capita

Transportation **$902** Per capita

Electricity: **$3,346** Per capita

POPULATION: 38



Pedro Bay

Regional Corporation
Bristol Bay Native Corporation

House 36
Senate : **R**

POPULATION 38 LATITUDE: 59d 47m N LONGITUDE: 154d 06m **Lake & Peninsula Borou**

LOCATION Pedro Bay is located at the east end of Iliamna Lake, at the head of Pedro Bay, 176 air miles southwest of Anchorage on the Alaska Peninsula.

ECONOMY Most residents obtain summer employment in the Bristol Bay fishery or in Iliamna Lake tourism services. Several wilderness lodges operate in Pedro Bay. Three villagers hold commercial fishing permits. Most families depend heavily on subsistence activities, utilizing salmon, trout, moose, bear, rabbit and seal.

HISTORY The Dena'ina Indians have occupied this area historically. The Dena'ina warred with Russian fur traders over trade practices in the early 1800s. The community was named for a man known as Old Pedro who lived in this area in the early 1900s. A post office was established in the village in 1936.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.59** /kw-hr

Current efficiency	**12.23**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Diesel OM	**$4,517**
Consumption in 200	**23,099**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$36,930**
Average Load	**26**	kW	NF COE:	**$0.16**	/kw-hr	Current Fuel Costs	**$129,195**
Estimated peak loa	**51.564**	kW	Total	**$0.76**		**Total Electric**	
Average Sales	**225,850**	kW-hours				**$170,642**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**21,283**	gal	
Fuel Oil:	**78%**	Estimated heating fuel cost/gallon	**$6.59**		
Wood:	**22%**	$/MMBtu delivered to user	**$59.80**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,554**		**$140,322**

Transportation (Estimated)

Estimated Diesel:	**5,201**	gal	Estimated cost	**$6.59**	**Total Transportation** **$34,291**

Energy Total **$345,255**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **20,172**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,517**	$0.02	
New fuel cost	**$112,825**	$0.50	
Avg Non-Fuel Costs:	**$41,447**	$0.16	
New cost of electricity	**$0.59** per kW-hr		

Savings **$15,742**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**3,465**	gal	**$22,844**
Stack Heat	**0**	gal	**$0**

Capital cost	**$72,189**		
Annual ID	**$6,047**		
Annual OM	**$1,444**		
Total Annual costs	**$7,491**		
Heat cost	**$19.57**	$/MMBtu	

Savings **$15,353**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **383742**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$90.35
Annual OM	**$18,004**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,336**	$0.36	**$104.10**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.54**	
% Community energy		170%	
New Community COE		**$0.79**	

(includes non-fuel and diesel costs)

Savings

$34,306

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	99.8%

Other Resources

Pedro Bay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

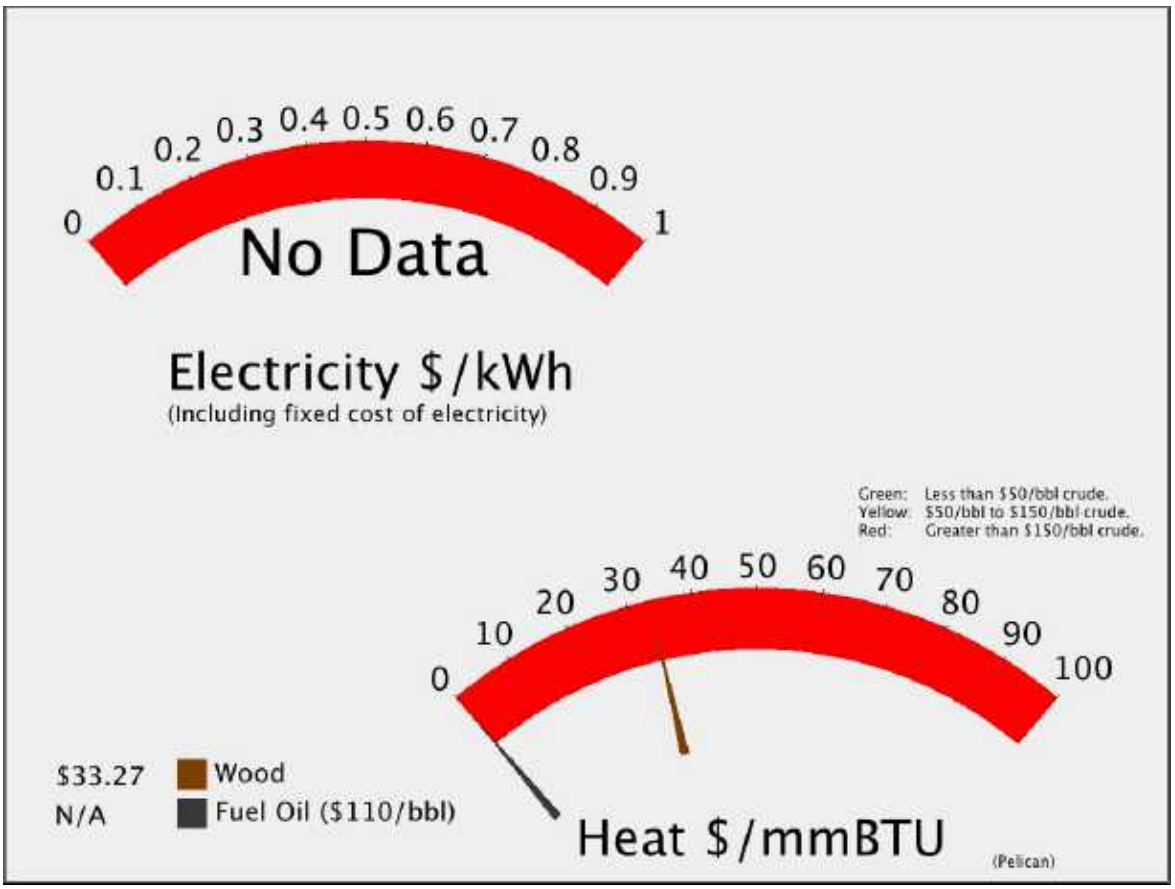
A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project. The total project budget is: $8,000,000 with $184,000 requested in grant funding and $40,000 as matching funds.

A project titled: Lake Pen Borough Wood Heating Final Design has been submitted by: Lake and Peninsula Borough for a Biomass project.

Pelican

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	110
Transportation	Per capita		
Electricity:	Per capita		



Pelican

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 110 LATITUDE: 57d 57m N LONGITUDE: 136d 13m **Unorganized**

LOCATION Pelican is located on the northwest coast of Chichagof Island on Lisianski Inlet. It lies 80 miles north of Sitka and 70 miles west of Juneau. Most of the community is built on pilings over the tidelands.

ECONOMY Commercial fishing and seafood processing are the mainstays of Pelican's economy. 41 residents hold commercial fishing permits. Most employment occurs at Pelican Seafoods, which also owns the electric utility, a fuel company and store. The plant processes black cod, halibut, ling cod, rockfish, and salmon. The City and school provide some employment.

HISTORY A cold storage plant was the first development at this site in 1938. Kalle (Charley) Raataikainen bought fish in this area, which he transported to Sitka. He chose this protected inlet as an ideal cold storage site, and named the place after his fish-packing vessel "The Pelican." Two of his fish-buying scows were used as a cookhouse, mess hall, bunkhouse and warehouse, and the community of Pelican grew around this operation. A store, office, sawmill, post office and sauna had been erected by 1939. A school and cannery were developed in the 1940s, and a City was formed in 1943. A boardwalk serves as the town's main thoroughfare, due to the lack of flat land.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **398692**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.30	$86.96
Annual OM	**$18,705**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,037**	$0.34	**$100.71**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Pelican

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Perryville

Energy Used

Total:

Per capita

Heat

Per capita

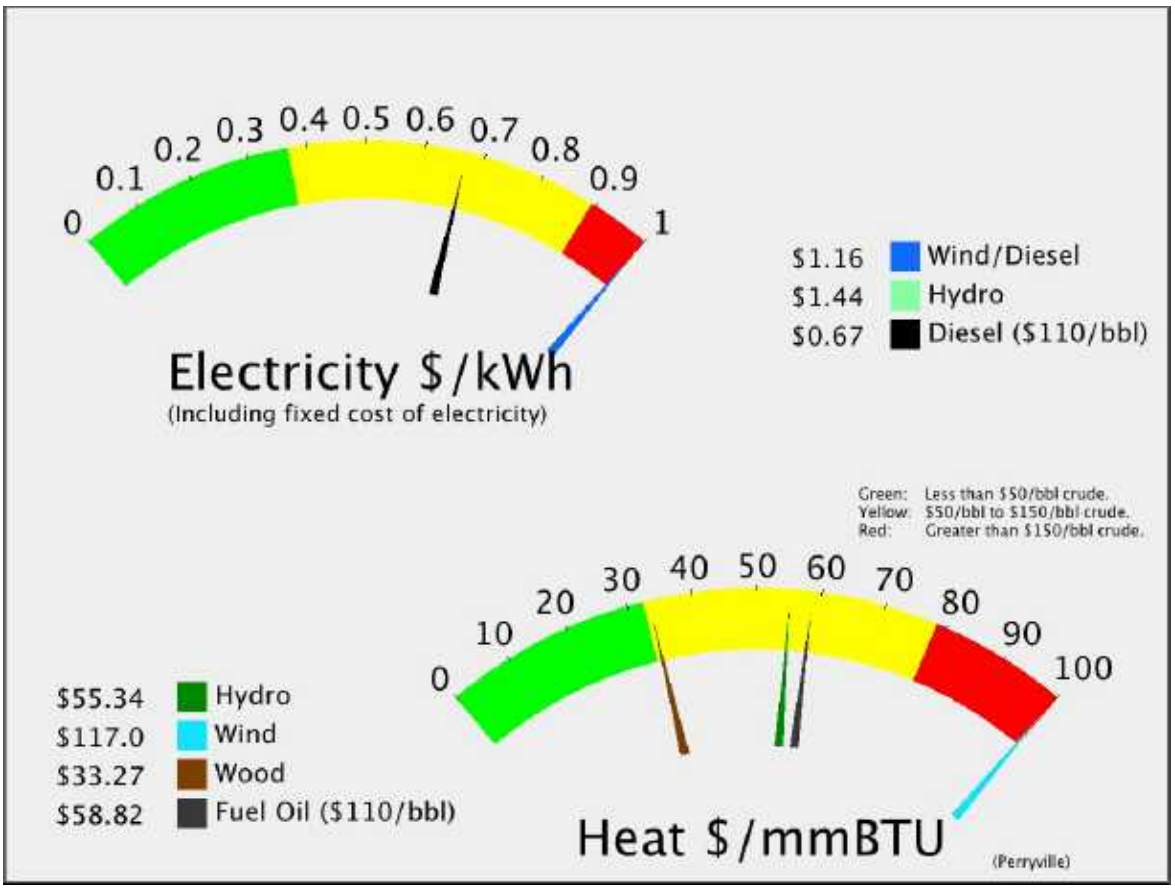
POPULATION: 119

Transportation

Per capita

Electricity: **$1,383**

Per capita



Perryville

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 119 LATITUDE: 55d 54m N LONGITUDE: 159d 09m **Lake & Peninsula Borou**

LOCATION Perryville is located on the south coast of the Alaska Peninsula, 275 miles southwest of Kodiak and 500 miles southwest of Anchorage.

ECONOMY Eleven residents hold commercial fishing permits for the Chignik salmon fishery. During the summer, the majority of residents leave Perryville to fish in Chignik or Chignik Lagoon. Only a few year-round jobs are available. Some trap during the winter, and all rely heavily on subsistence food sources. Salmon, trout, marine fish, crab, clams, moose, caribou, bear, porcupine and seal are harvested.

HISTORY The community was founded in 1912 as a refuge for Alutiiq people driven away from their villages by the eruption of Mt. Katmai. Many villagers from Douglas and Katmai survived the eruption because they were out fishing at the time. Captain Perry of the ship "Manning" transported people from the Katmai area to Ivanof Bay, and later, to the new village site. The village was originally called "Perry," but the "ville" was added to conform to the post office name, established in 1930.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.50** /kw-hr

Current efficiency	**11.00**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Diesel OM	**$4,579**
Consumption in 200	**23,912**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$17,428**
Average Load	**26**	kW	NF COE:	**$0.08**	/kw-hr	Current Fuel Costs	**$131,516**
Estimated peak loa	**52.277**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**228,973**	kW-hours				**$153,523**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$6.50**	
Wood:	**0%**	$/MMBtu delivered to user	**$58.96**	**Total Heating Oil**
Electricity:	**6.9%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$6.50**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **18,789**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.48	/kw-hr
Estimated Diesel OM	**$4,579**	$0.02	
New fuel cost	**$103,337**	$0.45	
Avg Non-Fuel Costs:	**$22,007**	$0.08	
New cost of electricity	**$0.96** per kW-hr		

Savings

($80,718)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**3,587**	gal	**$23,314**
Stack Heat	**0**	gal	**$0**

Capital cost	**$73,188**		
Annual ID	**$6,131**		
Annual OM	**$1,464**		
Total Annual costs	**$7,594**		
Heat cost	**$19.16**	$/MMBtu	

Savings

$15,720

Alternative Energy Resources

Hydro

Installed KW **850**

kW-hr/year **600000**

Site **unnamed trib of Kametolook River**

Study plan effort **reconnaissance**

Plant Factor **67** %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$5,571,000**	per kW-hr	
Annual Capital	**$263,741**	$0.44	$128.79
Annual OM	**$45,000**	$0.08	$21.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$308,741**	$0.51	**$150.77**

Non-Fuel Costs $0.10

Alternative COE: $0.61

% Community energy 262%

New Community COE **$1.44**

(includes non-fuel and diesel costs)

Savings

($155,218)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **805074**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.26	$75.14
Annual OM	**$37,771**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$244,228**	$0.30	**$88.88**

Non-Fuel Costs $0.10

Alternative COE: $0.40

% Community energy 352%

New Community COE **$1.16**

(includes non-fuel and diesel costs)

Savings

($90,705)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Perryville

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

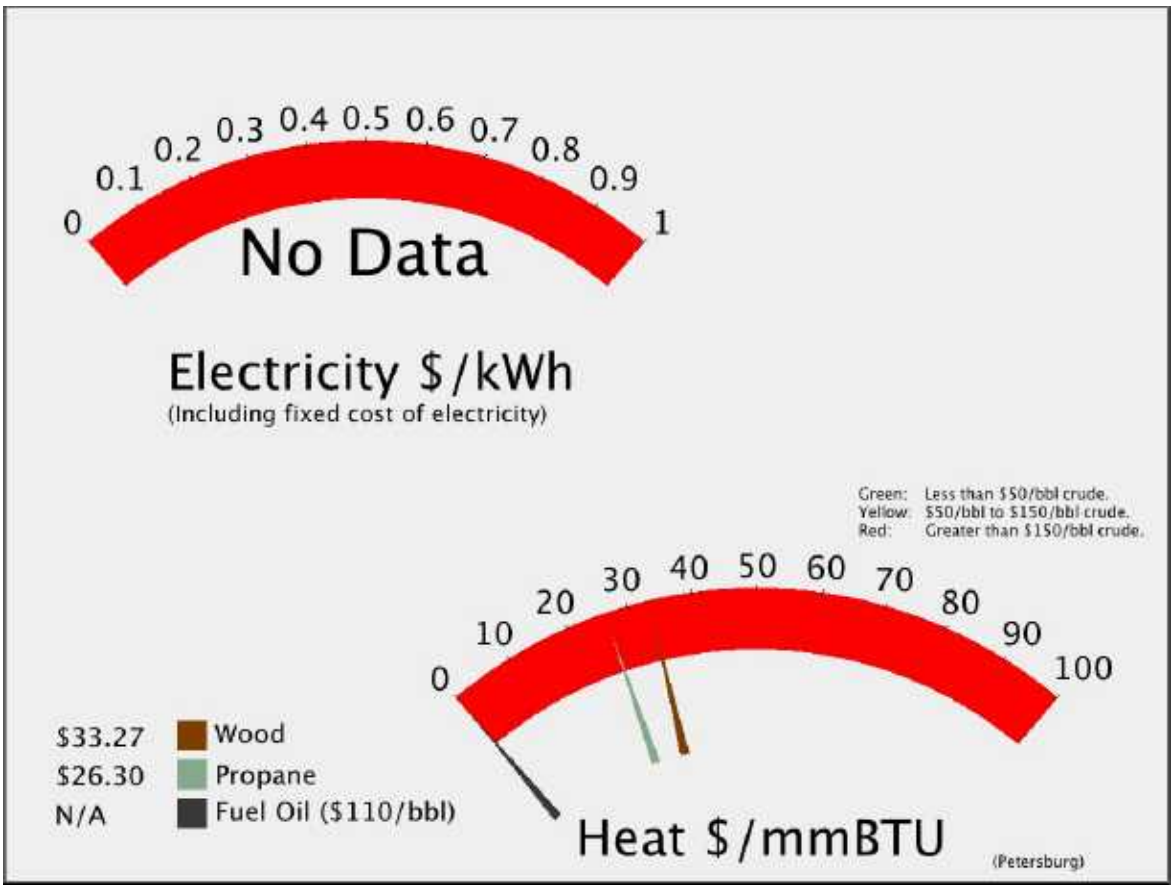
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Alternative Energy Assessment_Perryville NVOP has been submitted by: Native Village of Perryville (NVOP) for an Other project. The total project budget is: $95,581 with $95,581 requested in grant funding and $ as matching funds.

Petersburg

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	3072
Transportation	Per capita		
Electricity:	Per capita		



Petersburg

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 3072 LATITUDE: 56d 48m N LONGITUDE: 132d 58m **Unorganized**

LOCATION Petersburg is located on the northwest end of Mitkof Island, where the Wrangell Narrows meet Frederick Sound. It lies midway between Juneau and Ketchikan, about 120 miles from either community.

ECONOMY Since its beginning, Petersburg's economy has been based on commercial fishing and timber harvests. Petersburg currently is one of the top-ranking ports in the U.S. for the quality and value of fish landed. 469 residents hold commercial fishing permits. Several processors operate cold storage, canneries and custom packing services. The state runs the Crystal Lake Hatchery which contributes to the local salmon resource. Residents include salmon, halibut, shrimp and crab in their diet. Petersburg is the supply and service center for many area logging camps. Independent sportsmen and tourists utilize the local charter boats and lodges, but there is no deep water dock suitable for cruise ships.

HISTORY Tlingit Indians from Kake utilized the north end of Mitkof Island as a summer fish camp. Some reportedly began living year-round at the site, including John Lot. Petersburg was named after Peter Buschmann, a Norwegian immigrant and a pioneer in the cannery business, who arrived in the late 1890s. He built the Icy Strait Packing Company cannery, a sawmill, and a dock by 1900. His family's homesteads grew into this community, populated largely by people of Scandinavian origin. In 1910, a City was formed, and by 1920, 600 people lived in Petersburg year-round. During this time, fresh salmon and halibut were packed in glacier ice for shipment. Alaska's first shrimp processor, Alaska Glacier Seafoods, was founded in 1916. A cold storage plant was built in 1926. The cannery has operated continuously, and is now known as Petersburg Fisheries, a subsidiary of Icicle Seafoods, Inc. Across the narrows is the town of Kupreanof, which was once busy with fur farms, a boat repair yard and a sawmill. Petersburg has developed into one of Alaska's major fishing communities.

Alternative Energy Resources

Hydro

Installed KW **18000**
kW-hr/year **55000000**
Site **Scenery Lake**
Study plan effort **reconnaissance**
Plant Factor %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$65,952,000**		
Annual Capital	**$3,410,214**	$0.06	$18.17
Annual OM	**$725,440**	$0.01	$3.86
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$4,135,654**	$0.08	**$22.03**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **16000**
kW-hr/year **50000000**
Site **Ruth Lake/Delta Creek**
Study plan effort **reconnaissance**
Plant Factor **40** %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$109,975,000**		
Annual Capital	**$4,274,233**	$0.09	$25.05
Annual OM	**$338,660**	$0.01	$1.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$4,612,893**	$0.09	**$27.03**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5900**
kW-hr/year **4519053**
Met Tower? **no**
Homer Data? **no**
Wind Class **7**
Avg wind speed **2.09** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$26,662,412**		
Annual Capital	**$1,792,133**	$0.40	$116.20
Annual OM	**$212,018**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,004,150**	$0.44	**$129.94**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **4000**

kW-hr/year **12000000**

Site **Anita Lake**

Study plan effort **feasibility**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$18,787,200**	per kW-hr	
Annual Capital	**$730,174**	$0.06	$17.83
Annual OM	**$256,000**	$0.02	$6.25
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$986,174**	$0.08	**$24.08**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW **12000**

kW-hr/year **35000000**

Site **Virginia Lake (Mill Creek)**

Study plan effort **reconnaissance**

Plant Factor **42** %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$93,514,890**	per kW-hr	
Annual Capital	**$4,596,033**	$0.13	$38.48
Annual OM	**$681,750**	$0.02	$5.71
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$5,277,783**	$0.15	**$44.18**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Petersburg

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

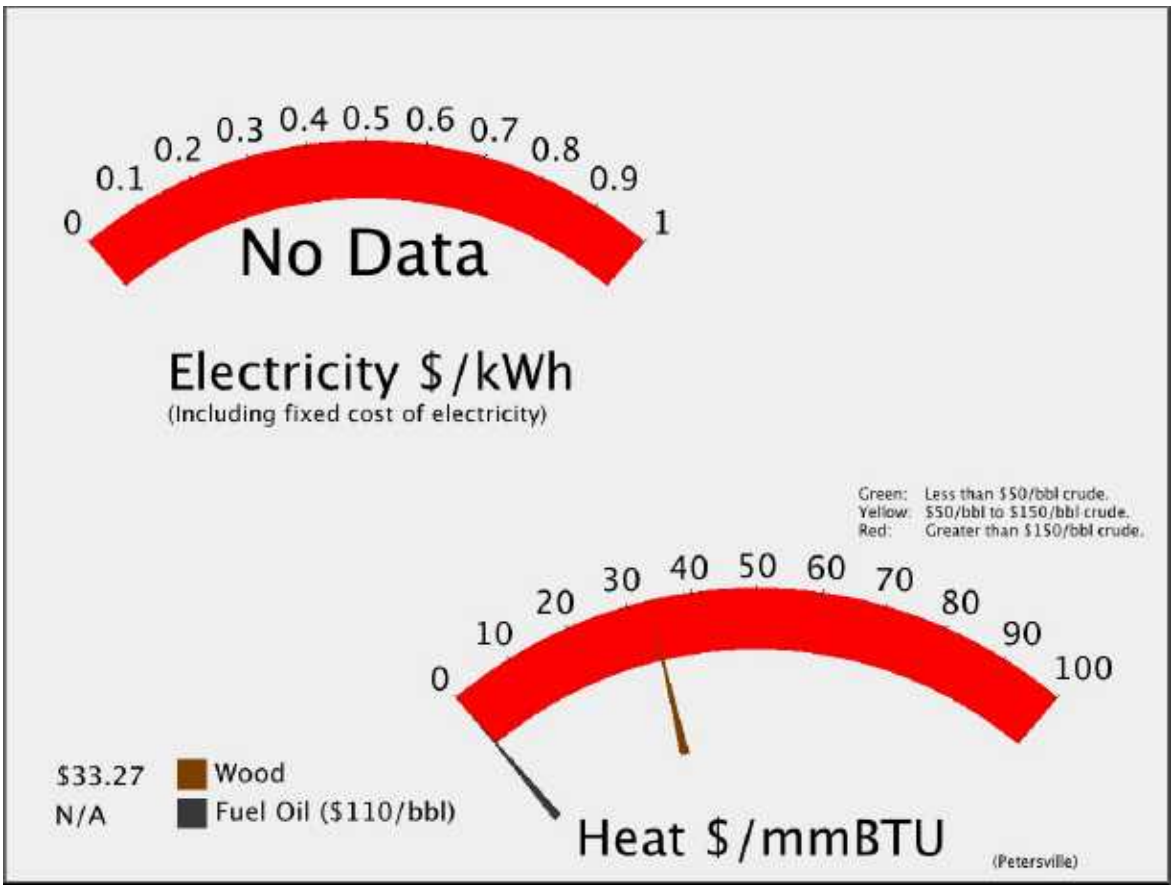
A project titled: Ruth Lake Hydro Phase II _PMPL has been submitted by: City of Petersburg, Alaska d/b/a Petersburg Municipal Power & Light for a Hydro project. The total project budget is: $109,975,000 with $2,000,000 requested in grant funding and $520,000 as matching funds.

A project titled: Ruth Lake Hydro Reconnaissance has been submitted by: City of Petersburg d/b/a Petersburg Municipal & Light for a Hydro project. The total project budget is: $109,975,000 with $160,000 requested in grant funding and $45,000 as matching funds.

Petersville

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	12
Transportation	Per capita		
Electricity:	Per capita		



Petersville

Regional Corporation
Cook Inlet Region, Inc.
House 15
Senate : **H**

POPULATION 12 LATITUDE: 62d 29m N LONGITUDE: 150d 46m **Matanuska-Susitna Bor**

LOCATION Petersville is located on Petersville Road, at mile 114.9 of the George Parks Highway, west of Trapper Creek. Petersville Road is 17 miles north of the junction to Talkeetna Spur Road. Peters Creek and the Deshka River flow through the community.

ECONOMY Subsistence and sporting activities are an integral part of the lifestyle. Some residents are retired. Those who are employed work in a variety of industries such as education, transportation and construction. A lodge and several bed and breakfast businesses are located in the area.

HISTORY Dena'ina Athbascans have utilized the area historically for hunting. In 1905, gold was discovered on Cache Creek and upper Peters Creek. In 1917, a freighting trail was built by the Alaska Road Commission from Talkeetna. The crossing of the Susitna Rvier was by ferry during summer and over ice in the winter. Petersville became home to a district post office as a result of the road construction. By 1921, there were 24 mining operations in the Yentna Mining District, most with large-scale hydraulic plants. World War II caused a shut down of nearly all mining operations. Federal homesteading began here in 1948 and continued through the 1960s. In the late 1970s, many of the previously idle mining sites were brought back into production.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Petersville

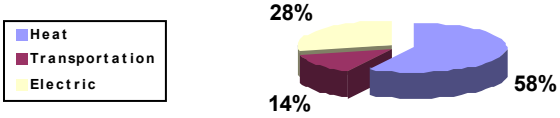
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Pilot Point

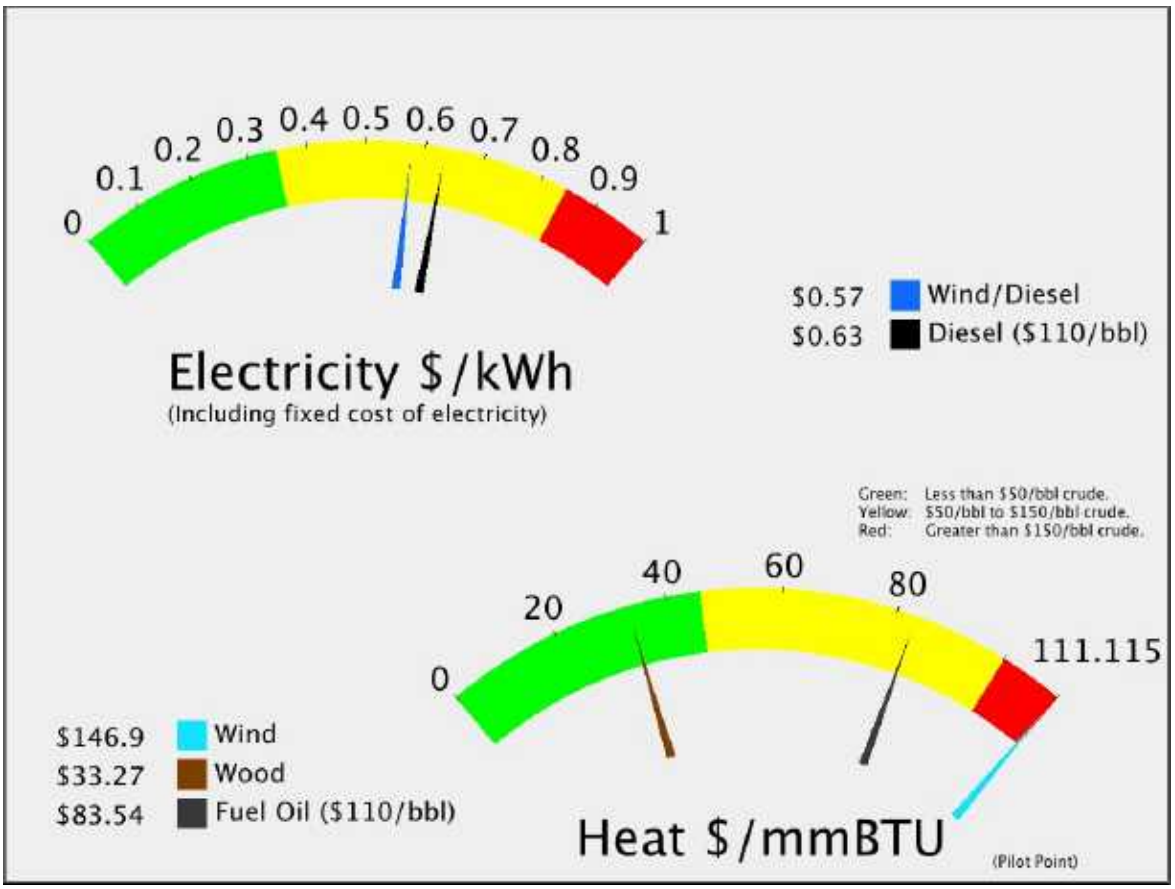
Energy Used



Total: $10,344 Per capita

Heat	**$5,979**	Per capita
Transportation	**$1,461**	Per capita
Electricity:	**$2,904**	Per capita

POPULATION: 61



Pilot Point

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 61 LATITUDE: 57d 33m N LONGITUDE: 157d 34m **Lake & Peninsula Borou**

LOCATION Pilot Point is located on the northern coast of the Alaska Peninsula, on the east shore of Ugashik Bay. The community lies 84 air miles south of King Salmon and 368 air miles southwest of Anchorage.

ECONOMY The residents of Pilot Point depend upon commercial fishing for the majority of their cash income. 21 residents hold commercial fishing permits. Up to 700 commercial boats fish in the district. Subsistence is an important part of the community lifestyle, and trapping is a source of income during the off-season. Salmon, caribou, moose, geese and porcupine are harvested.

HISTORY This mixed Aleut and Eskimo community developed around a fish salting plant established by C.A. Johnson in 1889. At that time, it was called Pilot Station after the river pilots stationed here to guide boats upriver to a large cannery at Ugashik. In 1892, Charles Nelson opened a saltery which was sold to the Alaska Packer's Association in 1895. The saltery continued to expand, and by 1918, developed into a three-line cannery. Many nationalities came to work in the canneries - Italians, Chinese and northern Europeans. Reindeer herding experiments at Ugashik helped to repopulate the area after the devastating 1918 flu epidemic, although the herding eventually failed. A Russian Orthodox Church and a Seventh Day Adventist Church were built in the village. A post office was established in 1933, and the name was changed to Pilot Point at that time. The deterioration of the harbor forced the cannery to close in 1958. Pilot Point incorporated as a city in 1992.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.06**	kW-hr/gal	Fuel COE	**$0.47**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$8.23** /kw-hr
Consumption in 200	**18,964**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,599**
Average Load	**38**	kW	NF COE:	**$0.14**	/kw-hr	Other Non-Fuel Costs:	**$46,381**
Estimated peak loa	**75.333**	kW	Total	**$0.63**		Current Fuel Costs	**$156,102**
Average Sales	**329,958**	kW-hours				**Total Electric**	**$209,082**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**39,508**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$9.23**		
Wood:	**0%**	$/MMBtu delivered to user	**$83.73**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**4,741**		**$364,716**

Transportation (Estimated)

Estimated Diesel:	**9,655**	gal	Estimated cost	**$9.23**	**Total Transportation** **$89,126**

Energy Total **$662,924**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Substantially**

Acheivable efficiency **14** kW-

New Fuel use **14,985**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.33	/kw-hr
Estimated Diesel OM	**$6,599**	$0.02	
New fuel cost	**$123,346**	$0.37	
Avg Non-Fuel Costs:	**$52,980**	$0.14	
New cost of electricity	**$1.08** per kW-hr		

Savings **($76,140)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**2,845**	gal	**$26,260**
Stack Heat	**0**	gal	**$0**

Capital cost	**$105,466**		
Annual ID	**$8,835**		
Annual OM	**$2,109**		
Total Annual costs	**$10,944**		
Heat cost	**$34.82**	$/MMBtu	

Savings **$15,316**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **402537**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$86.13
Annual OM	**$18,886**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,218**	$0.34	**$99.88**
Non-Fuel Costs		$0.16	
Alternative COE:		**$0.50**	
% Community energy		122%	
New Community COE		**$0.58**	

(includes non-fuel and diesel costs)

Savings

$71,864

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	53.8%

Other Resources

Pilot Point

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

Renewable Fund Project List:

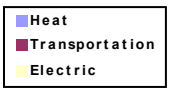
For detailed information, consult the AEA web site. akenergyauthority.org

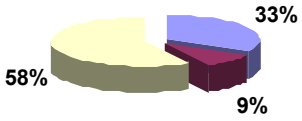
A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project.

A project titled: Pilot Point High Penetration Wind/Diesel/CHP has been submitted by: City of Pilot Point for a Wind Diesel Hybrid project. The total project budget is: $1,798,360 with $910,180 requested in grant funding and $45,280 as matching funds.

Pilot Station

Energy Used

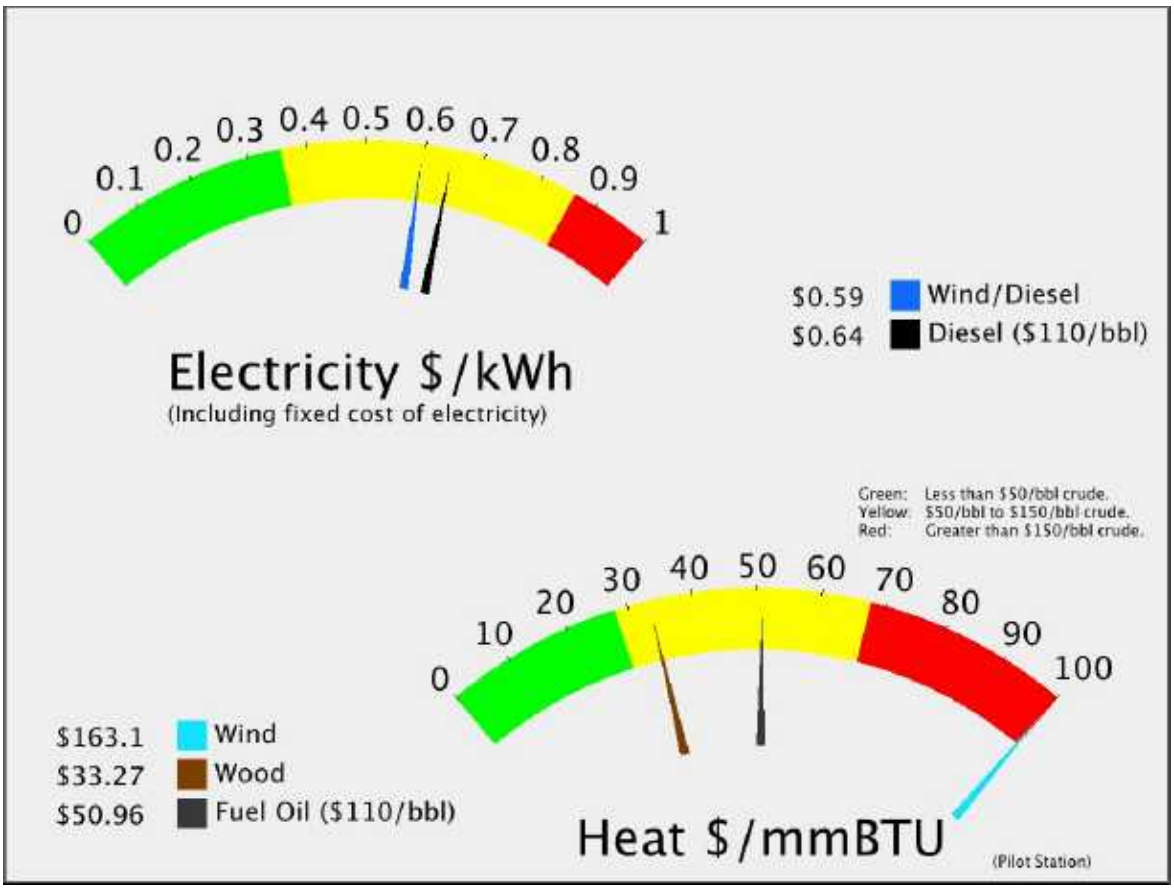




Total: **$3,195** Per capita

Heat	**$1,060**	Per capita
Transportation	**$290**	Per capita
Electricity:	**$1,845**	Per capita

POPULATION: 580



Pilot Station

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 580 LATITUDE: 61d 56m N LONGITUDE: 162d 52m **Unorganized**

LOCATION Pilot Station is located on the northwest bank of the Yukon River, 11 miles east of St. Mary's and 26 miles west of Marshall on the Yukon-Kuskokwim Delta.

ECONOMY Most of the year-round employment is with the school and City government. 56 residents hold commercial fishing permits. Incomes are supplemented by subsistence activities. Salmon, moose, bear, porcupine and waterfowl are harvested. Trapping and BLM fire fighting also provide income.

HISTORY The village was first called "Ankachak," and later was moved one-third of a mile upriver to a site called "Potiliuk." The old village site of Kurgpallermuit is located nearby. This village is a designated historic place -- it was occupied during the bow and arrow wars between the Yukon and Coastal Eskimos. According to locals, the Chevak and Pilot Station people periodically fought when the coastal people traveled up the Kashunak River. A Russian Orthodox Church was built in the early 1900s, and is one of the oldest structures in the region. R.H. Sargent of the U.S. Geological Survey first noted the village name of Pilot Station in 1916. Local riverboat pilots who used the village as a checkpoint were responsible for this name change. The community incorporated as a second-class city in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.63** /kw-hr

Current efficiency	**13.20**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$32,030**
Consumption in 200	**126,926**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$416,391**
Average Load	**183**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$587,832**
Estimated peak loa	**365.64**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**1,601,505**	kW-hours				**$1,036,254**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**109,139**	gal	
Fuel Oil:	**76%**	Estimated heating fuel cost/gallon	**$5.63**		
Wood:	**24%**	$/MMBtu delivered to user	**$51.08**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,097**		**$614,593**

Transportation (Estimated)

Estimated Diesel:	**29,906**	gal	Estimated cost	**$5.63**	**Total Transportation** **$168,409**

Energy Total **$1,819,256**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **119,681**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.16	/kw-hr
Estimated Diesel OM	**$32,030**	$0.02	
New fuel cost	**$554,277**	$0.35	
Avg Non-Fuel Costs:	**$448,422**	$0.26	
New cost of electricity	**$0.77** per kW-hr		

Savings **($217,744)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**19,039**	gal	**$107,214**
Stack Heat	**0**	gal	**$0**

Capital cost	**$511,897**		
Annual ID	**$42,880**		
Annual OM	**$10,238**		
Total Annual costs	**$53,118**		
Heat cost	**$25.25**	$/MMBtu	

Savings **$54,096**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **898287**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$67.34
Annual OM	**$42,144**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,602**	$0.28	**$81.09**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.56**	
% Community energy		56%	
New Community COE (includes non-fuel and diesel costs)		**$0.59**	

Savings

$99,036

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	19.5%

Other Resources

Pilot Station

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

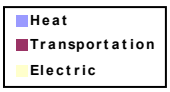
Propane:

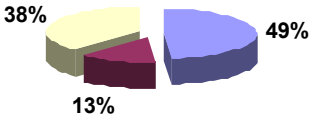
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Pitkas Point

Energy Used

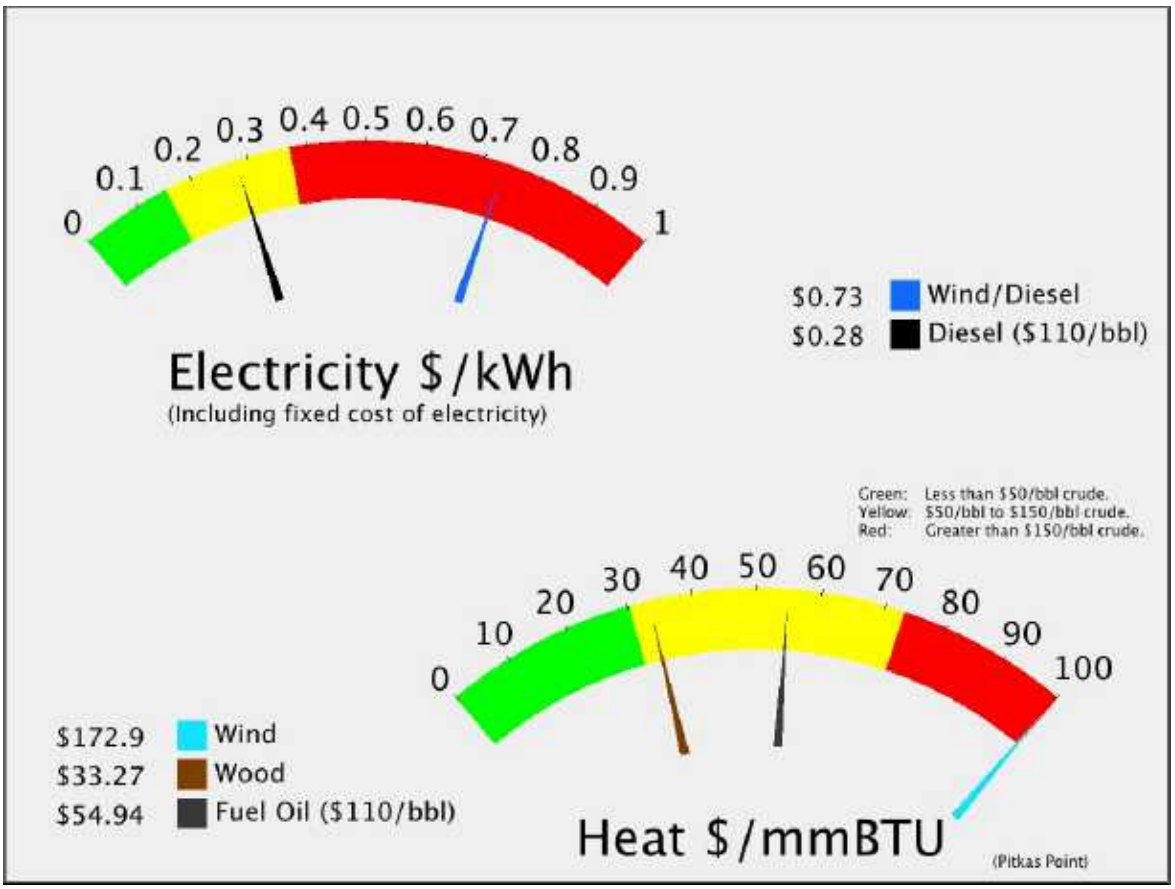




Total: **$2,167** Per capita

Heat	**$1,052**	Per capita
Transportation	**$288**	Per capita
Electricity:	**$827**	Per capita

POPULATION: 138



Pitkas Point

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 138 LATITUDE: 62d 02m N LONGITUDE: 163d 17m **Unorganized**

LOCATION Pitkas Point is located near the junction of the Yukon and Andreafsky Rivers, 5 miles northwest of St. Mary's on the Yukon-Kuskokwim Delta. It lies 3 miles by road from the St. Mary's airport.

ECONOMY Employment is limited to a few year-round enterprises. Subsistence activities provide food sources, including salmon, moose, bear and waterfowl. Dog sledding is prevalent. Two residents hold commercial fishing permits. All supplies are brought in through Saint Mary's -- there are no public facilities other than a school and washeteria.

HISTORY Eskimos who first settled there called it Nigiklik a Yup'ik word meaning to the north." It was first reported in 1898 by the U.S. Geological Survey. The village was later renamed for a trader who opened a general store which was a branch of Northern Commercial Company."

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency		kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.07**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,123**
Average Load	**35**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$79,594**
Estimated peak loa	**69.893**	kW	Total	**$0.28**		Current Fuel Costs	**$0**
Average Sales	**306,132**	kW-hours				**Total Electric**	**$85,717**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**23,906**	gal	
Fuel Oil:	**56%**	Estimated heating fuel cost/gallon	**$6.07**		
Wood:	**34%**	$/MMBtu delivered to user	**$55.06**		**Total Heating Oil**
Electricity:	**9.4%**	Community heat needs in MMBtu	**2,869**		**$145,127**

Transportation (Estimated)

Estimated Diesel:	**6,551**	gal	Estimated cost	**$6.07**	**Total Transportation** **$39,767**

Energy Total **$270,611**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$100,000**			
Powerhouse Upgrade		Annual Capital cost	**$8,377**	$0.03	/kw-hr	
Status **Pending**		Estimated Diesel OM	**$6,123**	$0.02		**Savings**
Acheivable efficiency	**14** kW-	New fuel cost				
New Fuel use		Avg Non-Fuel Costs:	**$85,717**	$0.26		
		New cost of electricity		**$0.67** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?		Capital cost	**$97,850**		
Is it working now?		Annual ID	**$8,197**		
BLDGs connected and working:		Annual OM	**$1,957**		
	Value	Total Annual costs	**$10,154**		**Savings**
Water Jacket	**0** gal **$0**	Heat cost	**#Div/0!** $/MMBtu		**($10,154)**
Stack Heat	**0** gal **$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **449143**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		147%	
New Community COE		**$0.74**	

(includes non-fuel and diesel costs)

Savings

($53,687)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	88.9%

Other Resources

Pitkas Point

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

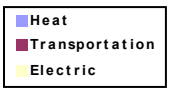
Propane:

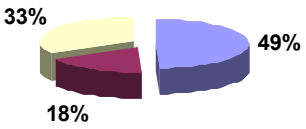
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Platinum

Energy Used





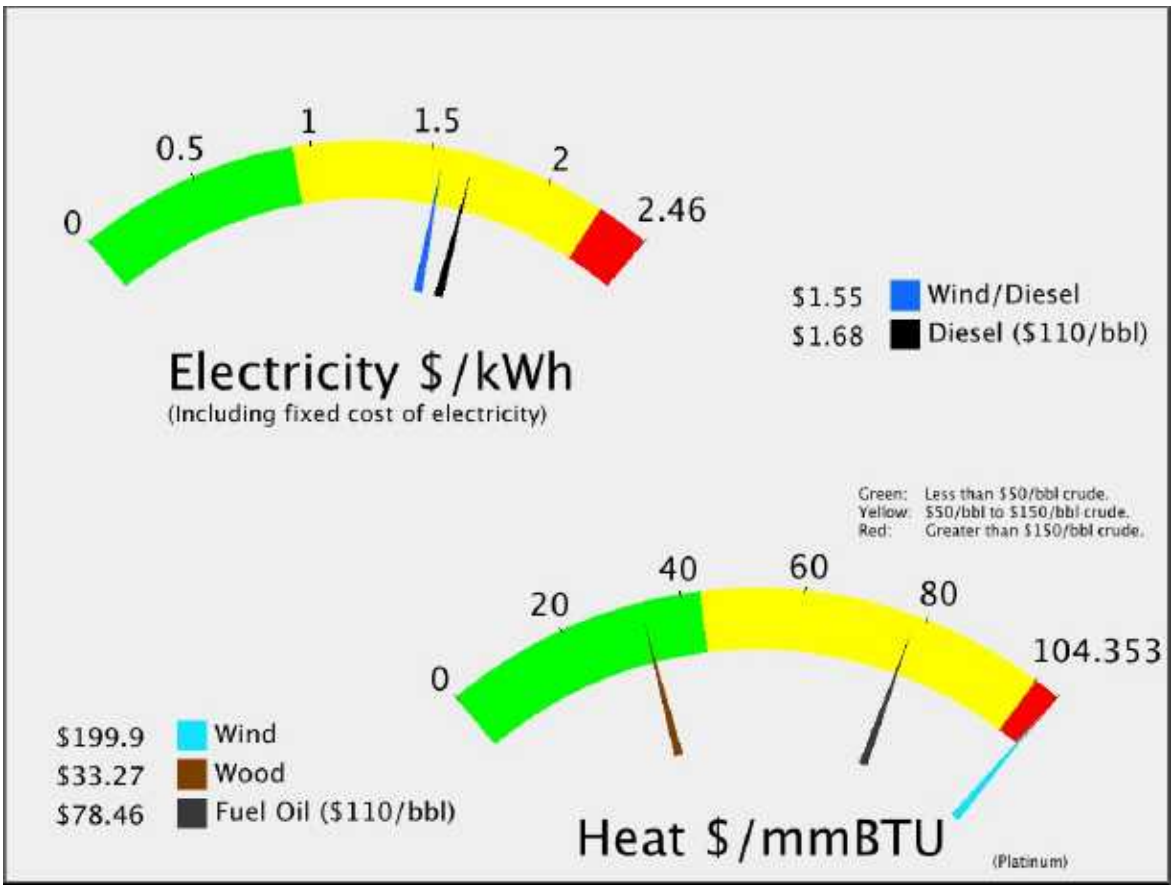
Total: $15,585 Per capita

Heat **$7,675** Per capita

Transportation **$2,746** Per capita

Electricity: **$5,164** Per capita

POPULATION: 35



Platinum

Regional Corporation
Calista Corporation
House 38
Senate : **S**

POPULATION 35 LATITUDE: 59d 00m N LONGITUDE: 161d 49m **Unorganized**

LOCATION Platinum is located on the Bering Sea coast, below Red Mountain on the south spit of Goodnews Bay. It lies 11 miles from Goodnews Bay and 123 miles southwest of Bethel. It is 440 miles west of Anchorage.

ECONOMY Commercial fishing, the school, stores and City provide employment. Platinum is a major supplier of gravel to area villages. Nine residents hold commercial fishing permits. Subsistence activities are also an important part of the lifestyle. Salmon and seal are the staples of the diet. The community is interested in developing a marine repair facility and dry dock, a seafood processing plant, specialty seafoods venture, or herring roe aquaculture project.

HISTORY Platinum is near a traditional village site called Arviq. The community was established shortly after traces of platinum were discovered by an Eskimo named Walter Smith in 1926. Between 1927 and 1934, several small placer mines operated on creeks in the area. Some 3,000 troy ounces of platinum were mined over that period, with a value of about $48 per ounce. A post office opened in 1935. The "big strike" occurred in October of 1936, which brought a stampede of prospectors for "white gold." The claims proved to be too deep for hand mining methods and were bought out by two companies. The largest, Goodnews Mining Co., eventually acquired title to over 150 claims. In 1937 a large dredge was built at the mining site, about 10 miles from the village of Platinum. The Company also constructed bunkhouses, a recreation hall, offices, shops and a cafeteria. Platinum developed as a "company town," with the store, water, and electricity supplied by the mine. A school opened in 1960. By 1975, 545,000 ounces of platinum had been mined at the site. The city government was formed. The mine was later sold to Hanson Properties, who estimate reserves of over 500,000 ounces -- it ceased operations in 1990.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$7.67** /kw-hr

Current efficiency	**9.39**	kW-hr/gal	Fuel COE	**$1.31**	/kw-hr	Estimated Diesel OM	**$2,361**
Consumption in 200	**20,130**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$41,552**
Average Load	**13**	kW	NF COE:	**$0.35**	/kw-hr	Current Fuel Costs	**$154,391**
Estimated peak loa	**26.947**	kW	Total	**$1.68**		**Total Electric**	
Average Sales	**118,027**	kW-hours				**$198,303**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**30,985**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$8.67**		
Wood:	**0%**	$/MMBtu delivered to user	**$78.63**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,718**		**$268,634**

Transportation (Estimated)

Estimated Diesel:	**11,084**	gal	Estimated cost	**$8.67**	**Total Transportation**
					$96,098

Energy Total **$563,035**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **13,494**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.92	/kw-hr
Estimated Diesel OM	**$2,361**	$0.02	
New fuel cost	**$103,498**	$0.88	
Avg Non-Fuel Costs:	**$43,912**	$0.35	
New cost of electricity		**$1.84**	per kW-hr

Savings

($58,004)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**3,020**	gal	**$26,178**
Stack Heat	**0**	gal	**$0**

Capital cost	**$37,726**		
Annual ID	**$3,160**		
Annual OM	**$755**		
Total Annual costs	**$3,915**		
Heat cost	**$11.73**	$/MMBtu	

Savings

$22,264

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **449143**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.19
Annual OM	**$21,072**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,404**	$0.31	**$90.94**
Non-Fuel Costs		$0.37	
Alternative COE:		**$0.68**	
% Community energy		381%	
New Community COE		**$1.55**	

(includes non-fuel and diesel costs)

Savings

$58,899

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	68.6%

Other Resources

Platinum

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

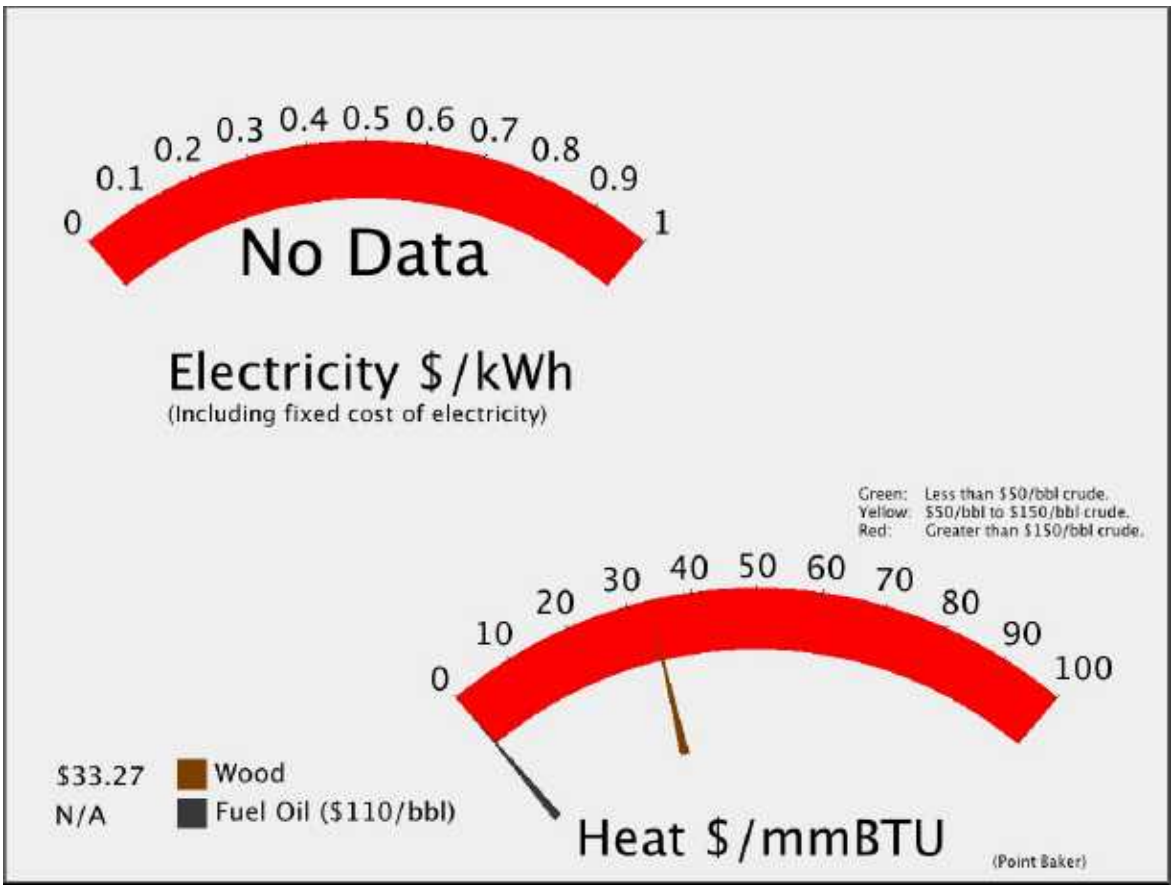
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Point Baker

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	16
Transportation	Per capita		
Electricity:	Per capita		



Point Baker

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 16 LATITUDE: 56d 21m N LONGITUDE: 133d 37m **Unorganized**

LOCATION Located on the northern tip of Prince of Wales Island, Point Baker is 142 miles south of Juneau and 50 miles west of Wrangell.

ECONOMY 27 residents hold commercial fishing permits; the majority are hand-trollers. Subsistence and recreational food sources include deer, salmon, halibut, shrimp and crab.

HISTORY Point Baker was named in 1793 by Capt. George Vancouver, who named it after the Second Lieutenant on his ship "The Discovery." The first floating fish packer came to Point Baker in 1919, and fish buying continued until the 1930s when the Forest Service opened the area for homesites. During the 1920s and 1930s, up to 100 tents lined the harbor, occupied by hand-trollers. The first store was built in 1941, and a post office opened in 1942. In 1955, Point Baker was withdrawn from the Tongass National Forest. A floating dock was built by the State in 1961; larger docks replaced it in 1968.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **412669**
Met Tower? **no**
Homer Data? **yes**
Wind Class **5**
Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.29	$84.02
Annual OM	**$19,361**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,693**	$0.33	**$97.76**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Point Baker

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Point Hope

Energy Used

Total:

Per capita

Heat

Per capita

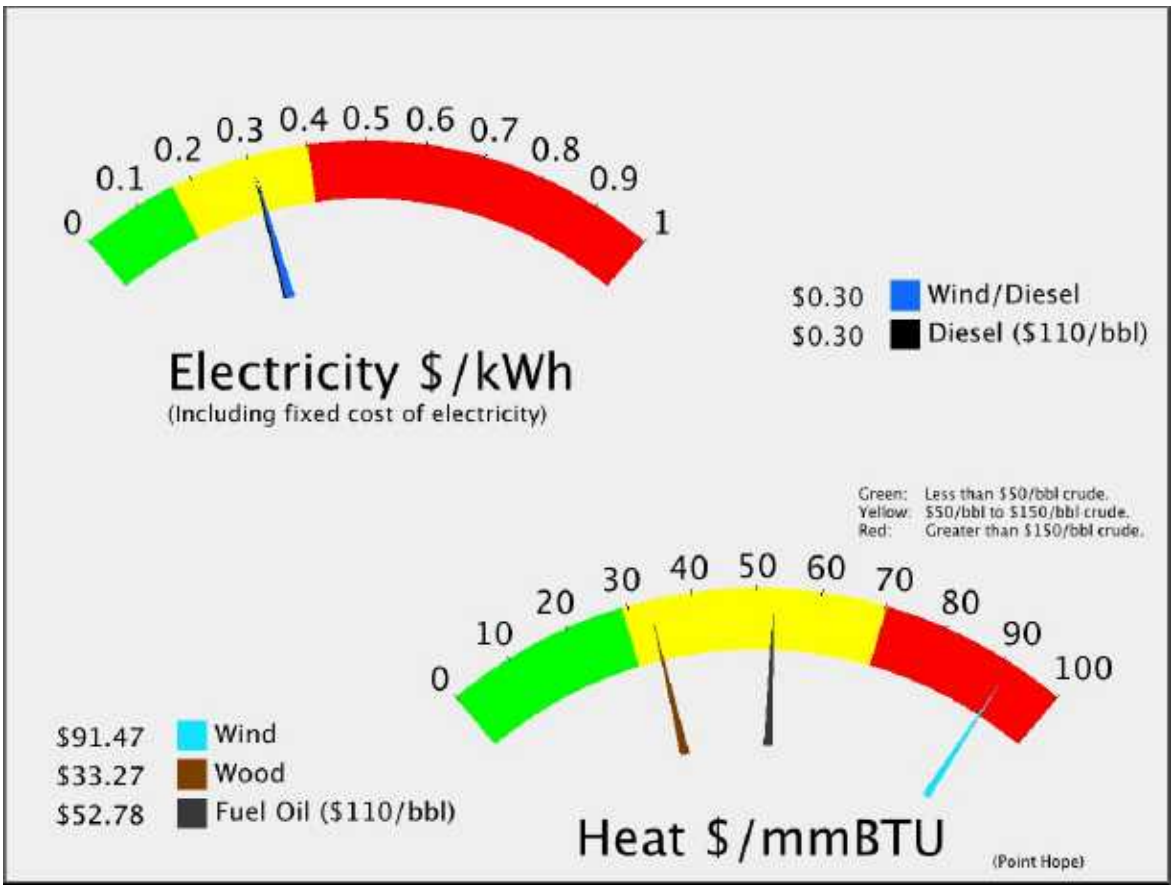
POPULATION: 704

Transportation

Per capita

Electricity: **$2,193**

Per capita



Point Hope

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 704 LATITUDE: 68d 21m N LONGITUDE: 166d 47m **North Slope Borough**

LOCATION Point Hope is located near the tip of Point Hope peninsula, a large gravel spit that forms the western-most extension of the northwest Alaska coast, 330 miles southwest of Barrow.

ECONOMY Most full time positions in Point Hope are with the city and borough governments. Residents manufacture whalebone masks, baleen baskets, ivory carvings and Eskimo clothing. Two residents hold a commercial fishing permit. Seals, bowhead whales, beluga whales, caribou, polar bears, birds, fish and berries are utilized.

HISTORY Point Hope (Tikeraq) peninsula is one of the oldest continuously occupied Inupiat Eskimo areas in Alaska. Several settlements have existed on the peninsula over the past 2,500 years, including Old and New Tigara, Ipiutak, Jabbertown, and present Point Hope. The peninsula offers good access to marine mammals, and ice conditions allow easy boat launchings into open leads early in the spring whaling season. The people were traditionally aggressive and exercised dominance over an extensive area, from the Utukok to Kivalina Rivers, and far inland. By 1848, commercial whaling activities brought an influx of Westerners, many of whom employed Point Hope villagers. By the late 1880s, the whalers established shore-based whaling stations, such as Jabbertown. These disappeared with the demise of whaling in the early 1900s. The City government was incorporated in 1966. In the early 1970s the village moved to a new site just east of the old village because of erosion and periodic storm-surge flooding. Most of the housing was moved on runners to the new site. New houses were constructed by the Borough and individuals.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**16.20**	kW-hr/gal	Fuel COE	**$0.25**	/kw-hr	Estimated Local Fuel cost @ $110/bbl	**$4.83** /kw-hr
Consumption in 200	**267,998**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$103,511**
Average Load	**591**	kW	NF COE:	**$0.03**	/kw-hr	Other Non-Fuel Costs:	**$170,357**
Estimated peak loa	**1181.6**	kW	Total	**$0.30**		Current Fuel Costs	**$1,295,181**
Average Sales	**5,175,530**	kW-hours				**Total Electric**	**$1,569,048**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$5.83**	
Wood:	**0%**	$/MMBtu delivered to user	**$52.90**	**Total Heating Oil**
Electricity:	**3.3%**	Community heat needs in MMBtu		

Transportation (Estimated)

Estimated Diesel:	gal	Estimated cost	**$5.83**	**Total Transportation**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **294,285**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.00	/kw-hr
Estimated Diesel OM	**$103,511**	$0.02	
New fuel cost	**$1,422,221**	$0.27	
Avg Non-Fuel Costs:	**$273,868**	$0.03	
New cost of electricity	**$0.38** per kW-hr		

Savings

($137,511)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School, Washeteria, Senior Center, Clinic

			Value
Water Jacket	**40,200**	gal	**$234,477**
Stack Heat	**26,800**	gal	**$156,318**

Capital cost **$1,654,279**

Annual ID **$138,573**

Annual OM **$33,086**

Total Annual costs **$171,659**

Heat cost **$23.19** $/MMBtu

Savings

$219,136

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**

kW-hr/year **2028965**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **6.33** m/s

			Heat Cost $/MMBtu :
Capital cost	**$6,410,697**	per kW-hr	
Annual Capital	**$430,900**	$0.21	$62.23
Annual OM	**$95,192**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$526,091**	$0.26	**$75.97**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.31**	
% Community energy		39%	
New Community COE (includes non-fuel and diesel costs)		**$0.30**	

Savings

$22,251

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Point Hope

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal: SOME POTENTIAL

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Point Lay

Energy Used

Total:

Per capita

Heat

Per capita

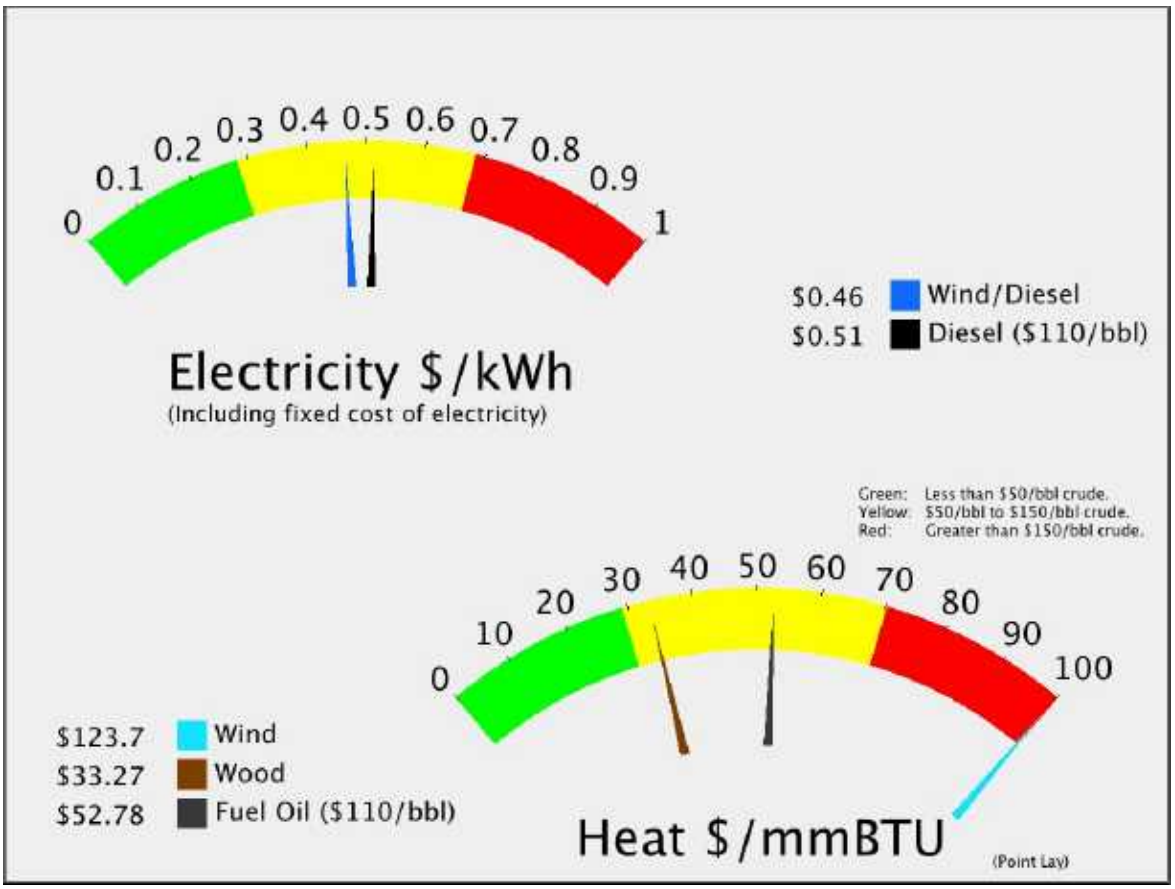
POPULATION: 250

Transportation

Per capita

Electricity: **$4,470**

Per capita



Point Lay

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 250 LATITUDE: 69d 45m N LONGITUDE: 163d 03m **North Slope Borough**

LOCATION Point Lay is located south of the Kokolik River mouth, about 300 miles southwest of Barrow.

ECONOMY Most year-round employment opportunities are with the borough government. Subsistence activities provide food sources. Seals, walrus, beluga, caribou and fish are staples of the diet.

HISTORY Point Lay is one of the more recently established Inupiaq villages on the Arctic coast, and has historically been occupied year round by a small group of one or two families. They were joined in 1929-30 by several more families from Point Hope. The deeply indented shoreline has prevented effective bowhead whaling, but the village participates in beluga whaling. In 1974, the village moved from the old site on a gravel barrier island just offshore. The old village site is now used as a summer hunting camp. Some residents of Barrow and Wainwright relocated to the village in the mid-1970s. Due to seasonal flooding from the Kokolik River, in the late 1970s the village relocated again to a site near the Air Force Distance Early Warning station to the south. Homes were relocated to the new townsite.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.83** /kw-hr

Current efficiency	**13.11**	kW-hr/gal	Fuel COE	**$0.38**	/kw-hr	Estimated Diesel OM	**$43,962**
Consumption in 200	**173,358**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$246,794**
Average Load	**251**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$837,805**
Estimated peak loa	**501.85**	kW	Total	**$0.51**		**Total Electric**	
Average Sales	**2,198,105**	kW-hours				**$1,128,561**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.83**	
Wood:	**0%**	$/MMBtu delivered to user	**$52.90**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$5.83**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **154,106**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.00	/kw-hr
Estimated Diesel OM	**$43,962**	$0.02	
New fuel cost	**$744,761**	$0.34	
Avg Non-Fuel Costs:	**$290,756**	$0.11	
New cost of electricity	**$0.46** per kW-hr		

Savings

$82,572

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Washeteria

			Value
Water Jacket	**26,004**	gal	**$151,674**
Stack Heat	**0**	gal	**$0**

Capital cost	**$702,591**		
Annual ID	**$58,854**		
Annual OM	**$14,052**		
Total Annual costs	**$72,905**		
Heat cost	**$25.37**	$/MMBtu	

Savings

$78,769

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1175847**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$4,253,640**		
Annual Capital	**$285,911**	$0.24	$71.24
Annual OM	**$55,166**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$341,078**	$0.29	**$84.99**
Non-Fuel Costs		$0.13	
Alternative COE:		**$0.42**	
% Community energy		53%	
New Community COE (includes non-fuel and diesel costs)		**$0.45**	

Savings

$130,548

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Point Lay

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal: CONFIRMED RESOURCE

Propane:

Renewable Fund Project List:

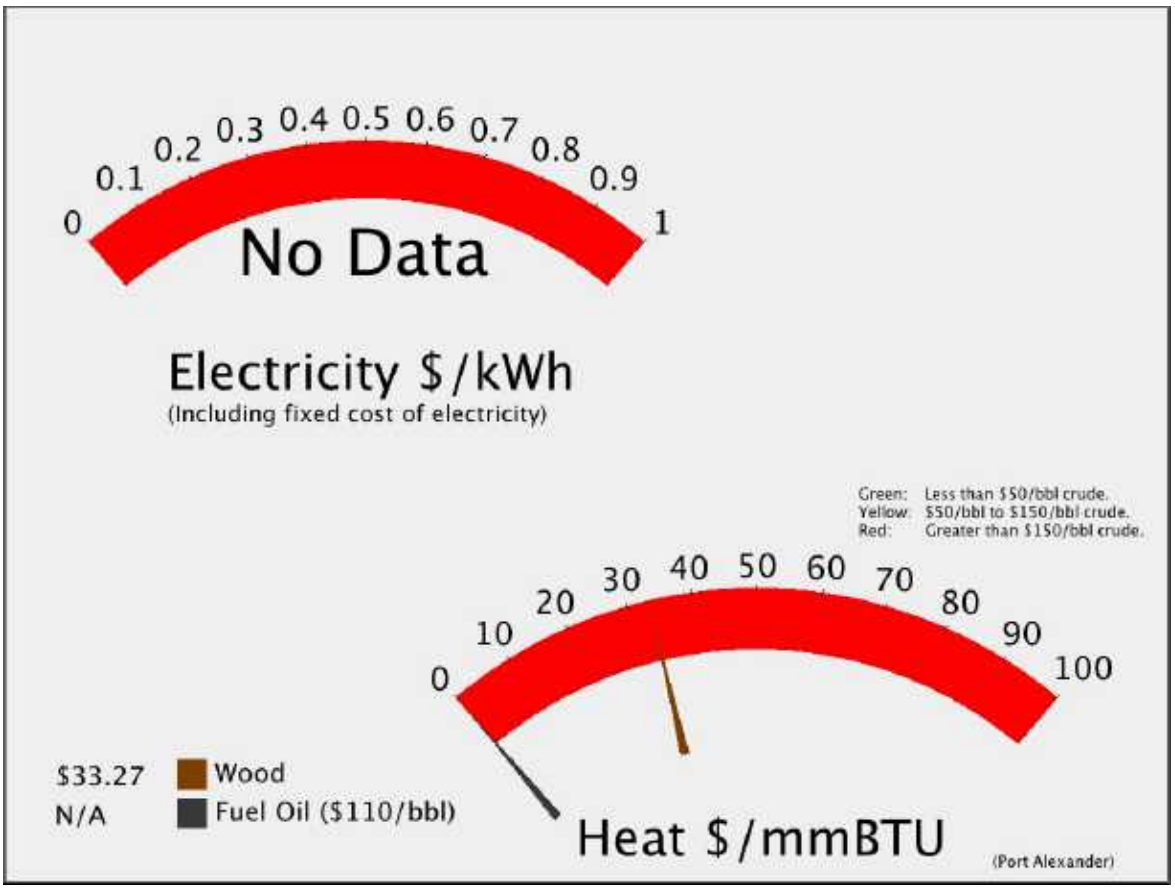
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Point Lay Heat Recovery has been submitted by: North Slope Borough for a Heat Recovery project. The total project budget is: $4,257,116 with $3,995,116 requested in grant funding and $262,000 as matching funds.

Port Alexander

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	60
Transportation	Per capita		
Electricity:	Per capita		



Port Alexander

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 60 LATITUDE: 56d 15m N LONGITUDE: 133d 38m **Unorganized**

LOCATION Port Alexander is located on the south end of Baranof Island, 65 miles south of Sitka. It provides a safe harbor during the gales and storms that frequent Chatham Strait.

ECONOMY Commercial fishing and subsistence uses of marine and forest resources constitute the economic base. 35 residents hold commercial fishing permits. The City, school and post office provide the only year-round cash employment. Deer, salmon, halibut, shrimp and crab are favorite food sources. The city is encouraging more lodging industries.

HISTORY In 1795, the British explorer Capt. George Vancouver, recorded his entry into the cove which is now called Port Alexander. He was looking for Natives to trade with, but found only a deserted village. The site was named in 1849 by Capt. M.D. Tebenkov, Governor of the Russian American colonies. In 1913, salmon trollers discovered the rich fishing grounds of the South Chatham Strait area, and fishermen began using the area as their seasonal base. Two floating processors arrived soon after. By 1916, there was a fishing supply store, a shore station owned by Northland Trading and Packing Company, and a bakery at Port Alexander. Families of fishermen began coming to the community during the summers, and many of the first arrivals lived in tents. Karl Hansen, a Norwegian immigrant, operated a fish-buying station, the Pacific Mild Cure Company. He also sold supplies and fuel, and installed a wireless station. During the 1920s and 1930s, a year-round community had evolved around the prosperous fishing fleet, and houses, stores, restaurants, a post office and a school were constructed. A soda fountain, butcher shop, dairy, dance hall and hotel were built. During the summer, over 1,000 fishing boats would anchor in the protected harbor. Beginning in 1938, fish stocks declined dramatically and processing became uneconomical. The outbreak of World War II essentially collapsed the town's economy; Karl Hansen left Port Alexander in the late 1940s, after 20 prosperous years and 10 years of struggle, bankrupted. By 1950, 22 residents lived in the town year-round. In the 1970s, State land disposal sales and upswings in salmon stocks enabled new families to build and settle in the community. A city was incorporated in 1974, and seceded from the City and Borough of Sitka during that year.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **398692**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.30	$86.96
Annual OM	**$18,705**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,037**	$0.34	**$100.71**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Port Alexander

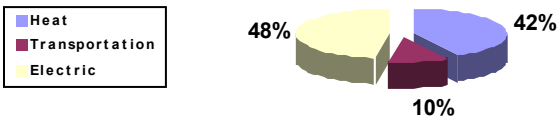
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Port Alsworth

Energy Used



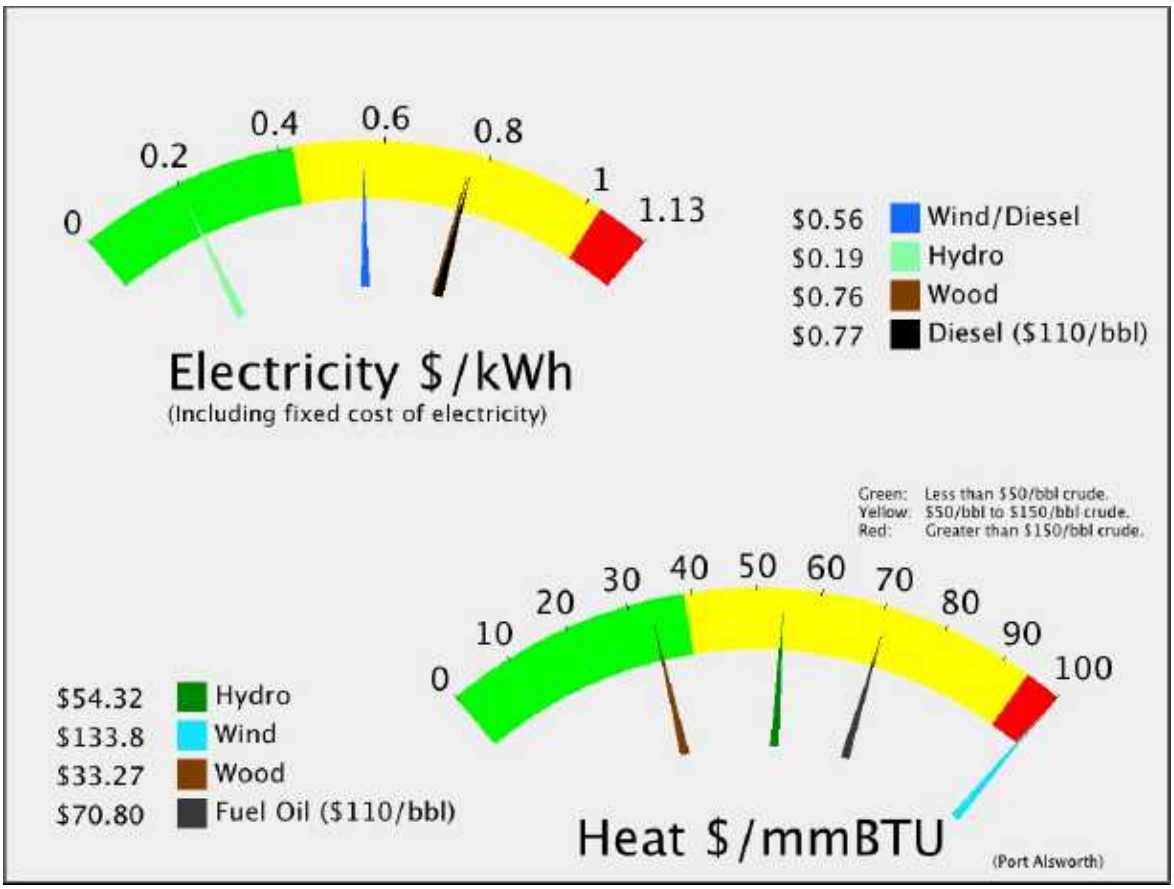
Total: **$8,606** Per capita

Heat **$3,634** Per capita

Transportation **$888** Per capita

Electricity: **$4,085** Per capita

POPULATION: 118



Port Alsworth

Regional Corporation
Cook Inlet Region, Inc.
House 36
Senate : **R**

POPULATION 118 LATITUDE: 60d 12m N LONGITUDE: 154d 19m **Lake & Peninsula Borou**

LOCATION Port Alsworth is on the east shore of Lake Clark at Hardenburg Bay, 22 miles northeast of Nondalton. It lies in the Lake Clark National Park and Preserve.

ECONOMY Port Alsworth offers several lodges and outfitters/guides for summer recreational enthusiasts. Four residents hold commercial fishing permits.

HISTORY Originally a native village, a post office was established in 1950.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$6.82** /kw-hr

Current efficiency	**11.92**	kW-hr/gal	Fuel COE	**$0.63**	/kw-hr	Estimated Diesel OM	**$11,544**
Consumption in 200	**53,448**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$69,787**
Average Load	**66**	kW	NF COE:	**$0.12**	/kw-hr	Current Fuel Costs	**$364,729**
Estimated peak loa	**131.78**	kW	Total	**$0.77**		**Total Electric**	
Average Sales	**577,176**	kW-hours				**$446,060**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**54,801**	gal	
Fuel Oil:	**83%**	Estimated heating fuel cost/gallon	**$7.82**		
Wood:	**17%**	$/MMBtu delivered to user	**$70.96**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,576**		**$428,764**

Transportation (Estimated)

Estimated Diesel:	**13,392**	gal	Estimated cost	**$7.82**	**Total Transportation**
					$104,778

Energy Total **$979,601**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **45,520**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.19	/kw-hr
Estimated Diesel OM	**$11,544**	$0.02	
New fuel cost	**$310,627**	$0.54	
Avg Non-Fuel Costs:	**$81,330**	$0.12	
New cost of electricity	**$0.82** per kW-hr		

Savings

($54,795)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**8,017**	gal	**$62,727**
Stack Heat	**0**	gal	**$0**

Capital cost	**$184,485**		
Annual ID	**$15,454**		
Annual OM	**$3,690**		
Total Annual costs	**$19,143**		
Heat cost	**$21.61**	$/MMBtu	

Savings

$43,583

Alternative Energy Resources

Hydro

Installed KW **28000**
kW-hr/year **564428**
Site **Kontrashibuna Lake**
Study plan effort **reconnaissance**
Plant Factor **49** %
Penetration **1.12**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$119,227,600**	per kW-hr	
Annual Capital	**$4,633,840**	$8.21	$2,405.47
Annual OM	**$723,900**	$1.28	$375.78
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$5,357,740**	$9.49	**$2,781.25**

Non-Fuel Costs $0.14
Alternative COE: $9.63
% Community energy 98%
New Community COE **$0.18**
(includes non-fuel and diesel costs)

Savings
$342,851

Alternative Energy Resources

Wood

Installed KW **78**
kW-hr/year **584116**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **738** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,816,357**	per kW-hr	
Annual Capital	**$122,088**	$0.21	
Annual OM	**$128,668**	$0.22	
Fuel cost:	**$110,722**	$0.19	-90
Total Annual Cost	**$361,478**	$0.62	**$29.76**

Non-Fuel Costs $0.14
Alternative COE: $0.76
% Community energy 101%
New Community COE **$0.77**
(includes non-fuel and diesel costs)

Savings
$84,582

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**
kW-hr/year **767484**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.27	$78.82
Annual OM	**$36,008**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$242,465**	$0.32	**$92.57**

Non-Fuel Costs $0.14
Alternative COE: $0.46
% Community energy 133%
New Community COE **$0.56**
(includes non-fuel and diesel costs)

Savings
$203,595

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	38.8%

Other Resources

Port Alsworth

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project.

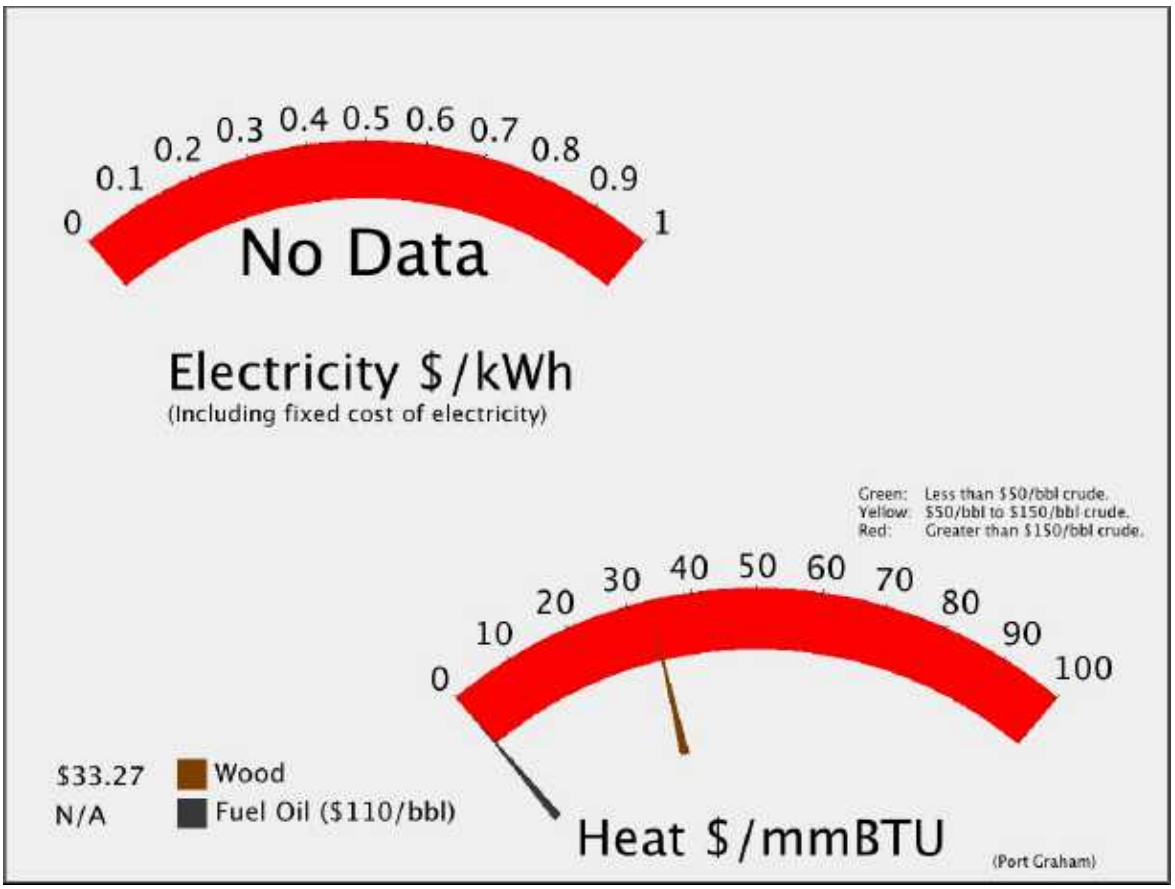
A project titled: Lake Pen Borough Wood Heating Final Design has been submitted by: Lake and Peninsula Borough for a Biomass project.

A project titled: Tanalian River Hydro_AGE has been submitted by: Alaska Green Energy, LLC for a Hydro project. The total project budget is: $4,097,000 with $4,097,000 requested in grant funding and $ as matching funds.

Port Graham

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	134
Transportation	Per capita		
Electricity:	Per capita		



Port Graham

Regional Corporation
Chugach Alaska Corporation

House 35
Senate : **R**

POPULATION 134 LATITUDE: 59d 21m N LONGITUDE: 151d 49m **Kenai Peninsula Boroug**

LOCATION The community is located at the southern end of the Kenai Peninsula on the shore of Port Graham. It is adjacent to Nanwalek, 7.5 miles southwest of Seldovia and 28 air miles from Homer.

ECONOMY A new $4.5 million fish cannery and hatchery opened on June 19, 1999. The cannery provides seasonal employment for 70 Port Graham and Nanwalek residents. Red salmon fry are raised for area lakes, and pink salmon are raised for the cannery. 12 residents hold commercial fishing permits.

HISTORY The earliest known settlers were Russians from the nearby trading post at Nanwalek. In 1850, the Russian-American Co. established a coal mine at Port Graham, but it was not economical and lasted only a few years. Port Graham became the site of a cannery and wharf, according to the U.S. Geological Survey in 1909. In 1911, the Fidalgo Island Packing Co. established a cannery, and Aleuts from Nanwalek moved to the community. A post office operated between 1938 and 1961. The cannery burned in 1960. It was rebuilt in 1968 by Whitney/Fidalgo, and was sold to the village corporation in 1983. A pink salmon hatchery began operations in 1991. In January 1998, the hatchery and salmon processing plant were destroyed by fire. The hatchery and processing plant were rebuilt and re-opened in June 1999. The cannery continues to be the main economic activity in the community, employing residents of Nanwalek as well.

Alternative Energy Resources

Hydro

Installed KW **985**

kW-hr/year **1600000**

Site **Dangerous Cape Creek**

Study plan effort **reconnaissance**

Plant Factor **52** %

Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$14,780,340**		
Annual Capital	**$618,802**	$0.39	$113.32
Annual OM	**$191,092**	$0.12	$34.99
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$809,894**	$0.51	**$148.31**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Port Graham

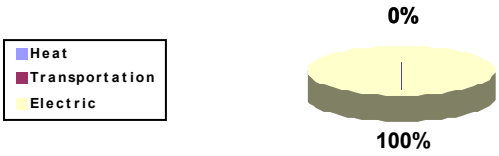
Tidal: SOME POTENTIAL
Wave:
Coal Bed Methane:
Natural Gas:
Coal: SOME POTENTIAL
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Port Heiden

Energy Used



Total:

Per capita

Heat

Per capita

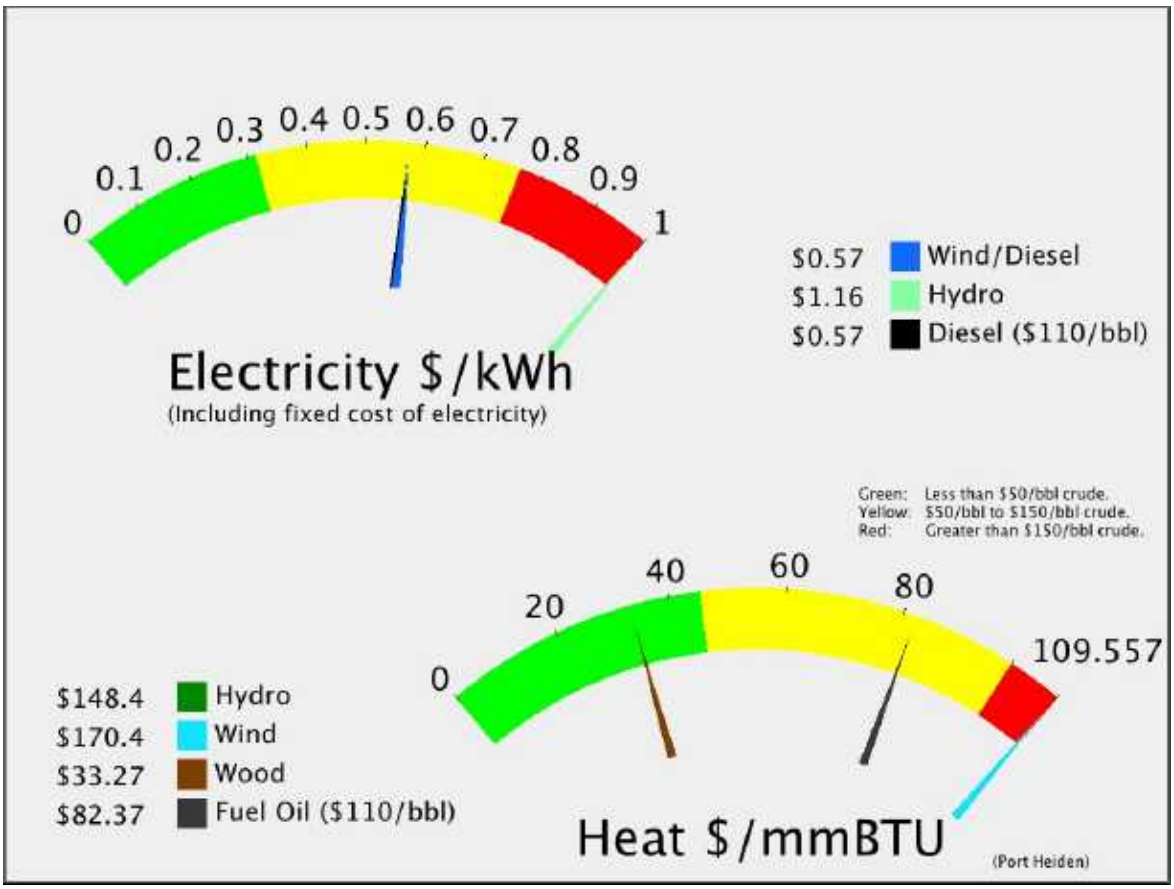
POPULATION: 87

Transportation

Per capita

Electricity: **$3,285**

Per capita



Port Heiden

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 87 LATITUDE: 56d 55m N LONGITUDE: 158d 41m **Lake & Peninsula Borou**

LOCATION Port Heiden is 424 miles southwest of Anchorage, at the mouth of the Meshik River on the north side of the Alaska Peninsula. It lies near the Aniakchak National Preserve and Monument.

ECONOMY Commercial fishing and government jobs provide the majority of cash income. 17 residents hold commercial fishing permits. Subsistence harvests of salmon, other fish and marine mammals average 109 lbs. per person. Game, birds, plants and berries are also an important part of villagers' diets.

HISTORY The old village of Meshik was located at the current site of Port Heiden. Influenza epidemics during the early 1900s forced residents to relocate to other villages. During World War II, Fort Morrow was built nearby, and 5,000 personnel were stationed at the base. The Fort was closed after the war. A school was established in the early 1950s, which attracted people from surrounding villages. Port Heiden incorporated as a city in 1972. The community recently relocated inland because storm waves had eroded much of the old townsite and threatened to destroy community buildings.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$8.10** /kw-hr

Current efficiency	**9.06**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$10,753**
Consumption in 200	**25,669**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$88,413**
Average Load	**61**	kW	NF COE:	**$0.16**	/kw-hr	Current Fuel Costs	**$207,973**
Estimated peak loa	**122.75**	kW	Total	**$0.57**		**Total Electric**	
Average Sales	**537,635**	kW-hours				**$307,139**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**89%**	Estimated heating fuel cost/gallon	**$9.10**	
Wood:	**0%**	$/MMBtu delivered to user	**$82.56**	**Total Heating Oil**
Electricity:	**10.8%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$9.10**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **16,610**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.20	/kw-hr
Estimated Diesel OM	**$10,753**	$0.02	
New fuel cost	**$134,573**	$0.25	
Avg Non-Fuel Costs:	**$99,166**	$0.16	
New cost of electricity		**$0.97**	per kW-hr

Savings

($35,497)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**3,850**	gal	**$35,046**
Stack Heat	**0**	gal	**$0**

Capital cost	**$171,847**		
Annual ID	**$14,395**		
Annual OM	**$3,437**		
Total Annual costs	**$17,832**		
Heat cost	**$41.91**	$/MMBtu	

Savings

$17,214

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **193561**
Met Tower? **yes**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **5.49** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.35	$102.67
Annual OM	**$9,081**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$76,904**	$0.40	**$116.41**
Non-Fuel Costs		$0.18	
Alternative COE:		**$0.58**	
% Community energy		36%	
New Community COE		**$0.57**	

(includes non-fuel and diesel costs)

Savings
$1,854

Alternative Energy Resources

Hydro

Installed KW **350**
kW-hr/year **600000**
Site **Reindeer Creek**
Study plan effort **reconnaissance**
Plant Factor **80** %
Penetration

			Heat Cost $/MMBtu :
Capital cost	**$8,928,000**	per kW-hr	
Annual Capital	**$482,097**	$0.80	$235.42
Annual OM	**$45,000**	$0.08	$21.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$527,097**	$0.88	**$257.40**
Non-Fuel Costs		$0.18	
Alternative COE:		**$1.06**	
% Community energy		112%	
New Community COE		**$1.16**	

(includes non-fuel and diesel costs)

Savings
($219,959)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Port Heiden

Tidal:
Wave:
Coal Bed Methane:
Natural Gas: Basin has industrial-scale exploration potential
Coal:
Propane:

Renewable Fund Project List:

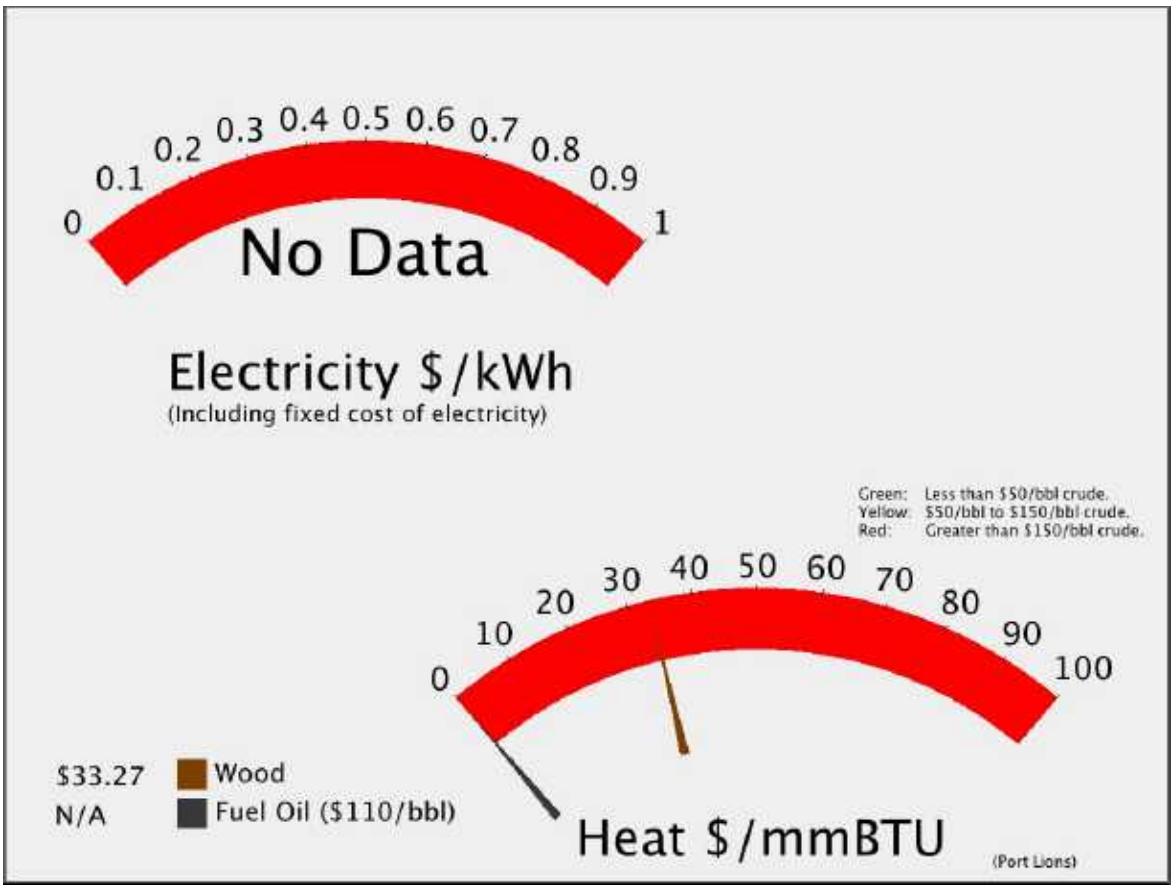
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Lake Pen Borough Wind Feasibility Study has been submitted by: Lake and Peninsula Borough for a Wind Diesel Hybrid project.

Port Lions

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	179
Transportation	Per capita		
Electricity:	Per capita		



Port Lions

Regional Corporation
Koniag, Incorporated

House 36
Senate : **R**

POPULATION 179 LATITUDE: 57d 52m N LONGITUDE: 152d 53m **Kodiak Island Borough**

LOCATION Port Lions is located in Settler Cove, on the north coast of Kodiak Island, 247 air miles southwest of Anchorage.

ECONOMY The economy of Port Lions is based primarily on commercial fishing, fish processing and tourism. 24 residents hold commercial fishing permits. All of the residents depend to some extent on subsistence food sources such as salmon, crab, halibut, shrimp, clams, duck, seal, deer and rabbit.

HISTORY The town was founded in 1964 by the displaced inhabitants of Afognak, which was destroyed by tsunami after the Good Friday Earthquake. The community was named in honor of the Lions Club, for their support in rebuilding and relocating the village. The City government was incorporated in 1966. For many years, Port Lions was the site of the large Wakefield Cannery, on Peregrebni Point. The cannery burned down in March 1975. Soon thereafter, the village corporation purchased a 149-foot floating processor, the Smokwa. Although sold in 1978, the Smokwa processed crab in the area intermittently between 1975 and 1980. A small sawmill, located south of town, operated until 1976.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **393839**
Met Tower? **no**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.03
Annual OM	**$18,477**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,810**	$0.35	**$101.78**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Port Lions

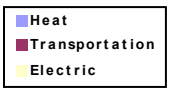
Tidal: SOME POTENTIAL
Wave: SOME POTENTIAL
Coal Bed Methane:
Natural Gas:
Coal: SOME POTENTIAL
Propane:

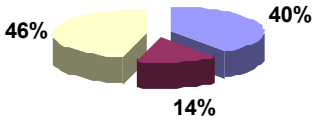
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Quinhagak

Energy Used





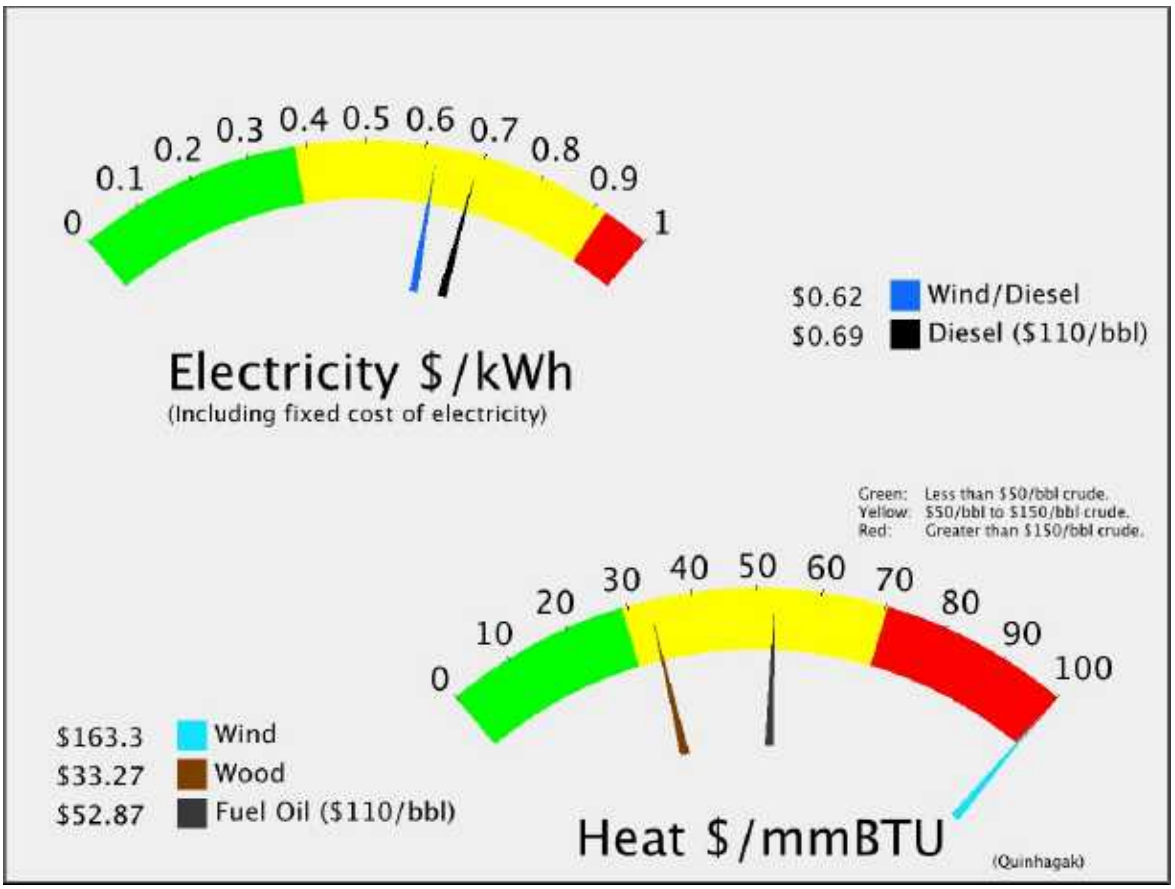
Total: **$4,163** Per capita

Heat **$1,659** Per capita

Transportation **$594** Per capita

Electricity: **$1,910** Per capita

POPULATION: 643



Quinhagak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 643 LATITUDE: 59d 45m N LONGITUDE: 161d 54m **Unorganized**

LOCATION Quinhagak is on the Kanektok River on the east shore of Kuskokwim Bay, less than a mile from the Bering Sea coast. It lies 71 miles southwest of Bethel.

ECONOMY Most of the employment is with the school, government services or commercial fishing. Trapping, basket weaving, skin sewing and ivory carving also provide income. Subsistence remains an important part of the livelihood; seal and salmon are staples of the diet. 83 residents hold commercial fishing permits for salmon net and herring roe fisheries. Coastal Villages Seafood LLC processes halibut and salmon in Quinhagak.

HISTORY The Yup'ik name is Kuinerraq, meaning "new river channel." Quinhagak is a long-established village whose origin has been dated to 1,000 A.D. It was the first village on the lower Kuskokwim to have sustained contact with whites. Gavril Sarichev reported the village on a map in 1826. After the purchase of Alaska in 1867, the Alaska Commercial Co. sent annual supply ships to Quinhagak with goods for Kuskokwim River trading posts. Supplies were lightered to shore from the ship, and stored in a building on Warehouse Creek. A Moravian Mission was built in 1893. There were many non-Natives in the village at that time; most waiting for boats to go upriver. In 1904 a mission store opened, followed by a post office in 1905 and a school in 1909. Between 1906 and 1909, over 2,000 reindeer were brought in to the Quinhagak area. They were managed for a time by the Native-owned Kuskokwim Reindeer Company, but the herd had scattered by the 1950s. In 1915 the Kuskokwim River was charted, so goods were barged directly upriver to Bethel. In 1928, the first electric plant opened; the first mail plane arrived in 1934. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.84** /kw-hr

Current efficiency	**13.61**	kW-hr/gal	Fuel COE	**$0.41**	/kw-hr	Estimated Diesel OM	**$33,760**
Consumption in 200	**143,191**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$438,882**
Average Load	**193**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$693,474**
Estimated peak loa	**385.39**	kW	Total	**$0.69**		**Total Electric**	
Average Sales	**1,688,006**	kW-hours				**$1,166,116**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**182,597**	gal	
Fuel Oil:	**90%**	Estimated heating fuel cost/gallon	**$5.84**		
Wood:	**9%**	$/MMBtu delivered to user	**$53.00**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**21,912**		**$1,066,913**

Transportation (Estimated)

Estimated Diesel:	**65,320**	gal	Estimated cost	**$5.84**	**Total Transportation**
					$381,666

Energy Total **$2,614,695**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **139,205**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.06	/kw-hr
Estimated Diesel OM	**$33,760**	$0.02	
New fuel cost	**$674,170**	$0.40	
Avg Non-Fuel Costs:	**$472,642**	$0.26	
New cost of electricity	**$0.69** per kW-hr		

Savings

($89,592)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**21,479**	gal	**$125,500**
Stack Heat	**0**	gal	**$0**

Capital cost	**$539,545**		
Annual ID	**$45,196**		
Annual OM	**$10,791**		
Total Annual costs	**$55,987**		
Heat cost	**$23.59**	$/MMBtu	

Savings

$69,513

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **895168**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$67.58
Annual OM	**$41,998**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,455**	$0.28	**$81.32**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.56**	
% Community energy		53%	
New Community COE (includes non-fuel and diesel costs)		**$0.61**	

Savings

$137,162

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	11.6%

Other Resources

Quinhagak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

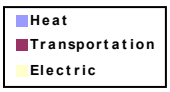
Renewable Fund Project List:

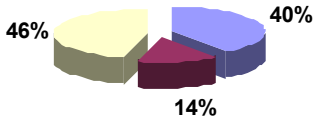
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Quinhagak Wind Farm Construction has been submitted by: Alaska Village Electric Cooperative for a Wind Diesel Hybrid project. The total project budget is: $4,313,603 with $3,882,243 requested in grant funding and $431,360 as matching funds.

Red Devil

Energy Used





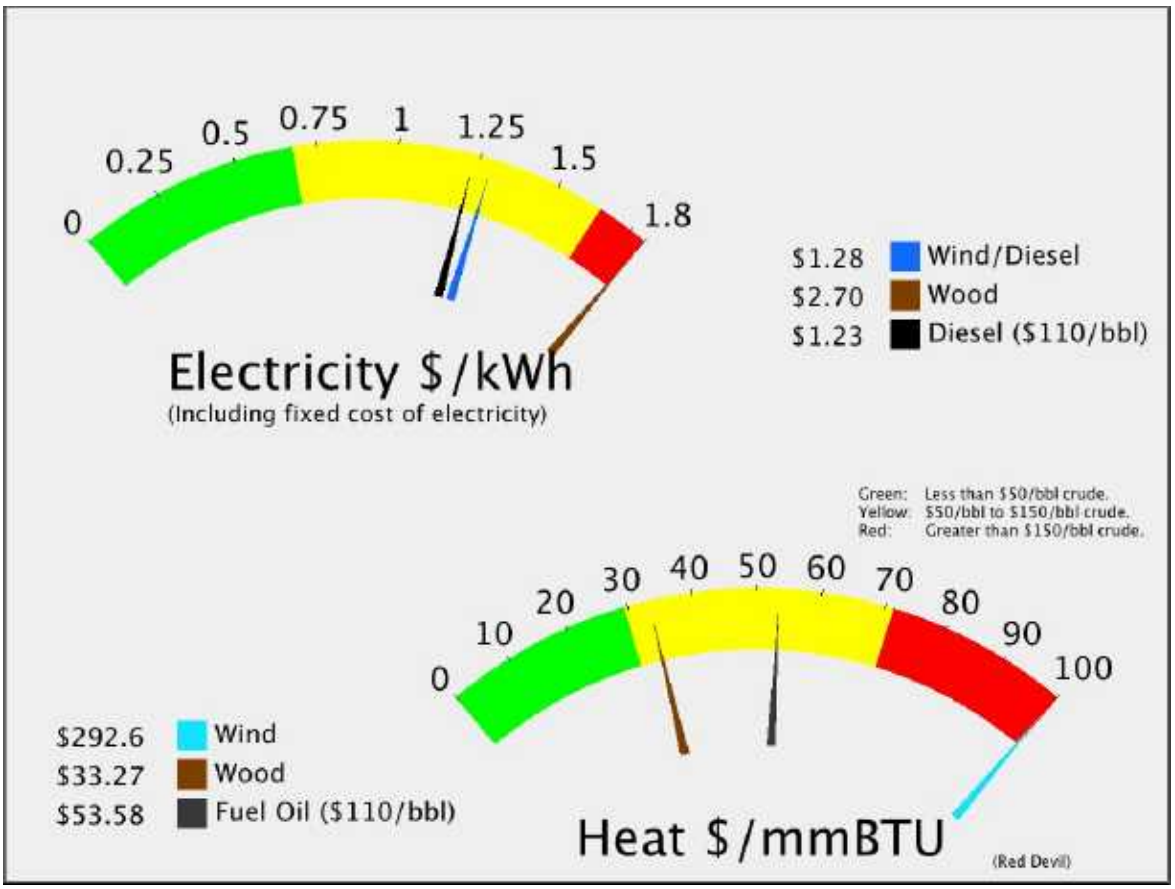
Total: **$9,388** Per capita

Heat **$3,747** Per capita

Transportation **$1,340** Per capita

Electricity: **$4,300** Per capita

POPULATION: 34



Red Devil

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 34 LATITUDE: 61d 45m N LONGITUDE: 157d 18m **Unorganized**

LOCATION Red Devil is located on both banks of the Kuskokwim River, at the mouth of Red Devil Creek. It lies 75 air miles northeast of Aniak, 161 miles northeast of Bethel, and 250 miles west of Anchorage.

ECONOMY Since the closure of the mercury mine in 1971, employment opportunities have been limited. Income is supplemented by subsistence activities, BLM firefighting, or work in the commercial fishing industry. Salmon, bear, moose, caribou, rabbit, waterfowl and berries are harvested in season.

HISTORY The village was named after the Red Devil Mine, established in 1921 by Hans Halverson when numerous mercury (quicksilver) deposits were discovered in the surrounding Kilbuck-Kuskokwim Mountains. By 1933, the mine was producing substantial quantities of mercury. Although the mine changed ownership twice over the years, it continued to operate until 1971. The mine produced some 2.7 million pounds of mercury during its operation. A post office was established in 1957 and a state school opened in 1958.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.92** /kw-hr

Current efficiency	**9.14**	kW-hr/gal	Fuel COE	**$0.58**	/kw-hr	Estimated Diesel OM	**$2,456**
Consumption in 200	**14,542**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$77,359**
Average Load	**14**	kW	NF COE:	**$0.63**	/kw-hr	Current Fuel Costs	**$71,554**
Estimated peak loa	**28.035**	kW	Total	**$1.23**		**Total Electric**	
Average Sales	**122,793**	kW-hours				**$151,368**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**21,518**	gal	
Fuel Oil:	**83%**	Estimated heating fuel cost/gallon	**$5.92**		
Wood:	**17%**	$/MMBtu delivered to user	**$53.70**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,582**		**$127,395**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **7,697** gal Estimated cost **$5.92** **$45,573**

Energy Total **$324,336**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **9,490**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.07	/kw-hr
Estimated Diesel OM	**$2,456**	$0.02	
New fuel cost	**$46,696**	$0.38	
Avg Non-Fuel Costs:	**$79,815**	$0.63	
New cost of electricity	**$1.07** per kW-hr		

Savings **$16,482**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**2,181**	gal	**$12,914**
Stack Heat	**0**	gal	**$0**

Capital cost	**$39,249**		
Annual ID	**$3,288**		
Annual OM	**$785**		
Total Annual costs	**$4,073**		
Heat cost	**$16.90**	$/MMBtu	

Savings **$8,842**

Alternative Energy Resources

Wood

Installed KW **16**

kW-hr/year **119996**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **152** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,757,842**	per kW-hr	
Annual Capital	**$118,155**	$0.98	
Annual OM	**$110,317**	$0.92	
Fuel cost:	**$22,746**	$0.19	-90
Total Annual Cost	**$251,218**	$2.09	**$29.76**
Non-Fuel Costs		$0.65	
Alternative COE:		**$2.74**	
% Community energy		98%	
New Community COE		**$2.69**	

(includes non-fuel and diesel costs)

Savings

($178,901)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**

kW-hr/year **224572**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,009,033**	per kW-hr	
Annual Capital	**$67,823**	$0.30	$88.49
Annual OM	**$10,536**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$78,359**	$0.35	**$102.24**
Non-Fuel Costs		$0.65	
Alternative COE:		**$1.00**	
% Community energy		183%	
New Community COE		**$1.29**	

(includes non-fuel and diesel costs)

Savings

$73,010

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	98.8%

Other Resources

Red Devil

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

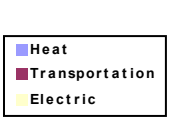
Propane:

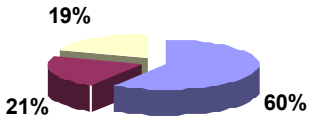
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Ruby

Energy Used





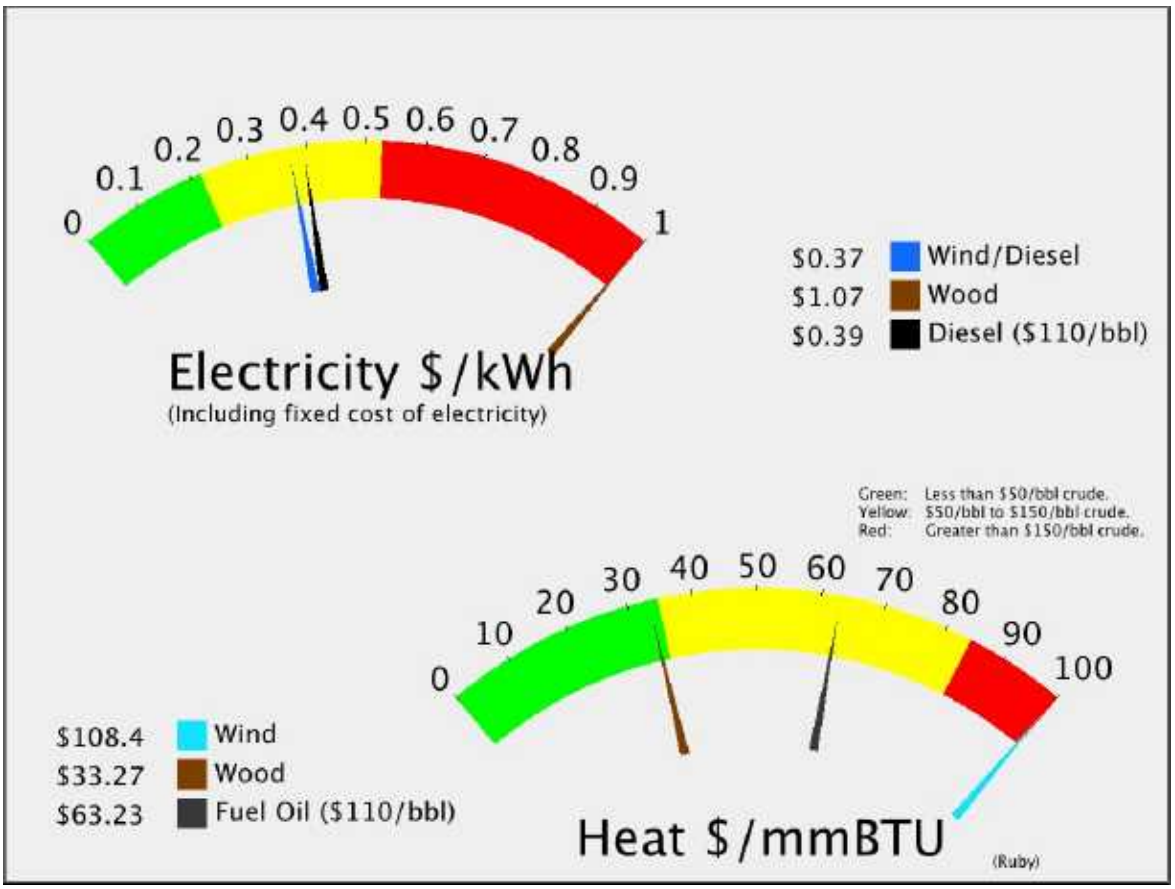
Total: **$5,098** Per capita

Heat **$3,017** Per capita

Transportation **$1,090** Per capita

Electricity: **$991** Per capita

POPULATION: 167



Ruby

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 167 LATITUDE: 64d 45m N LONGITUDE: 155d 30m **Unorganized**

LOCATION Ruby is located on the south bank of the Yukon River, in the Kilbuck-Kuskokwim Mountains. It is about 50 air miles east of Galena and 230 air miles west of Fairbanks. Ruby lies adjacent to the Nowitna National Wildlife Refuge.

ECONOMY The City, Tribe, school, tribal council, Dineega Corp. and clinic are the largest employers. Ruby also has a number of small, family-operated businesses. BLM fire fighting, construction work, Native handicrafts and trapping are part-time cash sources. Subsistence activities provide some food sources. Salmon, whitefish, moose, bear, ptarmigan, waterfowl, and berries are utilized. Eight residents hold commercial fishing permits.

HISTORY Ruby's current residents are Koyukon Athabascans of the Nowitna-Koyukuk band, a nomadic group who followed game with the changing seasons. There were 12 summer fish camps located on the Yukon River between the Koyukuk River and the Nowitna River. Ruby developed as a supply point for gold prospectors. It was named after the red-colored stones found on the riverbank which were thought by prospectors to be rubies. A gold strike at Ruby Creek in 1907, and another at Long Creek in 1911, attracted hundreds of prospectors to the area. At one time, over 1,000 white miners lived in Ruby and the nearby creeks. Placerville, Poorman, Sulatna Crossing, Kokrines and Long Creek were some of the area's boom settlements. A post office was established in 1912, and Ruby incorporated as a city in 1913. Initially, the City was governed by miner's meetings, then later by Pioneer Igloo Number 5. After the gold rush, the population declined rapidly. By 1939, there were only 139 residents. During World War II the mining operations were shut down and most of the white residents left. After the war, the remaining residents of nearby Kokrines relocated to Ruby, and the population began to increase. Ruby incorporated as a second class city in 1973. A clinic, watering point and schools were constructed in the 1970s. During the 1980s, telephones and television services were provided.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**9.87**	kW-hr/gal	Fuel COE	**$0.33**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.99**
Consumption in 200	**26,400**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$9,473**
Average Load	**54**	kW	NF COE:	**$0.04**	/kw-hr	Other Non-Fuel Costs:	**$19,310**
Estimated peak loa	**108.14**	kW	Total	**$0.39**		Current Fuel Costs	**$158,067**
Average Sales	**473,665**	kW-hours				**Total Electric**	**$186,850**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**72,113**	gal	
Fuel Oil:	**72%**	Estimated heating fuel cost/gallon	**$6.99**		
Wood:	**19%**	$/MMBtu delivered to user	**$63.38**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,654**		**$503,881**

Transportation (Estimated)

Estimated Diesel:	**26,052**	gal	Estimated cost	**$6.99**	**Total Transportation** **$182,038**

Energy Total **$872,769**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$1,300,000**			
Powerhouse Module		Annual Capital cost	**$108,897**	$0.23	/kw-hr	
Status	**Design In Pro**	Estimated Diesel OM	**$9,473**	$0.02		
Acheivable efficiency	**14** kW-	New fuel cost	**$111,439**	$0.24		**Savings**
New Fuel use	**18,612**	Avg Non-Fuel Costs:	**$28,783**	$0.04		**($62,269)**
		New cost of electricity	**$0.72** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working: **None**

			Value
Water Jacket	**3,960**	gal	**$27,670**
Stack Heat	**0**	gal	**$0**

Capital cost	**$151,400**		
Annual ID	**$12,682**		
Annual OM	**$3,028**		
Total Annual costs	**$15,710**		**Savings**
Heat cost	**$35.90**	$/MMBtu	**$11,960**

Alternative Energy Resources

Hydro

Installed KW	**200**
kW-hr/year	**400000**
Site	**Grayling Creek**
Study plan effort	**reconnaissance**
Plant Factor	%
Penetration	

			Heat Cost $/MMBtu :
Capital cost	**$24,538,500**	per kW-hr	
Annual Capital	**$988,330**	$2.47	$723.95
Annual OM	**$382,500**	$0.96	$280.18
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,370,830**	$3.43	**$1,004.13**
Non-Fuel Costs		$0.06	
Alternative COE:		**$3.49**	
% Community energy		84%	
New Community COE (includes non-fuel and diesel costs)			

Savings

Alternative Energy Resources

Wood

Installed KW	**131**	
kW-hr/year	**974942**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**1232**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,255,919**	per kW-hr	
Annual Capital	**$151,633**	$0.16	
Annual OM	**$144,120**	$0.15	
Fuel cost:	**$184,806**	$0.19	-90
Total Annual Cost	**$480,559**	$0.49	**$29.76**
Non-Fuel Costs		$0.06	
Alternative COE:		**$0.55**	
% Community energy		206%	
New Community COE (includes non-fuel and diesel costs)		**$1.08**	

Savings

($293,709)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**	
kW-hr/year	**451233**	
Met Tower?	**no**	
Homer Data?	**yes**	
Wind Class	**5**	
Avg wind speed	**7.50**	m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.84
Annual OM	**$21,170**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,502**	$0.31	**$90.58**
Non-Fuel Costs		$0.06	
Alternative COE:		**$0.37**	
% Community energy		95%	
New Community COE (includes non-fuel and diesel costs)		**$0.35**	

Savings

$20,070

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	29.5%

Other Resources

Ruby

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	NEEDS MORE THOUGHT
Propane:	

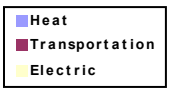
Renewable Fund Project List:

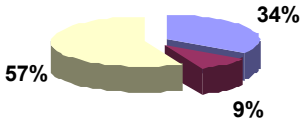
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Ruby Hydrokinetic Construction has been submitted by: Yukon River Inter-Tribal Watershed Council for a Hydro project. The total project budget is: $461,950 with $446,950 requested in grant funding and $10,555 as matching funds.

Russian Mission

Energy Used

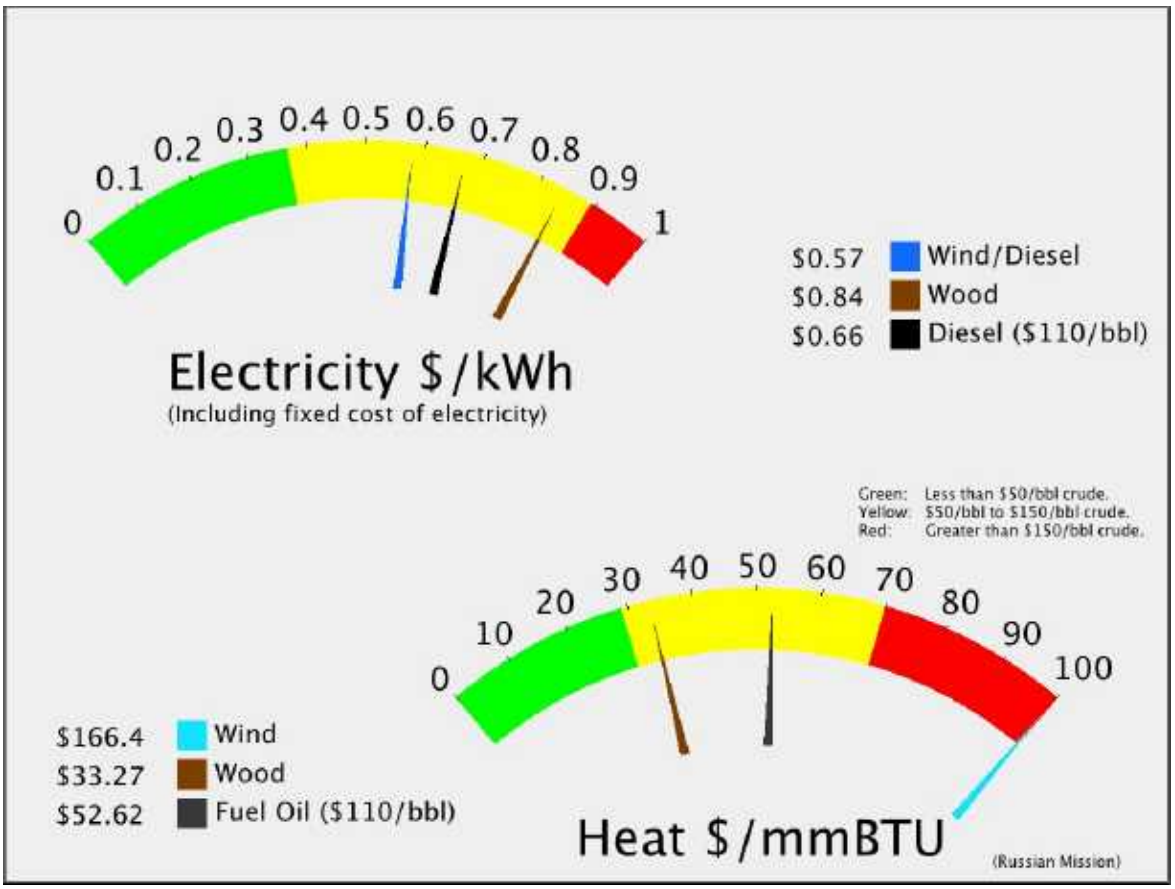




Total: **$2,743** Per capita

Heat	**$934**	Per capita
Transportation	**$256**	Per capita
Electricity:	**$1,552**	Per capita

POPULATION: 333



Russian Mission

Regional Corporation
Calista Corporation
House 6
Senate : **C**

POPULATION 333 LATITUDE: 61d 47m N LONGITUDE: 161d 19m **Unorganized**

LOCATION Russian Mission is located on the west bank of the Yukon River in the Yukon-Kuskokwim Delta, 25 miles southeast of Marshall. It lies 70 air miles northeast of Bethel and 376 miles west of Anchorage.

ECONOMY Employment opportunities are limited to the school, local businesses and fishing. Eleven residents hold commercial fishing permits. Seasonal employment includes BLM firefighting and construction. Some income is earned from trapping, and subsistence activities are prevalent. Salmon, moose, black bear, porcupine, rabbit and waterfowl are utilized.

HISTORY The first Russian American Company fur trading post on the Yukon River was established here in 1837. The settlement was recorded as an Eskimo village called "Ikogmiut," meaning "people of the point," in 1842 by the Russian explorer Zagoskin. The first Russian Orthodox mission in Interior Alaska was established here in 1857 by the Russian-Aleut priest Jacob Netzuetov. The mission was called "Pokrovskaya Mission," and the village name was changed to Russian Mission in 1900. It was often confused with another village on the Kuskokwim called "Russian Mission." This village was renamed Chuathbaluk. The City was incorporated in 1970.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.82** /kw-hr

Current efficiency	**13.61**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$15,085**
Consumption in 200	**61,043**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$196,108**
Average Load	**86**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$293,934**
Estimated peak loa	**172.21**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**754,260**	kW-hours				**$505,127**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**53,512**	gal	
Fuel Oil:	**92%**	Estimated heating fuel cost/gallon	**$5.82**		
Wood:	**8%**	$/MMBtu delivered to user	**$52.74**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,421**		**$311,183**

Transportation (Estimated)

Estimated Diesel:	**14,663**	gal	Estimated cost	**$5.82**	**Total Transportation** **$85,270**

Energy Total **$901,580**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **59,361**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.14	/kw-hr
Estimated Diesel OM	**$15,085**	$0.02	
New fuel cost	**$285,836**	$0.38	
Avg Non-Fuel Costs:	**$211,193**	$0.26	
New cost of electricity	**$0.77** per kW-hr		

Savings **($100,799)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**9,156**	gal	**$53,247**
Stack Heat	**0**	gal	**$0**

Capital cost	**$241,088**		
Annual ID	**$20,195**		
Annual OM	**$4,822**		
Total Annual costs	**$25,017**		
Heat cost	**$24.73**	$/MMBtu	

Savings **$28,230**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**300**		
kW-hr/year	**679248**		
Met Tower?	**no**		
Homer Data?	**yes**		
Wind Class	**6**		
Avg wind speed	**8.10**	m/s	

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		90%	
New Community COE		**$0.56**	

(includes non-fuel and diesel costs)

Savings

$82,528

Alternative Energy Resources

Wood

Installed KW	**97**	
kW-hr/year	**721978**	
Installation Type	**Wood ORC**	
Electric Wood cost	**$150/cd**	
Wood Required	**912**	Cd/Y
Stove Wood cost	**250.00**	$/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,079,346**	per kW-hr	
Annual Capital	**$139,765**	$0.19	
Annual OM	**$134,119**	$0.19	
Fuel cost:	**$136,855**	$0.19	-90
Total Annual Cost	**$410,738**	$0.57	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.85**	
% Community energy		96%	
New Community COE		**$0.82**	

(includes non-fuel and diesel costs)

Savings

($114,940)

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	39.7%

Other Resources

Russian Mission

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

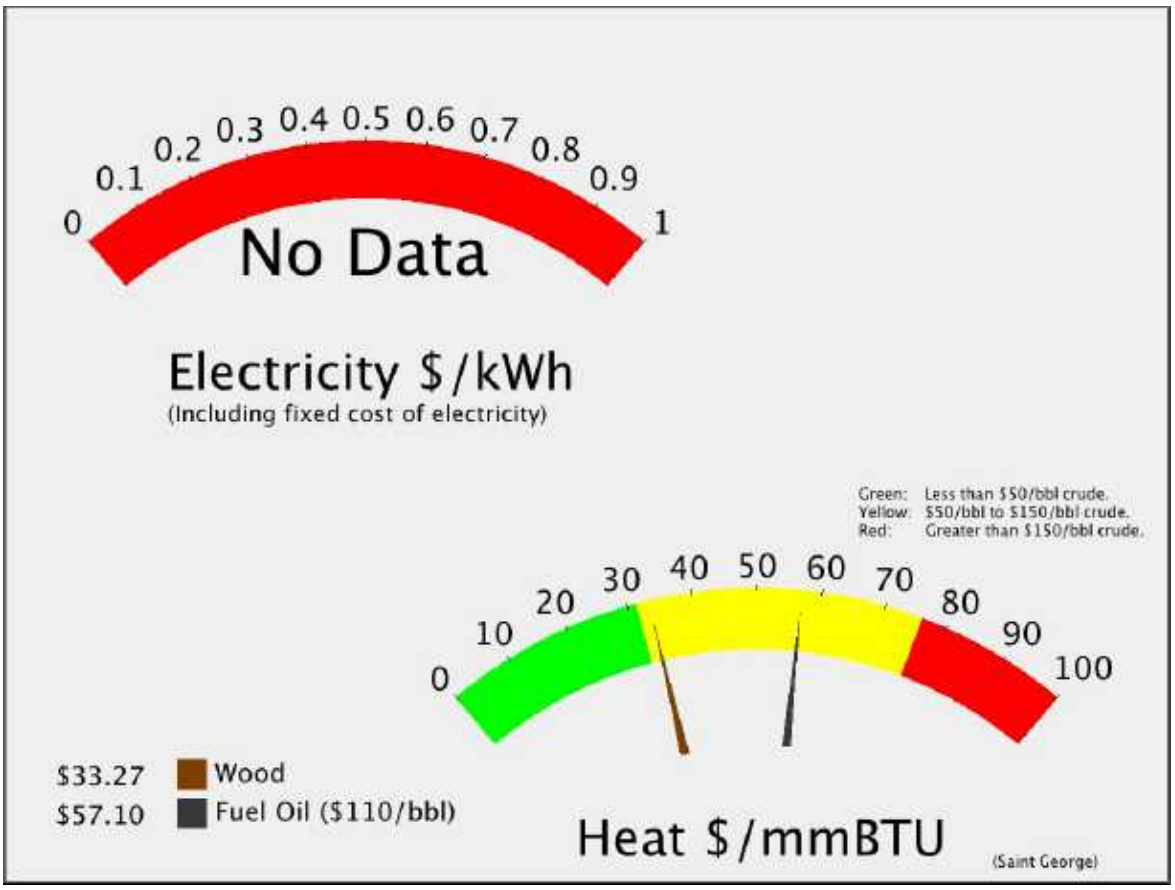
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Saint George

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	114
Transportation	Per capita		
Electricity:	Per capita		



Saint George

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 114 LATITUDE: 56d 36m N LONGITUDE: 169d 32m **Unorganized**

LOCATION St. George is located on the northeast shore of St. George Island, the southern-most of five islands in the Pribilofs. Over 210 species of birds nest on the cliffs of St. George Island. It lies 47 miles south of St. Paul Island, 750 air miles west of Anchorage and 250 miles northwest of Unalaska.

ECONOMY The federally-controlled fur seal industry had dominated the economy of the Pribilofs until 1983; the two communities remain closely tied. Most employment is in government positions and commercial fishing. 11 residents hold commercial fishing permits for halibut. The St. George Aquaculture Assoc. has begun salmon and shellfish programs. Puffin Seafoods and Snopac Products operate in St. George. Villagers harvest 500 fur seals each year for subsistence purposes. Halibut, reindeer, marine invertebrates, plants and berries also contribute to the local diet.

HISTORY St. George was discovered in 1786 by Gavrill Pribilof of the Russian Lebedov Lastochkin Company while looking for the famed northern fur seal breeding grounds. The island was named Sveti Georgiy, and its larger neighbor to the north was originally called St. Peter and St. Paul Island. The Russian American Company enslaved Aleut hunters from Siberia, Unalaska and Atka and relocated them to St. George and St. Paul to harvest the fur seal. Between 1870 and 1910, the U.S. Government leased the Pribilof Islands to private companies, who provided housing, food and medical care to the Aleuts in exchange for work in the fur seal plant. In 1910, the U.S. Bureau of Fisheries took control of the Islands, but poverty conditions ensued due to over-harvesting of the seals. During World War II, residents were moved to Funter Bay in Southeast Alaska as part of the areawide evacuation. Unlike other Aleutian residents, they were confined in an abandoned cannery and mine camp at Funter Bay. In 1979, the Pribilof Aleuts received $8.5 million in partial compensation for the unfair and unjust treatment they were subjected to under federal administration between 1870 and 1946. In 1983, the U.S. government ended the commercial seal harvest and withdrew from the Islands, providing $20 million to help develop and diversify the local economy - $8 million for St. George and $12 million for St. Paul. The City was incorporated in 1983. Today, residents are working to develop commercial fisheries and tourism.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.31** /kw-hr

Current efficiency	**0.00**	kW-hr/gal	Fuel COE	**$0.43**	/kw-hr	Estimated Diesel OM	**$10,836**
Consumption in 200	**43,466**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	
Average Load	**62**	kW	NF COE:		/kw-hr	Current Fuel Costs	**$230,813**
Estimated peak loa	**123.70**	kW	Total			**Total Electric**	
Average Sales	**541,808**	kW-hours					

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal
Fuel Oil:	**96%**	Estimated heating fuel cost/gallon	**$6.31**	
Wood:	**0%**	$/MMBtu delivered to user	**$57.23**	**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$6.31**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **0**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.09	/kw-hr
Estimated Diesel OM	**$10,836**	$0.02	
New fuel cost	**$0**	$0.00	
Avg Non-Fuel Costs:			
New cost of electricity			per kW-hr

Savings

$180,553

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Office, Workshop, Storage Facility

			Value
Water Jacket	**6,520**	gal	**$41,142**
Stack Heat	**0**	gal	**$0**

Capital cost **$173,181**

Annual ID **$14,507**

Annual OM **$3,464**

Total Annual costs **$17,970**

Heat cost **$24.94** $/MMBtu

Savings

$23,172

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **621168**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **7.22** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.26	$77.30
Annual OM	**$29,143**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$193,015**	$0.31	**$91.04**

Non-Fuel Costs

Alternative COE:

% Community energy 115%

New Community COE

(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Saint George

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

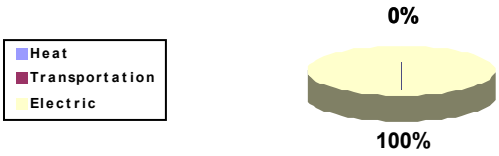
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: St. George Wind Farm Construction has been submitted by: City of St. George - St. George Municipal for a Wind Diesel Hybrid project. The total project budget is: $3,000,000 with $1,500,000 requested in grant funding and $1,500,000 as matching funds.

Saint Mary's

Energy Used



Total:

Per capita

Heat

Per capita

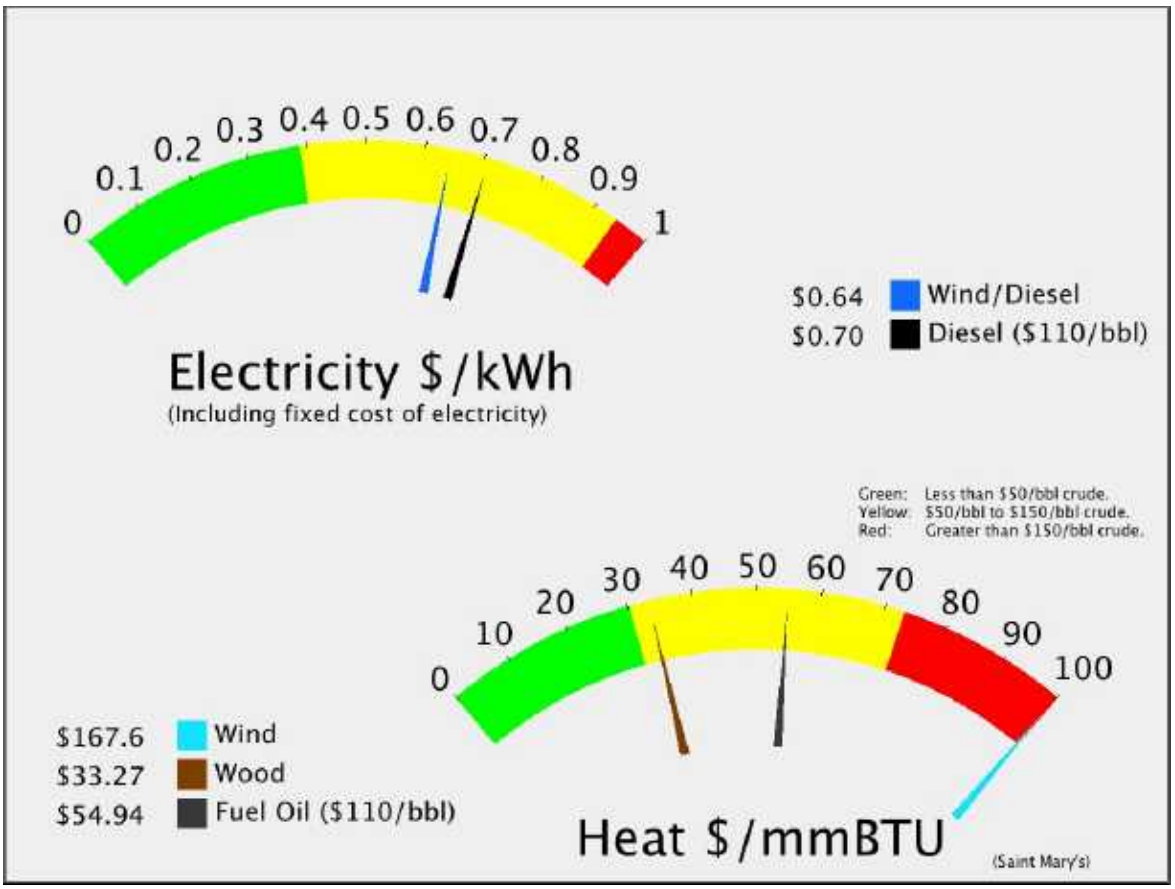
POPULATION: 549

Transportation

Per capita

Electricity: **$2,508**

Per capita



Saint Mary's

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 549 LATITUDE: 62d 03m N LONGITUDE: 163d 10m **Unorganized**

LOCATION St. Mary's is located on the north bank of the Andreafsky River, 5 miles from its confluence with the Yukon River. It lies 450 air miles west-northwest of Anchorage. The City of St. Mary's encompasses the Yup'ik villages of St. Mary's and Andreafsky.

ECONOMY The economy in St. Mary's seasonal. 65 residents hold commercial fishing permits. A cold storage facility is available. Cash income is supplemented by subsistence activities and trapping. Salmon, moose, bear, and waterfowl are harvested. There are two general stores, Alaska Commercial Co. and Yukon Traders. A new regional Post Office was recently completed.

HISTORY In 1899, Andreafsky was established as a supply depot and winter headquarters for the Northern Commercial Company's riverboat fleet. The village took its name from the Andrea family which settled on the River and built a Russian Orthodox Church. In 1903, Jesuit missionaries set up a mission 90 miles downriver at Akulurak" to educate and care for the children orphaned by a flu epidemic in 1900-01. Akulurak means "in between place aptly describing the village, which was on an island in a slough connecting two arms of the Yukon River. The mission school flourished, and by 1915, there were 70 full-time students. Over the years, the slough surrounding Akulurak silted in severely. In 1948, the villagers decided to move to higher ground. Materials from an abandoned hotel built during the gold rush were used to construct the new mission and several village homes at the present site. In 1949, an unused 15' by 30' building and other building materials from Galena Air Force Station were barged to Saint Mary's by Father Spills, a Jesuit priest. These materials, along with a tractor borrowed from Holy Cross, were used to construct a school. During the 1950s, a number of Yup'ik families moved into the Andreafsky area, only a short distance from the mission. Dormitories and a large house for the Jesuits were built during the 1960s. In 1967, the area adjacent to the mission incorporated as the City of St. Mary's, although Andreafsky chose to remain independent. In 1980, the residents of Andreafsky voted for annexation into the City. In 1987, the Catholic Church closed the mission school.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**13.76**	kW-hr/gal	Fuel COE	**$0.43**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.07**
Consumption in 200	**209,236**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$49,742**
Average Load	**284**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$646,652**
Estimated peak loa	**567.84**	kW	Total	**$0.71**		Current Fuel Costs	**$1,060,994**
Average Sales	**2,487,122**	kW-hours				**Total Electric**	**$1,757,388**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**93%**	Estimated heating fuel cost/gallon	**$6.07**		
Wood:	**5%**	$/MMBtu delivered to user	**$55.06**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu			

Transportation (Estimated)

Estimated Diesel:		gal	Estimated cost	**$6.07**	**Total Transportation**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$49,742**	$0.02		
Acheivable efficiency	**14.8**	kW-	New fuel cost	**$989,841**	$0.40		**Savings**
New Fuel use	**195,204**		Avg Non-Fuel Costs:	**$696,394**	$0.26		**$71,152**
			New cost of electricity		**$0.62**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?			Capital cost	**$794,970**		
Is it working now?			Annual ID	**$66,592**		
BLDGs connected and working:			Annual OM	**$15,899**		
		Value	Total Annual costs	**$82,491**		**Savings**
Water Jacket	**31,385** gal	**$190,534**	Heat cost	**$23.79**	$/MMBtu	**$108,043**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1166314**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **5.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.25	$71.83
Annual OM	**$54,719**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$340,631**	$0.29	**$85.57**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		47%	
New Community COE		**$0.63**	

(includes non-fuel and diesel costs)

Savings

$180,190

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Saint Mary's

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

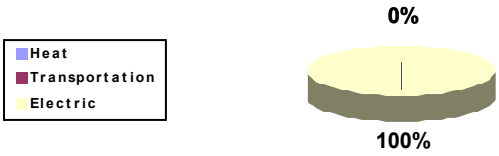
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: St. Mary's Wind Analysis_AVEC has been submitted by: Alaska Village Electric Cooperative (AVEC) for a Wind Diesel Hybrid project. The total project budget is: $6,310,000 with $110,000 requested in grant funding and $5,500 as matching funds.

Saint Michael

Energy Used



Total:

Per capita

Heat

Per capita

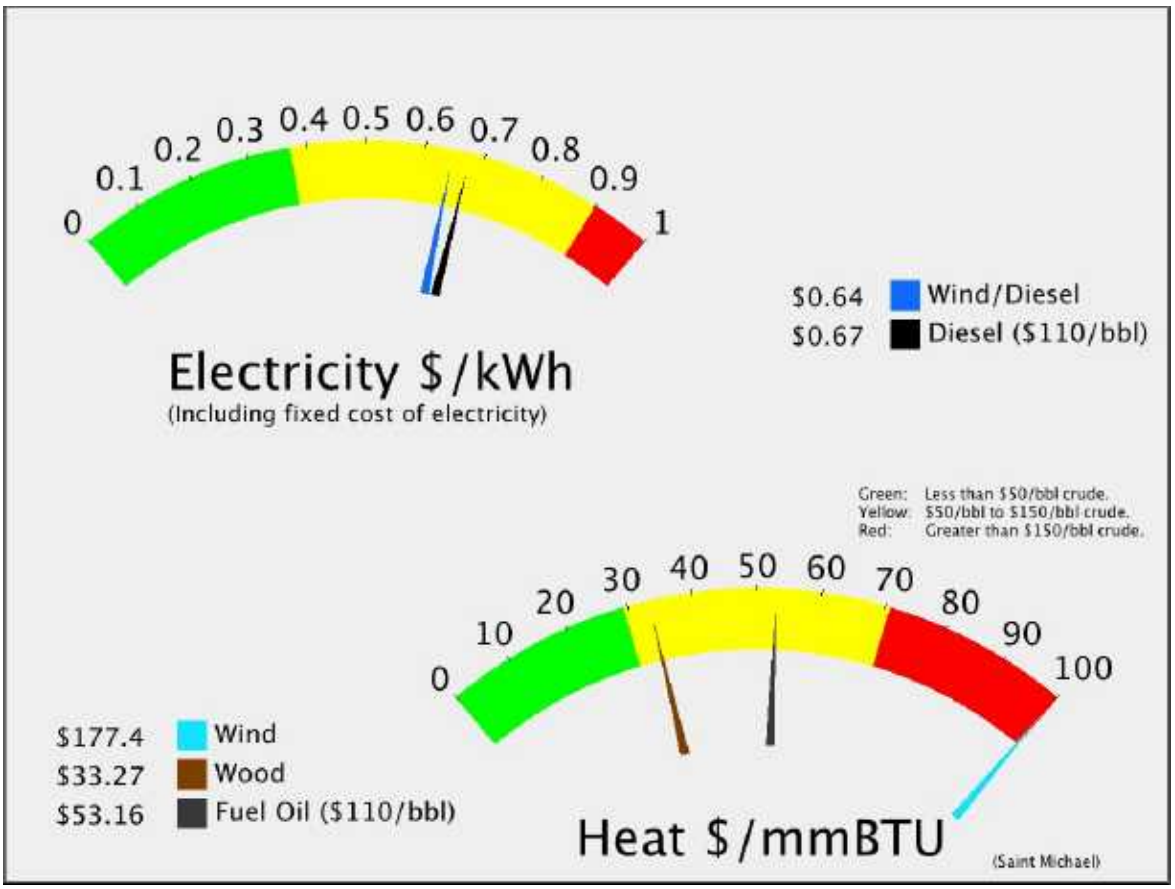
POPULATION: 445

Transportation

Per capita

Electricity: **$2,302**

Per capita



Saint Michael

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 445 LATITUDE: 63d 29m N LONGITUDE: 162d 02m **Unorganized**

LOCATION St. Michael is located on the east coast of St. Michael Island in Norton Sound. It lies 125 miles southeast of Nome and 48 miles southwest of Unalakleet.

ECONOMY The St. Michael economy is based on subsistence food harvests supplemented by part-time wage earning. Most cash positions are found in city government, the IRA council and village corporation, schools, and local stores. Six residents hold commercial fishing permits, primarily for the herring fishery. The Stebbins/St. Michael Reindeer Corral Project was completed in 1993 for a herd on Stuart Island. The reindeer are essentially unmanaged.

HISTORY A fortified trading post called Redoubt St. Michael" was built by the Russian-American Company at this location in 1833; it was the northernmost Russian settlement in Alaska. The Native village of "Tachik" stood to the northeast. When the Russians left Alaska in 1867 several of the post's traders remained. "Fort St. Michael a U.S. military post, was established in 1897. During the gold rush of 1897, it was a major gateway to the interior via the Yukon River. As many as 10,000 persons were said to live in St. Michael during the gold rush. St. Michael was also a popular trading post for Eskimos to trade their goods for Western supplies. Centralization of many Yup'iks from the surrounding villages intensified after the measles epidemic of 1900 and the influenza epidemic of 1918. The village remained an important trans-shipment point until the Alaska Railroad was built. The City government was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**14.60**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.88**
Consumption in 200	**115,413**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$28,384**
Average Load	**162**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$368,992**
Estimated peak loa	**324.02**	kW	Total	**$0.68**		Current Fuel Costs	**$562,638**
Average Sales	**1,419,201**	kW-hours				**Total Electric**	**$960,015**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**99%**	Estimated heating fuel cost/gallon	**$5.88**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.29**	**Total Heating Oil**	
Electricity:	**1.1%**	Community heat needs in MMBtu			

Transportation (Estimated)

Estimated Diesel:		gal	Estimated cost	**$5.88**	**Total Transportation**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$28,384**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$586,839**	$0.41		**Savings**
New Fuel use	**120,377**		Avg Non-Fuel Costs:	**$397,376**	$0.26		**($24,201)**
			New cost of electricity		**$0.63**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?			Capital cost	**$453,626**		
Is it working now?			Annual ID	**$37,999**		
BLDGs connected and working:			Annual OM	**$9,073**		
		Value	Total Annual costs	**$47,071**		**Savings**
Water Jacket	**17,312** gal	**$101,708**	Heat cost	**$24.61**	$/MMBtu	**$54,636**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **587923**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.28	$81.67
Annual OM	**$27,583**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$191,455**	$0.33	**$95.41**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.61**	
% Community energy		41%	
New Community COE (includes non-fuel and diesel costs)		**$0.64**	

Savings

$53,411

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Saint Michael

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

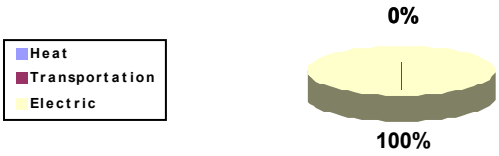
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Saint Paul

Energy Used



Total:

Per capita

Heat

Per capita

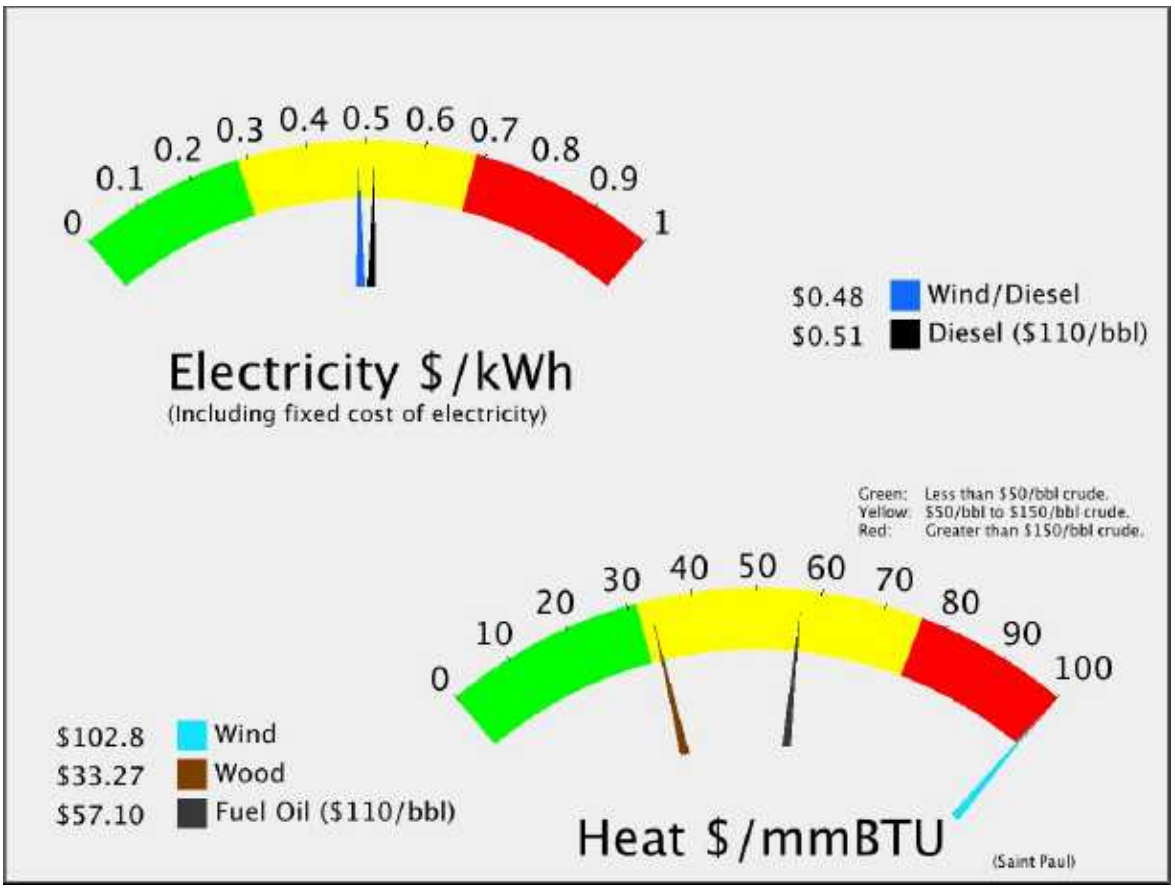
POPULATION: 447

Transportation

Per capita

Electricity: **$5,231**

Per capita



Saint Paul

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 447 LATITUDE: 57d 07m N LONGITUDE: 170d 16m **Unorganized**

LOCATION St. Paul is located on a narrow peninsula on the southern tip of St. Paul Island, the largest of five islands in the Pribilofs. It lies 47 miles north of St. George Island, 240 miles north of the Aleutian Islands, 300 miles west of the Alaska mainland, and 750 air miles west of Anchorage.

ECONOMY The federally-controlled fur seal industry dominated the economy of the Pribilofs until 1985. St. Paul is a port for the Central Bering Sea fishing fleet, and major harbor improvements have fueled economic growth. Trident Seafoods and Icicle Seafoods process cod, crab, halibut and other seafoods in St. Paul. 30 residents hold commercial fishing permits for halibut. Several offshore processors are serviced out of St. Paul. The community is seeking funds to develop a halibut processing facility. Fur seal rookeries and more than 210 species of nesting sea birds attract almost 700 tourists annually. There is also a reindeer herd on the island from a previous commercial venture. Residents subsist on halibut, fur seals (1,645 may be taken each year), reindeer, marine invertebrates, plants and berries.

HISTORY The Pribilofs were discovered in 1786 by Russian fur traders. They landed first on St. George, and named this larger island to the north St. Peter and St. Paul Island. In 1788, the Russian American Company enslaved and relocated Aleuts from Siberia, Atka and Unalaska to the Pribilofs to hunt fur seals; their descendants live on the two islands today. In 1870, the Alaska Commercial Company was awarded a 20-year sealing lease by the U.S. Government, and provided housing, food and medical care to the Aleuts in exchange for seal harvesting. In 1890, a second 20-year lease was awarded to the North American Commercial Company, however, the fur seals had been severely over-harvested and poverty ensued. The 1910 Fur Seal Act ended private leasing on the Islands and placed the community and fur seals under the U.S. Bureau of Fisheries. Food and clothing were scarce, social and racial segregation were practiced, and working conditions were poor. During World War II, the Pribilof Aleuts were moved to Funter Bay on Admiralty Island in Southeast Alaska as part of the emergency evacuation of residents from the Bering Sea. Unlike other Aleutian residents, they were confined in an abandoned cannery and mine camp at Funter Bay. In 1979, the Aleut Islanders received $8.5 million in partial compensation for the unfair and unjust treatment they were subject to under federal administration between 1870 and 1946. In 1983, Congress passed the Fur Seal Act Amendments, which ended government control of the commercial seal harvest and the federal presence on the island. Responsibility for providing community services and management of the fur seals was left to local entities. $20 million was provided to help develop and diversify the Island economy - $12 million to St. Paul and $8 million to St. George. Commercial harvesting on St. Paul ceased in 1985. Ownership of fur seal pelts is now prohibited except for subsistence purposes.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.31** /kw-hr

Current efficiency	**13.99**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$102,255**
Consumption in 200	**431,349**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$237,591**
Average Load	**584**	kW	NF COE:	**$0.05**	/kw-hr	Current Fuel Costs	**$2,290,549**
Estimated peak loa	**1167.3**	kW	Total	**$0.51**		**Total Electric**	
Average Sales	**5,112,754**	kW-hours					**$2,630,396**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$6.31**	
Wood:	**0%**	$/MMBtu delivered to user	**$57.23**	**Total Heating Oil**
Electricity:	**2.2%**	Community heat needs in MMBtu		

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$6.31**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **409,240**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.01	/kw-hr
Estimated Diesel OM	**$102,255**	$0.02	
New fuel cost	**$2,173,147**	$0.43	
Avg Non-Fuel Costs:	**$339,846**	$0.05	
New cost of electricity	**$0.44** per kW-hr		

Savings

$67,143

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Motor Pool, Public Works Bldg.

			Value
Water Jacket	**64,702**	gal	**$408,285**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,634,213**

Annual ID **$136,892**

Annual OM **$32,684**

Total Annual costs **$169,577**

Heat cost **$23.72** $/MMBtu

Savings

$238,708

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**

kW-hr/year **869042**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **6.76** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.24	$69.61
Annual OM	**$40,772**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$247,230**	$0.28	**$83.35**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.35**	
% Community energy		17%	
New Community COE		**$0.48**	

(includes non-fuel and diesel costs)

Savings

$159,449

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	

Other Resources

Saint Paul

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

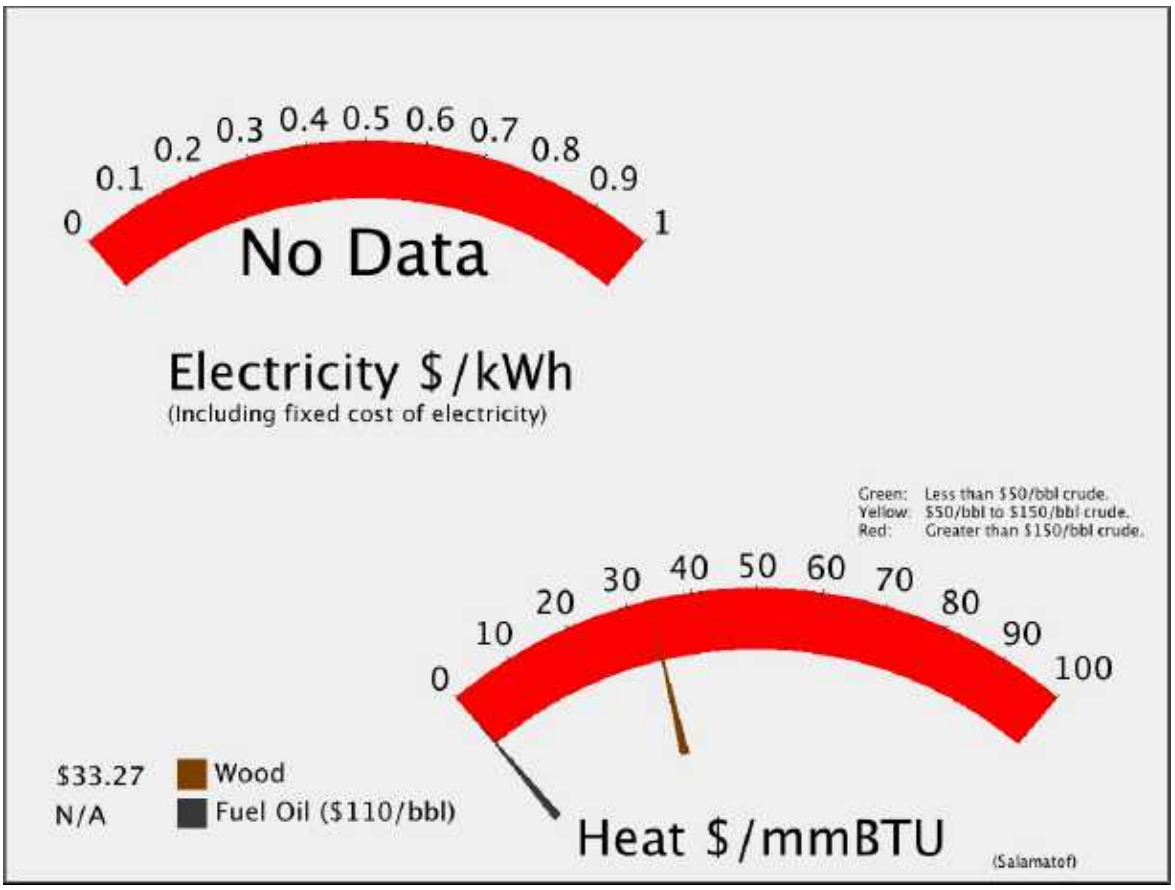
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: St Paul Wind Construction_City of St. Paul has been submitted by: City of St. Paul for a Wind Diesel Hybrid project. The total project budget is: $1,760,000 with $1,600,000 requested in grant funding and $160,000 as matching funds.

Salamatof

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	878
Transportation	Per capita		
Electricity:	Per capita		



Salamatof

Regional Corporation
Cook Inlet Region, Inc.

House 34
Senate : **Q**

POPULATION 878 LATITUDE: 60d 37m N LONGITUDE: 151d 20m **Kenai Peninsula Boroug**

LOCATION Salamatof is on the Kenai Peninsula, on the east shore of Cook Inlet at the mouth of Salamatof Creek, 5.5 miles northwest of the City of Kenai.

ECONOMY Salamatof is attempting to develop a lake resort area. The economy of the Kenai area is diverse: oil and gas processing, timber, commercial and sport fishing, government, retail businesses and tourism-related services provide employment.

HISTORY Salamatof was first reported in 1911 by the U.S. Geological Survey as a Dena'ina Indian village.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Salamatof

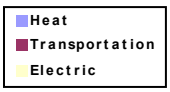
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

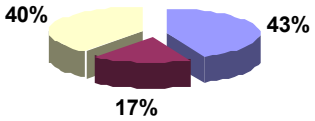
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Sand Point

Energy Used





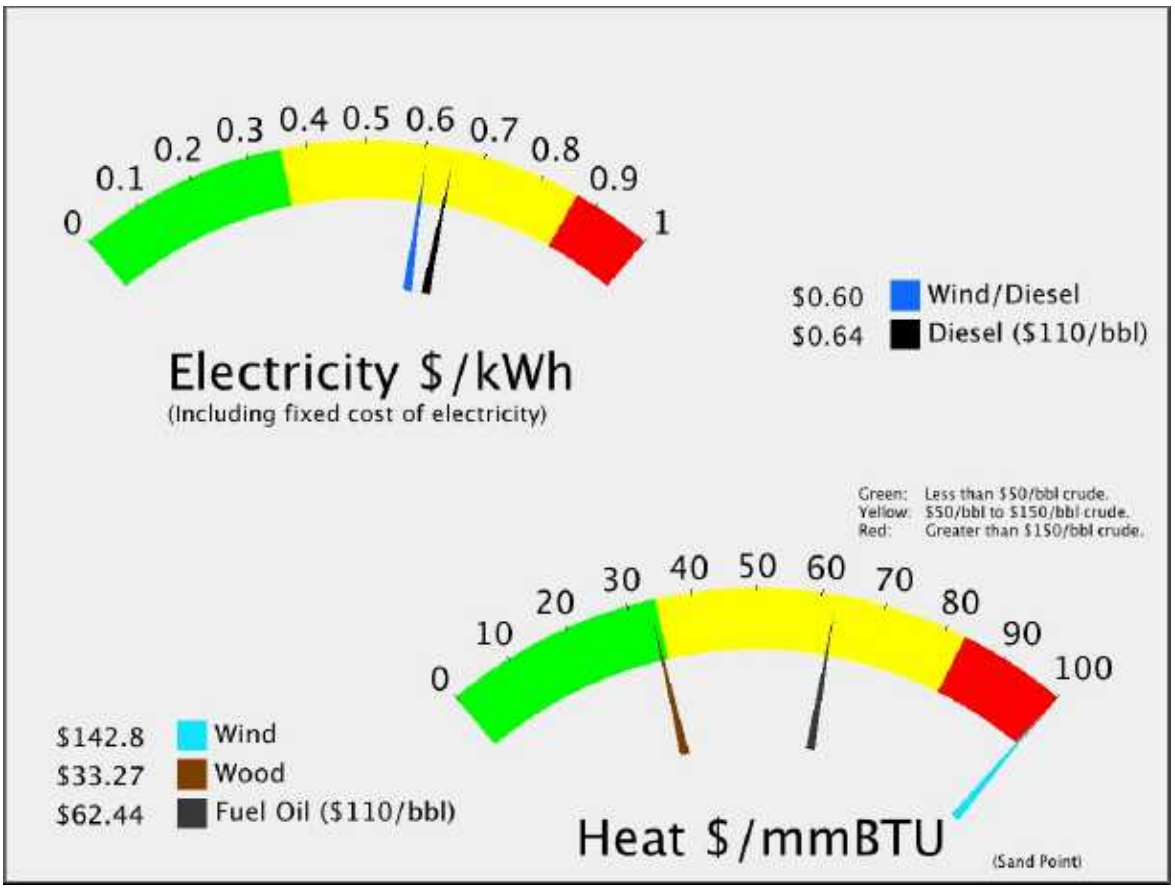
Total: **$6,960** Per capita

Heat **$3,010** Per capita

Transportation **$1,191** Per capita

Electricity: **$2,759** Per capita

POPULATION: 992



Sand Point

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 992 LATITUDE: 55d 20m N LONGITUDE: 160d 30m **Aleutians East Borough**

LOCATION Sand Point is located on Humboldt Harbor on Popof Island, off the Alaska Peninsula, 570 air miles from Anchorage.

ECONOMY Sand Point is home to the largest fishing fleet in the Aleutian Chain. The State provides regional services through public safety, fish and game, and the court system. Trident Seafoods operates a major bottomfish, pollock, salmon and fish meal plant, and provides fuel and other services. Peter Pan Seafoods owns a storage and transfer station. 116 residents hold commercial fishing permits. Locals participate in subsistence consumption of fish and caribou.

HISTORY Sand Point was founded in 1898 by a San Francisco fishing company as a trading post and cod fishing station. Aleuts from surrounding villages and Scandinavian fishermen were the first residents of the community. Sand Point served as a repair and supply center for gold mining during the early 1900s, but fish processing became the dominant activity in the 1930s. The St. Nicholas Chapel, a Russian Orthodox church, was built in 1933 and is now on the National Register of Historical Places. Aleutian Cold Storage built a halibut plant in 1946. Today, it is home to the largest fishing fleet in the Aleutian Chain. The City government was incorporated in 1966.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.90**

Current efficiency	**13.78**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Diesel OM	**$78,200**
Consumption in 200	**306,920**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$650,434**
Average Load	**446**	kW	NF COE:	**$0.17**	/kw-hr	Current Fuel Costs	**$1,810,920**
Estimated peak loa	**892.69**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**3,909,998**	kW-hours				**$2,539,554**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**432,766**	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$6.90**		
Wood:	**0%**	$/MMBtu delivered to user	**$62.59**		**Total Heating Oil**
Electricity:	**2.2%**	Community heat needs in MMBtu	**51,932**		**$2,986,217**

Transportation (Estimated)

Estimated Diesel:	**171,168**	gal	Estimated cost	**$6.90**	**Total Transportation**
					$1,181,112

Energy Total **$6,706,883**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **286,668**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.00	/kw-hr
Estimated Diesel OM	**$78,200**	$0.02	
New fuel cost	**$1,691,426**	$0.43	
Avg Non-Fuel Costs:	**$728,634**	$0.17	
New cost of electricity	**$0.59** per kW-hr		

Savings

$111,118

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Office Bldg, Shop, Living Quarters

			Value
Water Jacket	**46,038**	gal	**$317,676**
Stack Heat	**30,692**	gal	**$211,784**

Capital cost **$1,249,771**

Annual ID **$104,689**

Annual OM **$24,995**

Total Annual costs **$129,684**

Heat cost **$15.30** $/MMBtu

Savings

$399,776

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1124025**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **5.09** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.25	$74.53
Annual OM	**$52,735**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$338,647**	$0.30	**$88.28**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.49**	
% Community energy		29%	
New Community COE (includes non-fuel and diesel costs)		**$0.60**	

Savings

$204,351

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	4.9%

Other Resources

Sand Point

Tidal: SOME POTENTIAL

Wave: SOME POTENTIAL

Coal Bed Methane:

Natural Gas:

Coal: SOME POTENTIAL

Propane:

Renewable Fund Project List:

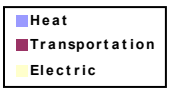
For detailed information, consult the AEA web site. akenergyauthority.org

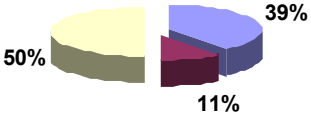
A project titled: Aleutian Peninsula Broadcasting Wind has been submitted by: Aleutian Peninsula Broadcasting, Inc. for a Wind Diesel Hybrid project. The total project budget is: $146,750 with $126,750 requested in grant funding and $20,000 as matching funds.

A project titled: Sand Point Wind_AWE has been submitted by: Aleutian Wind Energy / AWE for a Wind Diesel Hybrid project. The total project budget is: $3,104,443 with $639,806 requested in grant funding and $437,900 as matching funds.

Savoonga

Energy Used





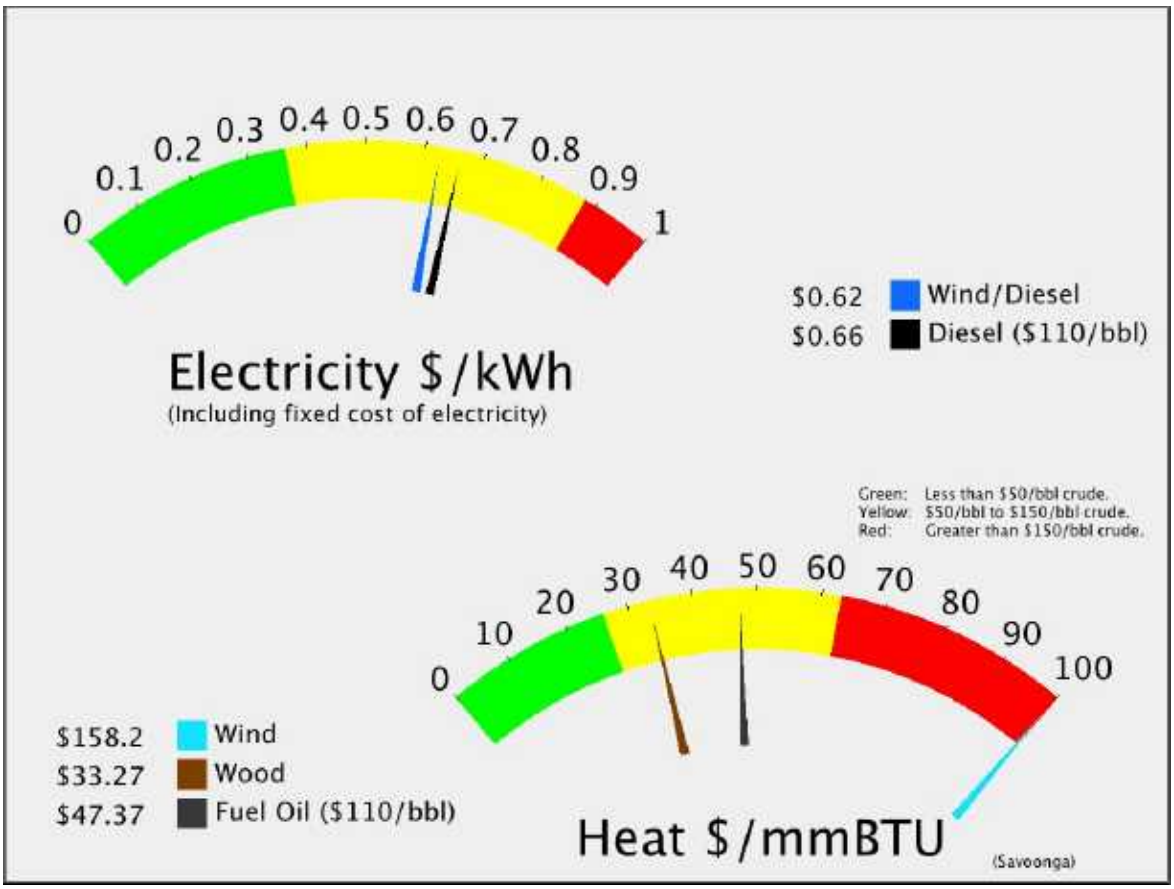
Total: **$3,321** Per capita

Heat **$1,307** Per capita

Transportation **$354** Per capita

Electricity: **$1,660** Per capita

POPULATION: 712



Savoonga

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 712 LATITUDE: 63d 42m N LONGITUDE: 170d 29m **Unorganized**

LOCATION Savoonga is located on the northern coast of St. Lawrence Island in the Bering Sea, 164 miles west of Nome. It lies 39 miles southeast of Gambell.

ECONOMY The economy of Savoonga is largely based upon subsistence hunting of walrus, seal, fish and bowhead and gray whale, with some cash income. Eight residents hold commercial fishing permits, and Norton Sound Seafood Products operates in Savoonga. Reindeer harvests occur, but the herd is not managed. Fox are trapped as a secondary source of income. Islanders are known for their quality ivory carvings. Some tourism occurs by bird-watchers.

HISTORY St. Lawrence Island has been inhabited intermittently for the past 2,000 years by Yup'ik Eskimos. The island had numerous villages with a total population of around 4,000 by the 19th century. A tragic famine occurred on the island in 1878-80, severely reducing the population. In 1900 a herd of reindeer was moved to the island, and by 1917 the herd had grown to over 10,000 animals. A reindeer camp was established in 1916 at the present village site, where grazing lands were better, and the herd tended to remain. Good hunting and trapping in the area attracted more residents. A post office was established in 1934. The City was incorporated in 1969. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, Gambell and Savoonga decided not to participate, and instead opted for title to the 1.136 million acres of land in the former St. Lawrence Island Reserve. The island is jointly owned by Savoonga and Gambell.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.23** /kw-hr

Current efficiency	**12.45**	kW-hr/gal	Fuel COE	**$0.38**	/kw-hr	Estimated Diesel OM	**$35,233**
Consumption in 200	**158,496**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$458,024**
Average Load	**201**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$671,183**
Estimated peak loa	**402.2**	kW	Total	**$0.66**		**Total Electric**	
Average Sales	**1,761,632**	kW-hours				**$1,164,440**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**177,816**	gal	
Fuel Oil:	**99%**	Estimated heating fuel cost/gallon	**$5.23**		
Wood:	**0%**	$/MMBtu delivered to user	**$47.48**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**21,338**		**$930,815**

Transportation (Estimated)

Estimated Diesel:	**48,115**	gal	Estimated cost	**$5.23**	**Total Transportation** **$251,870**

Energy Total **$2,347,125**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **140,983**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$35,233**	$0.02	
New fuel cost	**$597,020**	$0.34	
Avg Non-Fuel Costs:	**$493,257**	$0.26	
New cost of electricity		**$0.58**	per kW-hr

Savings **$73,534**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water and Sewer Plant

			Value
Water Jacket	**23,774**	gal	**$124,452**
Stack Heat	**0**	gal	**$0**

Capital cost	**$563,079**		
Annual ID	**$47,167**		
Annual OM	**$11,262**		
Total Annual costs	**$58,429**		
Heat cost	**$22.24**	$/MMBtu	

Savings **$66,023**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1200**

kW-hr/year **2341306**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **5.51** m/s

			Heat Cost $/MMBtu :
Capital cost	**$7,421,434**	per kW-hr	
Annual Capital	**$498,837**	$0.21	$62.43
Annual OM	**$109,846**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$608,682**	$0.26	**$76.17**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		133%	
New Community COE		**$0.63**	

(includes non-fuel and diesel costs)

Savings

$555,758

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.0%

Other Resources

Savoonga

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

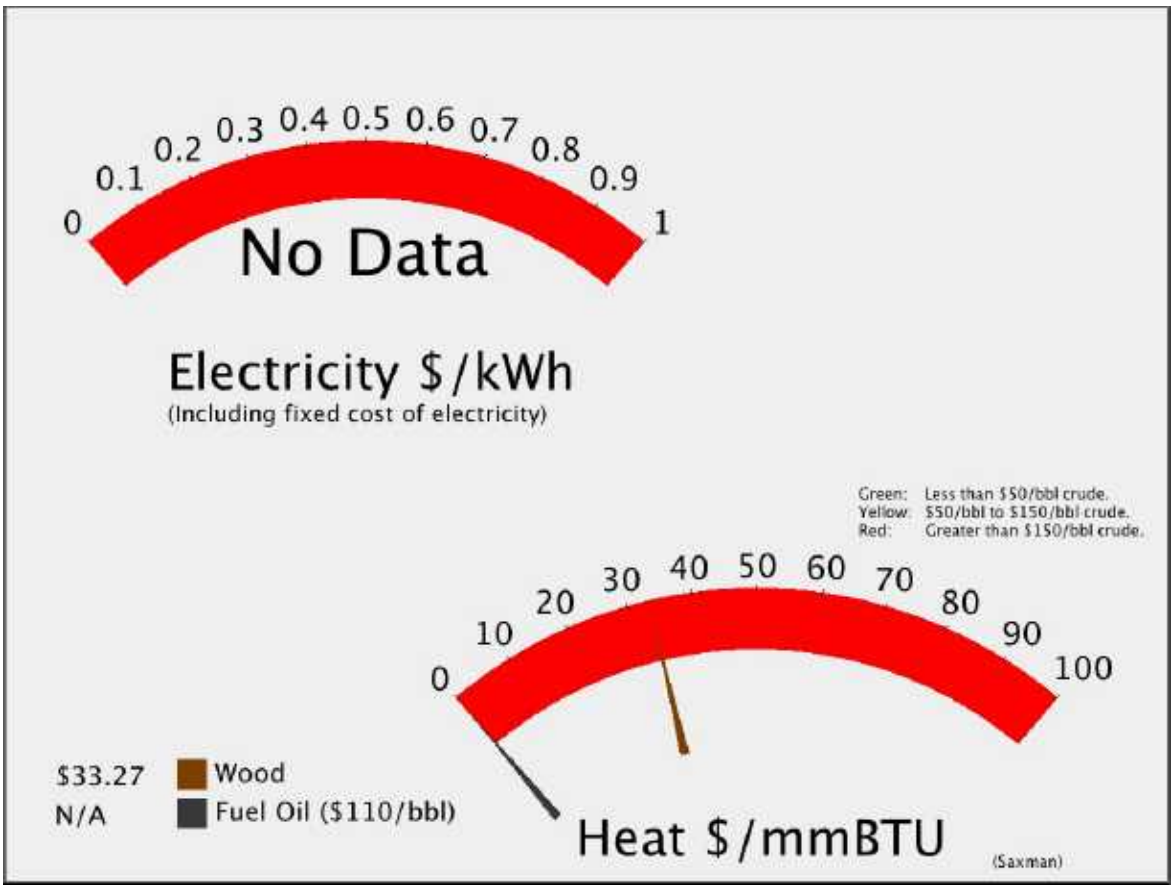
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Saxman

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	438
Transportation	Per capita		
Electricity:	Per capita		



Saxman

Regional Corporation
Sealaska Corporation
House 1
Senate : **A**

POPULATION 438 LATITUDE: 55d 19m N LONGITUDE: 131d 35m **Ketchikan Gateway Bor**

LOCATION Saxman is located on the west side of Revillagigedo Island, 2 miles south of Ketchikan on the South Tongass Highway.

ECONOMY Most employment is in Ketchikan. The City and Saxman Seaport provide some employment, and the Cape Fox Corporation offers tourist- and timber-related employment. The Saxman Totem Park has become a major attraction for Ketchikan area visitors. The Park includes a tribal house, a carving center, and a cultural hall for traditional Tlingit dance exhibitions. One resident holds a commercial fishing permit. Deer, salmon and halibut significantly contribute to residents' diets.

HISTORY In 1886, Tlingits from the old villages of Tongass and Cape Fox wanted a new site to construct a central BIA school and Presbyterian Church. The village subsequently was named for Samuel Saxman, a Presbyterian teacher who was lost at sea with a Cape Fox elder while searching for the new site. By 1894, the new village site was chosen, ideally located on a protected harbor off the Tongass Narrows. A small sawmill was built and construction of the school and houses began immediately. Fishing and cutting lumber for the growing towns of Saxman and Ketchikan were the economic mainstays of the new village. By 1900, 142 people were living in Saxman. In 1929, the community incorporated as a City. During the 1930s, many totem poles and ceremonial artifacts, such as carvings and masks, were retrieved by the Civilian Conservation Corps from the abandoned villages at Cape Fox, Tongass, Cat Island and Pennock Island. Totem poles were restored and relocated to Saxman as part of a U.S. Forest Service program. A rail-barge terminal at the Saxman Seaport was completed in 1967; it serves as the Ketchikan's major cargo container terminal.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**
kW-hr/year **598043**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$2,438,000**		
Annual Capital	**$163,872**	$0.27	$80.29
Annual OM	**$28,058**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$191,930**	$0.32	**$94.03**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Saxman

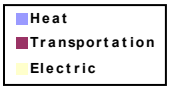
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

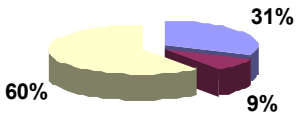
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Scammon Bay

Energy Used





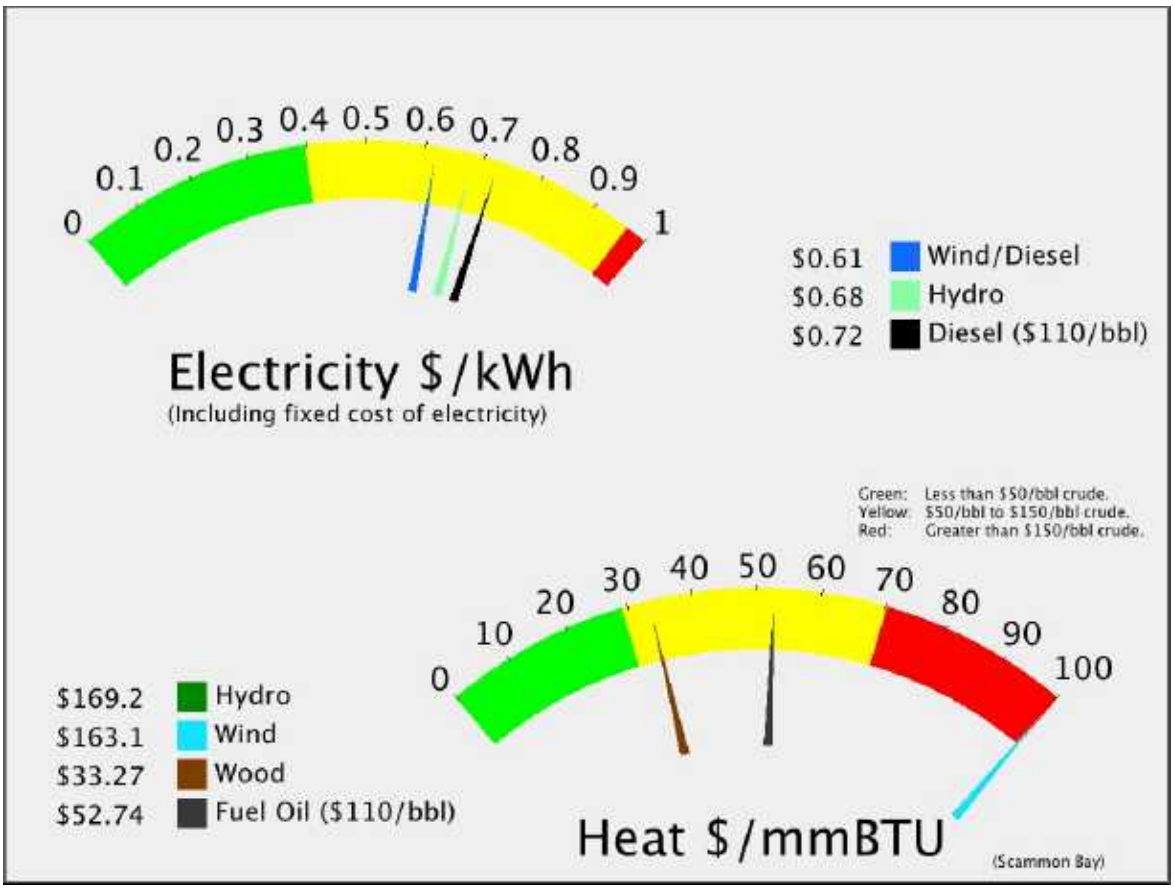
Total: **$3,450** Per capita

Heat **$1,083** Per capita

Transportation **$297** Per capita

Electricity: **$2,070** Per capita

POPULATION: 517



Scammon Bay

Regional Corporation
Calista Corporation

House 39
Senate : **T**

POPULATION 517 LATITUDE: 61d 50m N LONGITUDE: 165d 35m **Unorganized**

LOCATION Scammon Bay is on the south bank of the Kun River, one mile from the Bering Sea. It lies to the north of the 2,300-foot Askinuk Mountains on the Yukon-Kuskokwim Delta.

ECONOMY Employment is focused on commercial fishing. Firefighting for BLM, construction and handicrafts also provide seasonal income. 49 residents hold commercial fishing permits. Subsistence activities provide fish, beluga whale, walrus, seal, birds and berries.

HISTORY It was known in Eskimo as Mariak and its residents were called Mariagamiut." The nearby Bay was named after Capt. Charles Scammon who served as the marine chief of the Western Union Telegraph Expedition from 1856 to 67. The name came into use when the Scammon Bay post office was established in 1951. The City government was incorporated in 1967."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.83** /kw-hr

Current efficiency	**13.40**	kW-hr/gal	Fuel COE	**$0.44**	/kw-hr	Estimated Diesel OM	**$28,333**
Consumption in 200	**130,178**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$368,324**
Average Load	**162**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$628,512**
Estimated peak loa	**323.43**	kW	Total	**$0.72**		**Total Electric**	
Average Sales	**1,416,630**	kW-hours				**$1,025,169**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**96,083**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.83**		
Wood:	**0%**	$/MMBtu delivered to user	**$52.86**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,530**	**$559,978**	

Transportation (Estimated)

Estimated Diesel:	**26,328**	gal	Estimated cost	**$5.83**	**Total Transportation**
					$153,444

Energy Total **$1,738,591**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **124,606**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.08	/kw-hr
Estimated Diesel OM	**$28,333**	$0.02	
New fuel cost	**$601,611**	$0.42	
Avg Non-Fuel Costs:	**$396,656**	$0.26	
New cost of electricity	**$0.70** per kW-hr		

Savings

($81,995)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

City Offices, Clinic

			Value
Water Jacket	**19,527**	gal	**$113,804**
Stack Heat	**0**	gal	**$0**

Capital cost	**$452,804**		
Annual ID	**$37,930**		
Annual OM	**$9,056**		
Total Annual costs	**$46,986**		
Heat cost	**$21.78**	$/MMBtu	

Savings

$66,818

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**
kW-hr/year **898287**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.23	$67.34
Annual OM	**$42,144**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$248,602**	$0.28	**$81.09**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.56**	
% Community energy		63%	
New Community COE (includes non-fuel and diesel costs)		**$0.61**	

Savings
$167,861

Alternative Energy Resources

Hydro

Installed KW **100**
kW-hr/year **99947**
Site **stream**
Study plan effort **reconnaissance**
Plant Factor **56** %
Penetration **0.24**

			Heat Cost $/MMBtu :
Capital cost	**$2,045,825**	per kW-hr	
Annual Capital	**$79,512**	$0.80	$233.09
Annual OM	**$42,240**	$0.42	$123.83
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$121,752**	$1.22	**$356.92**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.50**	
% Community energy		7%	
New Community COE (includes non-fuel and diesel costs)		**$0.71**	

Savings
$16,588

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.1%

Other Resources

Scammon Bay

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

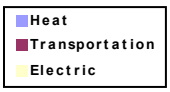
Renewable Fund Project List:

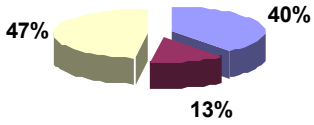
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Scammon Bay Wind Analysis_AVEC has been submitted by: Alaska Village Electric Cooperative (AVEC) for a Wind Diesel Hybrid project. The total project budget is: $4,436,800 with $117,610 requested in grant funding and $6,190 as matching funds.

Selawik

Energy Used





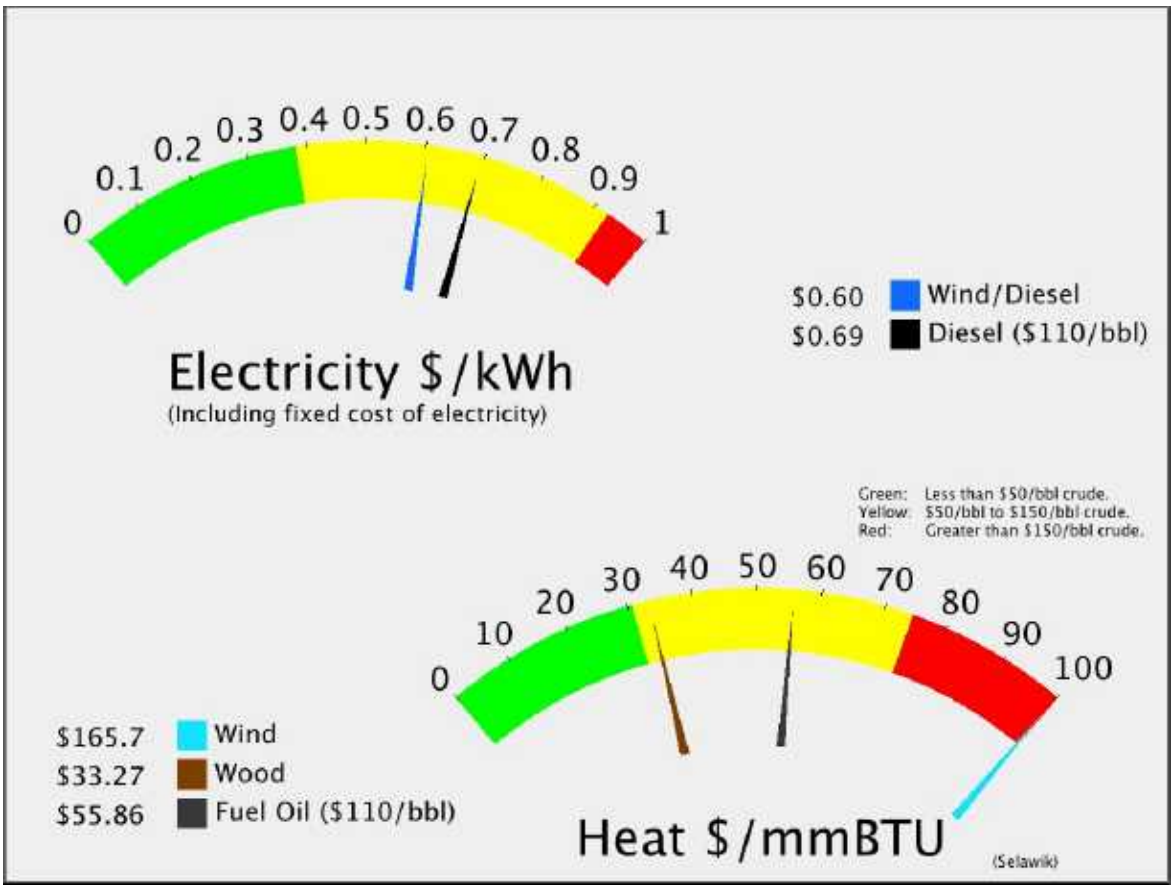
Total: **$4,645** Per capita

Heat **$1,839** Per capita

Transportation **$589** Per capita

Electricity: **$2,217** Per capita

POPULATION: 828



Selawik

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 828 LATITUDE: 66d 36m N LONGITUDE: 160d 00m **Northwest Arctic Borou**

LOCATION Selawik is located at the mouth of the Selawik River where it empties into Selawik Lake, about 90 miles east of Kotzebue. It lies 670 miles northwest of Anchorage. The City is near the Selawik National Wildlife Refuge, a key breeding and resting spot for migratory waterfowl.

ECONOMY Inhabitants of Selawik subsist mainly on whitefish, sheefish, caribou, moose, ducks, ptarmigan and berries. Occasionally, bartered seal and beluga whale supplement the diet. The primary employers in the community include the school, the City, the IRA, Maniilaq and three grocery stores. Handicrafts are made and sold locally and at gift shops in larger cities. Seasonal work is also found outside of Selawik at the Red Dog Mine, BLM firefighting or in lighterage operations. Three residents hold commercial fishing permits.

HISTORY Lt. L.A. Zagoskin of the Imperial Russian Navy first reported the village in the 1840s as "Chilivik." Ivan Petroff counted 100 "Selawigamute" people in his 1880 census. Selawik is an Eskimo name for a species of fish. Around 1908, the site had a small wooden schoolhouse and church. The village has continued to grow and has expanded across the Selawik River onto three banks, linked by bridges. Selawik incorporated as a First Class City in 1974, but in 1977, changed to a Second Class City government.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.17** /kw-hr

Current efficiency	**13.58**	kW-hr/gal	Fuel COE	**$0.41**	/kw-hr	Estimated Diesel OM	**$52,349**
Consumption in 200	**209,718**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$680,534**
Average Load	**299**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$1,084,850**
Estimated peak loa	**597.59**	kW	Total	**$0.69**		**Total Electric**	
Average Sales	**2,617,437**	kW-hours				**$1,817,733**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**246,635**	gal	
Fuel Oil:	**98%**	Estimated heating fuel cost/gallon	**$6.17**		
Wood:	**1%**	$/MMBtu delivered to user	**$55.99**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**29,596**		**$1,522,455**

Transportation (Estimated)

Estimated Diesel:	**79,060**	gal	Estimated cost	**$6.17**	**Total Transportation**
					$488,028

Energy Total **$3,828,216**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14.8** kW-

New Fuel use **193,149**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$52,349**	$0.02	
New fuel cost	**$999,139**	$0.38	
Avg Non-Fuel Costs:	**$732,882**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings

$85,083

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**31,458**	gal	**$194,185**
Stack Heat	**0**	gal	**$0**

Capital cost	**$836,624**		
Annual ID	**$70,081**		
Annual OM	**$16,732**		
Total Annual costs	**$86,814**		
Heat cost	**$24.98**	$/MMBtu	

Savings

$107,372

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**

kW-hr/year **1805337**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **4.47** m/s

			Heat Cost $/MMBtu :
Capital cost	**$6,410,697**	per kW-hr	
Annual Capital	**$430,900**	$0.24	$69.93
Annual OM	**$84,700**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$515,599**	$0.29	**$83.68**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		69%	
New Community COE (includes non-fuel and diesel costs)		**$0.59**	

Savings

$268,761

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	8.6%

Other Resources

Selawik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

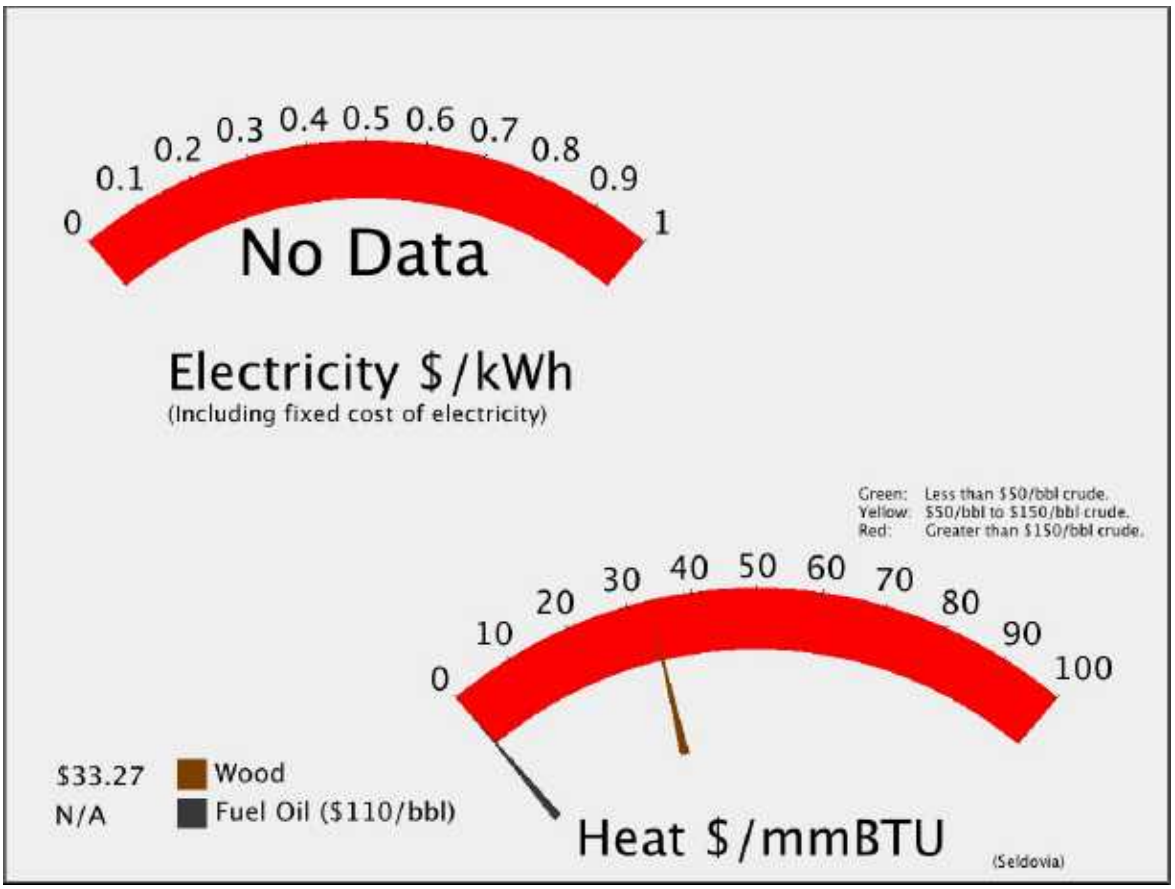
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Seldovia

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	284
Transportation	Per capita		
Electricity:	Per capita		



Seldovia

Regional Corporation
Cook Inlet Region, Inc.

House 35
Senate : **R**

POPULATION 284 LATITUDE: 59d 26m N LONGITUDE: 151d 42m **Kenai Peninsula Boroug**

LOCATION Seldovia is on the Kenai Peninsula across from Homer on the south shore of Kachemak Bay, a 15 minute flight. Flight time to Anchorage is 45 minutes.

ECONOMY Seldovia is a commercial fishing center; shellfish farming also occurs. 57 residents hold commercial fishing permits.

HISTORY Native residents are mixed Dena'ina Indian, Aleut and Sugpiaq Eskimo (also known as Alutiiq). The name Seldovia is derived from Seldevoy a Russian word meaning herring bay." Between 1869 and 1882

Alternative Energy Resources

Hydro

Installed KW **764**
kW-hr/year **3480000**
Site **Windy River**
Study plan effort **reconnaissance**
Plant Factor **52** %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$10,217,160**		
Annual Capital	**$414,053**	$0.12	$34.86
Annual OM	**$141,400**	$0.04	$11.91
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$555,453**	$0.16	**$46.77**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Seldovia

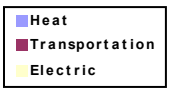
Tidal: SOME POTENTIAL
Wave:
Coal Bed Methane:
Natural Gas:
Coal: CONFIRMED RESOURCE
Propane:

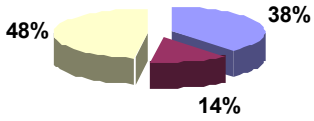
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Shageluk

Energy Used





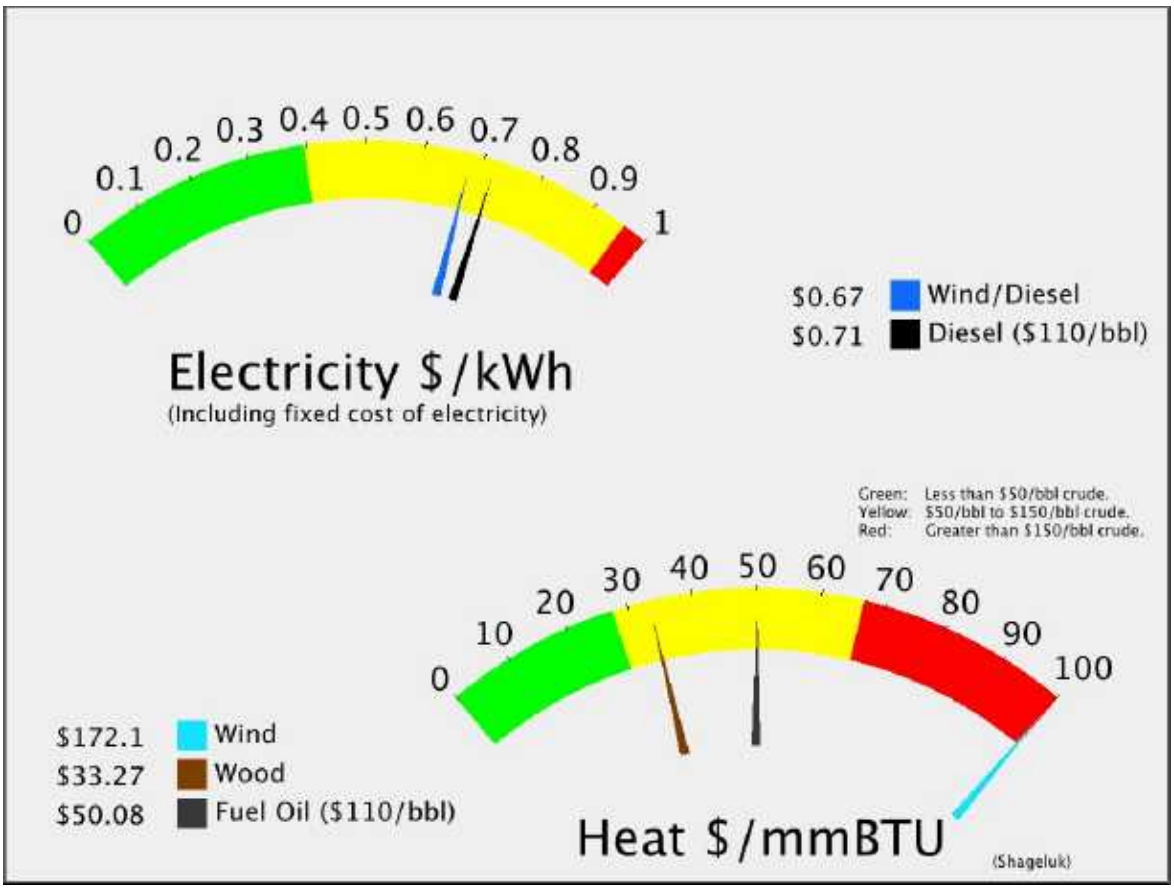
Total: **$3,918** Per capita

Heat **$1,503** Per capita

Transportation **$543** Per capita

Electricity: **$1,872** Per capita

POPULATION: 118



Shageluk

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 118 LATITUDE: 62d 41m N LONGITUDE: 159d 34m **Unorganized**

LOCATION Shageluk is located on the east bank of the Innoko River, approximately 20 miles east of Anvik and 34 miles northeast of Holy Cross. The Innoko is a tributary of the Yukon River.

ECONOMY Employment is limited primarily to the city and the school. Summer construction projects provide seasonal employment. Residents rely upon subsistence activities; several trap and garden. Salmon, moose, bear, small game and waterfowl provide food sources. One resident holds a commercial fishing permit. A village store was recently completed.

HISTORY Shageluk is an Ingalik Indian village first reported as Tie'goshshitno" in 1850 by Lt. Zagoskin of the Russian Navy. In 1861 a historian for the Russian American Company reported six villages on the Innoko. These were collectively called the "Chageluk settlements" during the 1880 Census. Shageluk became one of the permanent communities in the area. A post office was established in 1924. Residents of Shageluk moved in 1966 from a flood-prone location to a higher site two miles southeast. The BIA constructed 20 homes and a school at the new site. The City was incorporated in 1970."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.53** /kw-hr

Current efficiency	**12.95**	kW-hr/gal	Fuel COE	**$0.44**	/kw-hr	Estimated Diesel OM	**$7,034**
Consumption in 200	**34,094**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$91,439**
Average Load	**40**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$154,609**
Estimated peak loa	**80.294**	kW	Total	**$0.72**		**Total Electric**	
Average Sales	**351,687**	kW-hours				**$253,082**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**32,050**	gal	
Fuel Oil:	**50%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**50%**	$/MMBtu delivered to user	**$50.20**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,846**		**$177,391**

Transportation (Estimated)

Total Transportation

Estimated Diesel: **11,579** gal Estimated cost **$5.53** **$64,086**

Energy Total **$494,559**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **31,529**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.31	/kw-hr
Estimated Diesel OM	**$7,034**	$0.02	
New fuel cost	**$142,976**	$0.41	
Avg Non-Fuel Costs:	**$98,472**	$0.26	
New cost of electricity	**$0.91** per kW-hr		

Savings

($97,263)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**5,114**	gal	**$28,306**
Stack Heat	**0**	gal	**$0**

Capital cost	**$112,411**		
Annual ID	**$9,416**		
Annual OM	**$2,248**		
Total Annual costs	**$11,665**		
Heat cost	**$20.64**	$/MMBtu	

Savings

$16,641

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **454253**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$76.33
Annual OM	**$21,312**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,644**	$0.31	**$90.07**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.59**	
% Community energy		129%	
New Community COE		**$0.68**	

(includes non-fuel and diesel costs)

Savings

$113,438

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	66.3%

Other Resources

Shageluk

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

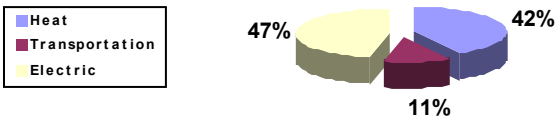
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Shaktoolik

Energy Used



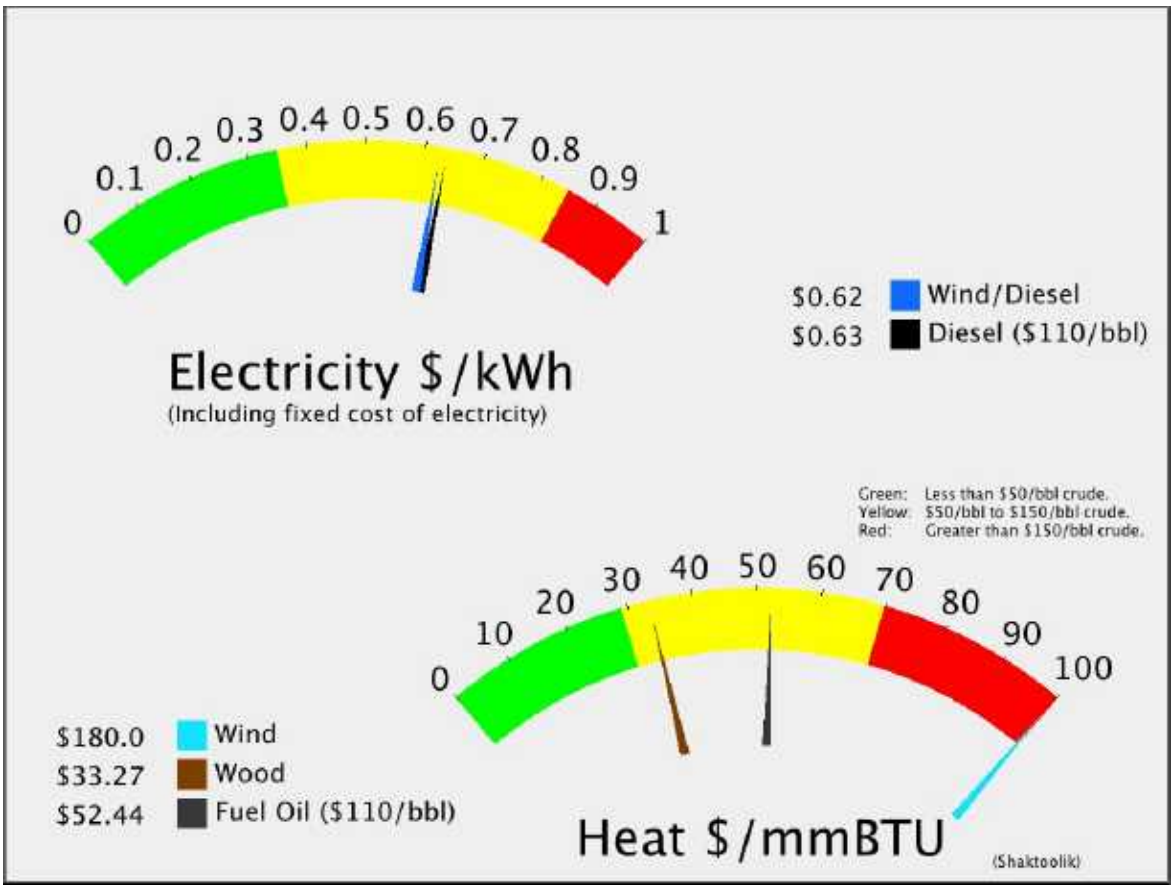
Total: **$4,895** Per capita

Heat **$2,057** Per capita

Transportation **$557** Per capita

Electricity: **$2,281** Per capita

POPULATION: 214



Shaktoolik

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 214 LATITUDE: 64d 20m N LONGITUDE: 161d 09m **Unorganized**

LOCATION Shaktoolik is located on the east shore of Norton Sound. It lies 125 miles east of Nome and 33 miles north of Unalakleet.

ECONOMY The Shaktoolik economy is based on subsistence, supplemented by part-time wage earnings. 33 residents hold commercial fishing permits. Development of a new fish processing facility is a village priority. Reindeer herding also provides income and meat. Fish, crab, moose, beluga whale, caribou, seal, rabbit, geese, cranes, ducks, ptarmigan, berries, greens and roots are also primary food sources.

HISTORY Shaktoolik was the first and southernmost Malemiut settlement on Norton Sound, occupied as early as 1839. Twelve miles northeast, on Cape Denbigh, is Iyatayet a site that is 6,000 to 8,000 years old. Reindeer herds were managed in the Shaktoolik area around 1905. The village was originally located six miles up the Shaktoolik River, and moved to the mouth of the River in 1933. This site was prone to severe storms and winds, however, and the village relocated to its present, more sheltered location in 1967. The City was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.79** /kw-hr

Current efficiency	**13.77**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Diesel OM	**$15,588**
Consumption in 200	**57,982**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$202,648**
Average Load	**89**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$278,000**
Estimated peak loa	**177.95**	kW	Total	**$0.64**		**Total Electric**	
Average Sales	**779,416**	kW-hours				**$496,237**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**75,983**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.79**		
Wood:	**0%**	$/MMBtu delivered to user	**$52.56**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,118**	**$440,292**	

Transportation (Estimated)

Estimated Diesel:	**20,560**	gal	Estimated cost	**$5.79**	**Total Transportation**
					$119,139

Energy Total **$1,055,668**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **57,021**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.14	/kw-hr
Estimated Diesel OM	**$15,588**	$0.02	
New fuel cost	**$273,393**	$0.35	
Avg Non-Fuel Costs:	**$218,236**	$0.26	
New cost of electricity	**$0.76** per kW-hr		

Savings

($104,289)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Tank

			Value
Water Jacket	**8,697**	gal	**$50,397**
Stack Heat	**0**	gal	**$0**

Capital cost	**$249,128**		
Annual ID	**$20,869**		
Annual OM	**$4,983**		
Total Annual costs	**$25,851**		
Heat cost	**$26.90**	$/MMBtu	

Savings

$24,546

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **411392**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$84.28
Annual OM	**$19,301**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,633**	$0.33	**$98.02**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.61**	
% Community energy		53%	
New Community COE (includes non-fuel and diesel costs)		**$0.61**	

Savings

$17,311

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	28.0%

Other Resources

Shaktoolik

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

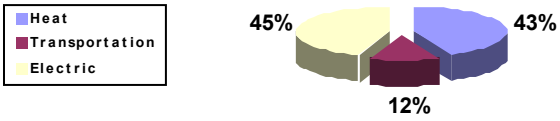
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Shaktoolik Wind_AVEC has been submitted by: Alaska Village Cooperative (AVEC) for a Wind Diesel Hybrid project. The total project budget is: $2,727,960 with $2,465,664 requested in grant funding and $262,296 as matching funds.

Shishmaref

Energy Used



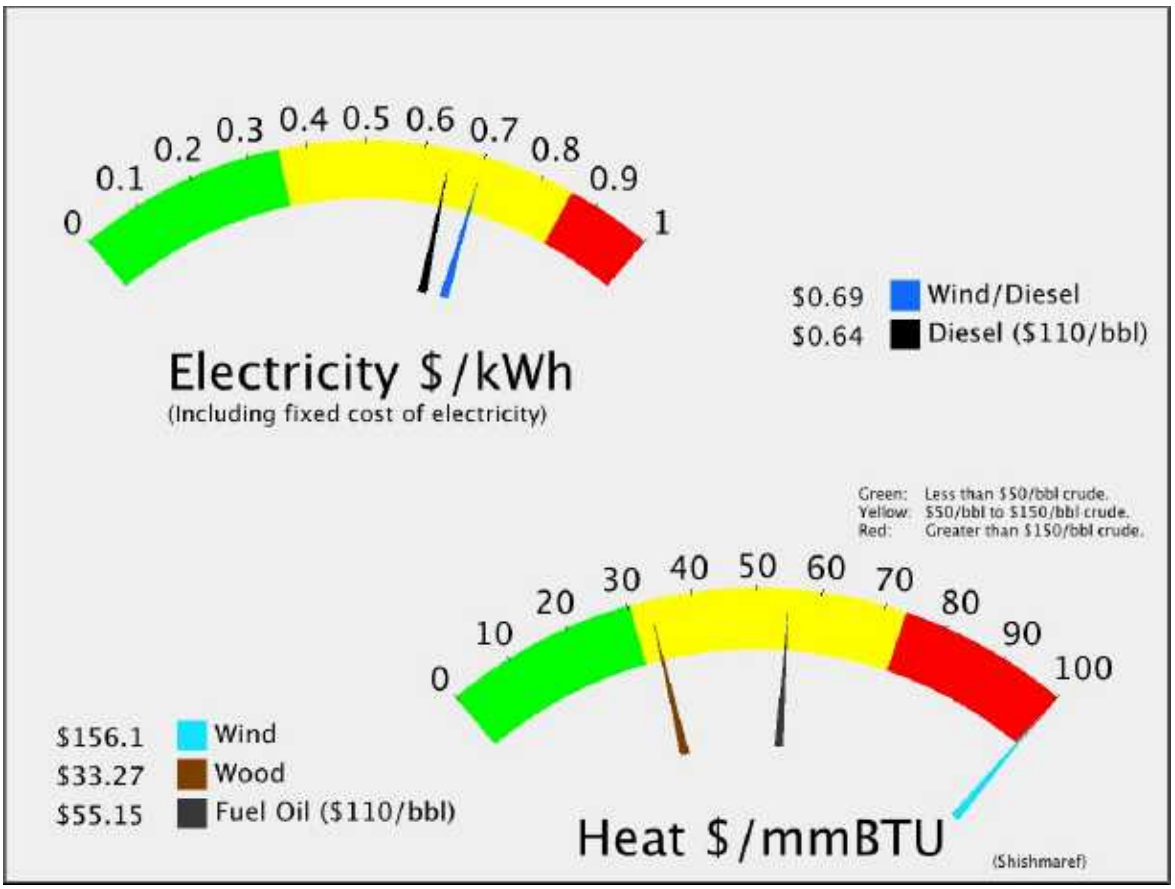
Total: **$3,771** Per capita

Heat **$1,637** Per capita

Transportation **$443** Per capita

Electricity: **$1,691** Per capita

POPULATION: 609



Shishmaref

Regional Corporation
Bering Straits Native Corp.

House 40
Senate : **T**

POPULATION 609 LATITUDE: 66d 15m N LONGITUDE: 166d 04m **Unorganized**

LOCATION Shishmaref is located on Sarichef Island, in the Chukchi Sea, just north of Bering Strait. Shishmaref is five miles from the mainland, 126 miles north of Nome and 100 miles southwest of Kotzebue. The village is surrounded by the 2.6 million-acre Bering Land Bridge National Reserve. It is part of the Beringian National Heritage Park, endorsed by Presidents Bush and Gorbachev in 1990.

ECONOMY The Shishmaref economy is based on subsistence supplemented by part-time wage earnings. Two residents hold a commercial fishing permit. Year-round jobs are limited. Villagers rely on fish, walrus, seal, polar bear, rabbit, and other subsistence foods. Two reindeer herds are managed from here. Reindeer skins are tanned locally, and meat is available at the village store. The Friendship Center, a cultural center and carving facility, was recently completed for local artisans.

HISTORY The original Eskimo name for the island is "Kigiktaq." In 1816, Lt. Otto Von Kotzebue named the inlet "Shishmarev," after a member of his crew. Excavations at "Keekiktuk" by archaeologists around 1821 provided evidence of Eskimo habitation from several centuries ago. Shishmaref has an excellent harbor, and around 1900 it became a supply center for gold mining activities to the south. The village was named after the Inlet and a post office was established in 1901. The City government was incorporated in 1969. During October 1997, a severe storm eroded over 30 feet of the north shore, requiring 14 homes and the National Guard Armory to be relocated. Five additional homes were relocated in 2002. Other storms have continued to erode the shoreline, an average of 3 to 5 feet per year on the north shore. In July 2002, residents voted to relocate the community.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**14.00**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.09**
Consumption in 200	**111,300**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$31,254**
Average Load	**178**	kW	NF COE:	**$0.26**	/kw-hr	Other Non-Fuel Costs:	**$406,296**
Estimated peak loa	**356.78**	kW	Total	**$0.64**		Current Fuel Costs	**$566,962**
Average Sales	**1,562,676**	kW-hours				**Total Electric**	**$1,004,511**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**163,586**	gal	
Fuel Oil:	**86%**	Estimated heating fuel cost/gallon	**$6.09**		
Wood:	**0%**	$/MMBtu delivered to user	**$55.27**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**19,630**		**$996,892**

Transportation (Estimated)

Estimated Diesel:	**44,265**	gal	Estimated cost	**$6.09**	**Total Transportation** **$269,750**

Energy Total **$2,271,153**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$3,000,000**			
Complete Powerhouse			Annual Capital cost	**$251,300**	$0.16	/kw-hr	
Status	**Pending**		Estimated Diesel OM	**$31,254**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$566,760**	$0.36		**Savings**
New Fuel use	**111,260**		Avg Non-Fuel Costs:	**$437,549**	$0.26		**($251,097)**
			New cost of electricity		**$0.80**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**			Capital cost	**$499,485**		
Is it working now? **Y**			Annual ID	**$41,840**		
BLDGs connected and working:			Annual OM	**$9,990**		
Powerhouse Only		Value	Total Annual costs	**$51,830**		**Savings**
Water Jacket	**16,695** gal	**$101,739**	Heat cost	**$28.10**	$/MMBtu	**$49,909**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1300**

kW-hr/year **2583551**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **5.34** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,914,104**		
Annual Capital	**$531,952**	$0.21	$60.33
Annual OM	**$121,211**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$653,163**	$0.25	**$74.08**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.53**	
% Community energy		165%	
New Community COE		**$0.70**	

(includes non-fuel and diesel costs)

Savings

$351,348

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	13.0%

Other Resources

Shishmaref

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

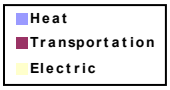
Propane:

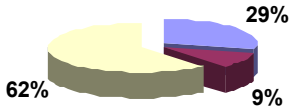
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Shungnak

Energy Used





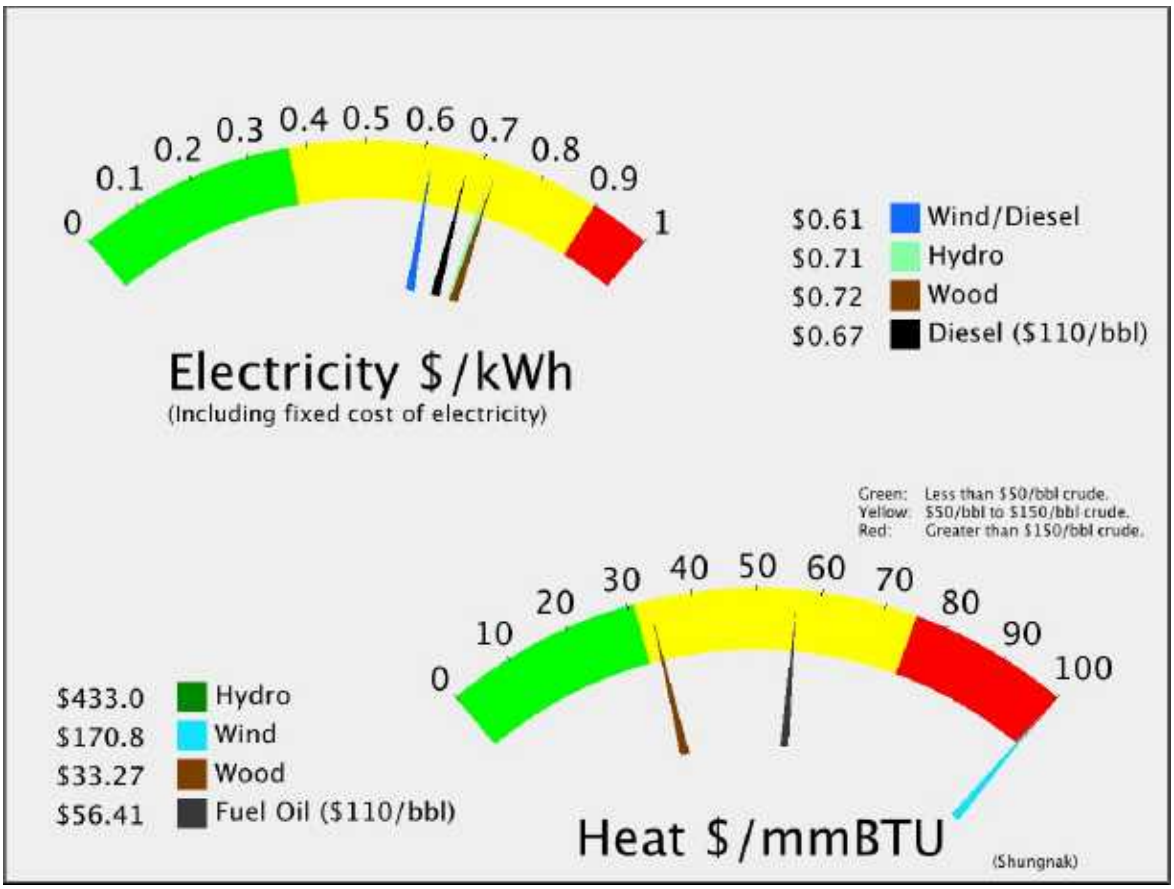
Total: **$6,024** Per capita

Heat **$1,750** Per capita

Transportation **$561** Per capita

Electricity: **$3,713** Per capita

POPULATION: 269



Shungnak

Regional Corporation
NANA Regional Corporation

House 40
Senate : **T**

POPULATION 269 LATITUDE: 66d 52m N LONGITUDE: 157d 09m **Northwest Arctic Borou**

LOCATION Shungnak is located on the west bank of the Kobuk River about 150 miles east of Kotzebue. The original settlement was 10 miles further upstream at Kobuk.

ECONOMY Shungnak subsists mainly on fishing, seasonal employment, hunting and trapping. Subsistence food sources include sheefish, whitefish, caribou, moose, ducks and berries. Most full-time employment is with the school district, City, Maniilaq Association, two stores and a lodge. BLM provides seasonal employment in fire fighting, hiring over 30 residents each year. Shungnak also has a strong arts and crafts industry; residents make and sell finely-crafted baskets, masks, mukluks, parkas, hats and mittens. The community wants to develop a visitor center, mini-mall, post office and clinic complex at Dahl Creek.

HISTORY Founded in 1899 as a supply point for mining activities in the Cosmos Hills, this Inupiat Eskimo village was forced to move in the 1920s because of river erosion and flooding. The old site, 10 miles upstream, was renamed Kobuk by those who remained there. The new village was named Kochuk but later reverted to Shungnak. This name is derived from the Eskimo word Issingnak which means jade, a stone found extensively throughout the surrounding hills. The City government was incorporated in 1967.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.23** /kw-hr

Current efficiency	**13.84**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$28,523**
Consumption in 200	**107,611**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$370,796**
Average Load	**163**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$563,171**
Estimated peak loa	**325.60**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**1,426,137**	kW-hours				**$962,490**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**75,516**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$6.23**		
Wood:	**3%**	$/MMBtu delivered to user	**$56.54**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,062**		**$470,719**

Transportation (Estimated)

Estimated Diesel: **24,207** gal Estimated cost **$6.23**

Total Transportation **$150,890**

Energy Total **$1,584,099**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **106,398**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.08	/kw-hr
Estimated Diesel OM	**$28,523**	$0.02	
New fuel cost	**$556,824**	$0.39	
Avg Non-Fuel Costs:	**$399,318**	$0.26	
New cost of electricity	**$0.73** per kW-hr		

Savings **($102,549)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Plant

			Value
Water Jacket	**16,142**	gal	**$100,617**
Stack Heat	**0**	gal	**$0**

Capital cost	**$455,843**		
Annual ID	**$38,184**		
Annual OM	**$9,117**		
Total Annual costs	**$47,301**		
Heat cost	**$26.52**	$/MMBtu	

Savings **$53,316**

Alternative Energy Resources

Hydro

Installed KW	**140**
kW-hr/year	**74877**
Site	**Dahl Creek**
Study plan effort	**reconnaissance**
Plant Factor	**28** %
Penetration	**0.23**

			Heat Cost $/MMBtu :
Capital cost	**$6,036,750**	per kW-hr	
Annual Capital	**$257,970**	$3.45	$1,009.46
Annual OM	**$135,000**	$1.80	$528.27
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$392,970**	$5.25	**$1,537.72**
Non-Fuel Costs		$0.28	
Alternative COE:		**$5.53**	
% Community energy		5%	
New Community COE		**$0.72**	

(includes non-fuel and diesel costs)

Savings

($58,644)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**500**
kW-hr/year	**964491**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**5**
Avg wind speed	**7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,674,330**	per kW-hr	
Annual Capital	**$246,973**	$0.26	$75.03
Annual OM	**$45,250**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$292,223**	$0.30	**$88.77**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.58**	
% Community energy		68%	
New Community COE		**$0.60**	

(includes non-fuel and diesel costs)

Savings

$107,920

Alternative Energy Resources

Wood

Installed KW	**185**
kW-hr/year	**1379427**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**1743** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,885,567**	per kW-hr	
Annual Capital	**$193,955**	$0.14	
Annual OM	**$160,113**	$0.12	
Fuel cost:	**$261,478**	$0.19	-90
Total Annual Cost	**$615,546**	$0.45	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.73**	
% Community energy		97%	
New Community COE		**$0.71**	

(includes non-fuel and diesel costs)

Savings

($43,186)

Alternative Energy Resources

Hydro

Installed KW **144**

kW-hr/year **75954**

Site **Cosmos Creek**

Study plan effort **reconnaissance**

Plant Factor **26** %

Penetration **0.23**

			Heat Cost $/MMBtu :
Capital cost	**$7,893,000**	per kW-hr	
Annual Capital	**$352,151**	$4.64	$1,358.46
Annual OM	**$135,000**	$1.78	$520.78
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$487,151**	$6.41	**$1,879.23**
Non-Fuel Costs		$0.28	
Alternative COE:		**$6.69**	
% Community energy		5%	**Savings**
New Community COE (includes non-fuel and diesel costs)		**$0.73**	**($80,276)**

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	28.1%

Other Resources

Shungnak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Kobuk River Valley Woody Biomass Feasibility Study has been submitted by: Northwest Inupiat Housing Authority for a Biomass project.

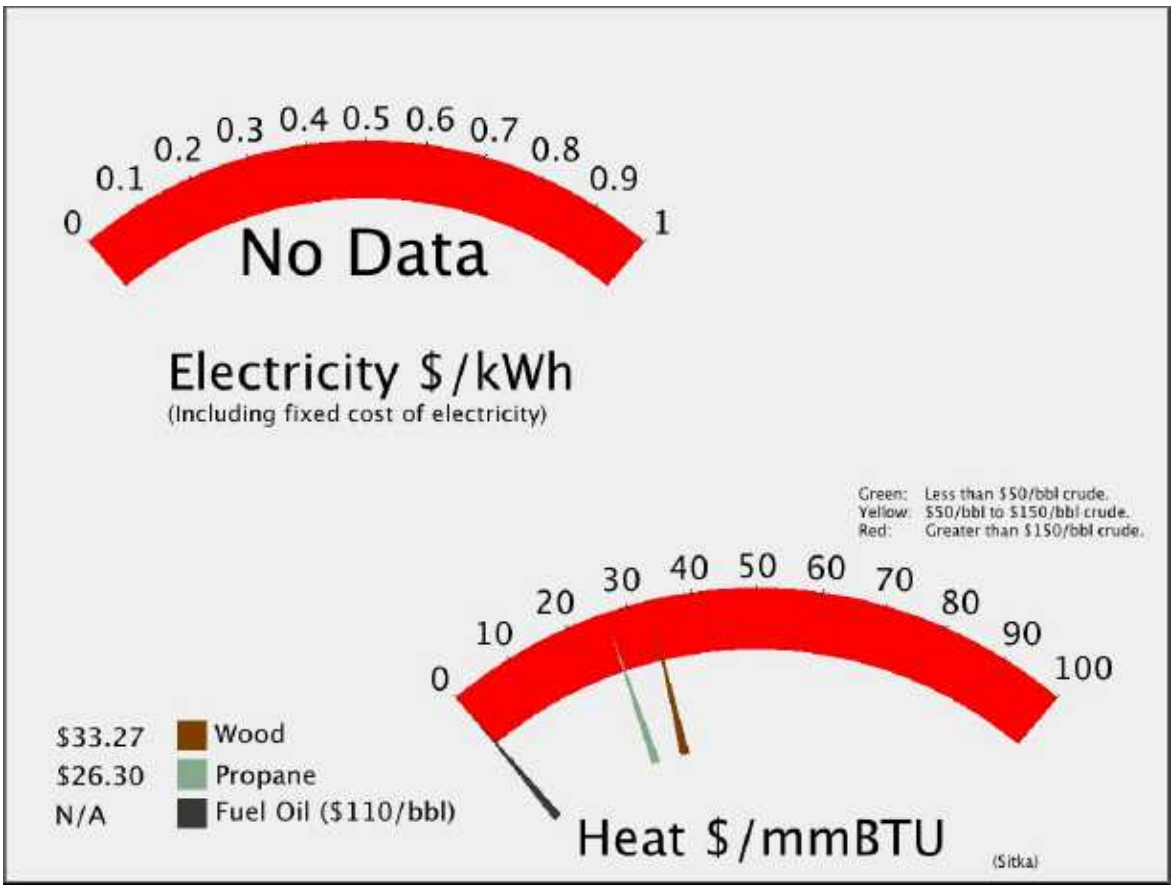
A project titled: Shungnak Solar PV Construction has been submitted by: Alaska Village Electric Cooperative for a Solar PV project. The total project budget is: $605,000 with $550,000 requested in grant funding and $55,000 as matching funds.

A project titled: Upper Kobuk Region Hydroelectric Final Design has been submitted by: Alaska Village Electric Cooperative for a Hydro project.

Sitka

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	8644
Transportation	Per capita		
Electricity:	Per capita		



Sitka

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 8644 LATITUDE: 57d 03m N LONGITUDE: 135d 20m **City & Borough of Sitka**

LOCATION Sitka is located on the west coast of Baranof Island fronting the Pacific Ocean, on Sitka Sound. An extinct volcano, Mount Edgecumbe, rises 3,200 feet above the community. It is 95 air miles southwest of Juneau, and 185 miles northwest of Ketchikan. Seattle, Washington lies 862 air miles to the south.

ECONOMY The economy is diversified with fishing, fish processing, tourism, government, transportation, retail, and health care services. Cruise ships bring over 200,000 visitors annually. 586 residents hold commercial fishing permits and fish processing provides seasonal employment. Sitka Sound Seafood and the Seafood Producers Co-op are major employers. Regional health care services, the U.S. Forest Service and the U.S. Coast Guard also employ a number of residents.

HISTORY Sitka was originally inhabited by a major tribe of Tlingits, who called the village "Shee Atika." It was discovered by the Russian Vitus Bering expedition in 1741, and the site became "New Archangel" in 1799. St. Michael's Redoubt trading post and fort were built here by Alexander Baranof, manager of the Russian-American company. Tlingits burned down the fort and looted the warehouse in 1802. In 1804, the Russians retaliated by destroying the Tlingit Fort, in the Battle of Sitka. This was the last major stand by the Tlingits against the Russians, and the Indians evacuated the area until about 1822. By 1808, Sitka was the capital of Russian Alaska. Baranof was Governor from 1790 through 1818. During the mid-1800s, Sitka was the major port on the north Pacific coast, with ships calling from many nations. Furs destined for European and Asian markets were the main export, but salmon, lumber and ice were also exported to Hawaii, Mexico and California. After the purchase of Alaska by the U.S. in 1867, it remained the capital of the Territory until 1906, when the seat of government was moved to Juneau. A Presbyterian missionary, Sheldon Jackson, started a school, and in 1878 one of the first canneries in Alaska was built in Sitka. During the early 1900s, gold mines contributed to its growth, and the City was incorporated in 1913. During World War II, the town was fortified and the U.S. Navy built an air base on Japonski Island across the harbor, with 30,000 military personnel and over 7,000 civilians. After the war, the BIA converted some of the buildings to be used as a boarding school for Alaska Natives, Mt. Edgecumbe High School. The U.S. Coast Guard now maintains the air station and other facilities on the Island. A large pulp mill began operations at Silver Bay in 1960. In 1971, the City and Borough governments were unified. Sitka offers abundant resources and a diverse economy.

Alternative Energy Resources

Hydro

Installed KW **6000**

kW-hr/year

Site **Blue Lake Expansion**

Study plan effort **reconnaissance**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost		per kW-hr	
Annual Capital	**$0**		
Annual OM			
Fuel cost:	**$0**		
Total Annual Cost	**$0**		

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW **13500**

kW-hr/year **30000000**

Site **Carbon Lake**

Study plan effort **reconnaissance**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$141,224,000**	per kW-hr	
Annual Capital	**$5,765,152**	$0.19	$56.31
Annual OM	**$444,500**	$0.01	$4.34
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$6,209,652**	$0.21	**$60.65**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Alternative Energy Resources

Geothermal

Installed KW **5000**

kW-hr/year **41610000**

Site Name **Sitka/Goddard**

Project Capatcity

Shallow Resource **0** Feet

Shallow Temp **50.00** C

			Heat Cost $/MMBtu :
Capital cost	**$57,000,000**	per kW-hr	
Annual Capital	**$3,831,295**	$0.09	$26.98
Annual OM	**$1,710,000**	$0.04	$12.04
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$5,541,295**	$0.13	**$39.02**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW **27700**

kW-hr/year **54000000**

Site **Takatz Lake**

Study plan effort **prelim permit**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$147,000,000**	per kW-hr	
Annual Capital	**$8,744,736**	$0.16	$47.45
Annual OM	**$200,000**	$0.00	$1.09
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$8,944,736**	$0.17	**$48.53**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Sitka

Tidal:	
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

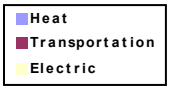
A project titled: Air Source Heat Pump_BIHA has been submitted by: Baranof Island Housing Authority for an Other project. The total project budget is: $142,000 with $121,000 requested in grant funding and $21,000 as matching funds.

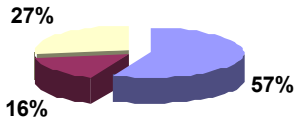
A project titled: Sitka CHP_City and Borough has been submitted by: City and Borough of Sitka (CBS) Alaska for a Biomass project. The total project budget is: $32,000 with $30,000 requested in grant funding and $2,000 as matching funds.

A project titled: Takatz Lake Hydroelectric Construction has been submitted by: City& Borough of Sitka for a Hydro project. The total project budget is: $225,000,000 with $2,000,000 requested in grant funding and $ as matching funds.

Skagway

Energy Used





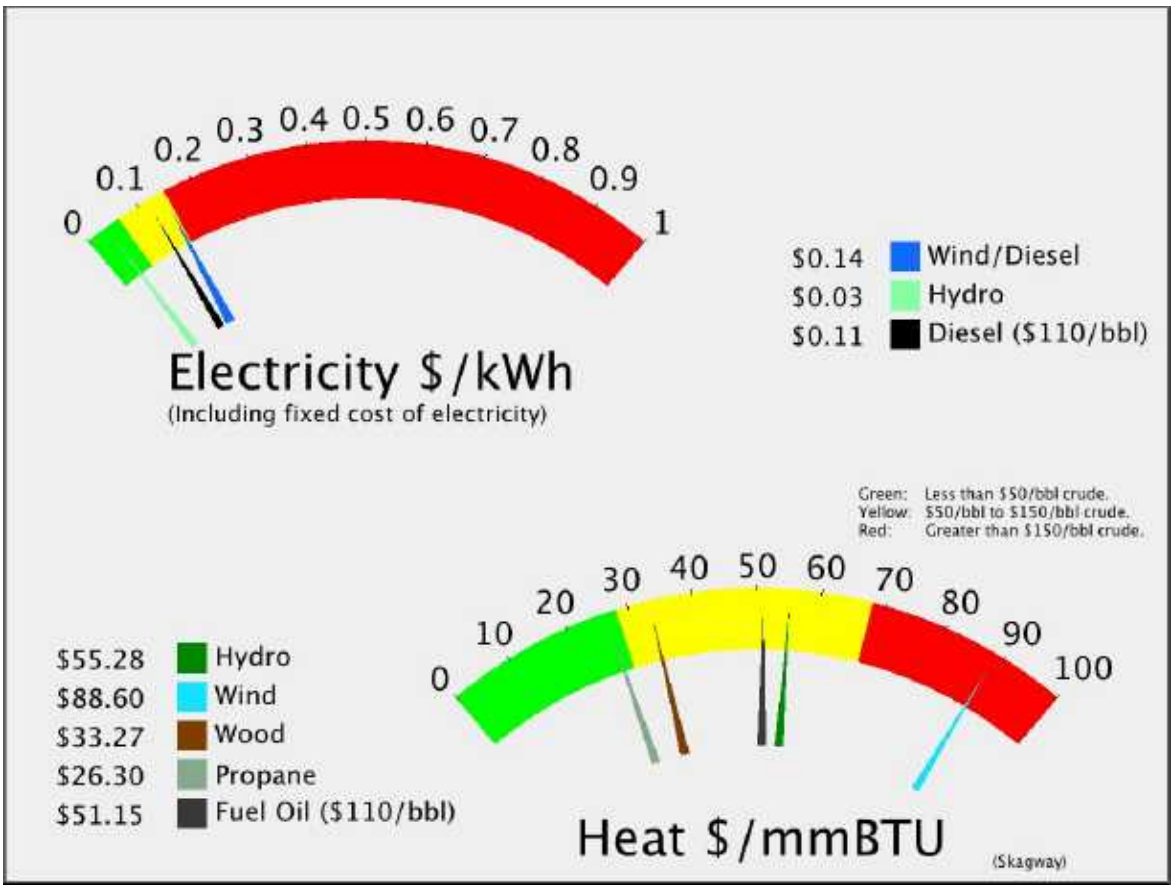
Total: **$5,715** Per capita

Heat **$3,243** Per capita

Transportation **$933** Per capita

Electricity: **$1,539** Per capita

POPULATION: 846



Skagway

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 846 LATITUDE: 59d 27m N LONGITUDE: 135d 18m **Municipality of Skagway**

LOCATION Skagway is located 90 miles northeast of Juneau at the northernmost end of Lynn Canal, at the head of Taiya Inlet. It lies 108 road miles south of Whitehorse, just west of the Canadian border at British Columbia.

ECONOMY The tourist industry flourishes in Skagway, as a port of call for cruise ships and a transfer site for rail and interior bus tours. Approximately 1 million cruise ship passengers, RV traffic, and numerous State ferry travelers visit Skagway each year. The Klondike Gold Rush Historical Park and White Pass and Yukon Railroad are major attractions. An Economic Impact Study conducted by the City of Skagway in 1999 found that 51% of the owners of visitor-related businesses are not year-round residents. Trans-shipment of lead/zinc ore, fuel and freight occurs via the Port and Klondike Hwy. to and from Canada. Four residents hold commercial fishing permits.

HISTORY

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.65** /kw-hr

Current efficiency	**8.47**	kW-hr/gal	Fuel COE	**$0.08**	/kw-hr	Estimated Diesel OM	**$228,890**
Consumption in 200	**195,334**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$168,945**
Average Load	**1,306**	kW	NF COE:	**$0.01**	/kw-hr	Current Fuel Costs	**$908,713**
Estimated peak loa	**2612.9**	kW	Total	**$0.11**		**Total Electric**	
Average Sales	**11,444,497**	kW-hours				**$1,306,548**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**485,365**	gal	
Fuel Oil:	**78%**	Estimated heating fuel cost/gallon	**$5.65**		
Wood:	**11%**	$/MMBtu delivered to user	**$51.26**		**Total Heating Oil**
Electricity:	**4.2%**	Community heat needs in MMBtu	**58,244**		**$2,743,329**

Transportation (Estimated)

Estimated Diesel:	**139,607**	gal	Estimated cost	**$5.65**	**Total Transportation**
					$789,073

Energy Total **$4,838,950**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14.8** kW-

New Fuel use **112,115**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$228,890**	$0.02	
New fuel cost	**$521,569**	$0.05	**Savings**
Avg Non-Fuel Costs:	**$397,835**	$0.01	**$386,516**
New cost of electricity	**$0.35** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**29,300**	gal	**$165,607**
Stack Heat	**19,533**	gal	**$110,405**

Capital cost	**$3,658,058**		
Annual ID	**$306,423**		
Annual OM	**$73,161**		
Total Annual costs	**$379,584**		**Savings**
Heat cost	**$70.35**	$/MMBtu	**($103,572)**

Alternative Energy Resources

Wood

		Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW		Annual Capital			
kW-hr/year		Annual OM			
Installation Type		Fuel cost:			-90
Electric Wood cost		Total Annual Cost			**$29.76**
Wood Required	Cd/Y		Non-Fuel Costs	$0.03	
Stove Wood cost	$/Cd		**Alternative COE:**		**Savings**
			% Community energy		
			New Community COE (includes non-fuel and diesel costs)		

Alternative Energy Resources

Hydro

		Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	**3000**	Annual Capital	**$0**		
kW-hr/year		Annual OM			
Site	**Kasidaya - Under Construction**	Fuel cost:	**$0**		
		Total Annual Cost	**$0**		
Study plan effort					
Plant Factor	%		Non-Fuel Costs	$0.03	
Penetration			**Alternative COE:**		**Savings**
			% Community energy		
			New Community COE (includes non-fuel and diesel costs)	**$0.03**	**$1,306,548**

Alternative Energy Resources

Hydro

		Capital cost	**$22,950,000**	per kW-hr	Heat Cost $/MMBtu :
Installed KW	**4300**	Annual Capital	**$1,896,558**	$0.21	$61.74
kW-hr/year	**9000000**	Annual OM	**$180,000**	$0.02	$5.86
Site	**West Creek**	Fuel cost:	**$0**	$0.00	
		Total Annual Cost	**$2,076,558**	$0.23	**$67.60**
Study plan effort	**reconnaissance**		Non-Fuel Costs	$0.03	
Plant Factor	%		**Alternative COE:**	**$0.27**	**Savings**
Penetration	**0.43**		% Community energy	79%	
			New Community COE (includes non-fuel and diesel costs)	**$0.16**	**($490,825)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **900**

kW-hr/year **1794126**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$5,890,633**	per kW-hr	
Annual Capital	**$395,943**	$0.22	$64.66
Annual OM	**$84,174**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$480,117**	$0.27	**$78.41**
Non-Fuel Costs		$0.03	
Alternative COE:		**$0.30**	
% Community energy		16%	
New Community COE (includes non-fuel and diesel costs)		**$0.14**	

Savings

($301,837)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	4.4%

Other Resources

Skagway

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane: Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

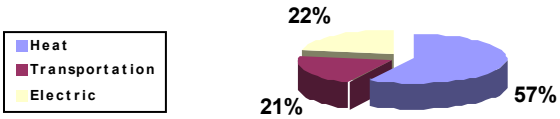
A project titled: Burro Creek Hydro Feasibility Study has been submitted by: Burro Creek Holdings, LLC for a Hydro project. The total project budget is: $60,000 with $48,000 requested in grant funding and $12,000 as matching funds.

A project titled: Connelly Lake Hydro_APT has been submitted by: Alaska Power and Telephone Co for a Hydro project. The total project budget is: $33,235,000 with $988,000 requested in grant funding and $247,000 as matching funds.

A project titled: West Creek Hydro_Muni Skagway has been submitted by: Borough and Municipality of Skagway for a Hydro project. The total project budget is: $140,000,000 with $6,864,000 requested in grant funding and $1,716,000 as matching funds.

Slana

Energy Used



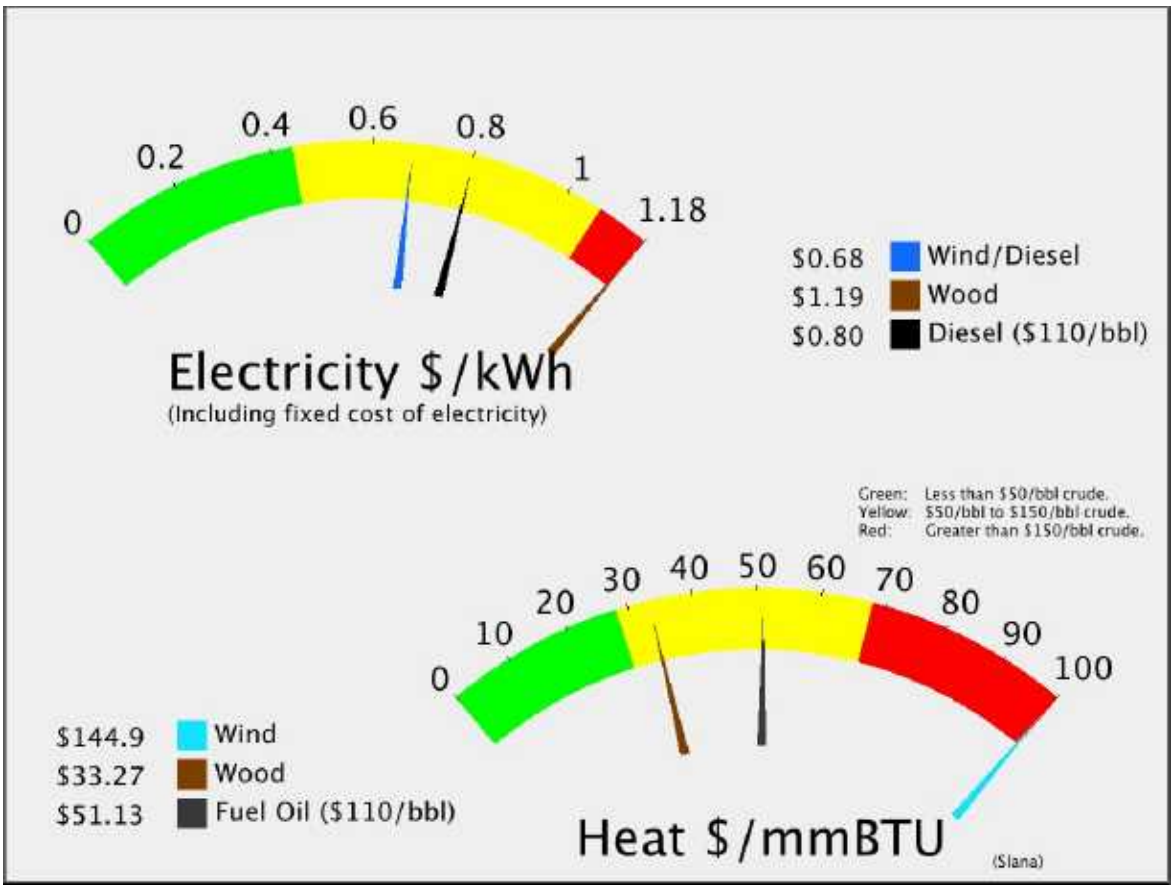
Total: **$8,761** Per capita

Heat **$5,028** Per capita

Transportation **$1,828** Per capita

Electricity: **$1,905** Per capita

POPULATION: 108



Slana

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 108 LATITUDE: 62d 42m N LONGITUDE: 143d 57m **Unorganized**

LOCATION Slana stretches along the Nabesna Road, which runs south of the Tok Cutoff at mile 63. It lies at the junction of the Slana and Copper Rivers, 53 miles southwest of Tok.

ECONOMY A roadside lodge provides groceries, gas, liquor, an auto mechanic and RV parking. Other local businesses include a general store, art gallery, canoe rental, bed & breakfast, snowmachine sales and solar panel sales. A Park Ranger Station and state highway maintenance camp are located nearby. Subsistence activities supplement income.

HISTORY Slana is an Indian village name, derived from the river's name. The Nabesna Mine opened in 1923, which employed 60 people at its height. Over thirty different minerals were extracted from this site, although gold was the primary source of profit. It operated sporadically through the late 1940s. Slana developed rapidly in the 1980s when homesteads were offered for settlement by the federal government.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.69**	kW-hr/gal	Fuel COE	**$0.66**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.65**
Consumption in 200	**36,002**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$5,059**
Average Load	**29**	kW	NF COE:	**$0.12**	/kw-hr	Other Non-Fuel Costs:	**$30,917**
Estimated peak loa	**57.751**	kW	Total	**$0.80**		Current Fuel Costs	**$167,420**
Average Sales	**252,951**	kW-hours				**Total Electric**	**$203,396**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**96,101**	gal	
Fuel Oil:	**51%**	Estimated heating fuel cost/gallon	**$5.65**		
Wood:	**39%**	$/MMBtu delivered to user	**$51.25**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**11,532**		**$542,997**

Transportation (Estimated)

Estimated Diesel:	**34,937**	gal	Estimated cost	**$5.65**	**Total Transportation** **$197,405**

Energy Total **$943,799**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$5,059**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$139,759**	$0.55		**Savings**
New Fuel use	**30,054**		Avg Non-Fuel Costs:	**$35,976**	$0.12		**$27,661**
			New cost of electricity		**$0.47** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?			Capital cost	**$80,852**		
Is it working now?			Annual ID	**$6,773**		
BLDGs connected and working:			Annual OM	**$1,617**		
		Value	Total Annual costs	**$8,390**		**Savings**
Water Jacket	**5,400** gal	**$30,513**	Heat cost	**$14.06**	$/MMBtu	**$22,124**
Stack Heat	**0** gal	**$0**				

Alternative Energy Resources

Wood

Installed KW **36**

kW-hr/year **264920**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **335** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,476,810**	per kW-hr	
Annual Capital	**$99,265**	$0.37	
Annual OM	**$116,047**	$0.44	
Fuel cost:	**$50,217**	$0.19	-90
Total Annual Cost	**$265,529**	$1.00	**$29.76**
Non-Fuel Costs		$0.14	
Alternative COE:		**$1.14**	
% Community energy		105%	
New Community COE		**$1.19**	

(includes non-fuel and diesel costs)

Savings

($62,133)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **387062**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$89.58
Annual OM	**$18,160**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,492**	$0.35	**$103.32**
Non-Fuel Costs		$0.14	
Alternative COE:		**$0.49**	
% Community energy		153%	
New Community COE		**$0.68**	

(includes non-fuel and diesel costs)

Savings

$66,904

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	22.1%

Other Resources

Slana

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

Renewable Fund Project List:

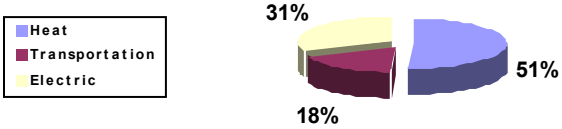
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Carlson Creek Hydro_APT has been submitted by: Alaska Power Company (a subsidiary of Alaska Power & Telephone Company) for a Hydro project. The total project budget is: $6,300,000 with $520,000 requested in grant funding and $130,000 as matching funds.

A project titled: Slana Wind Construction_AWP has been submitted by: Village Wind Power, LLC for a Wind Diesel Hybrid project. The total project budget is: $6,940,000 with $6,940,000 requested in grant funding and $ as matching funds.

Sleetmute

Energy Used



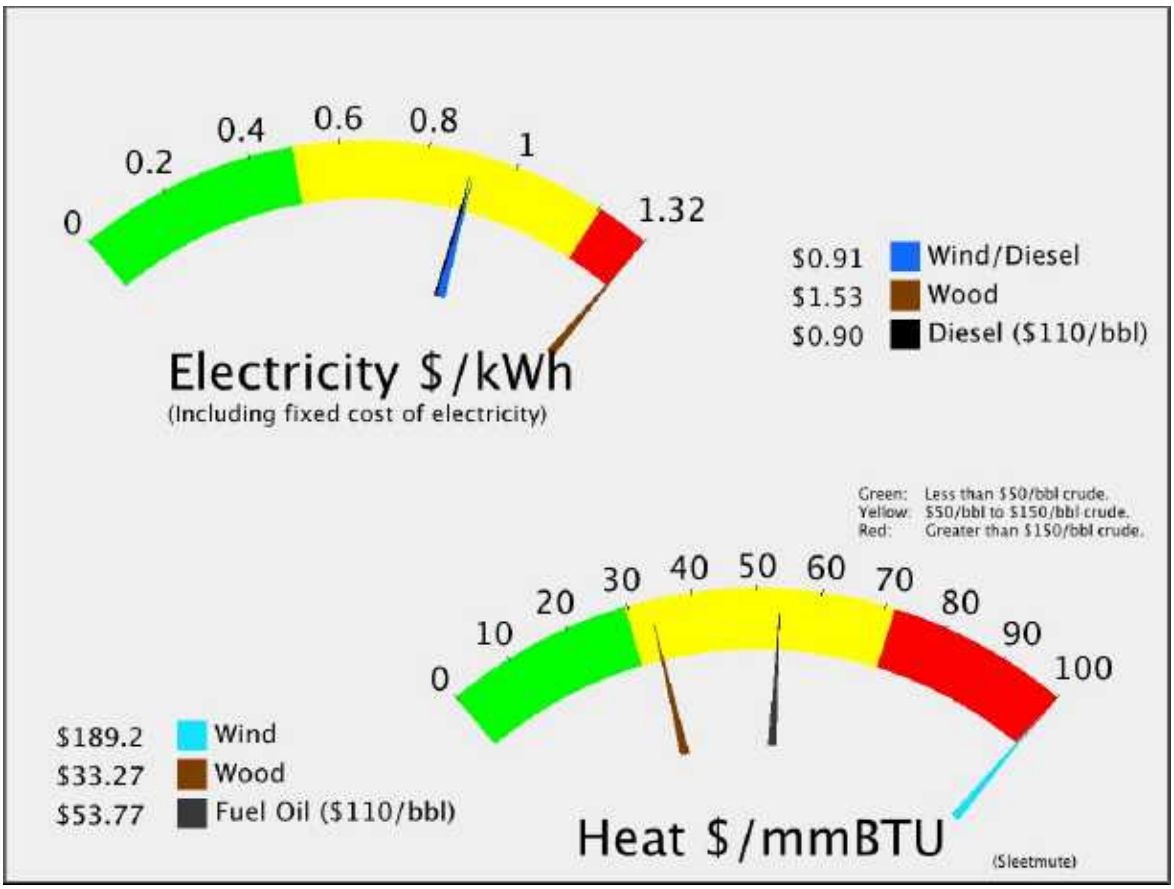
Total: **$8,274** Per capita

Heat **$4,205** Per capita

Transportation **$1,504** Per capita

Electricity: **$2,565** Per capita

POPULATION: 75



Sleetmute

Regional Corporation
Calista Corporation

House 6
Senate : **C**

POPULATION 75 LATITUDE: 61d 42m N LONGITUDE: 157d 10m **Unorganized**

LOCATION Sleetmute is located on the east bank of the Kuskokwim River, 1.5 miles north of its junction with the Holitna River. It lies 79 miles east of Aniak, 166 miles northeast of Bethel, and 243 miles west of Anchorage.

ECONOMY Most cash income in Sleetmute is derived seasonally from BLM firefighting, trapping, or from cannery work in other communities. The school is the primary employer. One resident holds a commercial fishing permit. Most foods are derived from subsistence fishing, hunting and gathering. Many residents travel to fish camps during the summer. Salmon, moose, bear, porcupine, rabbit, waterfowl and berries are harvested in season.

HISTORY Sleetmute was founded by Ingalik Indians. The name means whetstone people referring to the slate deposits found nearby. The village has also been known as Sikmiut, Steelmut and Steitmute. In the early 1830s the Russians built a trading post at the Holitna River junction 1.5 miles away - but it was relocated far downriver in 1841. Frederick Bishop started a trading post at Sleetmute in 1906. A school opened in 1921, followed by a post office in 1923. A Russian Orthodox Church was constructed in 1931, The Saints Peter & Paul Mission.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.94** /kw-hr

Current efficiency	**9.98**	kW-hr/gal	Fuel COE	**$0.57**	/kw-hr	Estimated Diesel OM	**$4,833**
Consumption in 200	**27,853**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$76,055**
Average Load	**28**	kW	NF COE:	**$0.31**	/kw-hr	Current Fuel Costs	**$137,636**
Estimated peak loa	**55.175**	kW	Total	**$0.90**		**Total Electric**	
Average Sales	**241,668**	kW-hours				**$218,524**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**53,077**	gal	
Fuel Oil:	**81%**	Estimated heating fuel cost/gallon	**$5.94**		
Wood:	**19%**	$/MMBtu delivered to user	**$53.89**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,369**	**$315,356**	

Transportation (Estimated)

Estimated Diesel: **18,987** gal Estimated cost **$5.94**

Total Transportation **$112,812**

Energy Total **$646,692**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **19,860**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$4,833**	$0.02	
New fuel cost	**$98,138**	$0.41	
Avg Non-Fuel Costs:	**$80,888**	$0.31	
New cost of electricity	**$0.69** per kW-hr		

Savings **$38,869**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**4,178**	gal	**$24,823**
Stack Heat	**0**	gal	**$0**

Capital cost	**$77,245**		
Annual ID	**$6,471**		
Annual OM	**$1,545**		
Total Annual costs	**$8,015**		
Heat cost	**$17.36**	$/MMBtu	

Savings **$16,808**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **447584**
Met Tower? **no**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **7.00** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.26	$77.46
Annual OM	**$20,999**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$139,331**	$0.31	**$91.21**
Non-Fuel Costs		$0.33	
Alternative COE:		**$0.65**	
% Community energy		185%	
New Community COE		**$0.91**	

(includes non-fuel and diesel costs)

Savings
$79,193

Alternative Energy Resources

Wood

Installed KW **35**
kW-hr/year **260492**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **329** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,862,846**	per kW-hr	
Annual Capital	**$125,212**	$0.48	
Annual OM	**$115,872**	$0.44	
Fuel cost:	**$49,378**	$0.19	-90
Total Annual Cost	**$290,463**	$1.12	**$29.76**
Non-Fuel Costs		$0.33	
Alternative COE:		**$1.45**	
% Community energy		108%	
New Community COE		**$1.54**	

(includes non-fuel and diesel costs)

Savings
($71,939)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat 40.0%

Other Resources

Sleetmute

Tidal:
Wave:
Coal Bed Methane:
Natural Gas: NO POSITIVE INDICATION OF POTENTIAL
Coal:
Propane:

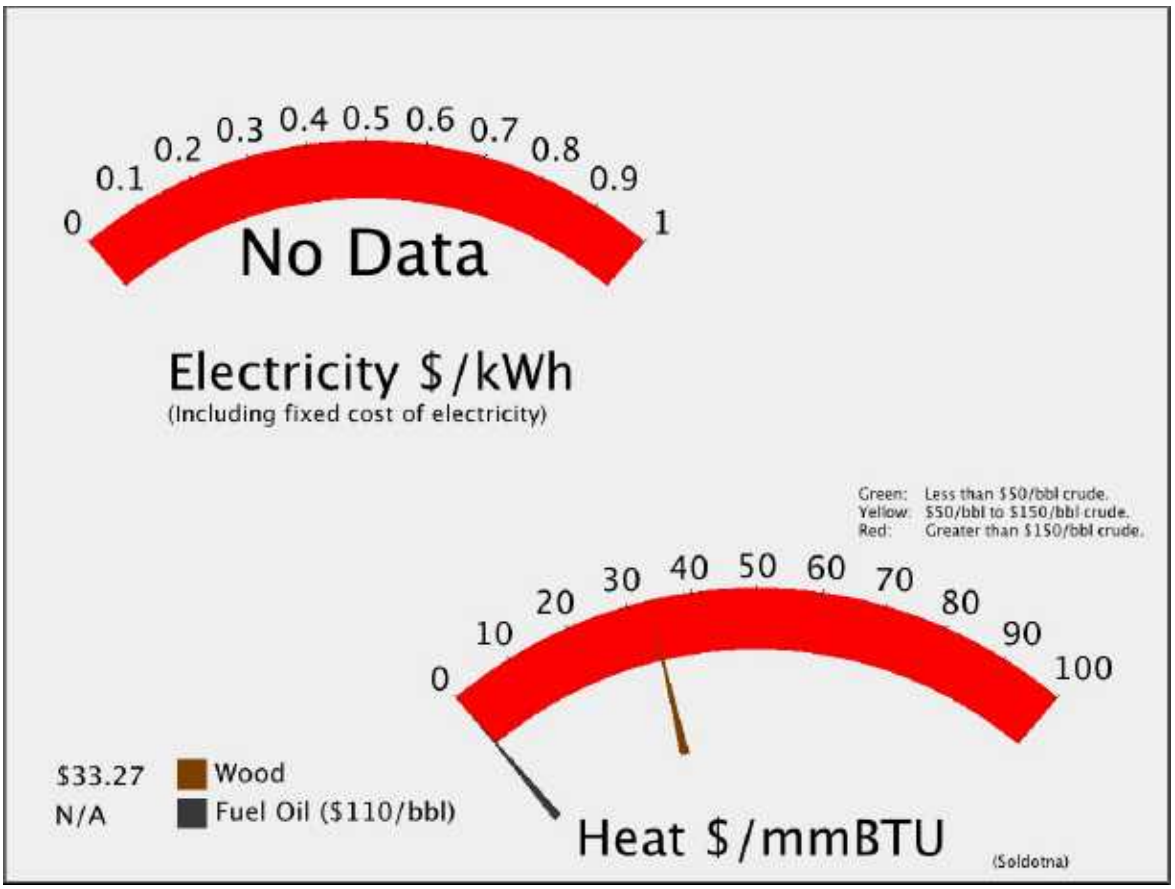
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Soldotna

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	3983
Transportation	Per capita		
Electricity:	Per capita		



Soldotna

Regional Corporation
Cook Inlet Region, Inc.

House 33
Senate : **Q**

POPULATION 3983 LATITUDE: 60d 29m N LONGITUDE: 151d 03m **Kenai Peninsula Boroug**

LOCATION Soldotna is on the Kenai Peninsula, 150 highway miles south of Anchorage, at the junction of the Sterling and Kenai Spur Highways. It lies 10 miles inland from Cook Inlet, and borders the Kenai River.

ECONOMY The area economy is highly diverse. Kenai and Soldotna residents are employed in oil industry services for Cook Inlet oil and natural gas drilling and exploration. Oil refining operations occur north of Kenai in Nikiski. Other important economic sectors include sport, subsistence and commercial fishing, fish processing, government, timber and lumber, agriculture, transportation, construction, services and retail trade. 173 area residents hold commercial fishing permits. It is the site of the Central Peninsula General Hospital, the Kenai Peninsula Community College, the State Troopers' Headquarters, The Kenai National Wildlife Refuge, and the Borough and School District offices.

HISTORY The Peninsula has historically been the home to Kenaitze Indians, and was developed by non-Natives for its rich resources, including fish, timber and oil. Soldotna was named for a nearby stream; it is a Russian word meaning "soldier." Others believe it is derived from an Indian word meaning "stream fork." The first homesteaders were World War II veterans, given a 90-day preference over non-veterans in selecting and filing for property in 1947. That same year, the Sterling Highway right-of-way was constructed from Cooper Landing to Kenai. Soldotna was the site for the bridge crossing the Kenai River. A post office opened in 1949, with stores and a community center shortly thereafter. Soldotna continued to develop because of its strategic location at the Sterling-Kenai Spur Highway junction. In 1957, oil was discovered in the Swanson River region, bringing new growth and development. Soldotna was incorporated as a city in 1960.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Soldotna

Tidal:
Wave:
Coal Bed Methane: VERY GOOD POTENTIAL
Natural Gas: CONFIRMED RESOURCE
Coal: SOME POTENTIAL
Propane:

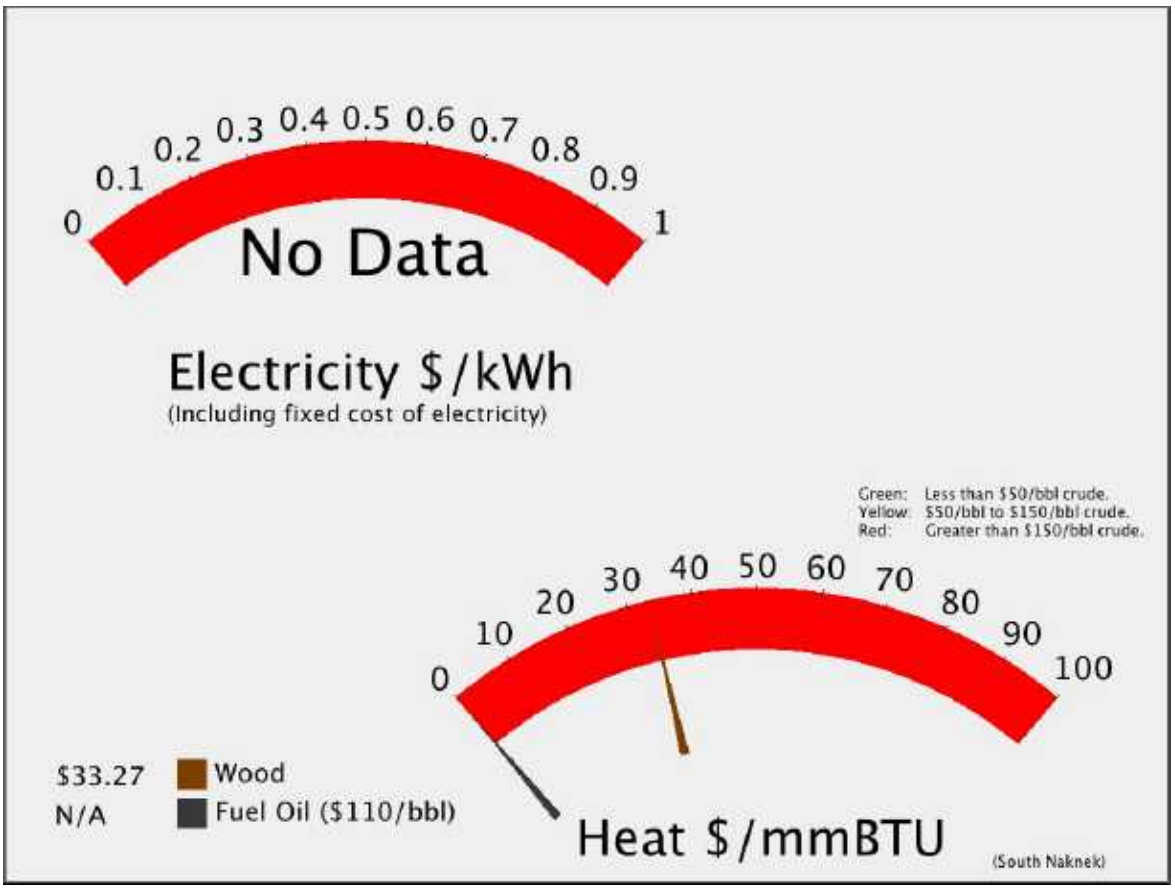
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

South Naknek

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	66
Transportation	Per capita		
Electricity:	Per capita		



South Naknek

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 66 LATITUDE: 58d 41m N LONGITUDE: 157d 00m **Bristol Bay Borough**

LOCATION South Naknek is located on the south bank of the Naknek River on the Alaska Peninsula, 297 miles southwest of Anchorage. It lies just west of the Katmai National Park and Preserve.

ECONOMY Commercial fishing and salmon processing are the mainstays of South Naknek's economy. 43 residents hold commercial fishing permits. Trident Seafoods operates in South Naknek. A second processing facility, owned by Wards Cove Packing, closed in 2002. Most other employment is in public services. A few people trap, and most residents depend on subsistence hunting and fishing. Salmon, trout, caribou, rabbit, porcupine and seal are utilized.

HISTORY This area was first settled over 6,000 years ago, and was historically Sugpiaq Aleut territory. The Sugpiaqs traveled between Katmai and the Naknek River, pursuing seasonal food sources. South Naknek was settled permanently after the turn of the century as a result of salmon cannery development. Some villagers relocated from New and Old Savonoski, near the Valley of Ten Thousand Smokes." This is one of the many villages along the coast where Laplanders were brought in to herd reindeer. The herds were purchased in the 1930s by the BIA for the local Native economy.."

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **419293**
Met Tower? **no**
Homer Data? **yes**
Wind Class **4**
Avg wind speed **7.00** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.28	$82.69
Annual OM	**$19,672**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,004**	$0.33	**$96.44**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

South Naknek

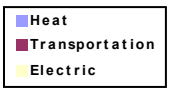
Tidal:
Wave:
Coal Bed Methane:
Natural Gas: Basin has industrial-scale exploration potential
Coal:
Propane:

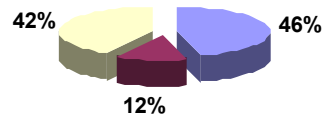
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Stebbins

Energy Used

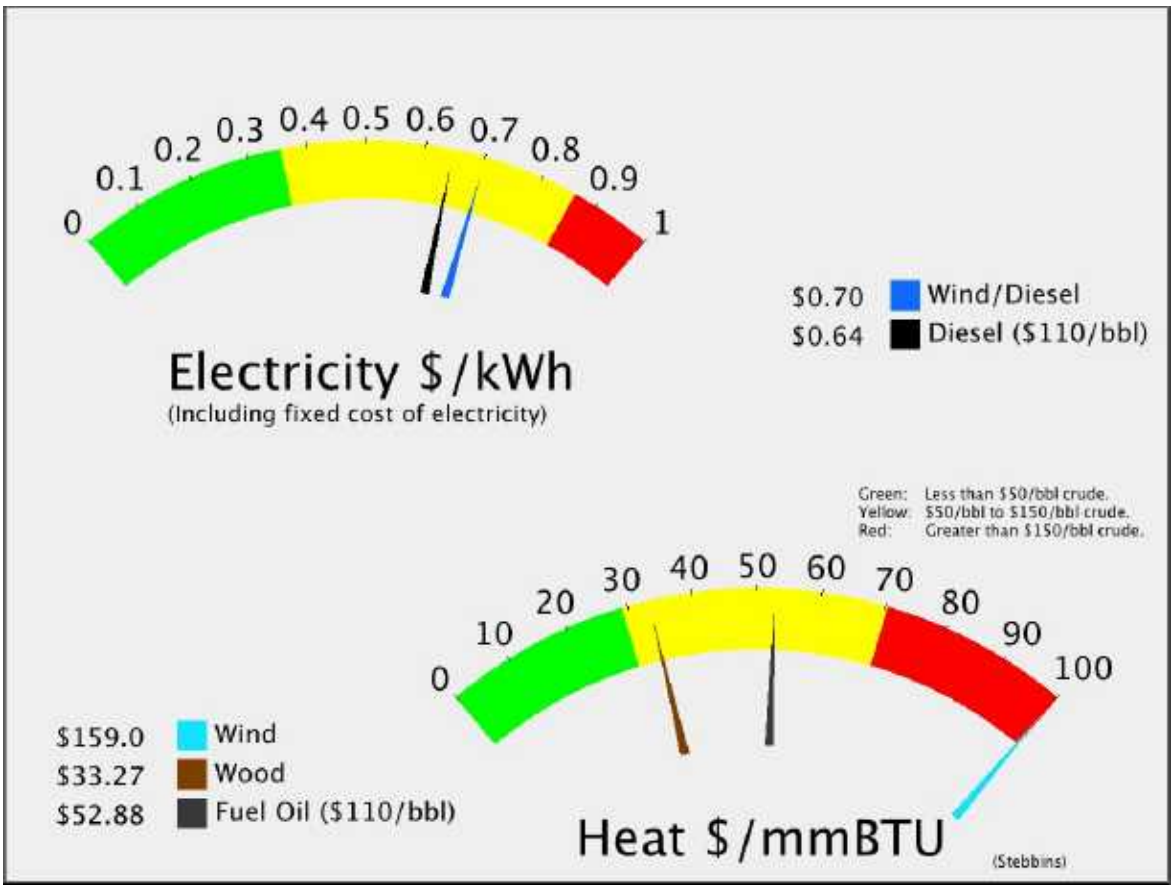




Total: **$3,512** Per capita

Heat	**$1,605**	Per capita
Transportation	**$434**	Per capita
Electricity:	**$1,473**	Per capita

POPULATION: 598



Stebbins

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 598 LATITUDE: 63d 31m N LONGITUDE: 162d 17m **Unorganized**

LOCATION Stebbins is located on the northwest coast of St. Michael Island, on Norton Sound. It lies 8 miles north of St. Michael and 120 miles southeast of Nome.

ECONOMY The Stebbins economy is based on subsistence harvests supplemented by part-time wage earnings. The City and schools provide the only full-time positions. The commercial herring fishery has become increasingly important, including fishing on the lower Yukon. 18 residents hold commercial fishing permits. Residents subsist upon fish, seal, walrus, reindeer and beluga whale. Gardens provide vegetables during the summer months. The Stebbins/St. Michael Reindeer Corral Project was completed in 1993 for a herd on Stuart Island. The reindeer are essentially unmanaged.

HISTORY Redoubt St. Michael was built at nearby St. Michael by the Russian-American Company in 1833. The Eskimo village of Atroik" or "Atowak" was recorded north of here in 1898 by the U.S. Coast and Geodetic Survey. The Yup'ik name for the village is "Tapraq and the name Stebbins was first recorded in 1900. The first U.S. Census occurred in 1950, indicating 80 Yup'ik Eskimos. The City government was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.84** /kw-hr

Current efficiency	**13.49**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$26,861**
Consumption in 200	**101,769**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$349,187**
Average Load	**153**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$492,898**
Estimated peak loa	**306.63**	kW	Total	**$0.65**		**Total Electric**	
Average Sales	**1,343,027**	kW-hours				**$868,945**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**164,239**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.84**		
Wood:	**3%**	$/MMBtu delivered to user	**$53.00**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**19,709**		**$959,695**

Transportation (Estimated)

Estimated Diesel:	**44,441**	gal	Estimated cost	**$5.84**	**Total Transportation** **$259,685**

Energy Total **$2,088,326**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **98,033**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.19	/kw-hr
Estimated Diesel OM	**$26,861**	$0.02	
New fuel cost	**$474,805**	$0.35	
Avg Non-Fuel Costs:	**$376,048**	$0.26	
New cost of electricity	**$0.81** per kW-hr		

Savings **($233,207)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**15,265**	gal	**$89,200**
Stack Heat	**0**	gal	**$0**

Capital cost	**$429,278**		
Annual ID	**$35,959**		
Annual OM	**$8,586**		
Total Annual costs	**$44,545**		
Heat cost	**$26.41**	$/MMBtu	

Savings **$44,655**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1100**

kW-hr/year **2155727**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$6,920,597**		
Annual Capital	**$465,173**	$0.22	$63.22
Annual OM	**$101,139**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$566,312**	$0.26	**$76.97**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		161%	
New Community COE		**$0.70**	

(includes non-fuel and diesel costs)

Savings

$302,634

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	12.9%

Other Resources

Stebbins

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal:

Propane:

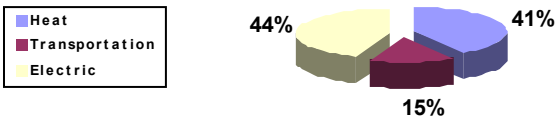
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Stebbins Wind Analysis_AVEC has been submitted by: Akaska Village Electric Cooperative (AVEC) for a Wind Diesel Hybrid project. The total project budget is: $5,750,000 with $103,256 requested in grant funding and $5,435 as matching funds.

Stevens Village

Energy Used



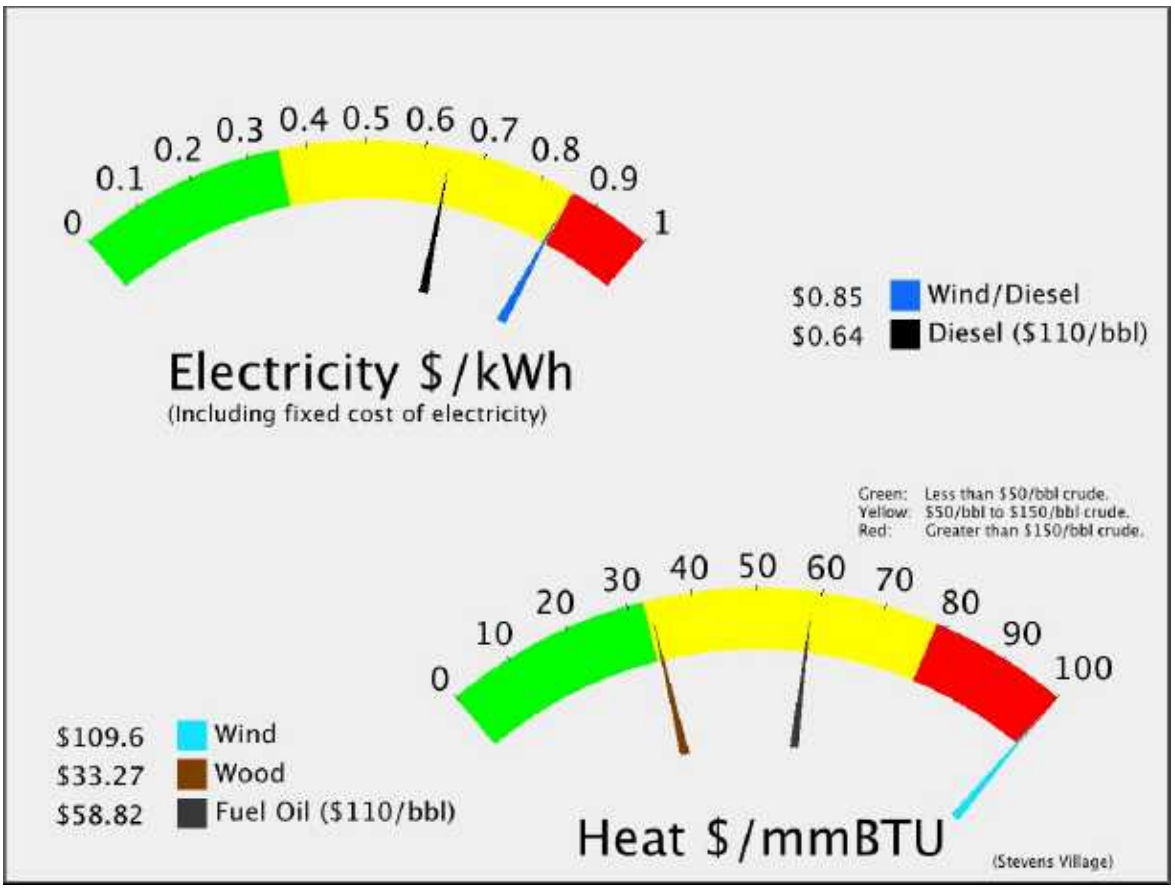
Total: **$3,760** Per capita

Heat **$1,543** Per capita

Transportation **$558** Per capita

Electricity: **$1,659** Per capita

POPULATION: 71



Stevens Village

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 71 LATITUDE: 66d 01m N LONGITUDE: 149d 06m **Unorganized**

LOCATION Stevens Village is located on the north bank of the Yukon River, 17 miles upstream of the Dalton Highway bridge crossing, and 90 air miles northwest of Fairbanks.

ECONOMY Stevens Village is heavily dependent upon subsistence activities. Salmon, whitefish, moose, bear, waterfowl and small game are the primary sources of meat. Gardening and berry-picking are also popular. There is some seasonal and part-time employment at the school, clinic, village council, stores, BLM fire-fighting or construction work. Three residents hold commercial fishing permits.

HISTORY The original settlement, called Dinyea (meaning "mouth of the canyon"), was founded by three Athabascan Indian brothers from the Koyukon region: Old Jacob, Gochonayeeya, and Old Steven. The village was named for Old Steven when he was elected Chief in 1902. During the gold rush, residents cut wood for mining operations and to fuel steamboats plying the Yukon River. A trading post was established in the early 1900s. The first school opened in 1907. A post office began operations in 1936, and scheduled air service was initiated in 1939.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**8.07**	kW-hr/gal	Fuel COE	**$0.60**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.50**
Consumption in 200	**18,564**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$3,377**
Average Load	**19**	kW	NF COE:	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$3,175**
Estimated peak loa	**38.547**	kW	Total	**$0.64**		Current Fuel Costs	**$102,102**
Average Sales	**168,834**	kW-hours				**Total Electric**	**$108,653**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**16,857**	gal	
Fuel Oil:	**34%**	Estimated heating fuel cost/gallon	**$6.50**		
Wood:	**66%**	$/MMBtu delivered to user	**$58.96**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**2,023**		**$109,568**

Transportation (Estimated)

Estimated Diesel:	**6,090**	gal	Estimated cost	**$6.50**	**Total Transportation** **$39,584**

Energy Total **$257,805**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **10,700**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$3,377**	$0.02	
New fuel cost	**$58,848**	$0.35	
Avg Non-Fuel Costs:	**$6,551**	$0.02	
New cost of electricity	**$0.44** per kW-hr		

Savings **$42,626**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**2,785**	gal	**$18,100**
Stack Heat	**0**	gal	**$0**

Capital cost	**$53,965**		
Annual ID	**$4,520**		
Annual OM	**$1,079**		
Total Annual costs	**$5,600**		
Heat cost	**$18.20**	$/MMBtu	

Savings **$12,500**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **410380**

Met Tower? **no**

Homer Data? **yes**

Wind Class **2**

Avg wind speed **5.80** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$84.49
Annual OM	**$19,254**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,586**	$0.34	**$98.23**
Non-Fuel Costs		$0.04	
Alternative COE:		**$0.37**	
% Community energy		243%	
New Community COE (includes non-fuel and diesel costs)		**$0.85**	

Savings

($28,932)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	126.1%

Other Resources

Stevens Village

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

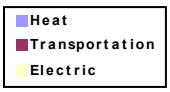
Propane:

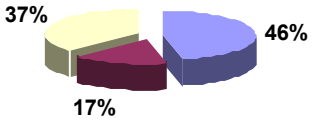
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Stony River

Energy Used





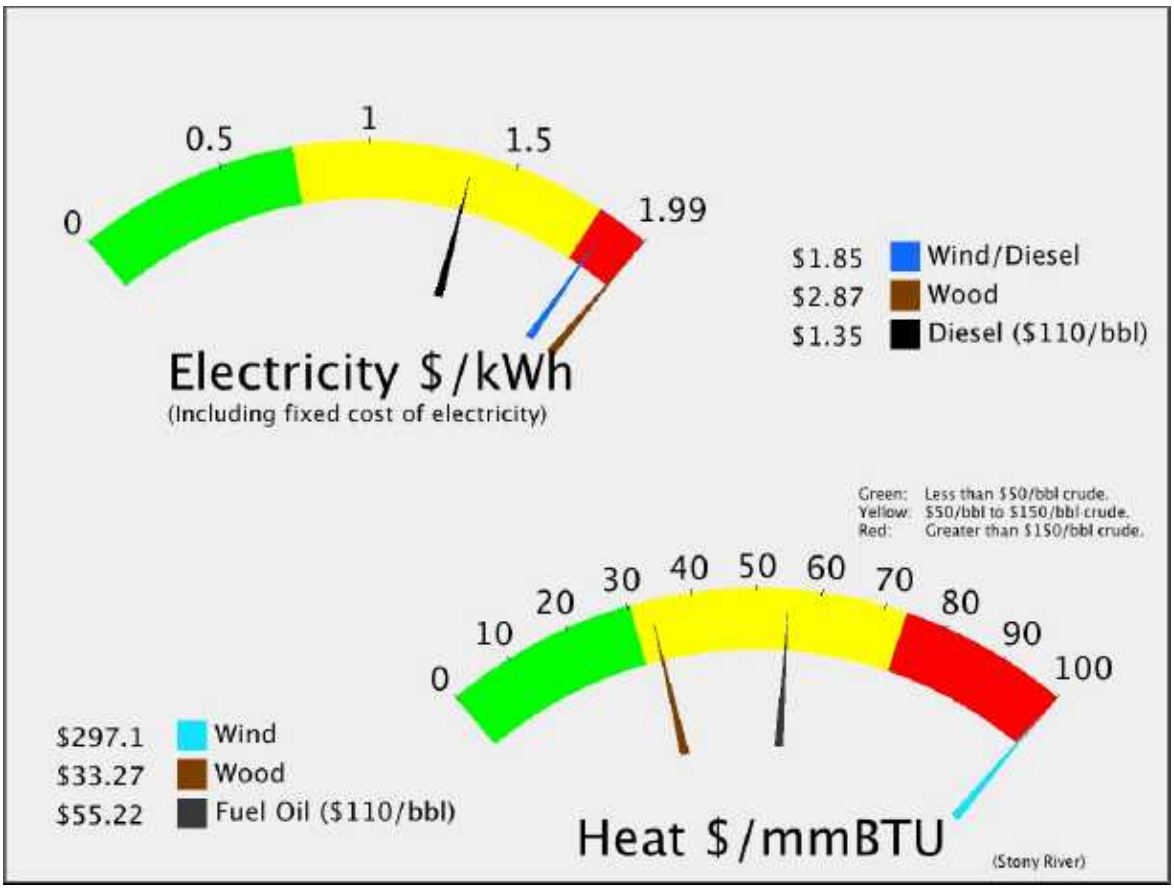
Total: **$8,376** Per capita

Heat **$3,897** Per capita

Transportation **$1,394** Per capita

Electricity: **$3,085** Per capita

POPULATION: 42



Stony River

Regional Corporation
Calista Corporation

House 6
Senate : **C**

POPULATION 42 LATITUDE: 61d 47m N LONGITUDE: 156d 35m **Unorganized**

LOCATION Stony River is located on the north bank of the Kuskokwim River, 2 miles north of its junction with the Stony River. The village is 100 miles east of Aniak, 185 miles northeast of Bethel, and 225 miles west of Anchorage.

ECONOMY There are few income opportunities in Stony River; BLM firefighting can provide seasonal income. Salmon, moose, caribou, bear, porcupine, waterfowl and berries are harvested.

HISTORY Also known as Moose Village and Moose Creek, it began as a trading post and riverboat landing to supply mining operations to the north. The first trading post opened in 1930, and a post office was established in 1935. Area Natives used these facilities, but it wasn't until the early 1960s that families established year-round residency and a school was constructed. Approximately 75 people lived in the village in the 1960s, 70s and 80s.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.10** /kw-hr

Current efficiency	**8.74**	kW-hr/gal	Fuel COE	**$0.68**	/kw-hr	Estimated Diesel OM	**$2,318**
Consumption in 200	**15,522**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$75,809**
Average Load	**13**	kW	NF COE:	**$0.65**	/kw-hr	Current Fuel Costs	**$79,192**
Estimated peak loa	**26.463**	kW	Total	**$1.36**		**Total Electric**	
Average Sales	**115,910**	kW-hours				**$157,319**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**26,825**	gal	
Fuel Oil:	**13%**	Estimated heating fuel cost/gallon	**$6.10**		
Wood:	**87%**	$/MMBtu delivered to user	**$55.34**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**3,219**		**$163,685**

Transportation (Estimated)

Estimated Diesel:	**9,596**	gal	Estimated cost	**$6.10**	**Total Transportation**
					$58,555

Energy Total **$379,559**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **9,695**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.01	/kw-hr
Estimated Diesel OM	**$2,318**	$0.02	
New fuel cost	**$49,463**	$0.43	
Avg Non-Fuel Costs:	**$78,127**	$0.65	
New cost of electricity	**$1.04** per kW-hr		

Savings

$29,100

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**2,328**	gal	**$14,207**
Stack Heat	**0**	gal	**$0**

Capital cost	**$37,049**		
Annual ID	**$3,103**		
Annual OM	**$741**		
Total Annual costs	**$3,844**		
Heat cost	**$14.94**	$/MMBtu	

Savings

$10,363

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **403487**
Met Tower? **no**
Homer Data? **yes**
Wind Class **2**
Avg wind speed **5.80** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.29	$85.93
Annual OM	**$18,930**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,262**	$0.34	**$99.68**
Non-Fuel Costs		$0.67	
Alternative COE:		**$1.01**	
% Community energy		348%	
New Community COE		**$1.86**	

(includes non-fuel and diesel costs)

Savings
$20,057

Alternative Energy Resources

Wood

Installed KW **18**
kW-hr/year **135468**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **171** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,769,416**		
Annual Capital	**$118,933**	$0.88	
Annual OM	**$110,929**	$0.82	
Fuel cost:	**$25,679**	$0.19	-90
Total Annual Cost	**$255,540**	$1.89	**$29.76**
Non-Fuel Costs		$0.67	
Alternative COE:		**$2.56**	
% Community energy		117%	
New Community COE		**$2.88**	

(includes non-fuel and diesel costs)

Savings
($98,221)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	79.2%

Other Resources

Stony River

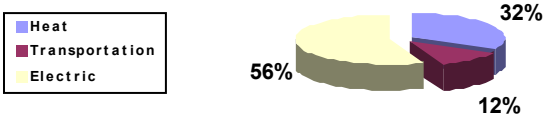
Tidal:
Wave:
Coal Bed Methane:
Natural Gas: NO POSITIVE INDICATION OF POTENTIAL
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Takotna

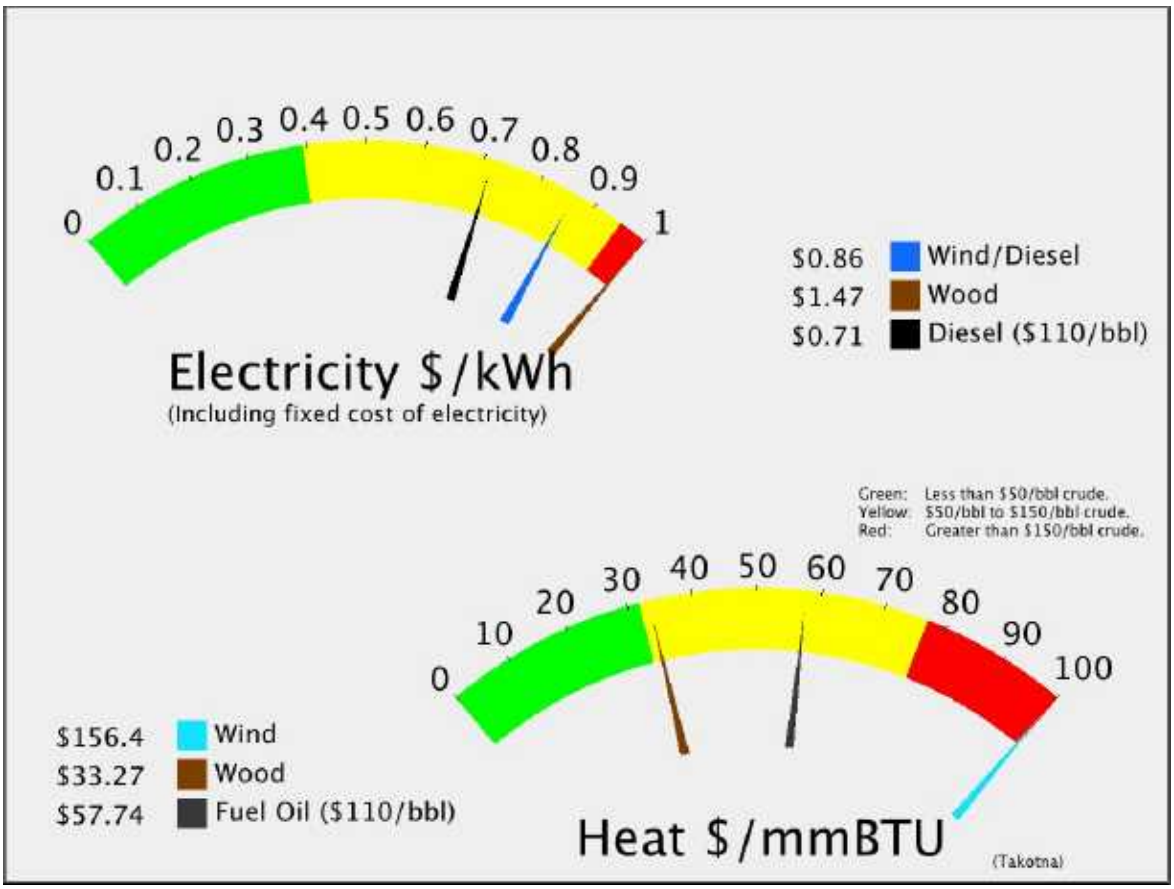
Energy Used



Total: **$5,462** Per capita

Heat	**$1,772**	Per capita
Transportation	**$640**	Per capita
Electricity:	**$3,049**	Per capita

POPULATION: 46



Takotna

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 46 LATITUDE: 62d 59m N LONGITUDE: 156d 04m **Unorganized**

LOCATION Takotna is located in Interior Alaska on the north bank of the Takotna River in a broad scenic river valley, 17 air miles west of McGrath in the Kilbuck-Kuskokwim Mountains.

ECONOMY Takotna has a combined cash and subsistence economy. Employment is through the school district, post office, clinic, local businesses and seasonal construction. Most residents are involved in subsistence activities. Moose and salmon are the primary meat sources. Many residents garden during the summer.

HISTORY Takotna has been known as Berry Landing, Portage City, Takotna City, Takotna Station, and Tocotna. In 1908, merchants in Bethel hired Arthur Berry to bring supplies up the Takotna River. The village was founded at the farthest point on the river Berry's small sternwheeler was able to reach. By 1912, the community had several stores which supplied miners. Gold discoveries in the upper Innoko Region enabled the town to prosper. By 1919, there were several commercial companies, roadhouses, a post office, and about 50 houses. In 1921, the Alaska Road Commission improved the Takotna-Ophir road, and an airfield was constructed. In 1923, a radio station began broadcasting in Takotna, and the town had its own newspaper, The Kusko Times. Low waters at times precluded the arrival of steamboats, so the Takotna-Sterling Landing road was constructed to the Kuskokwim River in 1930. During the 30s, however, McGrath became the more dominant supply center, and the ACC store closed. In 1949, construction was begun on nearby Tatalina Air Force Station. It was the site of a White Alice communications system, but operations were phased out during the 1980s.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**10.22**	kW-hr/gal	Fuel COE	**$0.50**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.38**
Consumption in 200	**19,915**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$4,285**
Average Load	**24**	kW	NF COE:	**$0.19**	/kw-hr	Other Non-Fuel Costs:	**$41,624**
Estimated peak loa	**48.915**	kW	Total	**$0.71**		Current Fuel Costs	**$107,163**
Average Sales	**214,248**	kW-hours				**Total Electric**	**$153,072**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**12,775**	gal	
Fuel Oil:	**63%**	Estimated heating fuel cost/gallon	**$6.38**		
Wood:	**37%**	$/MMBtu delivered to user	**$57.88**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**1,533**		**$81,515**

Transportation (Estimated)

Estimated Diesel:	**4,615**	gal	Estimated cost	**$6.38**	**Total Transportation** **$29,449**

Energy Total **$264,036**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**			
		Annual Capital cost	**$0**	$0.00	/kw-hr	
Status		Estimated Diesel OM	**$4,285**	$0.02		
Acheivable efficiency	**14** kW-	New fuel cost	**$78,262**	$0.37		**Savings**
New Fuel use	**14,544**	Avg Non-Fuel Costs:	**$45,909**	$0.19		**$28,901**
		New cost of electricity		**$0.60**	per kW-hr	

Diesel Engine Heat Recovery

Heat Recovery System Installed?			Capital cost	**$68,481**		
Is it working now?			Annual ID	**$5,736**		
BLDGs connected and working:			Annual OM	**$1,370**		
		Value	Total Annual costs	**$7,106**		**Savings**
Water Jacket	**2,987** gal	**$19,062**				
Stack Heat	**0** gal	**$0**	Heat cost	**$21.53**	$/MMBtu	**$11,956**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**
kW-hr/year	**433880**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**7**
Avg wind speed	**8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.27	$79.91
Annual OM	**$20,356**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,688**	$0.32	**$93.66**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.53**	
% Community energy		203%	
New Community COE		**$0.86**	

(includes non-fuel and diesel costs)

Savings

$14,384

Alternative Energy Resources

Wood

Installed KW	**29**
kW-hr/year	**216154**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**273** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,724,422**	per kW-hr	
Annual Capital	**$115,908**	$0.54	
Annual OM	**$114,119**	$0.53	
Fuel cost:	**$40,973**	$0.19	-90
Total Annual Cost	**$271,001**	$1.25	**$29.76**
Non-Fuel Costs		$0.21	
Alternative COE:		**$1.47**	
% Community energy		101%	
New Community COE		**$1.48**	

(includes non-fuel and diesel costs)

Savings

($117,929)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr
Cords/day:	**1.8**
Hours per year	**6000**
Wood (cordwood or willows)	**$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	166.3%

Other Resources

Takotna

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

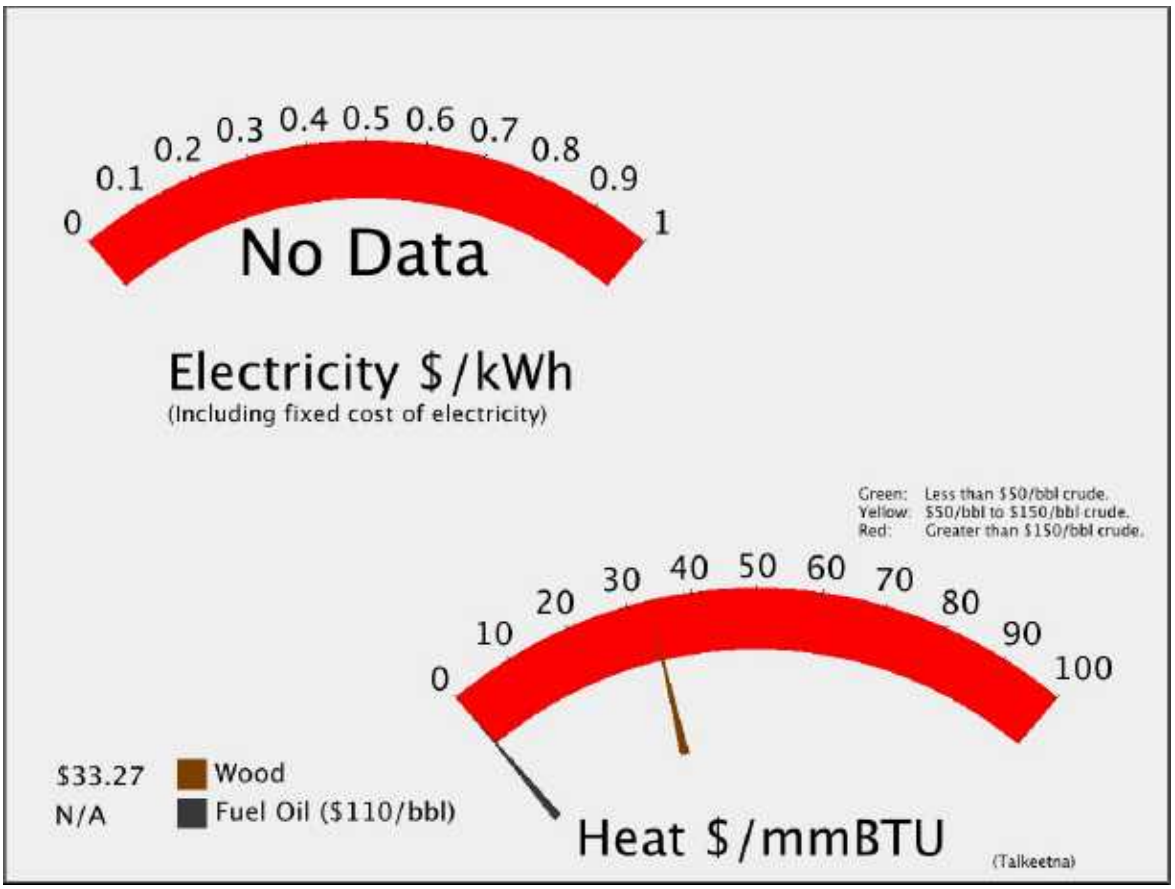
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Talkeetna

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	848
Transportation	Per capita		
Electricity:	Per capita		



Talkeetna

Regional Corporation
Cook Inlet Region, Inc.

House 15
Senate : **H**

POPULATION 848 LATITUDE: 62d 19m N LONGITUDE: 150d 06m **Matanuska-Susitna Bor**

LOCATION Located at the junction of the Talkeetna and Susitna Rivers, it lies 115 miles north of Anchorage at mile 226.7 of the Alaska Railroad. The paved Talkeetna Spur Road runs 14 miles east off the George Parks Highway, at Milepost 98.7.

ECONOMY As the take-off point for fishing and flightseeing trips, and a staging area for Mount McKinley climbing expeditions, Talkeetna provides air taxis, helicopters, outfitters, and related services. Numerous air taxis provide transport to Kahiltna Glacier Base Camp. All climbers must register for Mount McKinley and Mount Foraker (Talkeetna Ranger Station phone is 907-733-2231.) Ten residents hold commercial fishing permits.

HISTORY The Talkeetna and Chulitna Rivers join the Susitna River at Talkeetna, a Dena'ina (Tanaina) Indian word meaning "river of plenty." Talkeetna was settled as a mining town and Alaska Commercial Co. trading post in 1896. A gold rush to the Susitna River brought prospectors to the area, and by 1910, Talkeetna was a riverboat steamer station, supplying miners and trappers in the Cache Creek, Iron Creek, and Broad Creek districts. In 1915, Talkeetna was chosen as the headquarters for the Alaska Engineering Commission, who built the Alaska Railroad, and the community population peaked near 1,000. World War I and completion of the railroad in 1919 dramatically decreased the population. Talkeetna has since developed as an aviation and supply base for Mount McKinley expeditions. Several of its old log buildings are now historical landmarks, and Talkeetna was placed on the National Register of Historic Places in April 1993. State land disposals and homestead programs helped the community grow.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Talkeetna

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

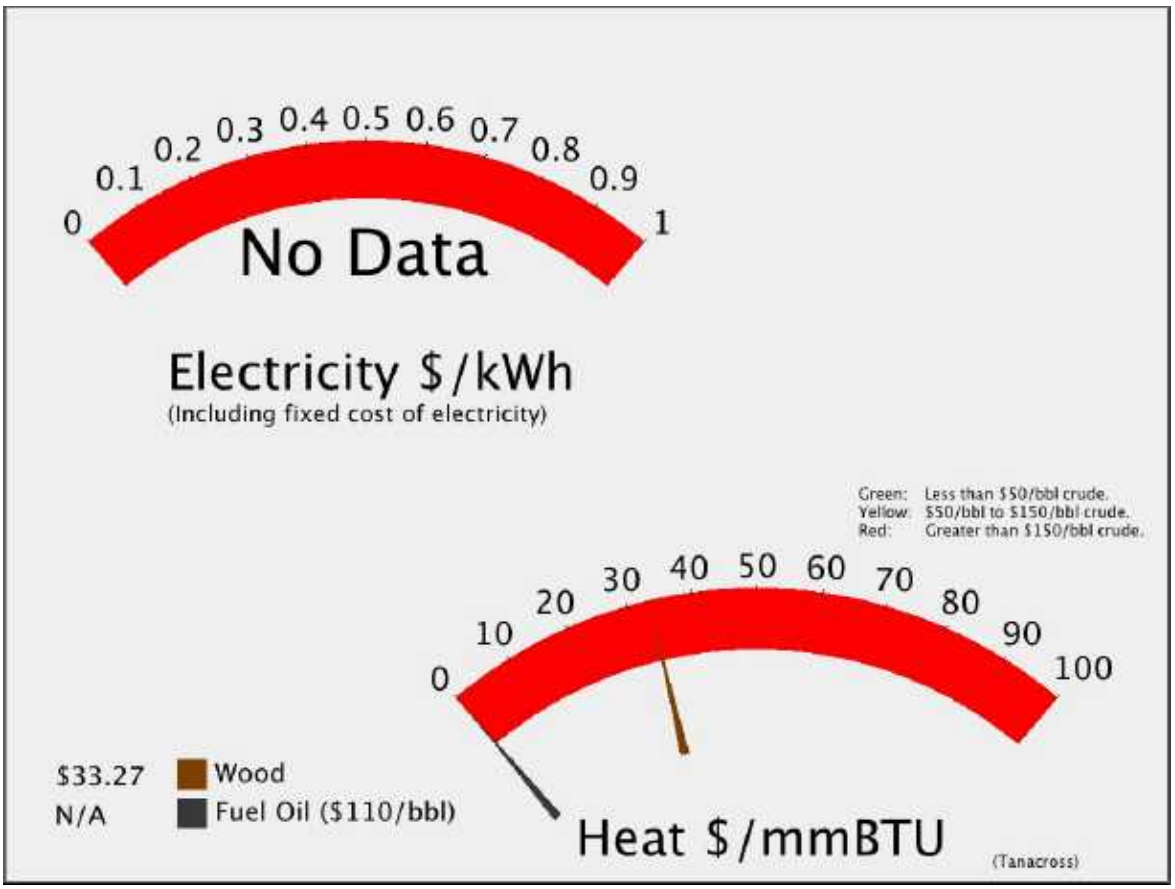
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Tanacross

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	173
Transportation	Per capita		
Electricity:	Per capita		



Tanacross

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 173 LATITUDE: 63d 23m N LONGITUDE: 143d 21m **Unorganized**

LOCATION Tanacross is located on the south bank of the Tanana River, 12 miles northwest of Tok, at MP 1324 of the Alaska Highway.

ECONOMY Many residents are able to work during the summer as emergency fire fighters for the BLM. Some people engage in trapping or in making Native handicrafts to sell. Nearly every family depends on subsistence activities for food. Whitefish, moose, porcupine, rabbit, ptarmigan, ducks and geese are utilized. Caribou may be hunted by lottery permit. Some travel to Copper River for salmon each summer. Employment at the washeteria and clinic is provided by the tribe. They have formed two profit making corporations, Orh Htaad Global Services and Dihthaad Construction, to employ members of their tribe.

HISTORY Residents are Tanah, or Tinneh, Athabascan Indians. Most villagers relocated from Mansfield Village, Kechumstuk and Last Tetlin in 1912 when Bishop Rowe established St. Timothy's Episcopal Mission. The village was originally located on the north side of the Tanana River, and was called "Tanana Crossing." It is located where the Eagle Trail crossed the Tanana River. A trading post opened near the mission in 1912, and the St. Timothy's post office opened in 1920. More Natives moved from Mansfield when a formal school opened in 1932, although classes had been held at the mission. The name was eventually shortened to Tanacross. In the mid-1930s, an airfield was built across the river from the village. In 1941, the village gave the military permission to use its airfield as an emergency deployment post during World War II. The airfield was paved in 1942, and temporary camps were established. Thousands of troops were deployed through Tanacross airfield during the War. People of the village served as volunteer scouts and backup support for the army. After the war, the airfield was closed. In 1972, the village relocated from the north bank of the Tanana River to the south bank, due to water contamination. In 1979, the old village site burned when a grass fire spread out of control.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **415461**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**		
Annual Capital	**$118,332**	$0.28	$83.45
Annual OM	**$19,492**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,824**	$0.33	**$97.20**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **2000**
kW-hr/year **4900000**
Site **Yerrick Creek**
Study plan effort **construction**
Plant Factor **28** %
Penetration

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$14,500,000**		
Annual Capital	**$563,550**	$0.12	$33.70
Annual OM	**$100,000**	$0.02	$5.98
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$663,550**	$0.14	**$39.68**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Tanacross

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

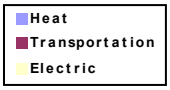
Renewable Fund Project List:

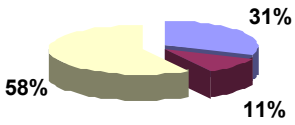
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Tanacross Biomass Feasibility has been submitted by: Tanacross Tribal Council for a Biomass project. The total project budget is: $38,843 with $29,643 requested in grant funding and $9,200 as matching funds.

Tanana

Energy Used





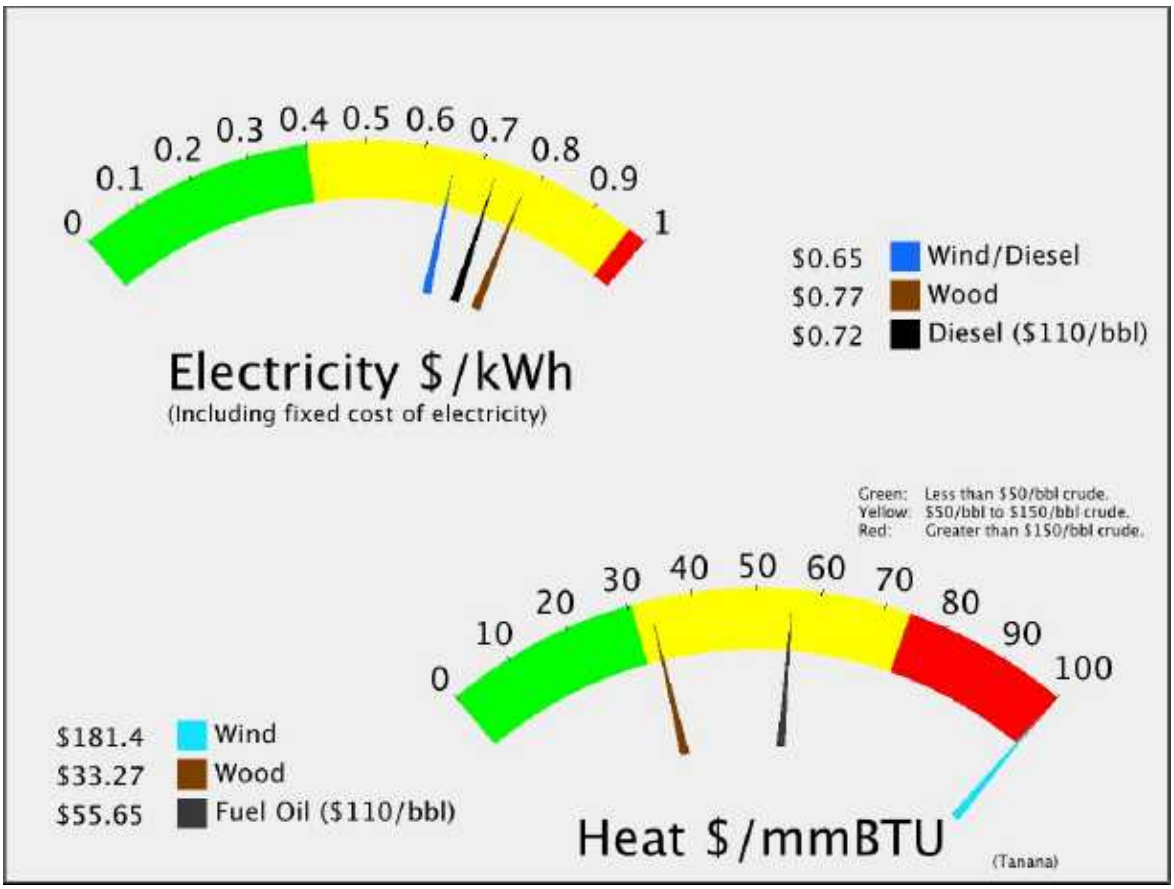
Total: **$5,309** Per capita

Heat **$1,632** Per capita

Transportation **$590** Per capita

Electricity: **$3,087** Per capita

POPULATION: 258



Tanana

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 258 LATITUDE: 65d 10m N LONGITUDE: 152d 04m **Unorganized**

LOCATION Tanana is located in Interior Alaska about two miles west of the junction of the Tanana and Yukon Rivers, 130 air miles west of Fairbanks.

ECONOMY Two-thirds of the full-time jobs in Tanana are with the city, school district or native council. There are a number of positions with local businesses and services. BLM firefighting, trapping, construction work and commercial fishing are important seasonal cash sources. 17 residents hold commercial fishing permits. Subsistence foods include salmon, whitefish, moose, bear, ptarmigan, waterfowl and berries.

HISTORY Due to its location at the confluence of the Tanana and Yukon Rivers, Tanana was a traditional trading settlement for Koyukon and Tanana Athabascans long before European contact. In 1880, Harper's Station, an Alaska Commercial Company Trading Post, was established 13 miles downriver from the present site. In 1881, Church of England missionaries from Canada built a mission 8 miles downriver. Between 1887 and 1900, an elaborate school and hospital complex, the St. James Mission, was constructed. It became an important source of services and social change along both rivers. In 1898, Fort Gibbon was founded at Tanana to maintain the telegraph line between Fairbanks and Nome. A post office was also established, and several other trading posts developed around the turn of the century. Gold seekers left the Yukon after 1906. Ft. Gibbon was abandoned in 1923. The St. James Hospital was transferred to the BIA administration in the 1920s. During World War II, an air base was established near Tanana as a refueling stop for the lend-lease aircraft program. New hospital facilities were built in 1949; and during the 1950s, hospital administration was transferred to the U.S. Public Health Service. The City of Tanana was incorporated in 1961. The hospital complex was a major employer during this period, employing 54 persons with a payroll of $1.6 million, but was closed in 1982. During 1982, Tanana incorporated as a First Class City in order to assume control of the local school system. The hospital facilities were remodeled for use as a health clinic, counseling center, tribal office, and Regional Elders's Residence.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.15** /kw-hr

Current efficiency	**13.41**	kW-hr/gal	Fuel COE	**$0.40**	/kw-hr	Estimated Diesel OM	**$24,030**
Consumption in 200	**93,988**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$365,086**
Average Load	**137**	kW	NF COE:	**$0.30**	/kw-hr	Current Fuel Costs	**$483,963**
Estimated peak loa	**274.31**	kW	Total	**$0.73**		**Total Electric**	
Average Sales	**1,201,487**	kW-hours				**$873,079**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**68,484**	gal	
Fuel Oil:	**41%**	Estimated heating fuel cost/gallon	**$6.15**		
Wood:	**59%**	$/MMBtu delivered to user	**$55.77**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**8,218**		**$421,125**

Transportation (Estimated)

Estimated Diesel:	**24,742**	gal	Estimated cost	**$6.15**	**Total Transportation**
					$152,141

Energy Total **$1,446,344**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **90,016**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.01	/kw-hr
Estimated Diesel OM	**$24,030**	$0.02	
New fuel cost	**$463,511**	$0.39	
Avg Non-Fuel Costs:	**$389,116**	$0.30	
New cost of electricity	**$0.70** per kW-hr		

Savings

$12,076

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**14,098**	gal	**$86,693**
Stack Heat	**0**	gal	**$0**

Capital cost	**$384,037**		
Annual ID	**$32,169**		
Annual OM	**$7,681**		
Total Annual costs	**$39,850**		
Heat cost	**$25.58**	$/MMBtu	

Savings

$46,842

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **400**
kW-hr/year **830746**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$3,071,563**	per kW-hr	
Annual Capital	**$206,457**	$0.25	$72.82
Annual OM	**$38,976**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$245,433**	$0.30	**$86.56**
Non-Fuel Costs		$0.32	
Alternative COE:		**$0.62**	
% Community energy		69%	
New Community COE (includes non-fuel and diesel costs)		**$0.64**	

Savings
$105,808

Alternative Energy Resources

Wood

Installed KW **164**
kW-hr/year **1219094**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **1541** Cd/Y
Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,425,756**	per kW-hr	
Annual Capital	**$163,049**	$0.13	
Annual OM	**$153,774**	$0.13	
Fuel cost:	**$231,086**	$0.19	-90
Total Annual Cost	**$547,908**	$0.45	**$29.76**
Non-Fuel Costs		$0.32	
Alternative COE:		**$0.77**	
% Community energy		101%	
New Community COE (includes non-fuel and diesel costs)		**$0.78**	

Savings
$325,170

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	31.0%

Other Resources

Tanana

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

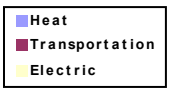
For detailed information, consult the AEA web site. akenergyauthority.org

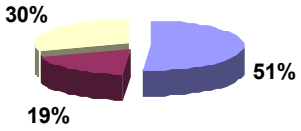
A project titled: Tanana Alternative Energy Assessment _Tanana Power has been submitted by: Tanana Power Company for a Other project. The total project budget is: $393,298 with $303,060 requested in grant funding and $90,238 as matching funds.

A project titled: Tanana Biomass Feasibility has been submitted by: Tanana Tribal Council for a Biomass project. The total project budget is: $39,868 with $30,668 requested in grant funding and $9,200 as matching funds.

Tatitlek

Energy Used





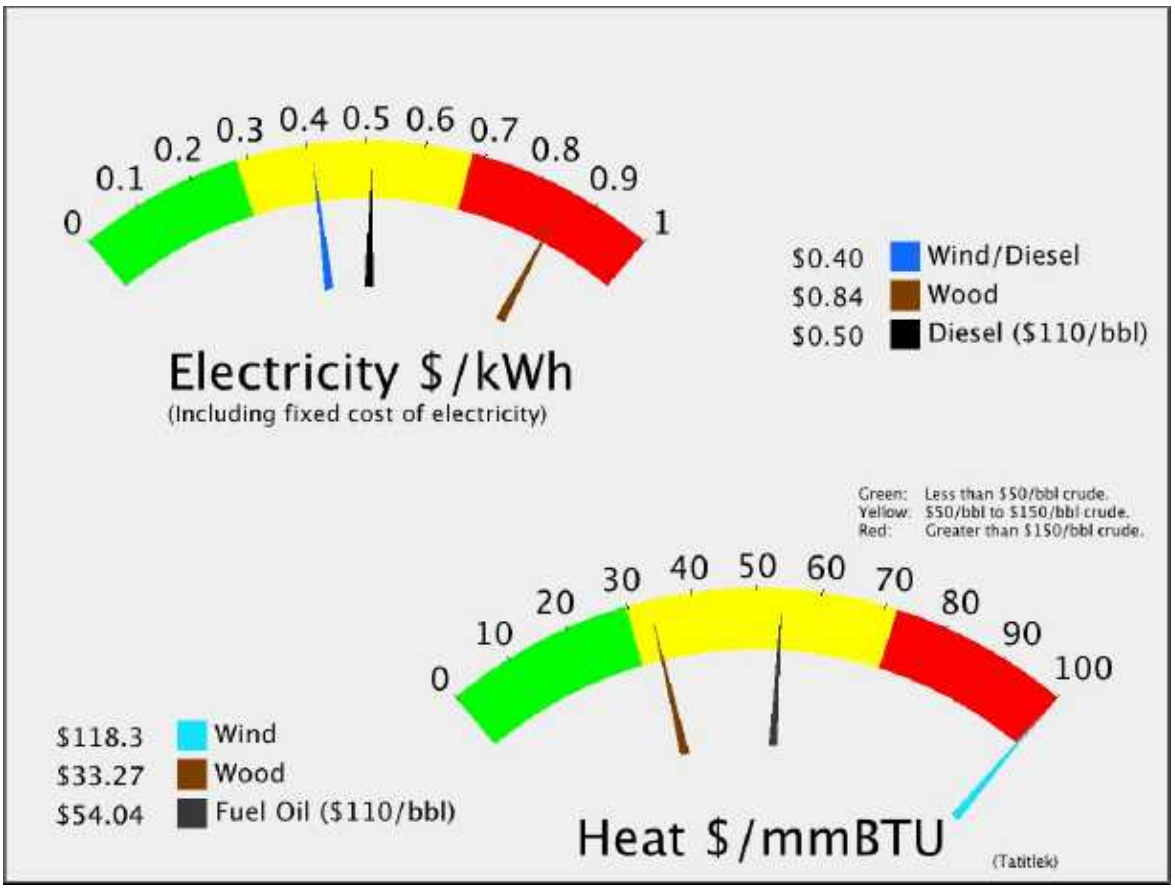
Total: **$6,147** Per capita

Heat **$3,152** Per capita

Transportation **$1,146** Per capita

Electricity: **$1,850** Per capita

POPULATION: 113



Tatitlek

Regional Corporation
Chugach Alaska Corporation

House 5
Senate : **C**

POPULATION 113 LATITUDE: 60d 52m N LONGITUDE: 146d 41m **Unorganized**

LOCATION Tatitlek is located on the northeast shore of Tatitlek Narrows, on the Alaska Mainland in Prince William Sound. It lies southwest of Valdez by sea near Bligh Island, and 30 air miles northwest of Cordova.

ECONOMY Fish processing and oyster farming provide some employment in Tatitlek. Three residents hold commercial fishing permits. Subsistence activities provide the majority of food items. A coho salmon hatchery at Boulder Bay is nearing completion for subsistence use. A fish and game processing facility is under construction. A small community store has recently opened.

HISTORY It is an Alutiiq village first reported in the 1880 U.S. Census as Tatikhlek with a population of 73. The present spelling was published in 1910 by the U.S. Geological Survey, who wrote that the village originally stood at the head of Gladhaugh Bay, but was moved to its present site in the shadow of Copper Mountain around 1900. A post office was established in 1946. Many residents of Chenega moved to Tatitlek following its destruction by tsunami after the 1964 Good Friday earthquake. The dominant feature in the village is the blue-domed Russian Orthodox Church.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.00**	kW-hr/gal	Fuel COE	**$0.46**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.97**
Consumption in 200	**36,906**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$7,947**
Average Load	**45**	kW	NF COE:	**$0.03**	/kw-hr	Other Non-Fuel Costs:	**$10,932**
Estimated peak loa	**90.721**	kW	Total	**$0.51**		Current Fuel Costs	**$183,497**
Average Sales	**397,356**	kW-hours				**Total Electric**	**$202,376**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**59,635**	gal	
Fuel Oil:	**95%**	Estimated heating fuel cost/gallon	**$5.97**		
Wood:	**0%**	$/MMBtu delivered to user	**$54.17**		**Total Heating Oil**
Electricity:	**5.1%**	Community heat needs in MMBtu	**7,156**		**$356,139**

Transportation (Estimated)

Estimated Diesel:	**21,680**	gal	Estimated cost	**$5.97**	**Total Transportation** **$129,473**

Energy Total **$687,988**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$100,000**				
Powerhouse Upgrade		Annual Capital cost	**$8,377**	$0.02	/kw-hr		
Status	**Pending**	Estimated Diesel OM	**$7,947**	$0.02			
Acheivable efficiency	**14** kW-	New fuel cost	**$157,333**	$0.40		**Savings**	
New Fuel use	**31,644**	Avg Non-Fuel Costs:	**$18,879**	$0.03		**$17,787**	
		New cost of electricity	**$0.42** per kW-hr				

Diesel Engine Heat Recovery

Heat Recovery System Installed?	**?**	Capital cost	**$127,009**				
Is it working now?		Annual ID	**$10,639**				
BLDGs connected and working:		Annual OM	**$2,540**				
	Value	Total Annual costs	**$13,179**			**Savings**	
Water Jacket	**5,536** gal **$33,060**	Heat cost	**$21.55**	$/MMBtu		**$19,881**	
Stack Heat	**0** gal **$0**						

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **382279**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$90.70
Annual OM	**$17,935**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,267**	$0.36	**$104.44**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.40**	
% Community energy		96%	
New Community COE		**$0.39**	

(includes non-fuel and diesel costs)

Savings
$47,902

Alternative Energy Resources

Wood

Installed KW **62**
kW-hr/year **462981**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **585** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,593,675**	per kW-hr	
Annual Capital	**$107,120**	$0.23	
Annual OM	**$123,878**	$0.27	
Fuel cost:	**$87,761**	$0.19	-90
Total Annual Cost	**$318,759**	$0.69	**$29.76**
Non-Fuel Costs		$0.05	
Alternative COE:		**$0.74**	
% Community energy		117%	
New Community COE		**$0.85**	

(includes non-fuel and diesel costs)

Savings
($116,383)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat 35.6%

Other Resources

Tatitlek

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

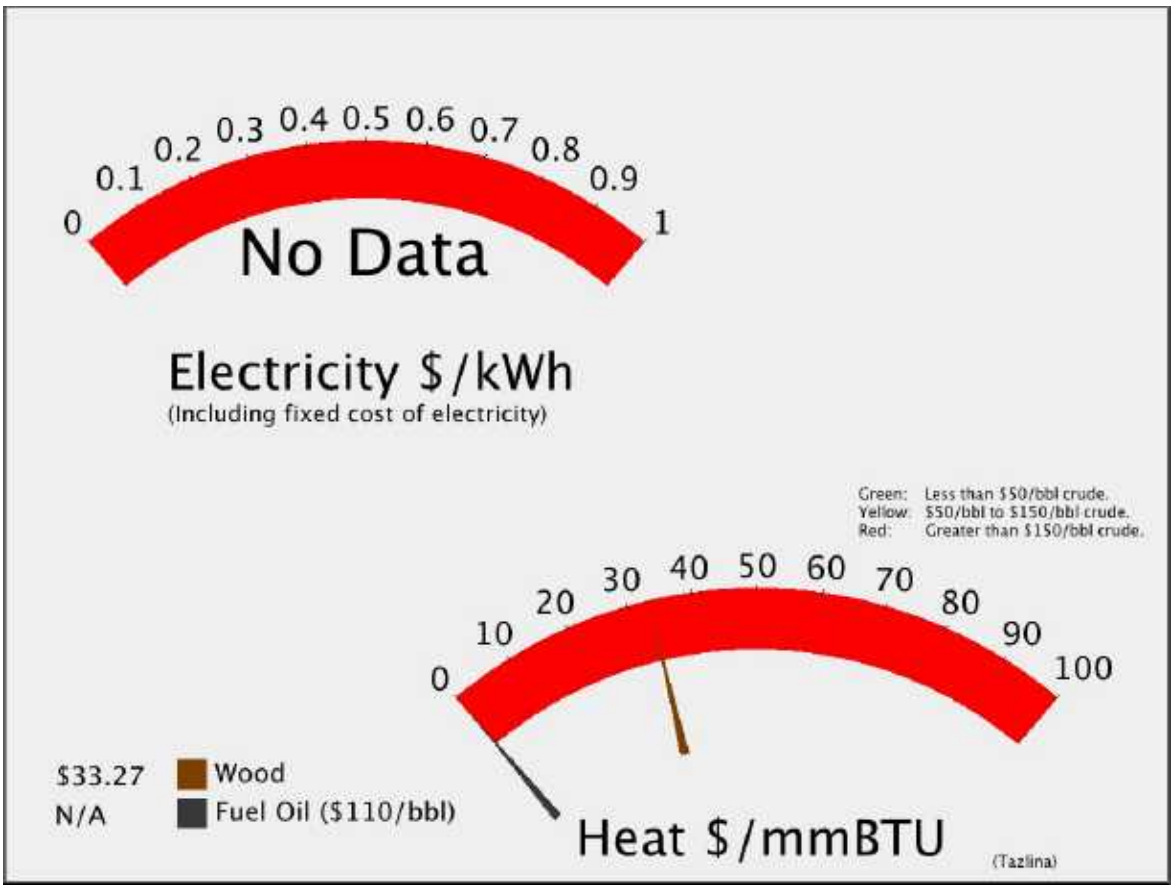
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Tatitlek High Penetration Wind has been submitted by: Tatitlek IRA Council/ Tatitlek Electric Utility for a Wind Diesel Hybrid project. The total project budget is: $1,672,388 with $164,358 requested in grant funding and $8,030 as matching funds.

Tazlina

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	219
Transportation	Per capita		
Electricity:	Per capita		



Tazlina

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 219 LATITUDE: 62d 04m N LONGITUDE: 146d 27m **Unorganized**

LOCATION Tazlina is located 5 miles south of Glennallen on the Richardson Highway, at mile 110.5. It is comprised of several small residential subdivisions and a business district. Copperville, Aspen Valley, Tazlina Terrace and Copper Valley School Road are all part of this area.

ECONOMY Some residents depend on subsistence fishing and hunting. Local businesses include a combined grocery, liquor, hardware, gas and sporting goods store, a wholesale bread distributor, a freight service, and an RV park. The Prince William Sound Community College, Division of Forestry, State Highway Maintenance station, Division of State Parks, and Division of Communications are located in the area.

HISTORY The village reportedly was a fishing camp of the Ahtna Indian tribes who historically moved up and down the Copper River and its tributaries. Tazlina is Athabascan for swift water." By 1900 a permanent village had been established on the north and south banks off the Tazlina River near its confluence with the Copper River. During the pipeline era Tazlina developed around the old Copper Valley School built to board students from all over the state. It closed in 1971 when local high schools were constructed in the remote areas of the state and boarding schools were discontinued."

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **196754**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.34	$101.00
Annual OM	**$9,231**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,054**	$0.39	**$114.75**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **196754**
Met Tower? **no**
Homer Data? **yes**
Wind Class **3**
Avg wind speed **6.40** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.34	$101.00
Annual OM	**$9,231**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,054**	$0.39	**$114.75**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Tazlina

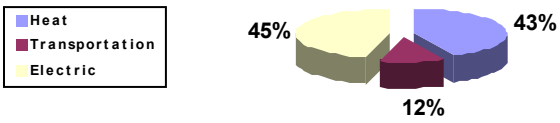
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	SOME POTENTIAL
Coal:	SOME POTENTIAL
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Teller

Energy Used



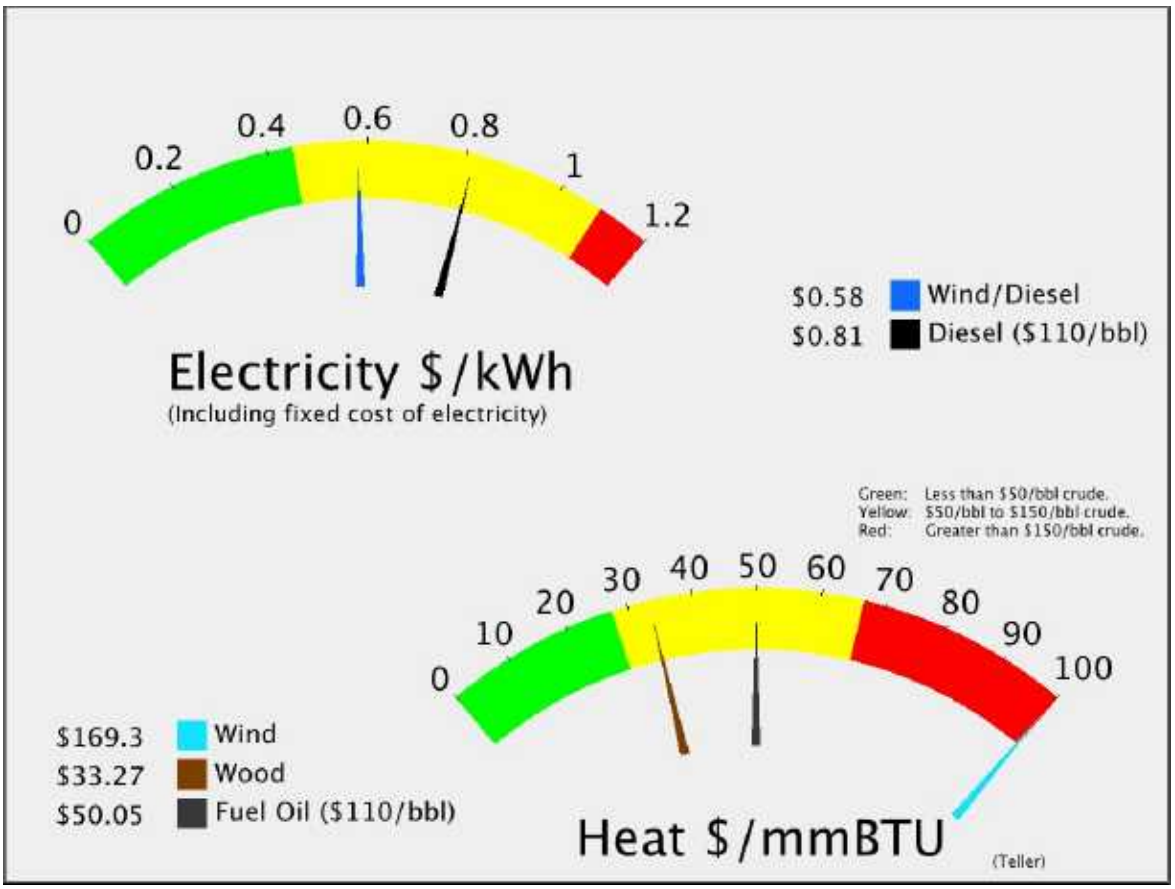
Total: **$4,419** Per capita

Heat **$1,887** Per capita

Transportation **$511** Per capita

Electricity: **$2,021** Per capita

POPULATION: 256



Teller

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 256 LATITUDE: 65d 16m N LONGITUDE: 166d 22m **Unorganized**

LOCATION Teller is located on a spit between Port Clarence and Grantley Harbor, 72 miles northwest of Nome, on the Seward Peninsula.

ECONOMY The Teller economy is based on subsistence activities supplemented by part-time wage earnings. Fish, seal, moose, beluga whale and reindeer are the primary meat sources. There is a herd of over 1,000 reindeer in the area, and the annual round-up provides meat and a cash product which is sold mainly on the Seward Peninsula. Over one-third of households produce crafts or artwork for sale, and some residents trap fox.

HISTORY The Eskimo fishing camp called "Nook" was reported 20 miles south of Teller in 1827. A Western Union Telegraph expedition wintered at the present site in 1866 and 1867; it was then called "Libbyville" or "Libby Station." The Teller Reindeer Station was operated by the U.S. Government at a nearby site from 1892 to 1900. The station was named in 1892 by Sheldon Jackson for U.S. Senator and Secretary of the Interior Henry Moore Teller. Teller Mission, a Norwegian Evangelical Lutheran Mission, was built in 1900 across the harbor at the current site of Brevig Mission. It was renamed Brevig Mission in 1903, after the Reverend T.L. Brevig. Present-day Teller was also established in 1900 after the Bluestone Placer Mine discovery 15 miles to the south. During these boom years, Teller had a population of about 5,000 and was a major regional trading center, attracting Natives from Diomede, Wales, Mary's Igloo and King Island. In May 1926, bad weather caused the dirigible "Norge" to detour to Teller on its first flight over the North Pole from Norway to Nome. A City was formed in 1963.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.53** /kw-hr

Current efficiency	**12.37**	kW-hr/gal	Fuel COE	**$0.56**	/kw-hr	Estimated Diesel OM	**$12,312**
Consumption in 200	**75,462**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$148,732**
Average Load	**70**	kW	NF COE:	**$0.24**	/kw-hr	Current Fuel Costs	**$341,873**
Estimated peak loa	**140.55**	kW	Total	**$0.82**		**Total Electric**	
Average Sales	**615,616**	kW-hours				**$502,917**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**87,342**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$5.53**		
Wood:	**0%**	$/MMBtu delivered to user	**$50.16**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**10,481**		**$483,033**

Transportation (Estimated)

Estimated Diesel:	**23,634**	gal	Estimated cost	**$5.53**	**Total Transportation** **$130,704**

Energy Total **$1,116,655**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **66,692**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.18	/kw-hr
Estimated Diesel OM	**$12,312**	$0.02	
New fuel cost	**$302,143**	$0.49	
Avg Non-Fuel Costs:	**$161,044**	$0.24	
New cost of electricity	**$0.76** per kW-hr		

Savings **($69,167)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

2 Residential, Store

			Value
Water Jacket	**11,319**	gal	**$62,600**
Stack Heat	**0**	gal	**$0**

Capital cost	**$196,772**		
Annual ID	**$16,483**		
Annual OM	**$3,935**		
Total Annual costs	**$20,418**		
Heat cost	**$16.32**	$/MMBtu	

Savings **$42,182**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **608062**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.27	$78.96
Annual OM	**$28,528**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$192,400**	$0.32	**$92.71**
Non-Fuel Costs		$0.26	
Alternative COE:		**$0.58**	
% Community energy		99%	
New Community COE		**$0.56**	

(includes non-fuel and diesel costs)

Savings

$157,447

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	24.3%

Other Resources

Teller

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

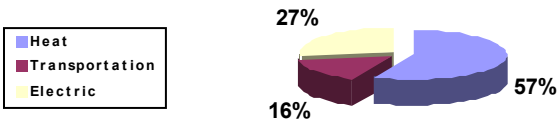
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Teller Wind Analysis_AVEC has been submitted by: Alaska Village Electric Cooperative (AVEC) for aWind Diesel Hybrid project. The total project budget is: $4,436,800 with $117,610 requested in grant funding and $6,190 as matching funds.

Tenakee Springs

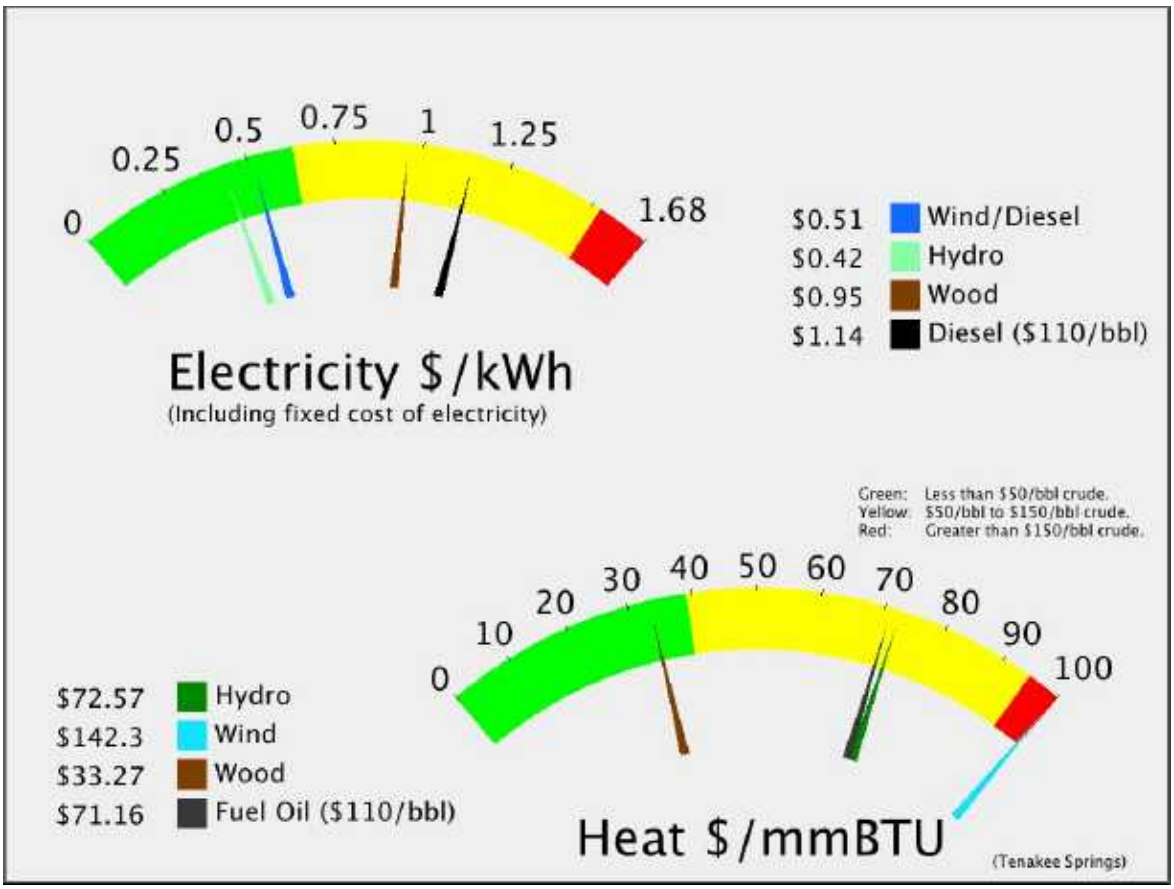
Energy Used



Total: $15,413 Per capita

Heat	**$8,789**	Per capita
Transportation	**$2,528**	Per capita
Electricity:	**$4,096**	Per capita

POPULATION: 102



Tenakee Springs

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 102 LATITUDE: 57d 46m N LONGITUDE: 135d 13m **Unorganized**

LOCATION Tenakee Springs is located on the east side of Chichagof Island, on the north shore of Tenakee Inlet. It lies 45 miles southwest of Juneau, and 50 miles northeast of Sitka.

ECONOMY Tenakee Springs has long been considered a retirement community, though commercial fishing is an important source of income. 18 residents hold commercial fishing permits. Tourism is becoming increasingly important. The City and store are the only local employers.

HISTORY The word Tenakee is from the Tlingit word "tinaghu," meaning "Coppery Shield Bay." This refers to three copper shields, highly prized by the Tlingits, that were lost in a storm. Early prospectors and fishermen came to the site to wait out the winters and enjoy the natural hot springs in Tenakee. Around 1895, a large tub and building were constructed to provide a warm bathing place for the increasing number of visitors. In 1899, Ed Snyder established Snyder's Mercantile, which still operates today. A post office opened in 1903. Originally called Tenakee, the name was altered to Tenakee Springs in 1928. Improvements to the hot springs facilities were made in 1915 and 1929; the existing bathhouse was constructed in 1940. Three canneries operated in the area between 1916 and 1974. A logging camp operated for a time at Corner Bay. The City incorporated in 1971.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**11.45**	kW-hr/gal	Fuel COE	**$1.00**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$6.86**
Consumption in 200	**53,940**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$7,375**
Average Load	**42**	kW	NF COE:	**$0.12**	/kw-hr	Other Non-Fuel Costs:	**$45,118**
Estimated peak loa	**84.194**	kW	Total	**$1.15**		Current Fuel Costs	**$370,228**
Average Sales	**368,770**	kW-hours				**Total Electric**	**$422,721**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**114,003**	gal	
Fuel Oil:	**73%**	Estimated heating fuel cost/gallon	**$7.86**		
Wood:	**27%**	$/MMBtu delivered to user	**$71.32**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**13,680**		**$896,483**

Transportation (Estimated)

Estimated Diesel:	**32,791**	gal	Estimated cost	**$7.86**	**Total Transportation** **$257,858**

Energy Total **$1,577,062**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **44,123**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$7,375**	$0.02	
New fuel cost	**$302,845**	$0.82	
Avg Non-Fuel Costs:	**$52,493**	$0.12	
New cost of electricity	**$0.63** per kW-hr		

Savings **$66,754**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**8,091**	gal	**$63,625**
Stack Heat	**0**	gal	**$0**

Capital cost	**$117,872**		
Annual ID	**$9,874**		
Annual OM	**$2,357**		
Total Annual costs	**$12,231**		
Heat cost	**$13.68**	$/MMBtu	

Savings **$51,394**

Alternative Energy Resources

Wood

Installed KW	**53**		Capital cost	**$1,554,200**	per kW-hr
kW-hr/year	**396018**		Annual Capital	**$104,467**	$0.26
Installation Type	**Wood ORC**		Annual OM	**$121,231**	$0.31
Electric Wood cost	**$150/cd**		Fuel cost:	**$75,067**	$0.19
Wood Required	**500**	Cd/Y	Total Annual Cost	**$300,765**	$0.76
Stove Wood cost	**250.00**	$/Cd	Non-Fuel Costs		$0.14
			Alternative COE:		**$0.90**
			% Community energy		107%
			New Community COE		**$0.96**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu :

-90

$29.76

Savings

$121,956

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**		Capital cost	**$1,760,485**	per kW-hr
kW-hr/year	**398692**		Annual Capital	**$118,332**	$0.30
Met Tower?	**no**		Annual OM	**$18,705**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**7**		Total Annual Cost	**$137,037**	$0.34
Avg wind speed	**8.50**	m/s	Non-Fuel Costs		$0.14
			Alternative COE:		**$0.49**
			% Community energy		108%
			New Community COE		**$0.51**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu :

$86.96

$13.75

$100.71

Savings

$285,684

Alternative Energy Resources

Hydro

Installed KW	**125**		Capital cost	**$1,761,058**	per kW-hr
kW-hr/year	**552569**		Annual Capital	**$77,265**	$0.14
Site	**Indian River**		Annual OM	**$28,400**	$0.05
Study plan effort	**reconnaissance**		Fuel cost:	**$0**	$0.00
Plant Factor		%	Total Annual Cost	**$105,665**	$0.19
Penetration	**0.55**		Non-Fuel Costs		$0.14
			Alternative COE:		**$0.33**
			% Community energy		150%
			New Community COE		**$0.43**

(includes non-fuel and diesel costs)

Heat Cost $/MMBtu :

$40.97

$15.06

$56.03

Savings

$317,057

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	18.6%

Other Resources

Tenakee Springs

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

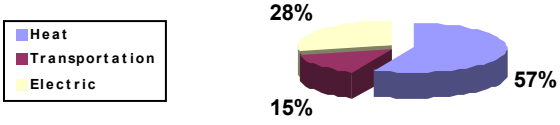
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Indian River Hydroelectric Construction has been submitted by: City of Tenakee Springs for a Hydro project. The total project budget is: $2,500,000 with $2,400,000 requested in grant funding and $100,000 as matching funds.

Tetlin

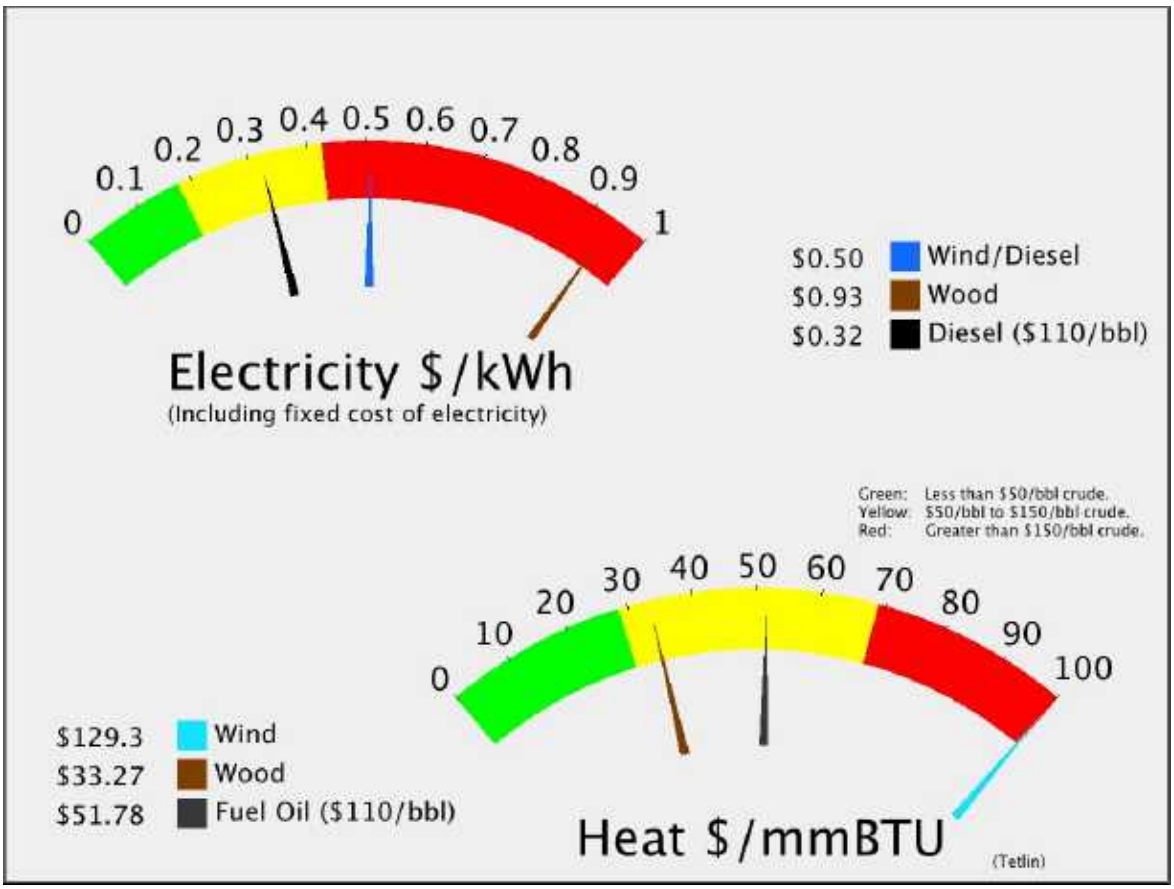
Energy Used



Total: **$2,734** Per capita

Heat	**$1,558**	Per capita
Transportation	**$404**	Per capita
Electricity:	**$772**	Per capita

POPULATION: 165



Tetlin

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 165 LATITUDE: 63d 08m N LONGITUDE: 142d 31m **Unorganized**

LOCATION Tetlin is located along the Tetlin River, between Tetlin Lake and the Tanana River, 20 miles southeast of Tok. It lies in the Tetlin National Wildlife Refuge. The village is connected by road to the Alaska Highway.

ECONOMY The school, tribe, clinic, store and post office provide the only employment. Many residents engage in trapping or making handicrafts for sale. Fire fighting for BLM employs members of the community in the summer. Nearly all families participate in subsistence activities throughout the year. Whitefish, moose, ducks, geese, spruce hens, rabbits, berries and roots are harvested.

HISTORY The semi-nomadic Athabascan Indians have historically lived in this area, moving with the seasons between several hunting and fishing camps. In 1885, Lt. H.T. Allen found small groups of people living in Tetlin and Last Tetlin, to the south. The residents of Last Tetlin had made numerous trips to trading posts on the Yukon River. In 1912, villagers from Tetlin would trade at the Tanana Crossing Trading Post. During the Chisana gold stampede in 1913, a trading post was established across the river from Tetlin. When two trading posts were opened in the village during the 1920s by John Hajdukovich and W.H. Newton, residents from Last Tetlin relocated to Tetlin. A school was constructed in 1929, and a post office was opened in 1932. The 786,000-acre Tetlin Indian Reserve was established in 1930. An airstrip was constructed in 1946. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, the reserve was revoked. Tetlin opted for surface and subsurface title to the 743,000 acres of land in the former Reserve.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.63**	kW-hr/gal	Fuel COE	**$0.21**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.72**
Consumption in 200	**15,364**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$6,978**
Average Load	**40**	kW	NF COE:	**$0.09**	/kw-hr	Other Non-Fuel Costs:	**$32,218**
Estimated peak loa	**79.654**	kW	Total	**$0.32**		Current Fuel Costs	**$72,552**
Average Sales	**348,887**	kW-hours				**Total Electric**	**$111,748**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**44,935**	gal	
Fuel Oil:	**26%**	Estimated heating fuel cost/gallon	**$5.72**		
Wood:	**74%**	$/MMBtu delivered to user	**$51.90**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,392**		**$257,126**

Transportation (Estimated)

Estimated Diesel:	**11,646**	gal	Estimated cost	**$5.72**	**Total Transportation** **$66,640**

Energy Total **$435,514**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$1,300,000**			
Powerhouse Module		Annual Capital cost	**$108,897**	$0.31	/kw-hr	
Status **AP&T**		Estimated Diesel OM	**$6,978**	$0.02		
Acheivable efficiency	**14** kW-	New fuel cost	**$65,428**	$0.19		**Savings**
New Fuel use	**13,855**	Avg Non-Fuel Costs:	**$39,196**	$0.09		**($101,773)**
		New cost of electricity		**$0.76** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working: **None**

			Value
Water Jacket	**2,305**	gal	**$13,187**
Stack Heat	**0**	gal	**$0**

Capital cost	**$111,516**		
Annual ID	**$9,341**		
Annual OM	**$2,230**		
Total Annual costs	**$11,572**		**Savings**
Heat cost	**$45.44**	$/MMBtu	**$1,616**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**200**
kW-hr/year	**419369**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**6**
Avg wind speed	**8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$82.68
Annual OM	**$19,675**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$138,008**	$0.33	**$96.42**
Non-Fuel Costs		$0.11	
Alternative COE:		**$0.44**	
% Community energy		120%	
New Community COE		**$0.51**	

(includes non-fuel and diesel costs)

Savings

($26,259)

Alternative Energy Resources

Wood

Installed KW	**47**
kW-hr/year	**351314**
Installation Type	**Wood ORC**
Electric Wood cost	**$150/cd**
Wood Required	**444** Cd/Y
Stove Wood cost	**250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,527,826**	per kW-hr	
Annual Capital	**$102,694**	$0.29	
Annual OM	**$119,463**	$0.34	
Fuel cost:	**$66,594**	$0.19	-90
Total Annual Cost	**$288,751**	$0.82	**$29.76**
Non-Fuel Costs		$0.11	
Alternative COE:		**$0.93**	
% Community energy		101%	
New Community COE		**$0.94**	

(includes non-fuel and diesel costs)

Savings

($177,003)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr
Cords/day:	**1.8**
Hours per year	**6000**
Wood (cordwood or willows)	**$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	47.3%

Other Resources

Tetlin

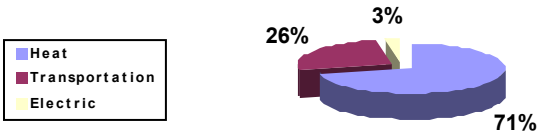
Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Thorne Bay

Energy Used



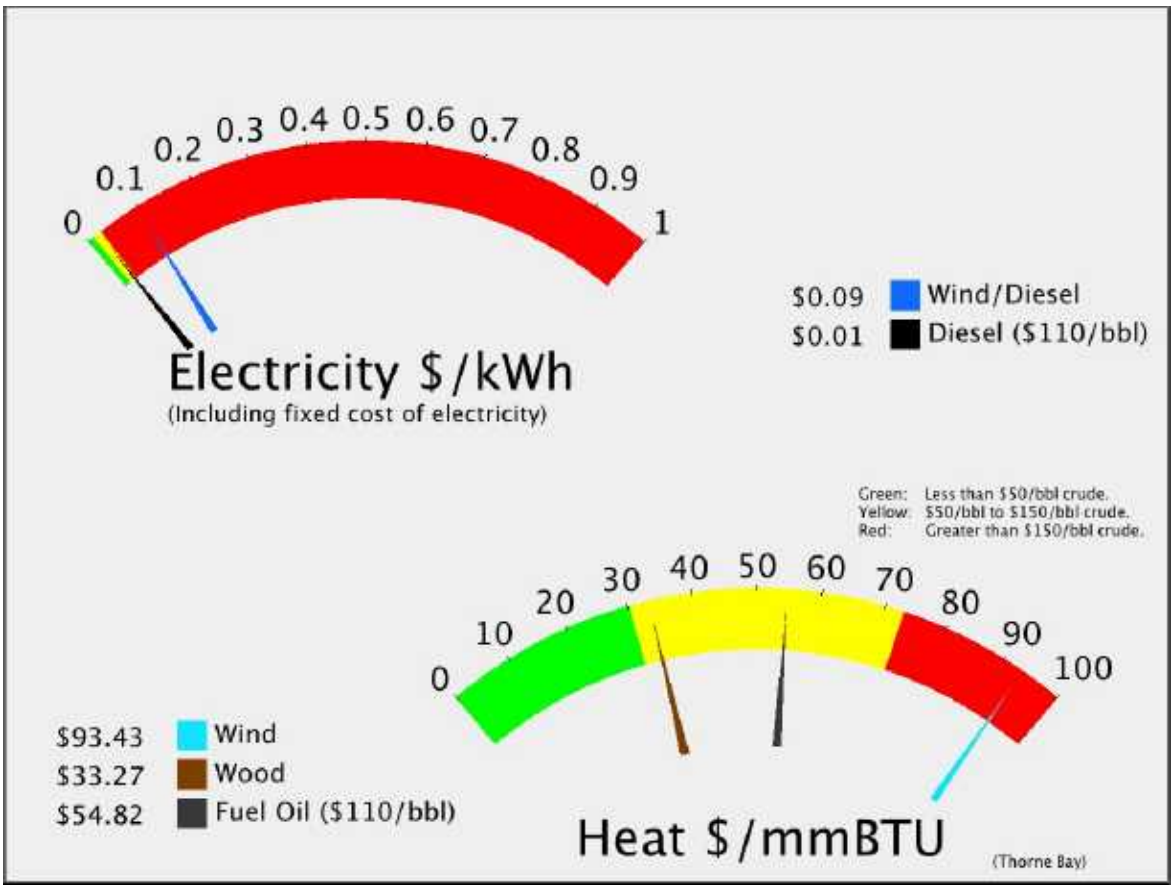
Total: **$4,629** Per capita

Heat **$3,310** Per capita

Transportation **$1,203** Per capita

Electricity: **$117** Per capita

POPULATION: 467



Thorne Bay

Regional Corporation
Sealaska Corporation
House 1
Senate : **A**

POPULATION 467 LATITUDE: 55d 41m N LONGITUDE: 132d 32m **Unorganized**

LOCATION Thorne Bay is 47 air miles northwest of Ketchikan on the east coast of Prince of Wales Island. On the Island road system, it lies 60 miles from Hollis and 36 miles east of the Klawock Junction.

ECONOMY Employment is primarily in small sawmills and U.S. Forest Service management of the Tongass, with some commercial fishing, tourism and government employment. Thorne Bay is one of the log transfer sites on the Island. To supplement incomes, residents fish and trap. Deer, salmon, halibut, shrimp and crab are popular food sources. 22 residents hold commercial fishing permits. Locals prefer to purchase goods from Craig and Ketchikan.

HISTORY The Bay was named after Frank Manley Thorn, superintendent of the U.S. Coast & Geodetic Survey from 1885 through 1889. The name was misspelled when published. The first major settlement was built around the logging operation of Wes Davidson. Thorne Bay developed as a result of a long-term timber sales contract between the U.S. Forest Service and the Ketchikan Pulp Company. In 1960, a floating logging camp was built in Thorne Bay. In 1962, Ketchikan Pulp moved its main logging camp from Hollis to Thorne Bay. A shop, barge terminal, log sort yard and camp were built to replace facilities at Hollis. Roads were then constructed to connect Thorne Bay with Hollis, Craig and Klawock. During this time, it was considered the largest logging camp in North America. Thorne Bay evolved from a company-owned logging camp to an incorporated city by 1982, due in part to the land selection program provided for in the Alaska Statehood Act.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.06** /kw-hr

Current efficiency		kW-hr/gal	Fuel COE	**$0.00**	/kw-hr	Estimated Diesel OM	**$63,950**
Consumption in 200	**0**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**($1,508)**
Average Load	**365**	kW	NF COE:	**$0.00**	/kw-hr	Current Fuel Costs	**$0**
Estimated peak loa	**730.02**	kW	Total	**$0.02**		**Total Electric**	
Average Sales	**3,197,507**	kW-hours				**$62,442**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**255,160**	gal	
Fuel Oil:	**46%**	Estimated heating fuel cost/gallon	**$6.06**		
Wood:	**48%**	$/MMBtu delivered to user	**$54.94**		**Total Heating Oil**
Electricity:	**0.9%**	Community heat needs in MMBtu	**30,619**		**$1,545,656**

Transportation (Estimated)

Estimated Diesel: **92,751** gal Estimated cost **$6.06**

Total Transportation **$561,848**

Energy Total **$2,169,947**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

#N/A

Status **AP&T**

Acheivable efficiency **14.8** kW-

New Fuel use

Capital cost **$0**

Annual Capital cost **$0** $0.00 /kw-hr

Estimated Diesel OM **$63,950** $0.02

New fuel cost

Avg Non-Fuel Costs: **$62,442** $0.00

New cost of electricity **$0.36** per kW-hr

Savings

Diesel Engine Heat Recovery

Heat Recovery System Installed?

Is it working now?

BLDGs connected and working:

		Value
Water Jacket	**0** gal	**$0**
Stack Heat	**0** gal	**$0**

Capital cost **$1,022,034**

Annual ID **$85,612**

Annual OM **$20,441**

Total Annual costs **$106,053**

Heat cost **#Div/0!** $/MMBtu

Savings **($106,053)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**400**		Capital cost	**$3,071,563**	per kW-hr
kW-hr/year	**817690**		Annual Capital	**$206,457**	$0.25
Met Tower?	**no**		Annual OM	**$38,363**	$0.05
Homer Data?	**yes**		Fuel cost:	**$0**	$0.00
Wind Class	**3**		Total Annual Cost	**$244,820**	$0.30
Avg wind speed	**6.40**	m/s	Non-Fuel Costs		$0.02
			Alternative COE:		**$0.32**
			% Community energy		26%
			New Community COE (includes non-fuel and diesel costs)		**$0.09**

Heat Cost $/MMBtu : $73.98 | $13.75 | **$87.73**

Savings

($228,439)

Alternative Energy Resources

Wood

Installed KW			Capital cost		per kW-hr
kW-hr/year			Annual Capital		
Installation Type			Annual OM		
Electric Wood cost			Fuel cost:		
Wood Required		Cd/Y	Total Annual Cost		
Stove Wood cost		$/Cd	Non-Fuel Costs		$0.02
			Alternative COE:		
			% Community energy		
			New Community COE (includes non-fuel and diesel costs)		

Heat Cost $/MMBtu : -90 | **$29.76**

Savings

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**		Annual ID	**$33,608**
Hours per year	**6000**		Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225**	$/cord	Fuel cost per MMBtu	**$20.09**
			Total per MMBT	**$33.27**
			Annual Heat	8.3%

Other Resources

Thorne Bay

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	SOME POTENTIAL
Propane:	

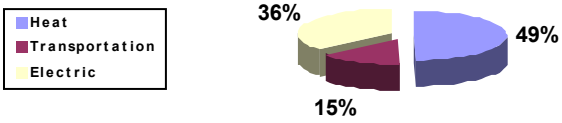
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Thorne Baywood Boiler_SEISD has been submitted by: Southeast Island School District for Thorne Bay School for a Biomass project. The total project budget is: $220,179 with $178,179 requested in grant funding and $42,000 as matching funds.

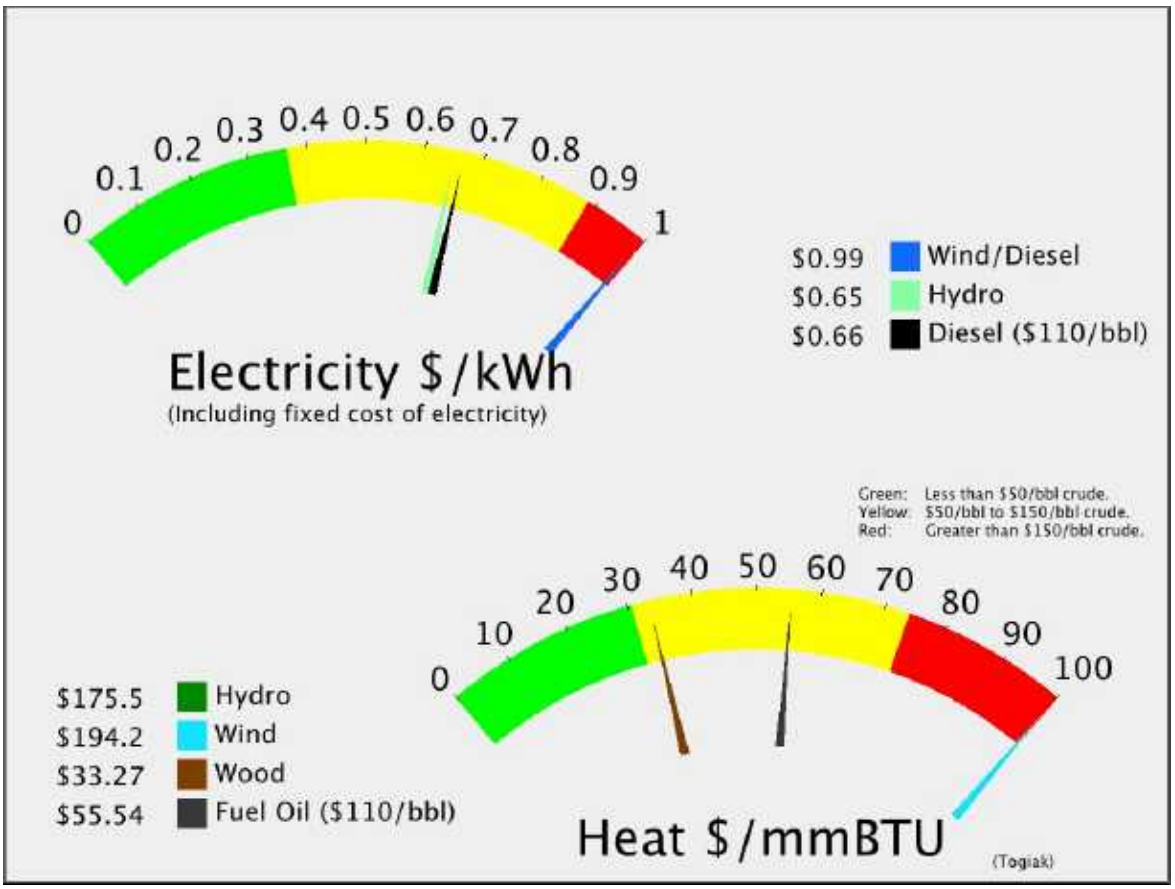
Togiak

Energy Used



Total:		Per capita
Heat	**$2,870**	Per capita
Transportation	**$842**	Per capita
Electricity:		Per capita

POPULATION: 787



Togiak

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 787 LATITUDE: 59d 04m N LONGITUDE: 160d 24m **Unorganized**

LOCATION Togiak is located at the head of Togiak Bay, 67 miles west of Dillingham. It lies in Togiak National Wildlife Refuge, and is the gateway to Walrus Island Game Sanctuary.

ECONOMY Togiak's economic base is primarily commercial salmon, herring, and herring roe-on-kelp fisheries. 244 residents hold commercial fishing permits; fishermen use flat-bottom boats for the shallow waters of Togiak Bay. There is one on-shore fish processor and several floating processing facilities near Togiak. The entire community depends heavily on subsistence activities. Salmon, herring, seal, sea lion, whale and walrus are among the species harvested. A few residents trap.

HISTORY In 1880, "Old Togiak," or "Togiagamute," was located across the Bay, and had a population of 276. Heavy winter snowfalls made wood-gathering difficult at Old Togiak, so gradually people settled at a new site on the opposite shore, where the task was easier. Many residents of the Yukon-Kuskokwim region migrated south to the Togiak area after the devastating influenza epidemic in 1918-19. A school was established in an old church in 1950. A school building and a National Guard Armory were constructed in 1959. Togiak was flooded in 1964, and many fish racks and stores of gas, fuel oil and stove oil were destroyed. Three or four households left Togiak after the flood and developed the village of Twin Hills upriver. The City government was incorporated in 1969.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5000**
kW-hr/year **4668831**
Met Tower? **no**
Homer Data? **no**
Wind Class **7**
Avg wind speed **5.68** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$23,344,156**		
Annual Capital	**$1,569,094**	$0.34	$98.47
Annual OM	**$219,045**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,788,139**	$0.38	**$112.22**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **340**
kW-hr/year **600705**
Site **Kurtluk River**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.37**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$10,135,680**		
Annual Capital	**$433,552**	$0.72	$211.47
Annual OM	**$86,400**	$0.14	$42.14
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$519,952**	$0.87	**$253.61**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Togiak

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 787 LATITUDE: 59d 04m N LONGITUDE: 160d 24m **Unorganized**

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HISTORY In 1880, "Old Togiak," or "Togiagamute," was located across the Bay, and had a population of 276. Heavy winter snowfalls made wood-gathering difficult at Old Togiak, so gradually people settled at a new site on the opposite shore, where the task was easier. Many residents of the Yukon-Kuskokwim region migrated south to the Togiak area after the devastating influenza epidemic in 1918-19. A school was established in an old church in 1950. A school building and a National Guard Armory were constructed in 1959. Togiak was flooded in 1964, and many fish racks and stores of gas, fuel oil and stove oil were destroyed. Three or four households left Togiak after the flood and developed the village of Twin Hills upriver. The City government was incorporated in 1969.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.14** /kw-hr

Current efficiency	**13.73**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$50,072**
Consumption in 200	**188,198**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$650,936**
Average Load	**286**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$966,830**
Estimated peak loa	**571.6**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**2,503,598**	kW-hours				**$1,667,837**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**367,990**	gal	
Fuel Oil:	**97%**	Estimated heating fuel cost/gallon	**$6.14**		
Wood:	**0%**	$/MMBtu delivered to user	**$55.67**	**Total Heating Oil**	
Electricity:	**1.9%**	Community heat needs in MMBtu	**44,159**	**$2,258,464**	

Transportation (Estimated)

Estimated Diesel: **108,026** gal Estimated cost **$6.14**

Total Transportation **$662,989**

Energy Total **$4,589,290**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **175,175**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.10	/kw-hr
Estimated Diesel OM	**$50,072**	$0.02	
New fuel cost	**$899,927**	$0.36	
Avg Non-Fuel Costs:	**$701,007**	$0.26	
New cost of electricity	**$0.73** per kW-hr		

Savings **($184,397)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

School

			Value
Water Jacket	**28,230**	gal	**$173,254**
Stack Heat	**0**	gal	**$0**

Capital cost	**$800,237**		
Annual ID	**$67,033**		
Annual OM	**$16,005**		
Total Annual costs	**$83,038**		
Heat cost	**$26.62**	$/MMBtu	

Savings **$90,216**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5000**
kW-hr/year **4668831**
Met Tower? **no**
Homer Data? **no**
Wind Class **7**
Avg wind speed **5.68** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$23,344,156**		
Annual Capital	**$1,569,094**	$0.34	$98.47
Annual OM	**$219,045**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,788,139**	$0.38	**$112.22**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.66**	
% Community energy		186%	
New Community COE (includes non-fuel and diesel costs)		**$0.99**	

Savings
($120,302)

Alternative Energy Resources

Hydro

Installed KW **340**
kW-hr/year **600705**
Site **Kurtluk River**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **0.37**

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$10,135,680**		
Annual Capital	**$433,552**	$0.72	$211.47
Annual OM	**$86,400**	$0.14	$42.14
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$519,952**	$0.87	**$253.61**
Non-Fuel Costs		$0.28	
Alternative COE:		**$1.15**	
% Community energy		24%	
New Community COE (includes non-fuel and diesel costs)		**$0.65**	

Savings
$52,367

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat 5.8%

Other Resources

Togiak

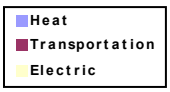
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

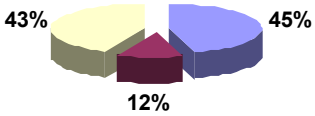
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Tok

Energy Used





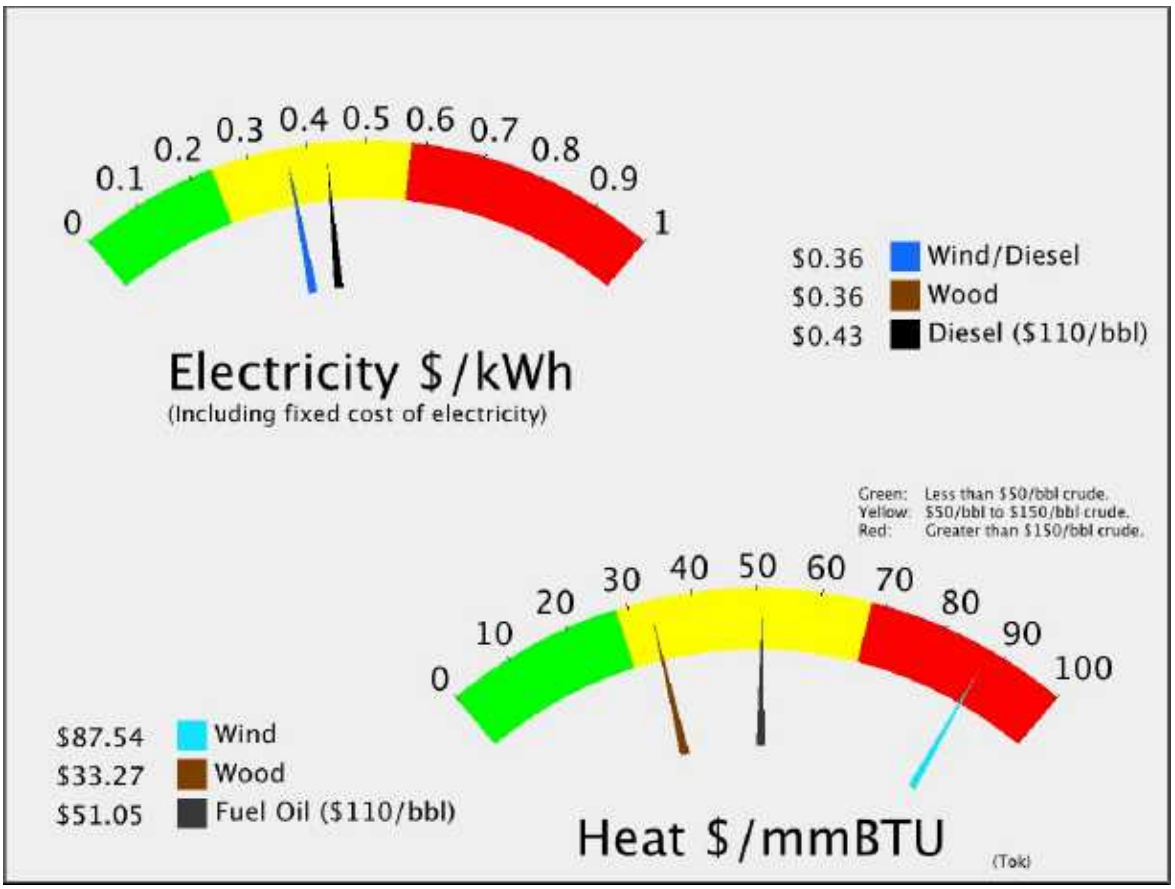
Total: **$6,858** Per capita

Heat **$3,108** Per capita

Transportation **$806** Per capita

Electricity: **$2,945** Per capita

POPULATION: 1353



Tok

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 1353 LATITUDE: 63d 20m N LONGITUDE: 142d 59m **Unorganized**

LOCATION Tok is located at the junction of the Alaska Highway and the Tok Cutoff to the Glenn Highway, at 1,635' elevation, 200 miles southeast of Fairbanks. It is called the Gateway to Alaska as it is the first major community upon entering Alaska, 93 miles from the Canadian border.

ECONOMY Tok is the transportation, business, service and government center for the Upper Tanana region. Employment and business revenues peak in the summer months, with the rush of RV travelers on the Alaska Highway. Four residents hold commercial fishing permits. Subsistence and recreational activities are prevalent. Moose, bear, rabbit, grouse, and ptarmigan are taken. Dahl sheep and caribou are hunted outside of the region, but only through lottery permits. Salmon are obtained from the Copper River to the south. Berry-picking and gardening are also popular activities.

HISTORY There are several versions of how Tok obtained its name. The nearby "Tokai River" was first reported in 1887 by Lt. Allen. "Tok River" was recorded in 1901 by the USGS. Tok began in 1942 as an Alaska Road Commission camp. So much money was spent in the camp's construction and maintenance that it earned the name "Million Dollar Camp" by those working on the highway. In 1944 a branch of the Northern Commercial Company was opened, and in 1946 Tok was established as a Presidential Townsite. With the completion of the Alcan Highway in 1946, a post office and a roadhouse were built. In 1947 the first school was opened, and in 1958 a larger school was built to accommodate the many newcomers. The U.S. Customs Office was located in Tok between 1947 and 1971, when it was moved to Alcan, at the border. Between 1954 and 1979, a U.S. Army fuel pipeline operated from Haines to Fairbanks, with a pump station in Tok. The pump station's facilities were purchased as area headquarters for the Bureau of Land Management. The U.S. Coast Guard constructed a LORAN (Long Range Aid to Navigation) station in 1976. Four 700' towers, located 6 miles east of Tok junction, transmit radio navigation signals for air and marine traffic in the Gulf of Alaska. In July of 1990, Tok faced extinction when a lightning-caused forest fire jumped two rivers and the Alaska Highway, putting both residents and buildings in peril. The town was evacuated and even the efforts of over a thousand firefighters could not stop the fire. At the last minute a "miracle wind" (so labeled by Tok's residents) came up, diverting the fire just short of the first building. The fire continued to burn the remainder of the summer, eventually burning more than 100,000 acres. Evidence of the burn can be seen on both sides of the highway just east of Tok.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.64** /kw-hr

Current efficiency	**14.34**	kW-hr/gal	Fuel COE	**$0.36**	/kw-hr	Estimated Diesel OM	**$210,121**
Consumption in 200	**817,706**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$529,581**
Average Load	**1,199**	kW	NF COE:	**$0.05**	/kw-hr	Current Fuel Costs	**$3,795,219**
Estimated peak loa	**2398.6**	kW	Total	**$0.43**		**Total Electric**	
Average Sales	**10,506,061**	kW-hours				**$4,534,921**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**745,426**	gal	
Fuel Oil:	**73%**	Estimated heating fuel cost/gallon	**$5.64**		
Wood:	**25%**	$/MMBtu delivered to user	**$51.17**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**89,451**		**$4,205,172**

Transportation (Estimated)

Estimated Diesel:	**193,194**	gal	Estimated cost	**$5.64**	**Total Transportation**
					$1,089,868

Energy Total **$9,829,961**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **AP&T**

Acheivable efficiency **14.8** kW-

New Fuel use **794,922**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$210,121**	$0.02	
New fuel cost	**$3,689,472**	$0.35	**Savings**
Avg Non-Fuel Costs:	**$739,702**	$0.05	**$105,119**
New cost of electricity	**$0.39** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**122,656**	gal	**$691,939**
Stack Heat	**81,771**	gal	**$461,292**

Capital cost	**$3,358,102**		
Annual ID	**$281,297**		
Annual OM	**$67,162**		
Total Annual costs	**$348,459**		**Savings**
Heat cost	**$15.43**	$/MMBtu	**$804,772**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **2700**
kW-hr/year **5271408**
Met Tower? **no**
Homer Data? **no**
Wind Class **2**
Avg wind speed m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$14,232,801**	per kW-hr	
Annual Capital	**$956,668**	$0.18	$53.17
Annual OM	**$247,315**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,203,983**	$0.23	**$66.92**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.30**	
% Community energy		50%	
New Community COE		**$0.35**	

(includes non-fuel and diesel costs)

Savings
$805,724

Alternative Energy Resources

Wood

Installed KW **1475**
kW-hr/year **10981170**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **13877** Cd/Y
Stove Wood cost **250.00** $/Cd

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$7,343,658**	per kW-hr	
Annual Capital	**$493,609**	$0.04	
Annual OM	**$539,747**	$0.05	
Fuel cost:	**$2,081,542**	$0.19	-90
Total Annual Cost	**$3,114,898**	$0.28	**$29.76**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.35**	
% Community energy		105%	
New Community COE		**$0.37**	

(includes non-fuel and diesel costs)

Savings
$1,420,024

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	2.9%

Other Resources

Tok

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

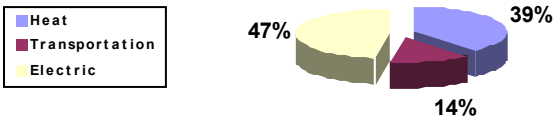
A project titled: Tok Wind Construction_VWP has been submitted by: Village Wind Power, LLC for a Wind Diesel Hybrid project. The total project budget is: $8,100,000 with $8,100,000 requested in grant funding and $ as matching funds.

A project titled: Tok Wood Heating Construction has been submitted by: Alaska Gateway School District for a Biomass project. The total project budget is: $3,805,349 with $3,245,349 requested in grant funding and $560,000 as matching funds.

A project titled: Yerrick Creek Hydroelectric Construction has been submitted by: Alaska Power & Telephone Company for a Hydro project. The total project budget is: $14,500,000 with $11,600,000 requested in grant funding and $2,900,000 as matching

Toksook Bay

Energy Used



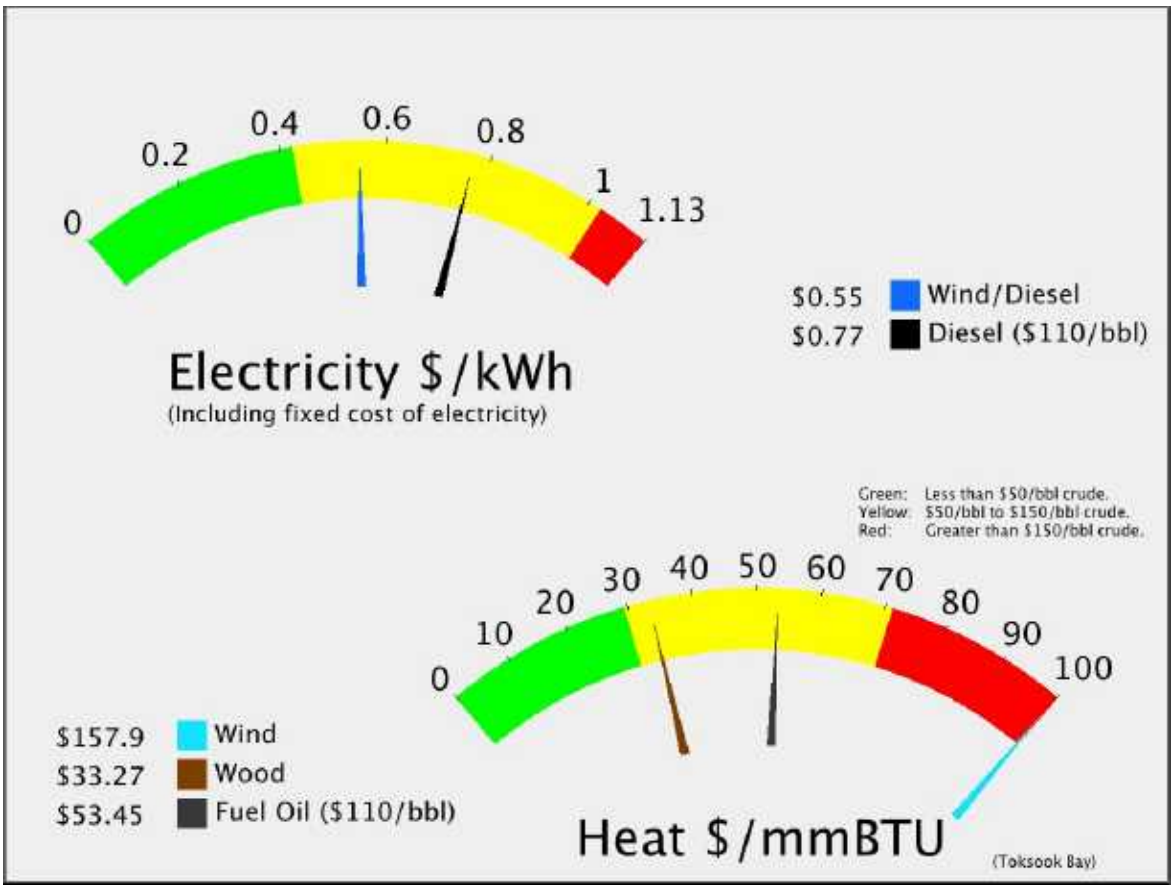
Total: **$4,007** Per capita

Heat **$1,550** Per capita

Transportation **$555** Per capita

Electricity: **$1,902** Per capita

POPULATION: 610



Toksook Bay

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 610 LATITUDE: 60d 31m N LONGITUDE: 165d 06m **Unorganized**

LOCATION Toksook Bay is one of three villages located on Nelson Island, which lies 115 miles northwest of Bethel. It is on Kangirlvar Bay across the water from Nunivak Island. Tununak is about 8 miles to the northwest.

ECONOMY Commercial fishing, the school, City and Tribal Council are the primary income producers. Subsistence activities supplement income and provide essential food sources. 93 residents hold commercial fishing permits for herring roe and salmon net fisheries. Coastal Villages Seafood, Inc., processes halibut and salmon in Toksook.

HISTORY The area has been inhabited and utilized by Yup'ik Eskimos for thousands of years. Toksook Bay was established in 1964 along the Tuqsuk River by residents of Nightmute. Cyril Chanar, Tom Sunny and Nasgauq Tangkaq were the earliest inhabitants. Toksook Bay was settled to be more accessible to the annual freighter ship, The North Star. The City was incorporated in 1972.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.91** /kw-hr

Current efficiency	**15.18**	kW-hr/gal	Fuel COE	**$0.49**	/kw-hr	Estimated Diesel OM	**$28,414**
Consumption in 200	**141,939**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$369,388**
Average Load	**162**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$696,466**
Estimated peak loa	**324.37**	kW	Total	**$0.77**		**Total Electric**	
Average Sales	**1,420,721**	kW-hours				**$1,094,268**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**160,091**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.91**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.57**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**19,211**		**$945,626**

Transportation (Estimated)

Estimated Diesel:	**57,269**	gal	Estimated cost	**$5.91**	**Total Transportation**
					$338,278

Energy Total **$2,378,172**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **153,920**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$28,414**	$0.02	
New fuel cost	**$755,256**	$0.53	
Avg Non-Fuel Costs:	**$397,802**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings

($59,418)

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**21,291**	gal	**$125,761**
Stack Heat	**0**	gal	**$0**

Capital cost	**$454,112**		
Annual ID	**$38,039**		
Annual OM	**$9,082**		
Total Annual costs	**$47,122**		
Heat cost	**$20.03**	$/MMBtu	

Savings

$78,639

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **600**

kW-hr/year **1347431**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$4,253,640**	per kW-hr	
Annual Capital	**$285,911**	$0.21	$62.17
Annual OM	**$63,217**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$349,128**	$0.26	**$75.92**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.54**	
% Community energy		95%	
New Community COE (includes non-fuel and diesel costs)		**$0.53**	

Savings

$338,367

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	13.3%

Other Resources

Toksook Bay

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal: SOME POTENTIAL
Propane:

Renewable Fund Project List:

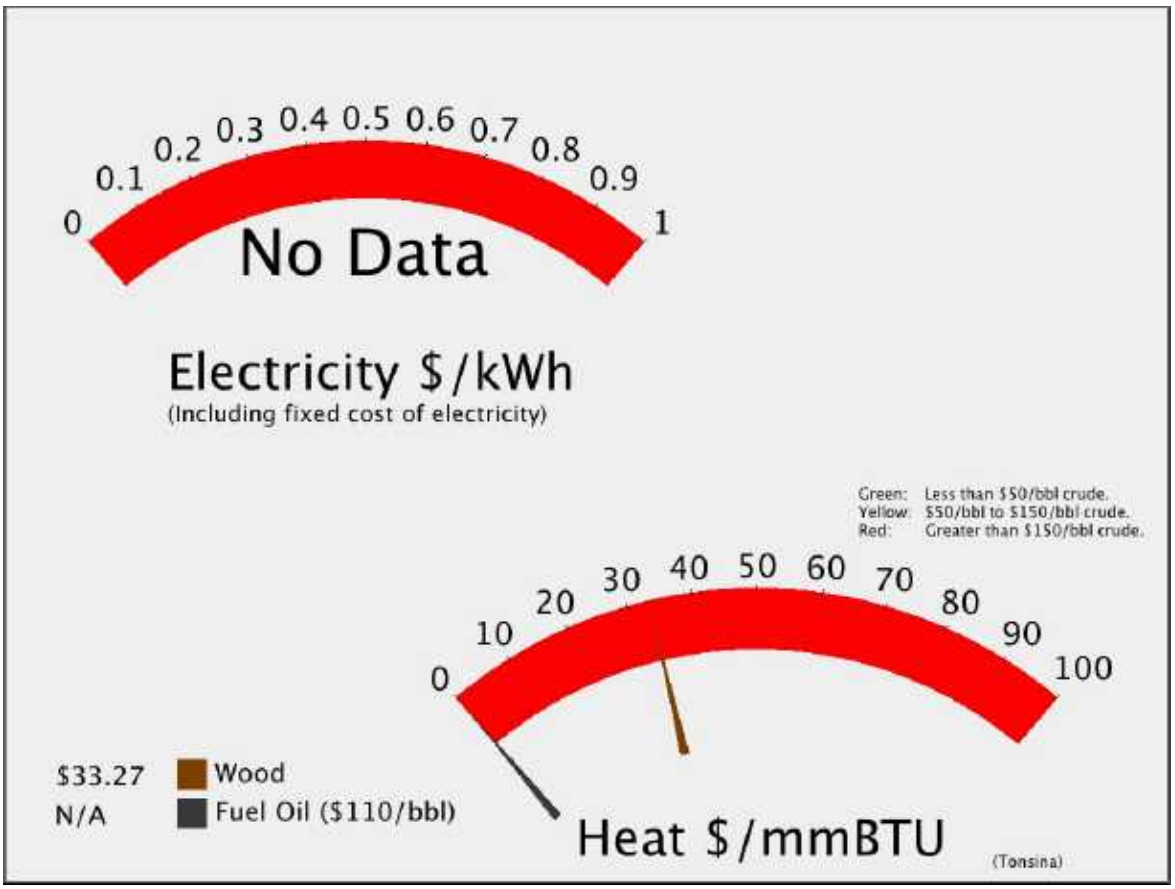
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Toksook Bay Wind Farm Expansion Construction has been submitted by: Alaska Village Electric Cooperative for a Wind Diesel Hybrid project. The total project budget is: $1,153,056 with $1,037,750 requested in grant funding and $115,306 as matching funds.

Tonsina

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	76
Transportation	Per capita		
Electricity:	Per capita		



Tonsina

Regional Corporation
Ahtna, Incorporated
House 6
Senate : **C**

POPULATION 76 LATITUDE: 61d 39m N LONGITUDE: 145d 10m **Unorganized**

LOCATION Tonsina is located at mile 79 on the Richardson Highway, south of the Tonsina River, next to Kenny Lake, 52 miles northeast of Valdez.

ECONOMY Roadhouses, the Ernestine State Highway Maintenance camp, and Alyeska Pipeline Pump Station 12 are the nearest employers. Subsistence activities supplement income.

HISTORY A U.S. Army Signal Corps telegraph station, post office and general store were established here in 1902. The Tonsina Lodge was built in 1903 along the Valdez-Eagle Trail; it burned in 1928. The Tiekel Lodge and Tsaina Lodge were also built in this area. Development began during the oil era. Pump Station 12 was constructed nearby to move oil over Thompsen Pass to the pipeline terminal in Valdez.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**
kW-hr/year **382279**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.31	$90.70
Annual OM	**$17,935**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,267**	$0.36	**$104.44**

Non-Fuel Costs
Alternative COE:
% Community energy
New Community COE
(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Tonsina

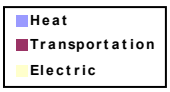
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal: COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:

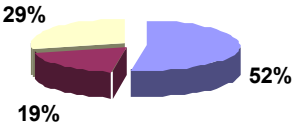
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Tuluksak

Energy Used

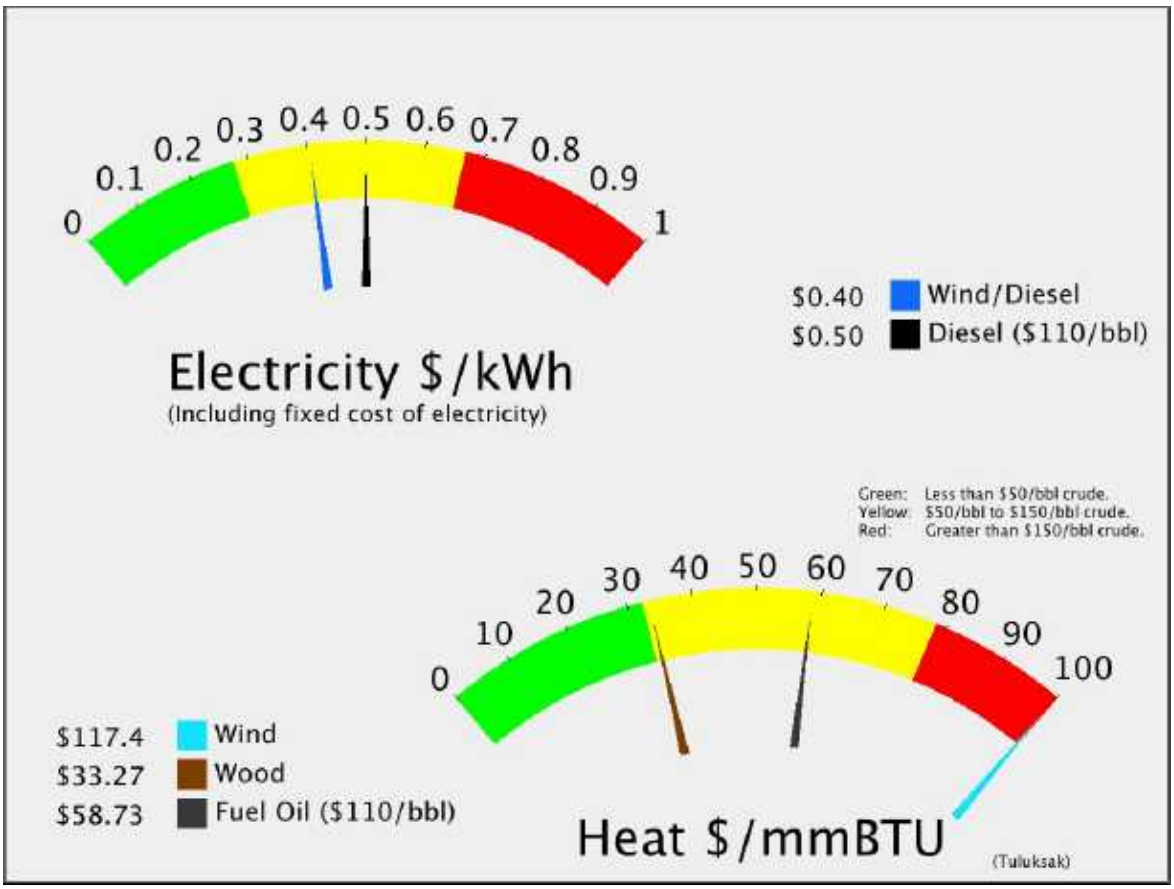




Total: **$2,472** Per capita

Heat	**$1,300**	Per capita
Transportation	**$465**	Per capita
Electricity:	**$707**	Per capita

POPULATION: 487



Tuluksak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 487 LATITUDE: 61d 06m N LONGITUDE: 160d 58m **Unorganized**

LOCATION Tuluksak lies on the south bank of the Tuluksak River at its junction with the Kuskokwim River. The village is 35 miles northeast of Bethel.

ECONOMY The primary employers are the school, village government, and services. Some commercial fishing also occurs; 29 residents hold commercial fishing permits. Subsistence activities provide most food sources. A village store was recently completed.

HISTORY The name was first published in 1861 as Tul'yagmyut an Eskimo word meaning related to loon." The 1880 U.S. Census noted a population of 150 living in the village. A City government was formed in 1970 but it was dissolved on March 7 1997."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.49** /kw-hr

Current efficiency	**12.41**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$13,284**
Consumption in 200	**47,301**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$59,677**
Average Load	**76**	kW	NF COE:	**$0.09**	/kw-hr	Current Fuel Costs	**$259,682**
Estimated peak loa	**151.65**	kW	Total	**$0.50**		**Total Electric**	
Average Sales	**664,208**	kW-hours				**$332,643**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**97,546**	gal	
Fuel Oil:	**45%**	Estimated heating fuel cost/gallon	**$6.49**		
Wood:	**45%**	$/MMBtu delivered to user	**$58.86**	**Total Heating Oil**	
Electricity:	**6.8%**	Community heat needs in MMBtu	**11,706**	**$633,077**	

Transportation (Estimated)

Estimated Diesel: **34,895** gal Estimated cost **$6.49**

Total Transportation **$226,470**

Energy Total **$1,192,190**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **41,919**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$13,284**	$0.02	
New fuel cost	**$230,135**	$0.35	
Avg Non-Fuel Costs:	**$72,961**	$0.09	
New cost of electricity		**$0.50** per kW-hr	

Savings **$28,919**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**7,095**	gal	**$46,048**
Stack Heat	**0**	gal	**$0**

Capital cost	**$212,304**		
Annual ID	**$17,784**		
Annual OM	**$4,246**		
Total Annual costs	**$22,030**		
Heat cost	**$28.10**	$/MMBtu	

Savings **$24,017**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **671378**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.52
Annual OM	**$31,499**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,370**	$0.29	**$85.26**
Non-Fuel Costs		$0.11	
Alternative COE:		**$0.40**	
% Community energy		101%	
New Community COE		**$0.40**	

(includes non-fuel and diesel costs)

Savings

$137,273

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	21.8%

Other Resources

Tuluksak

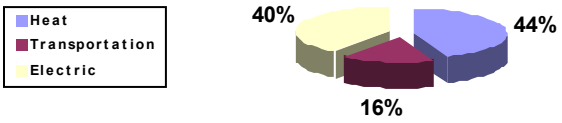
Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Tuntutuliak

Energy Used



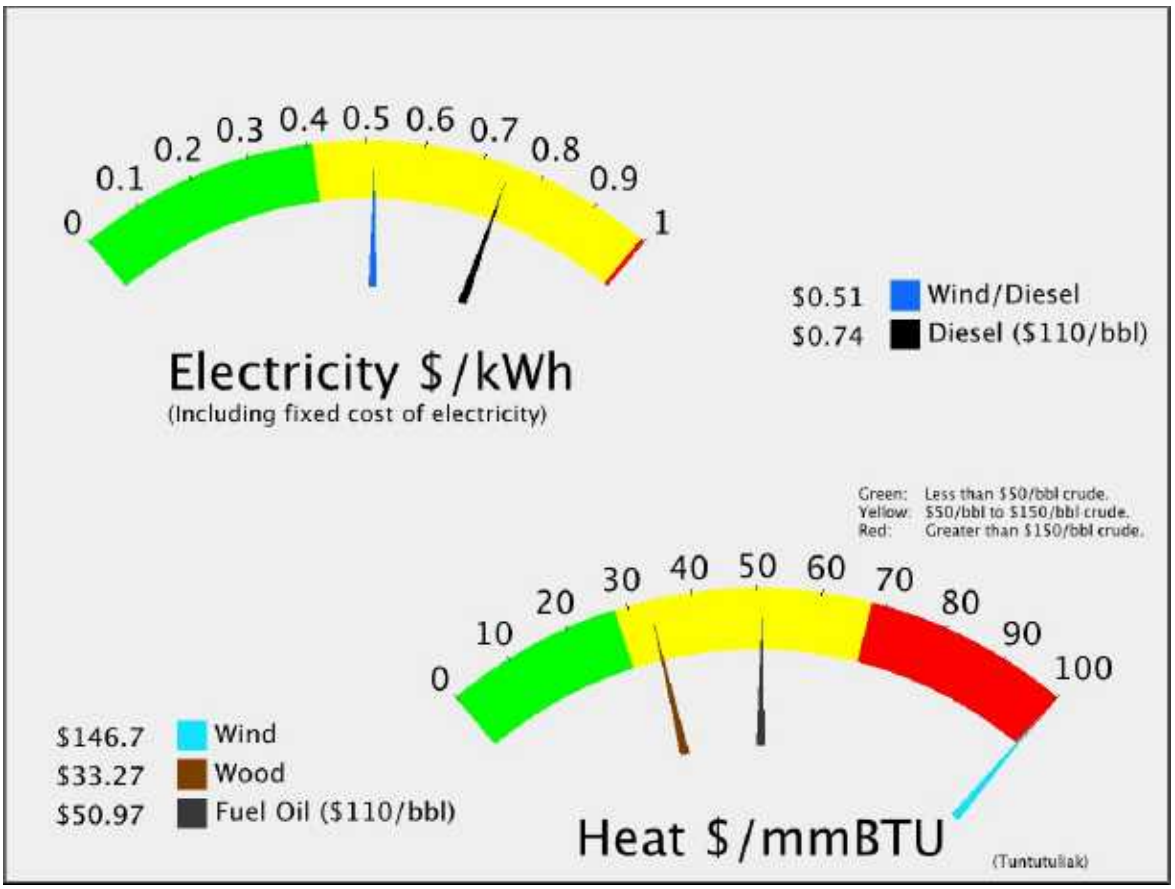
Total: **$3,046** Per capita

Heat **$1,348** Per capita

Transportation **$482** Per capita

Electricity: **$1,216** Per capita

POPULATION: 422



Tuntutuliak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 422 LATITUDE: 60d 22m N LONGITUDE: 162d 38m **Unorganized**

LOCATION Tuntutuliak is on the Qinaq River, approximately 3 miles from its confluence with the Kuskokwim River, about 40 miles from the Bering Sea coast. It lies 40 miles southwest of Bethel and 440 miles west of Anchorage.

ECONOMY Employment by the school, services, commercial fishing and fish processing provides most of the income. Trapping, basket weaving, skin-sewn products and other Native handicrafts also provide cash. Subsistence foods comprise a majority of the diet, and about one-half of families go to fish camp each summer. 51 residents hold commercial fishing permits for salmon net and herring roe fisheries.

HISTORY The village's Yup'ik name is Tuntutuliaq, meaning "place of many reindeer." It was originally located four miles to the east and called Qinaq, as noted in 1879 by Edward Nelson who found 175 residents at that time. In 1908, a Moravian missionary visited the village and found 130 people living there. In 1909 a BIA school was built, and the first teacher was well liked in the community. Due to lack of confidence in the subsequent teachers, the school was closed in 1917 and the building moved to the village of Eek. It is thought that some Qinaq villagers may have moved to Eek so their children could attend school. In 1923 the first Moravian Chapel was built, with lumber and other support from Eek. In the late 1920s a trading post and store was opened by John Johnson. The community moved to its present site on higher ground and was renamed Tuntutuliak in 1945. The BIA built a school in 1957. A post office opened in 1960.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**12.86**	kW-hr/gal	Fuel COE	**$0.53**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$4.63**
Consumption in 200	**74,316**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$12,922**
Average Load	**74**	kW	NF COE:	**$0.19**	/kw-hr	Other Non-Fuel Costs:	**$124,572**
Estimated peak loa	**147.51**	kW	Total	**$0.75**		Current Fuel Costs	**$344,254**
Average Sales	**646,109**	kW-hours				**Total Electric**	**$481,748**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**100,989**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.63**		
Wood:	**0%**	$/MMBtu delivered to user	**$51.08**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,119**		**$568,802**

Transportation (Estimated)

Estimated Diesel:	**36,127**	gal	Estimated cost	**$5.63**	**Total Transportation** **$203,477**

Energy Total **$1,254,028**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Module

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **68,262**

Capital cost	**$1,300,000**		
Annual Capital cost	**$108,897**	$0.17	/kw-hr
Estimated Diesel OM	**$12,922**	$0.02	
New fuel cost	**$316,209**	$0.49	
Avg Non-Fuel Costs:	**$137,494**	$0.19	
New cost of electricity	**$0.71** per kW-hr		

Savings **($80,851)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**11,147**	gal	**$62,786**
Stack Heat	**0**	gal	**$0**

Capital cost	**$206,519**		
Annual ID	**$17,299**		
Annual OM	**$4,130**		
Total Annual costs	**$21,430**		
Heat cost	**$17.40**	$/MMBtu	

Savings **$41,356**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **679248**

Met Tower? **no**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$70.69
Annual OM	**$31,868**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,740**	$0.29	**$84.43**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.50**	
% Community energy		105%	
New Community COE (includes non-fuel and diesel costs)		**$0.52**	

Savings

$286,009

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	21.0%

Other Resources

Tuntutuliak

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

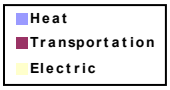
Renewable Fund Project List:

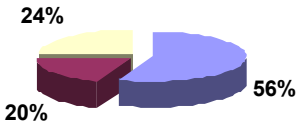
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Tuntutuliak High Penetration Wind Diesel has been submitted by: Tuntutuliak Community ServicesAssociation for a Wind Diesel Hybrid project. The total project budget is: $3,360,000 with $1,760,000 requested in grant funding and $1,600,000 as matching funds.

Tununak

Energy Used

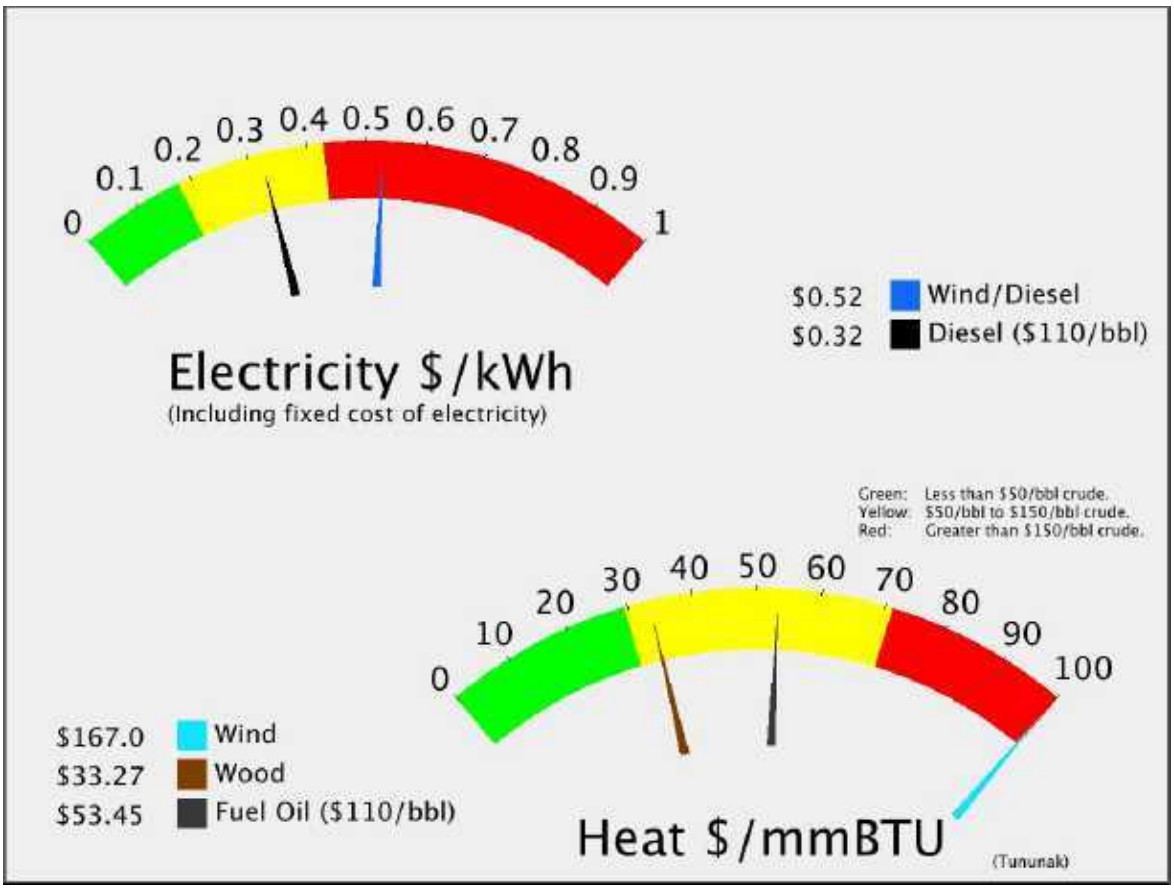




Total: **$3,343** Per capita

Heat	**$1,866**	Per capita
Transportation	**$668**	Per capita
Electricity:	**$810**	Per capita

POPULATION: 341



Tununak

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 341 LATITUDE: 60d 35m N LONGITUDE: 165d 15m **Unorganized**

LOCATION Tununak is located in a small bay on the northeast coast of Nelson Island, 115 miles northwest of Bethel and 519 miles northwest of Anchorage.

ECONOMY Employment is primarily with the school district, village corporation, stores and commercial fishing. Trapping and Native crafts also generate cash for many families, and subsistence activities are an important contributor to villagers' diets. Seal meat, seal oil and herring are the staples of the diet. Beluga whale and walrus are also hunted. Residents participate in a lottery to hunt musk-ox on Nelson or Nunivak Islands. 53 residents hold commercial fishing permits. Coastal Villages Seafood, Inc. processes halibut and salmon in Tununak.

HISTORY Nelson Island was named after Edward Nelson in 1878, a Smithsonian naturalist who noted 6 people, including 1 non-Native trader, living in Tununak. In 1889 the Jesuits opened a small chapel and school. The villagers were difficult to convert due to the migratory nature of the traditional culture, and because the shamans were still quite powerful. The mission closed in 1892. In 1925 a government school was built, and a Northern Commercial Co. store was opened in 1929. From 1934 to 1962, a missionary named Father Deshout lived on Nelson Island. His long-standing relationship and work with the people in the area had a great influence. The 1950s brought great changes to the Islanders lifestyle, through their involvement with the Territorial Guard, work in fish canneries, high schools, and health care treatment for tuberculosis. For many, this was their first exposure outside the community. By the 1970s, snowmobiles were replacing dog sled teams, and the last qasgiq (men's community houses) was abandoned. The City was incorporated in 1975, but it was dissolved on Feb. 28, 1997 in favor of traditional council governance.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.91** /kw-hr

Current efficiency	**12.81**	kW-hr/gal	Fuel COE	**$0.04**	/kw-hr	Estimated Diesel OM	**$16,242**
Consumption in 200	**6,994**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$211,143**
Average Load	**93**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$34,318**
Estimated peak loa	**185.41**	kW	Total	**$0.32**		**Total Electric**	
Average Sales	**812,089**	kW-hours				**$261,703**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**107,732**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.91**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.57**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**12,928**		**$636,348**

Transportation (Estimated)

Estimated Diesel:	**38,539**	gal	Estimated cost	**$5.91**	**Total Transportation** **$227,640**

Energy Total **$1,125,692**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **6,397**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$16,242**	$0.02	
New fuel cost	**$31,390**	$0.04	
Avg Non-Fuel Costs:	**$227,385**	$0.26	
New cost of electricity	**$0.63** per kW-hr		

Savings **$2,300**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**1,049**	gal	**$6,197**
Stack Heat	**0**	gal	**$0**

Capital cost	**$259,572**		
Annual ID	**$21,743**		
Annual OM	**$5,191**		
Total Annual costs	**$26,935**		
Heat cost	**$232.35**	$/MMBtu	

Savings **($20,738)**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**

kW-hr/year **673716**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.27
Annual OM	**$31,608**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,480**	$0.29	**$85.01**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		83%	
New Community COE		**$0.51**	

(includes non-fuel and diesel costs)

Savings

($153,567)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	19.7%

Other Resources

Tununak

Tidal:

Wave:

Coal Bed Methane: NO POSITIVE INDICATION OF POTENTIAL

Natural Gas:

Coal: SOME POTENTIAL

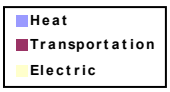
Propane:

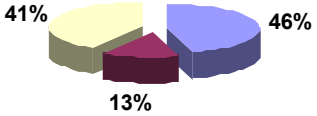
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Twin Hills

Energy Used





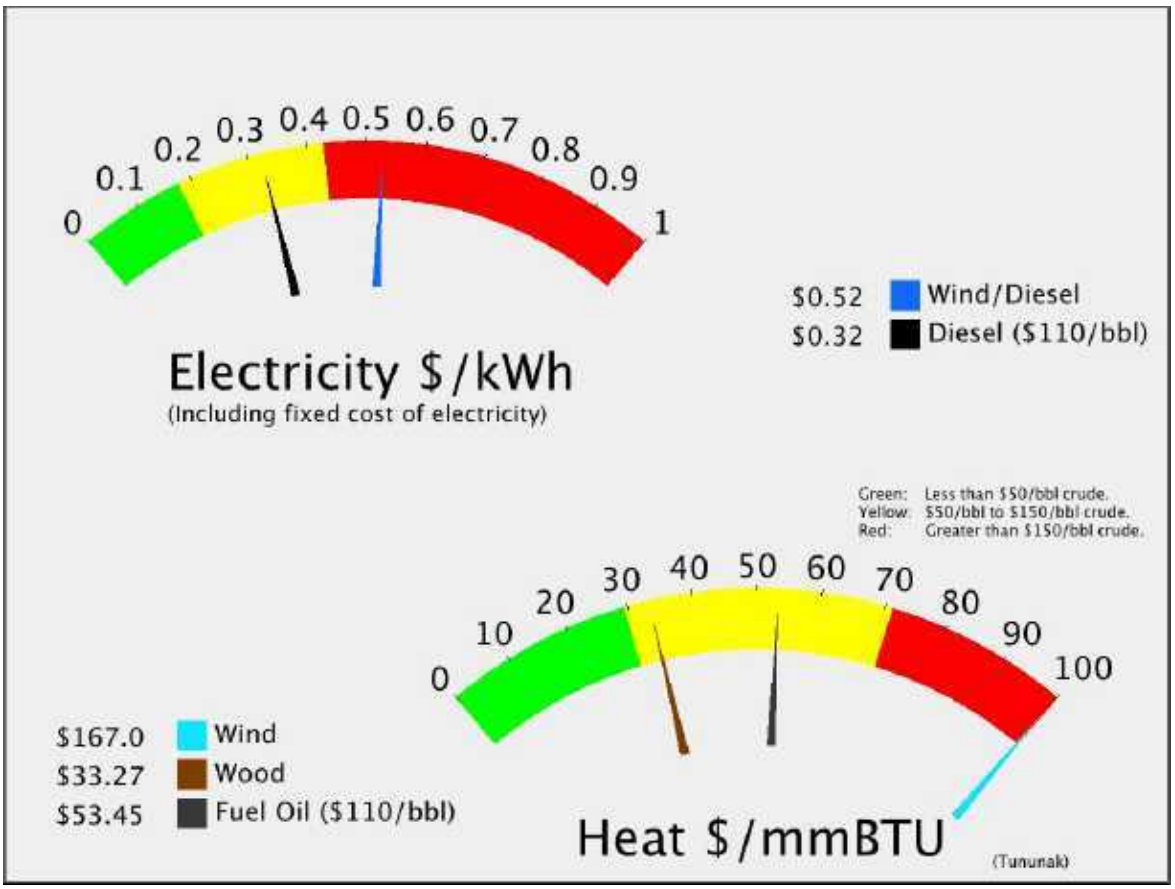
Total: **$6,784** Per capita

Heat **$3,086** Per capita

Transportation **$906** Per capita

Electricity: **$2,792** Per capita

POPULATION: 81



Twin Hills

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 81 LATITUDE: 59d 05m N LONGITUDE: 160d 13m **Unorganized**

LOCATION Twin Hills is located near the mouth of the Twin Hills River, a tributary of the Togiak River, 386 miles southwest of Anchorage.

ECONOMY Steady employment is limited to those working for the Village Council and Post Office. 15 residents hold commercial fishing permits, primarily for salmon, herring, herring roe on kelp, or sac roe. Fishermen use special flat-bottomed boats for the shallow waters of Togiak Bay. Togiak Fisheries and other cash buyers provide a market for fishermen. The community depends heavily on subsistence activities for various food sources. Seal, sea lion, walrus, whale, salmon, clams, geese, and ducks are harvested. An exchange relationship exists between Twin Hills, Togiak and Manokotak. Seal oil is exchanged for blackfish. Handicrafts also supplement incomes.

HISTORY The village was established in 1965 by families who moved from Togiak to avoid the recurrent flooding there. Some residents migrated from Quinhagak on Kuskokwim Bay. The people have strong cultural ties to the Yukon-Kuskokwim region, because many of their ancestors migrated to Togiak following the 1918-19 influenza epidemic. School was first conducted in the church during 1967-68. A school building was constructed in 1972, but it burned in 1976. A new school was built in 1978. A post office was established around 1977, although there have been some interruptions of service.

Current Energy Status PCE

Electric (Estimates based on PCE)

Current efficiency	**8.01**	kW-hr/gal	Fuel COE	**$1.16**	/kw-hr	Estimated Local Fuel cost @ $110/bbl /kw-hr	**$5.97**
Consumption in 200	**31,579**	gal	Est OM	**$0.02**	/kw-hr	Estimated Diesel OM	**$3,240**
Average Load	**18**	kW	NF COE:	**$0.08**	/kw-hr	Other Non-Fuel Costs:	**$12,702**
Estimated peak loa	**36.987**	kW	Total	**$1.26**		Current Fuel Costs	**$188,426**
Average Sales	**162,005**	kW-hours				**Total Electric**	**$204,368**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**35,877**	gal	
Fuel Oil:	**88%**	Estimated heating fuel cost/gallon	**$6.97**		
Wood:	**0%**	$/MMBtu delivered to user	**$63.19**		**Total Heating Oil**
Electricity:	**12.5%**	Community heat needs in MMBtu	**4,305**		**$249,950**

Transportation (Estimated)

Estimated Diesel:	**10,532**	gal	Estimated cost	**$6.97**	**Total Transportation** **$73,375**

Energy Total **$527,693**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$3,000,000**				
Complete Powerhouse		Annual Capital cost	**$251,300**	$1.55	/kw-hr		
Status	**Pending**	Estimated Diesel OM	**$3,240**	$0.02			
Acheivable efficiency	**14** kW-	New fuel cost	**$107,741**	$0.67		**Savings**	
New Fuel use	**18,057**	Avg Non-Fuel Costs:	**$15,942**	$0.08		**($170,615)**	
		New cost of electricity		**$2.08** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed?	**N**		Capital cost	**$51,782**			
Is it working now?	**N**		Annual ID	**$4,338**			
BLDGs connected and working:			Annual OM	**$1,036**			
None							
		Value	Total Annual costs	**$5,373**		**Savings**	
Water Jacket	**4,737** gal	**$33,001**					
Stack Heat	**0** gal	**$0**	Heat cost	**$10.27**	$/MMBtu	**$27,627**	

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **417786**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$82.99
Annual OM	**$19,601**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,933**	$0.33	**$96.73**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.43**	
% Community energy		258%	
New Community COE (includes non-fuel and diesel costs)		**$0.95**	

Savings

$66,435

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	59.2%

Other Resources

Twin Hills

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

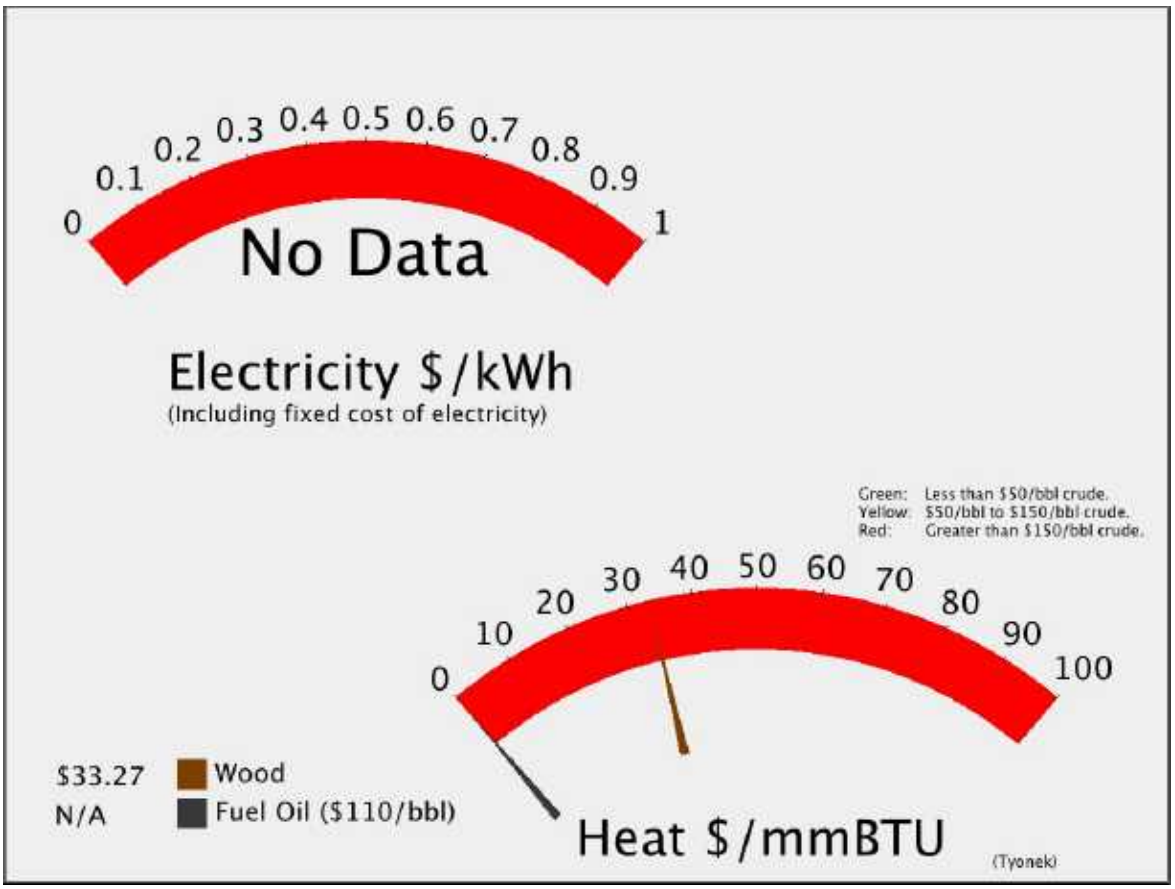
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Tyonek

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	181
Transportation	Per capita		
Electricity:	Per capita		



Tyonek

Regional Corporation
Cook Inlet Region, Inc.

House 6
Senate : **C**

POPULATION 181 LATITUDE: 61d 04m N LONGITUDE: 151d 08m **Kenai Peninsula Boroug**

LOCATION Tyonek lies on a bluff on the northwest shore of Cook Inlet, 43 miles southwest of Anchorage. Tyonek is not located directly on the Kenai Peninsula.

ECONOMY Subsistence activities provide salmon, moose, beluga whale and waterfowl. 20 residents hold commercial fishing permits. Tyonek offers recreational fishing and hunting guide services. Some residents trap during winter. The North Foreland Port Facility at Tyonek is the preferred site for export of Beluga coal.

HISTORY It is a Dena'ina (Tanaina) Athabascan Indian village. Various settlements in this area include Old Tyonek Creek, Robert Creek, Timber Camp, Beluga and Moquawkie Indian Reservation. Captain Cook's journal provides a description of the Upper Cook Inlet Athabascans in 1778, who possessed iron knives and glass beads. He concluded that the Natives were trading indirectly with the Russians. Russian trading settlements were established at "Tuiunuk" and Iliamna prior to the 1790s, but were destroyed due to dissension between the Natives and the Russians. Between 1836 and 1840, half of the region's Indians died from a smallpox epidemic. The Alaska Commercial Company had a major outpost in Tyonek by 1875. In 1880, "Tyonok" station and village, believed to be two separate communities, had a total of 117 residents, including 109 Athabascans, 6 "creoles" and 2 whites. After gold was discovered at Resurrection Creek in the 1880s, Tyonek became a major disembarkment point for goods and people. A saltery was established in 1896 at the mouth of the Chuitna River north of Tyonek. In 1915, the Tyonek Reservation (also known as Moquawkie Indian Reservation) was established. The devastating influenza epidemic of 1918-19 left few survivors among the Athabascans. The village was moved to its present location atop a bluff when the old site near Tyonek Timber flooded in the early 1930s. The population declined when Anchorage was founded. In 1965, the federal court ruled that the Bureau of Indian Affairs (BIA) had no right to lease Tyonek Indian land for oil development without permission of the Indians themselves. The tribe subsequently sold rights to drill for oil and gas beneath the reservation to a group of oil companies for $12.9 million. The reservation status was revoked with the passage of the Alaska Native Claims Settlement Act in 1971. Beluga, a site near Tyonek, is owned by Chugach Electric Association and provides some electricity for Anchorage.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Tyonek

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	CONFIRMED RESOURCE
Natural Gas:	CONFIRMED RESOURCE
Coal:	CONFIRMED RESOURCE
Propane:	

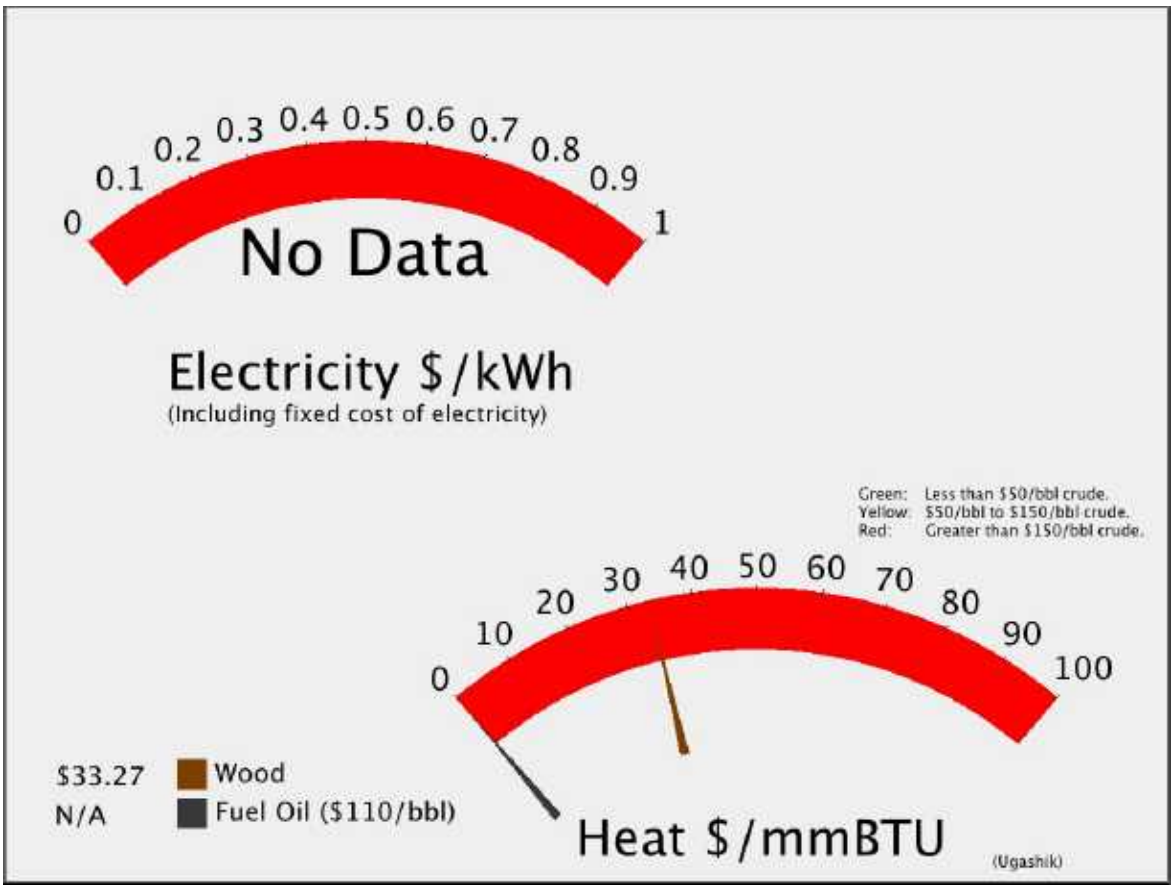
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Ugashik

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	13
Transportation	Per capita		
Electricity:	Per capita		



Ugashik

Regional Corporation
Bristol Bay Native Corporation

House 37
Senate : **S**

POPULATION 13 LATITUDE: 57d 30m N LONGITUDE: 157d 23m **Lake & Peninsula Borou**

LOCATION Ugashik is located on the northwest coast of the Alaska Peninsula, 16 miles up the Ugashik River.

ECONOMY Four residents hold a commercial fishing permit. Subsistence activities provide food sources, including salmon, trout, grayling, moose, caribou, and bear.

HISTORY Yup'ik Eskimos and Aleuts jointly occupied the area historically. This Aleut village was first recorded in 1880 as Oogashik." In the 1890s the Red Salmon Company developed a cannery and Ugashik became one of the largest villages in the region. The 1919 flu epidemic decimated the population. The cannery has continued to operate under various owners. The Briggs Way Cannery opened in 1963. The village has a small year-round population."

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **100**
kW-hr/year **197999**
Met Tower? **no**
Homer Data? **yes**
Wind Class **5**
Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$1,009,033**		
Annual Capital	**$67,823**	$0.34	$100.36
Annual OM	**$9,289**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$77,112**	$0.39	**$114.11**

Non-Fuel Costs
Alternative COE:
% Community energy **Savings**
New Community COE
(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**
Annual ID **$33,608**
Capital per MMBt **$13.18**
Fuel cost per MMBtu **$20.09**
Total per MMBT **$33.27**
Annual Heat

Other Resources

Ugashik

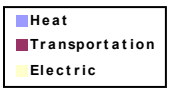
Tidal:
Wave:
Coal Bed Methane:
Natural Gas: Basin has industrial-scale exploration potential
Coal:
Propane:

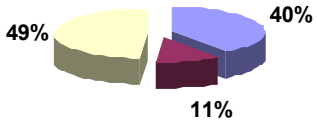
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Unalakleet

Energy Used





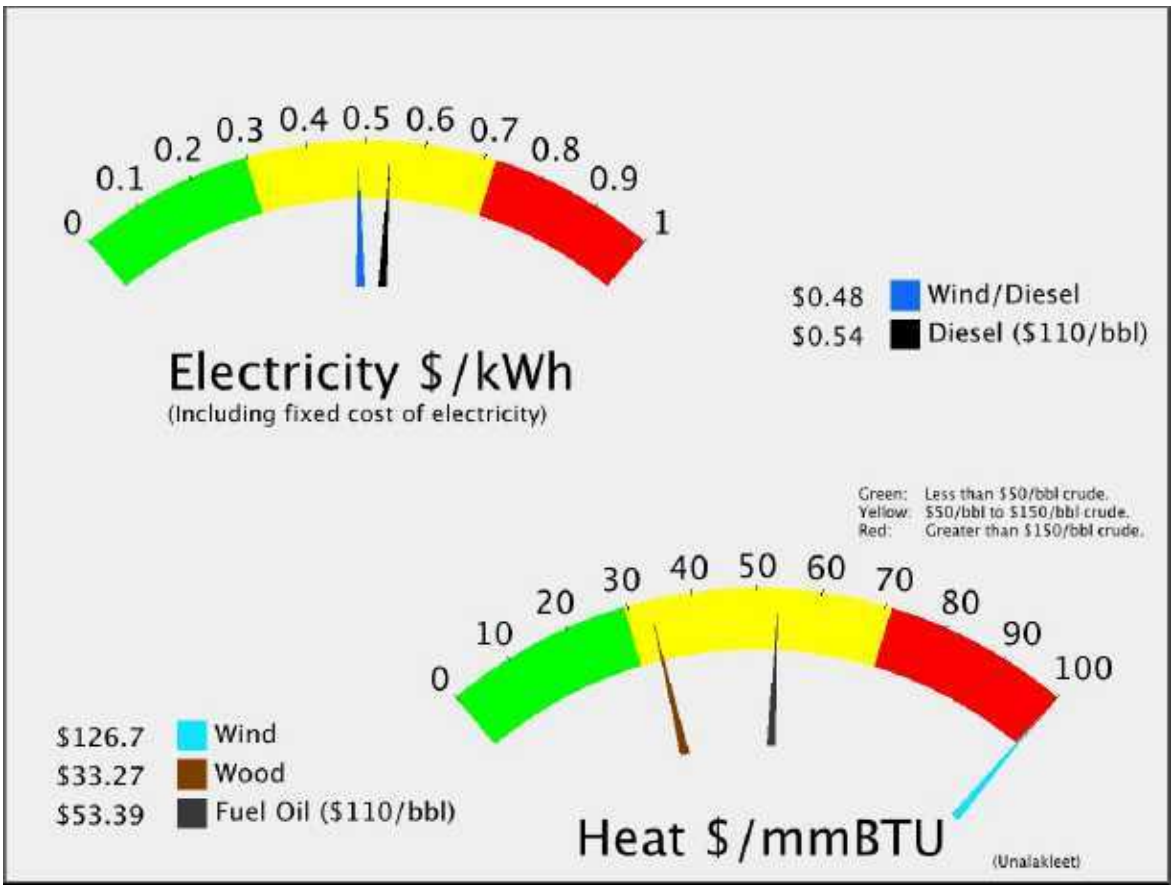
Total: **$5,761** Per capita

Heat **$2,326** Per capita

Transportation **$629** Per capita

Electricity: **$2,806** Per capita

POPULATION: 724



Unalakleet

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 724 LATITUDE: 63d 52m N LONGITUDE: 160d 47m **Unorganized**

LOCATION Unalakleet is located on Norton Sound at the mouth of the Unalakleet River, 148 miles southeast of Nome and 395 miles northwest of Anchorage.

ECONOMY Both commercial fishing for herring, herring roe and subsistence activities are major components of Unalakleet's economy. 109 residents hold commercial fishing permits. Norton Sound Econ. Dev. Council operates a fish processing plant. Government and school positions are relatively numerous. Tourism is becoming increasingly important; there is world-class silver fishing in the area.

HISTORY Archaeologists have dated house remnants along the beach ridge from 200 B.C. to 300 A.D. The name Unalakleet means "from the southern side." Unalakleet has long been a major trade center as the terminus for the Kaltag Portage, an important winter travel route connecting to the Yukon River. Indians on the upper river were considered "professional" traders who had a monopoly on the Indian-Eskimo trade across the Kaltag Portage. The Russian-American Company built a post here in the 1830s. In 1898, reindeer herders from Lapland were brought to Unalakleet to establish sound herding practices. In 1901, the Army Signal Corps built over 605 miles of telegraph line from St. Michael to Unalakleet, over the Portage to Kaltag and Fort Gibbon. The City was incorporated in 1974.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.90** /kw-hr

Current efficiency	**13.49**	kW-hr/gal	Fuel COE	**$0.39**	/kw-hr	Estimated Diesel OM	**$76,078**
Consumption in 200	**300,111**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$508,842**
Average Load	**434**	kW	NF COE:	**$0.13**	/kw-hr	Current Fuel Costs	**$1,470,574**
Estimated peak loa	**868.47**	kW	Total	**$0.54**		**Total Electric**	
Average Sales	**3,803,897**	kW-hours				**$2,055,494**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**285,394**	gal	
Fuel Oil:	**89%**	Estimated heating fuel cost/gallon	**$5.90**		
Wood:	**9%**	$/MMBtu delivered to user	**$53.51**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**34,247**		**$1,683,853**

Transportation (Estimated)

Estimated Diesel: **77,225** gal Estimated cost **$5.90**

Total Transportation **$455,635**

Energy Total **$4,194,982**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Final Design**

Acheivable efficiency **14.8** kW-

New Fuel use **274,489**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.07	/kw-hr
Estimated Diesel OM	**$76,078**	$0.02	
New fuel cost	**$1,345,021**	$0.35	
Avg Non-Fuel Costs:	**$584,920**	$0.13	
New cost of electricity	**$0.55** per kW-hr		

Savings **($125,747)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

IRA Bldg. Water and Sewer Plant

			Value
Water Jacket	**45,017**	gal	**$265,603**
Stack Heat	**30,011**	gal	**$177,068**

Capital cost **$1,215,858**

Annual ID **$101,848**

Annual OM **$24,317**

Total Annual costs **$126,165**

Heat cost **$15.22** $/MMBtu

Savings **$316,506**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**

kW-hr/year **1858792**

Met Tower? **yes**

Homer Data? **yes**

Wind Class **6**

Avg wind speed **5.14** m/s

			Heat Cost $/MMBtu :
Capital cost	**$6,410,697**	per kW-hr	
Annual Capital	**$430,900**	$0.23	$67.92
Annual OM	**$87,208**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$518,107**	$0.28	**$81.67**
Non-Fuel Costs		$0.15	
Alternative COE:		**$0.43**	
% Community energy		49%	
New Community COE		**$0.48**	

(includes non-fuel and diesel costs)

Savings

$237,675

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	7.4%

Other Resources

Unalakleet

Tidal:

Wave:

Coal Bed Methane:

Natural Gas: Basin has industrial-scale exploration potential

Coal: SOME POTENTIAL

Propane:

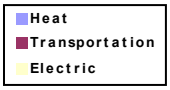
Renewable Fund Project List:

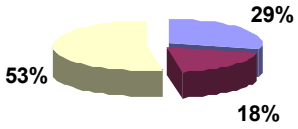
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Unalakleet Wind Farm Construction has been submitted by: Unalakleet Valley Electric Cooperative, Inc for a Wind Diesel Hybrid project. The total project budget is: $8,996,832 with $8,774,080 requested in grant funding and $222,752 as matching funds.

Unalaska

Energy Used





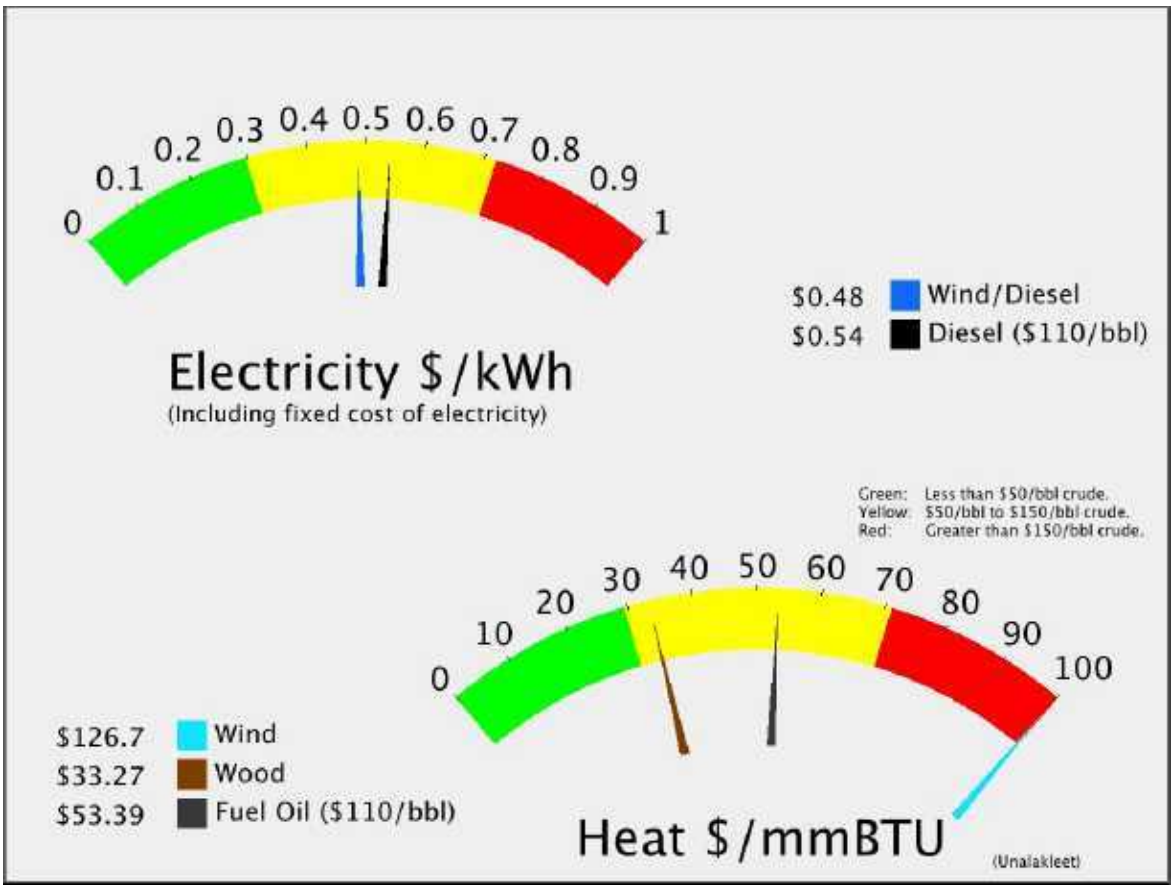
Total: **$7,002** Per capita

Heat **$2,035** Per capita

Transportation **$1,275** Per capita

Electricity: **$3,692** Per capita

POPULATION: 3678



Unalaska

Regional Corporation
Aleut Corporation

House 37
Senate : **S**

POPULATION 3678 LATITUDE: 53d 52m N LONGITUDE: 166d 32m **Unorganized**

LOCATION Unalaska overlooks Iliuliuk Bay and Dutch Harbor on Unalaska Island in the Aleutian Chain. It lies 800 air miles from Anchorage, a two- to three-hour flight, and 1,700 miles northwest of Seattle. The name Dutch Harbor is often applied to the portion of the City on Amaknak Island, which is connected to Unalaska Island by bridge. Dutch Harbor is actually within the boundaries of the City of Unalaska.

ECONOMY Unalaska's economy is based on commercial fishing, fish processing, and fleet services such as fuel, repairs and maintenance, trade and transportation. The community enjoys a strategic position as the center of a rich fishing area, and for transshipment of cargo between Pacific Rim trading partners. The Great Circle shipping route from major west coast ports to the Pacific Rim passes within 50 miles of Unalaska, and Dutch Harbor provides a natural protection for fishing vessels. Onshore and offshore processors provide some local employment. However, non-resident workers are usually brought in during the peak season. 50 residents hold commercial fishing permits. Westward Seafoods, Unisea, Alyeska, Icicle, Trident and Royal Aleutian Seafoods process the commercial catch. Unalaska has a budding tourist industry and a new Convention and Visitors Bureau.

HISTORY More than 3,000 Unangan (known since the Russian era as "Aleuts") lived in 24 settlements on Unalaska and Amaknak Islands in 1759. Unalaska became a Russian trading port for the fur seal industry in 1768. In 1787, many hunters and their families were enslaved and relocated by the Russian American Company to the Pribilof Islands to work in the fur seal harvest. In 1825, the Russian Orthodox Church of the Holy Ascension of Christ was constructed. The founding priest, Ivan Veniaminov, composed the first Aleut writing system with local assistance, and translated scripture into Aleut. Since Aleuts were not forced to give up their language or culture by the Russian Orthodox priests, the Church remained strong in the community. By this time, however, between 1830 and 1840, only 200 to 400 Aleuts lived in Unalaska. In 1880, the Methodist Church opened a school, clinic and the Jesse Lee Home for orphans. The City of Unalaska was incorporated in March 1942. On June 3, 1942, Unalaska was attacked by the Japanese. Almost all of the Aleuts on the Island were interned to Southeast Alaska for the duration of World War II. The Russian Orthodox Church was nearly destroyed by evacuating U.S. Army troops. The Church is the oldest Russian Orthodox cruciform-style church in North America, and is currently undergoing restoration.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.95** /kw-hr

Current efficiency	**13.59**	kW-hr/gal	Fuel COE	**$0.37**	/kw-hr	Estimated Diesel OM	**$671,509**
Consumption in 200	**2,481,923**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$2,579,853**
Average Load	**3,833**	kW	NF COE:	**$0.08**	/kw-hr	Current Fuel Costs	**$12,287,008**
Estimated peak loa	**7665.6**	kW	Total	**$0.46**		**Total Electric**	
Average Sales	**33,575,472**	kW-hours				**$15,538,371**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,257,910**	gal	
Fuel Oil:	**68%**	Estimated heating fuel cost/gallon	**$5.95**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.97**		**Total Heating Oil**
Electricity:	**17.6%**	Community heat needs in MMBtu	**150,949**		**$7,485,319**

Transportation (Estimated)

Estimated Diesel:	**788,072**	gal	Estimated cost	**$5.95**	**Total Transportation**
					$4,689,499

Energy Total **$27,713,189**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:		Capital cost	**$0**			
#N/A		Annual Capital cost	**$0**	$0.00	/kw-hr	
Status		Estimated Diesel OM	**$671,509**	$0.02		
Acheivable efficiency	**14.8** kW-	New fuel cost	**$11,323,624**	$0.34		**Savings**
New Fuel use	**2,287,324**	Avg Non-Fuel Costs:	**$3,251,363**	$0.08		**$963,384**
		New cost of electricity	**$0.43** per kW-hr			

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**372,288**	gal	**$2,215,340**
Stack Heat	**248,192**	gal	**$1,476,893**

Capital cost	**$10,731,886**		
Annual ID	**$898,973**		
Annual OM	**$214,638**		
Total Annual costs	**$1,113,611**		**Savings**
Heat cost	**$16.24**	$/MMBtu	**$2,578,622**

Alternative Energy Resources

Hydro

Installed KW **260**
kW-hr/year **2174000**
Site **Pyramid Creek**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **1.00**

			Heat Cost $/MMBtu :
Capital cost	**$1,560,320**	per kW-hr	
Annual Capital	**$60,643**	$0.03	$8.17
Annual OM	**$27,600**	$0.01	$3.72
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$88,243**	$0.04	**$11.89**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.14**	
% Community energy		6%	**Savings**
New Community COE		**$0.44**	**$750,876**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Geothermal

Installed KW **30000**
kW-hr/year **249660000**
Site Name **Makushin**
Project Capatcity **200 MW**
Shallow Resource Feet
Shallow Temp C

			Heat Cost $/MMBtu :
Capital cost	**$149,000,000**	per kW-hr	
Annual Capital	**$10,015,140**	$0.04	$11.75
Annual OM	**$4,470,000**	$0.02	$5.25
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$14,485,140**	$0.06	**$17.00**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.15**	
% Community energy		744%	**Savings**
New Community COE		**$0.53**	**$1,053,230**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Hydro

Installed KW **700**
kW-hr/year **3114000**
Site **Shaishnikof River**
Study plan effort **reconnaissance**
Plant Factor %
Penetration **1.00**

			Heat Cost $/MMBtu :
Capital cost	**$8,011,360**	per kW-hr	
Annual Capital	**$431,077**	$0.14	$40.56
Annual OM	**$55,200**	$0.02	$5.19
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$486,277**	$0.16	**$45.75**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.25**	
% Community energy		9%	**Savings**
New Community COE		**$0.44**	**$715,564**

(includes non-fuel and diesel costs)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **7900**

kW-hr/year **4266510**

Met Tower? **no**

Homer Data? **no**

Wind Class **7**

Avg wind speed m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$33,705,426**		
Annual Capital	**$2,265,534**	$0.53	$155.58
Annual OM	**$200,169**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$2,465,703**	$0.58	**$169.33**
Non-Fuel Costs		$0.10	
Alternative COE:		**$0.67**	
% Community energy		13%	
New Community COE (includes non-fuel and diesel costs)		**$0.49**	

Savings

($818,789)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	1.7%

Other Resources

Unalaska

Tidal:	SOME POTENTIAL
Wave:	SOME POTENTIAL
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

Renewable Fund Project List:

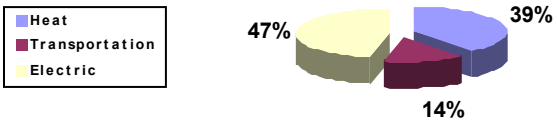
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Makushin Geothermal Feasibility Study has been submitted by: Kiiguusi Suuluta Land Company, LLC for a Geothermal project. The total project budget is: $250,000,000 with $3,225,500 requested in grant funding and $ as matching funds.

A project titled: Unalaska Heat Recovery has been submitted by: City of Unalaska, Department of Public Utilities for a Heat Recovery project. The total project budget is: $2,011,412 with $1,300,000 requested in grant funding and $619,807 as matching funds.sted in grant funding and $ as matching funds.

Upper Kalskag

Energy Used



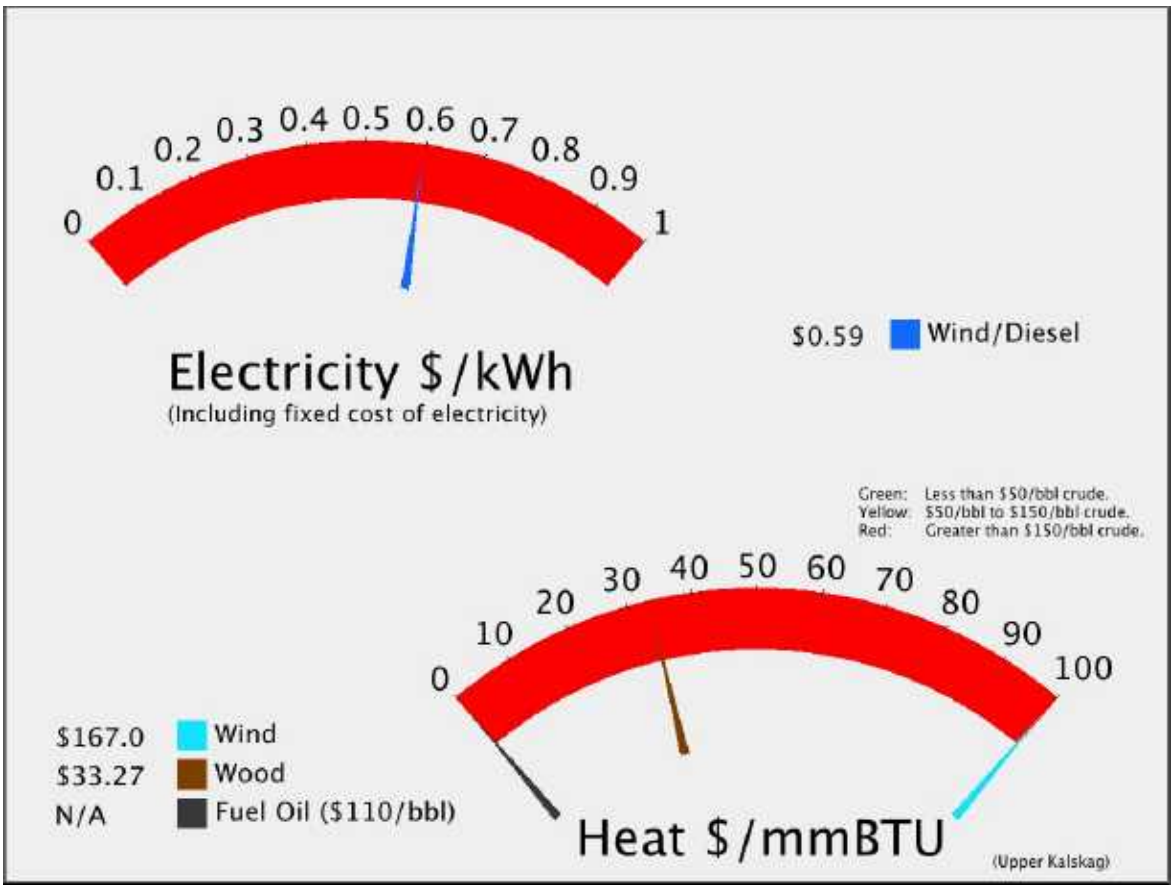
Total: **$4,853** Per capita

Heat **$1,903** Per capita

Transportation **$681** Per capita

Electricity: **$2,269** Per capita

POPULATION: 244



Upper Kalskag

Regional Corporation
Calista Corporation

House 38
Senate : **S**

POPULATION 244 LATITUDE: 61d 32m N LONGITUDE: 160d 20m **Unorganized**

LOCATION Upper Kalskag (Kalskag) is located on the north bank of the Kuskokwim River, 2 miles upriver from Lower Kalskag. It lies 30 miles west of Aniak, 99 miles northeast of Bethel and 348 miles west of Anchorage.

ECONOMY Most cash income in Upper Kalskag is derived from employment at the school, City or clinic. Some trap or work as BLM firefighters. Three residents hold commercial fishing permits. Subsistence activities provide most food sources. Salmon, moose, rabbit, and waterfowl are the primary resources. A few residents maintain gardens.

HISTORY In 1898, Nicholas Kameroff, Sr. and Olinga (Avakumoff) Kameroff and their eight children first settled the community. The village was a fish camp known as "Kessiglik." Around 1900, residents of "Kalthagamute" began to move to the village. In 1930, the BIA established a government school, and by 1932, residents of neighboring communities relocated to Kalskag. In 1940, Paul Kameroff, Sr. established a general store, post office, coffee shop and a barging company. At this time, the community owned and worked a herd of 2,100 reindeer. During the 1930s, Russian Orthodox practitioners in the village relocated to establish Lower Kalskag, three miles to the southwest. The villagers who remained were primarily Roman Catholic practitioners. The City was incorporated in 1975.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.87** /kw-hr

Current efficiency	**14.14**	kW-hr/gal	Fuel COE	**$0.67**	/kw-hr	Estimated Diesel OM	**$12,305**
Consumption in 200	**84,673**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$159,969**
Average Load	**70**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$412,696**
Estimated peak loa	**140.47**	kW	Total	**$0.95**		**Total Electric**	
Average Sales	**615,265**	kW-hours				**$584,970**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**79,041**	gal	
Fuel Oil:	**92%**	Estimated heating fuel cost/gallon	**$5.87**		
Wood:	**8%**	$/MMBtu delivered to user	**$53.28**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**9,485**		**$464,289**

Transportation (Estimated)

Estimated Diesel:	**28,275**	gal	Estimated cost	**$5.87**	**Total Transportation** **$166,090**

Energy Total **$1,215,349**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Semiannual Circuit Rider

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **85,538**

Capital cost	**$7,500**		
Annual Capital cost	**$628**	$0.00	/kw-hr
Estimated Diesel OM	**$12,305**	$0.02	
New fuel cost	**$416,915**	$0.68	
Avg Non-Fuel Costs:	**$172,274**	$0.26	
New cost of electricity		**$0.63**	per kW-hr

Savings **($4,847)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **N**

Is it working now? **N**

BLDGs connected and working:

None

			Value
Water Jacket	**12,701**	gal	**$74,605**
Stack Heat	**0**	gal	**$0**

Capital cost	**$196,660**		
Annual ID	**$16,474**		
Annual OM	**$3,933**		
Total Annual costs	**$20,407**		
Heat cost	**$14.54**	$/MMBtu	

Savings **$54,199**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **300**
kW-hr/year **673716**
Met Tower? **no**
Homer Data? **yes**
Wind Class **7**
Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$2,438,000**	per kW-hr	
Annual Capital	**$163,872**	$0.24	$71.27
Annual OM	**$31,608**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$195,480**	$0.29	**$85.01**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.57**	
% Community energy		110%	
New Community COE		**$0.60**	

(includes non-fuel and diesel costs)

Savings
$389,490

Alternative Energy Resources

Wood

Installed KW **155**
kW-hr/year **1153351**
Installation Type **Wood ORC**
Electric Wood cost **$150/cd**
Wood Required **1457** Cd/Y
Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$2,525,429**	per kW-hr	
Annual Capital	**$169,749**	$0.15	
Annual OM	**$151,174**	$0.13	
Fuel cost:	**$218,624**	$0.19	-90
Total Annual Cost	**$539,547**	$0.47	**$29.76**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.75**	
% Community energy		187%	
New Community COE		**$1.16**	

(includes non-fuel and diesel costs)

Savings
$45,424

Biomass For Heat

Heat Deliverd: **425000** BTU/hr
Cords/day: **1.8**
Hours per year **6000**
Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	26.9%

Other Resources

Upper Kalskag

Tidal:
Wave:
Coal Bed Methane:
Natural Gas:
Coal:
Propane:

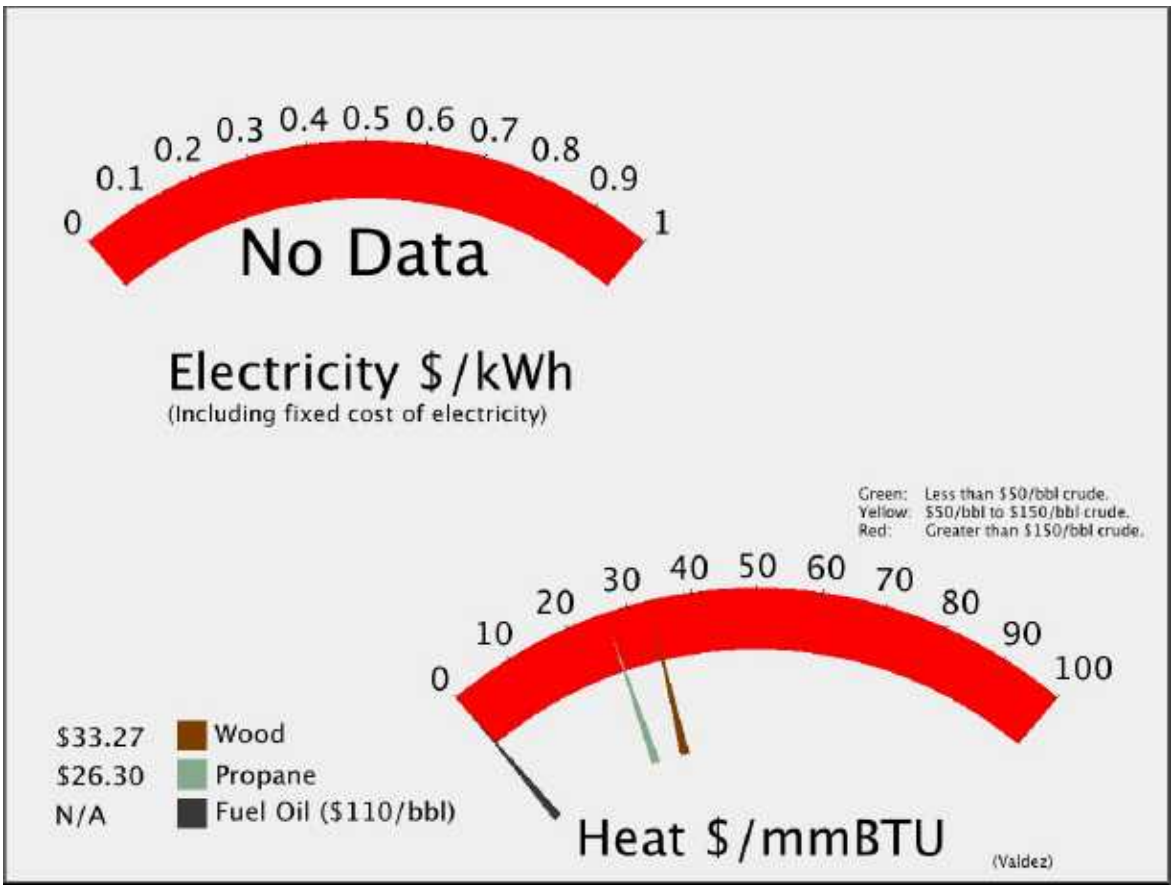
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Valdez

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	4353
Transportation	Per capita		
Electricity:	Per capita		



Valdez

Regional Corporation
Chugach Alaska Corporation

House 12
Senate : **F**

POPULATION 4353 LATITUDE: 61d 07m N LONGITUDE: 146d 16m **Unorganized**

LOCATION Valdez is located on the north shore of Port Valdez, a deep water fjord in Prince William Sound. It lies 305 road miles east of Anchorage, and 364 road miles south of Fairbanks. It is the southern terminus of the Trans-Alaska oil pipeline.

ECONOMY Valdez has one of the highest municipal tax bases in Alaska as the southern terminus and off-loading point of oil extracted from Prudhoe Bay on the North Slope. Four of the top ten employers in Valdez are directly connected to the oil terminus. Alyeska Pipeline Service Co. employs nearly 300 persons. Valdez is a major seaport, with a $48 million cargo and container facility. City, state, and federal agencies combined provide significant employment. 49 residents hold commercial fishing permits. Three fish processing plants operate in Valdez, including Peter Pan and Seahawk Seafoods. Valdez Fisheries Dev. Assoc. will open its year-round processing facility in October 2003. 7 cruise ships will dock in Valdez in 2004. Valdez is a Foreign Free Trade Zone.

HISTORY The Port of Valdez was named in 1790 by Don Salvador Fidalgo for the celebrated Spanish naval officer Antonio Valdes y Basan. Due to its excellent ice-free port, a town developed in 1898 as a debarkation point for men seeking a route to the Eagle Mining District and the Klondike gold fields. Valdez soon became the supply center of its own gold mining region, and incorporated as a City in 1901. Fort Liscum was established in 1900, and a sled and wagon road was constructed to Fort Egbert in Eagle by the U.S. Army. The Alaska Road Commission further developed the road for automobile travel to Fairbanks; it was completed by the early 1920s. A slide of unstable submerged land during the 1964 earthquake destroyed the original City waterfront, killing several residents. The community was rebuilt on a more stable bedrock foundation 4 miles to the west. During the 1970s, construction of the Trans-Alaska oil pipeline terminal and other cargo transportation facilities brought rapid growth to Valdez. In March 1989, it was the center for the massive oil-spill cleanup after the Exxon Valdez" disaster. In a few short days the population of the town tripled."

Alternative Energy Resources

Hydro

Installed KW **4000**

kW-hr/year **24700000**

Site **Allison Lake**

Study plan effort **reconnaissance**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$40,320,000**	per kW-hr	
Annual Capital	**$1,567,057**	$0.06	$18.59
Annual OM	**$200,000**	$0.01	$2.37
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,767,057**	$0.07	**$20.96**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **3700**

kW-hr/year **26000000**

Site **Trans-Alaska Pipeline**

Study plan effort **reconnaissance**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$19,392,000**	per kW-hr	
Annual Capital	**$761,530**	$0.03	$8.58
Annual OM	**$404,000**	$0.02	$4.55
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,165,530**	$0.04	**$13.13**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW **12000**

kW-hr/year **49450000**

Site **Silver Lake**

Study plan effort **reconnaissance**

Plant Factor %

Penetration

			Heat Cost $/MMBtu :
Capital cost	**$121,200,000**	per kW-hr	
Annual Capital	**$4,964,865**	$0.10	$29.42
Annual OM	**$202,000**	$0.00	$1.20
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$5,166,865**	$0.10	**$30.61**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **5200**

kW-hr/year **4632897**

Met Tower? **no**

Homer Data? **no**

Wind Class **7**

Avg wind speed **1.63** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$24,091,062**		
Annual Capital	**$1,619,298**	$0.35	$102.41
Annual OM	**$217,359**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$1,836,656**	$0.40	**$116.16**

Non-Fuel Costs

Alternative COE:

% Community energy **Savings**

New Community COE

(includes non-fuel and diesel costs)

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Valdez

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane: Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

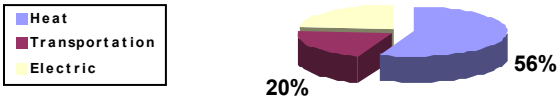
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Allison Lake Hydro Feasibility Study has been submitted by: Copper Valley Electric Association, Inc for a Hydro project. The total project budget is: $45,058,000 with $2,288,000 requested in grant funding and $572,000 as matching funds.

A project titled: PetroStar HR_VFDA has been submitted by: Valdez Fisheries Development Association for a Heat Recovery project. The total project budget is: $35,000,000 with $6,000,000 requested in grant funding and $350,000 as matching funds.

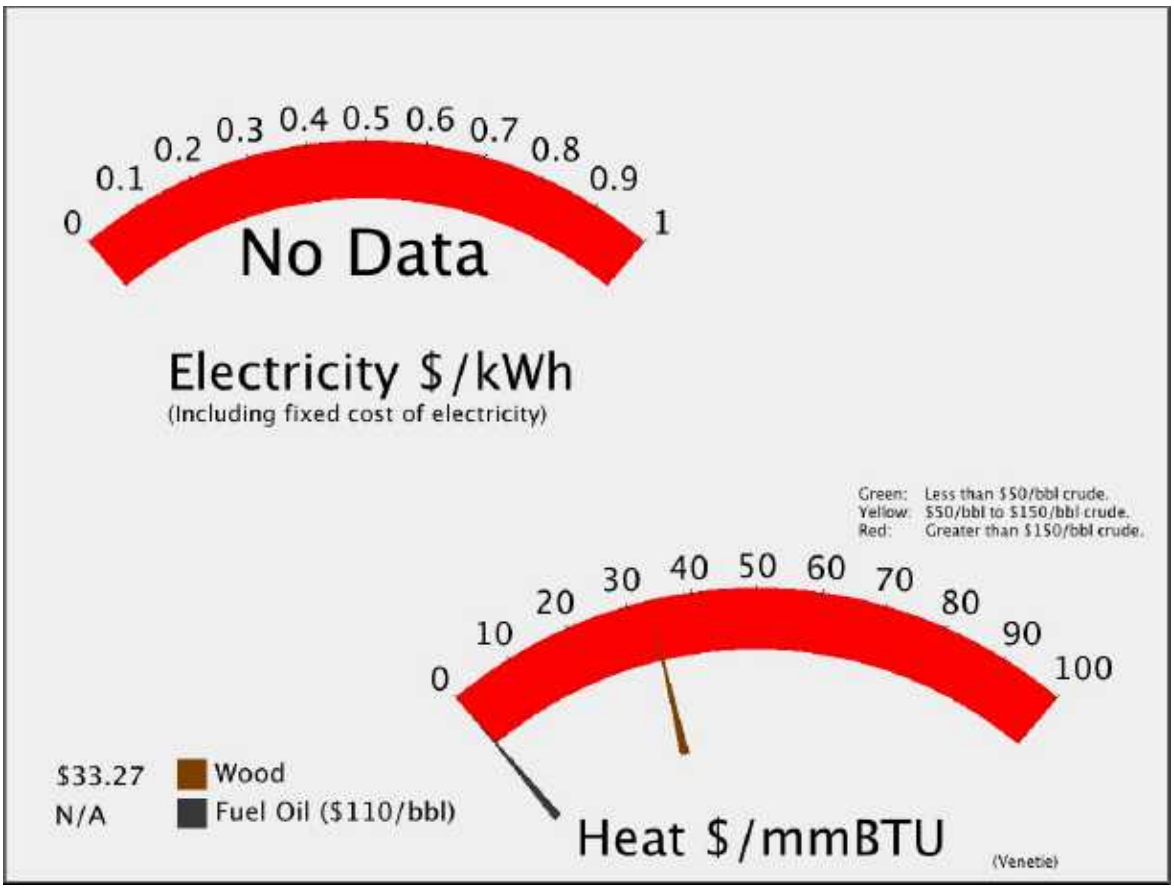
Venetie

Energy Used



Total:		Per capita
Heat	**$1,687**	Per capita
Transportation	**$609**	Per capita
Electricity:		Per capita

POPULATION: 181



Venetie

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 181 LATITUDE: 67d 01m N LONGITUDE: 146d 25m **Unorganized**

LOCATION Venetie is located on the north side of the Chandalar River, 45 miles northwest of Fort Yukon.

ECONOMY Venetie is heavily dependent on subsistence. Salmon, whitefish, moose, caribou, bear, waterfowl and small game provide meat sources. Most employment is through the school, clinic, post office, store and village council. The National Guard has used Venetie as a cold weather survival training school. BLM employs residents as fire fighters seasonally. The village is interested in developing a small mill to process local lumber for housing and other projects, and in tourism promotion. Cabins manufactured from local logs could house visitors, developing arts and crafts activities, cultural activities and a museum.

HISTORY Known to early explorers as Old Robert's Village or Chandalar Village, Venetie was founded in 1895 by a man named Old Robert who chose Venetie because of its plentiful fish and game. In 1899, the U.S. Geological Survey noted about 50 Natives living on the Chandalar, some in small settlements of cabins about 7 miles above the mouth of the River, but most in the mountainous part of the country beyond the Yukon Flats. He noted that the Natives spent only the coldest winter months in cabins and the remainder of the year traveling for various food sources. In 1905, Venetie was a settlement of a half a dozen cabins and 25 or 30 residents. The gold rush to the Chandalar region in 1906-07 brought a large number of miners. A mining camp of nearly 40 cabins and attendant services was established at Caro upriver from Venetie, and another store was located near the mouth of the East Fork. By 1910, the Chandalar was largely played out and Caro almost completely abandoned. In 1943, the Venetie Indian Reservation was established, due to the combined efforts of the residents of Venetie, Arctic Village, Christian Village and Robert's Fish Camp, who worked together to protect their land for subsistence use. At about this same time, a school was established at Venetie, encouraging additional families to settle in the village. Eventually an airstrip, post office and store were built. During the 1950s and 60s, the use of seasonal camps declined, but the advent of the snowmachine enabled Venetie residents to renew use of areas which had traditionally been occupied seasonally. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, Venetie and Arctic Village opted for title to the 1.8 million acres of land in the former Reservation, which they own as tenants in common through the Native Village of Venetie Tribal Government.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Venetie

Regional Corporation
Doyon, Limited
House 6
Senate : **C**

POPULATION 181 LATITUDE: 67d 01m N LONGITUDE: 146d 25m **Unorganized**

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Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.50** /kw-hr

Current efficiency	**13.33**	kW-hr/gal	Fuel COE	**$0.55**	/kw-hr	Estimated Diesel OM	**$3,955**
Consumption in 200	**19,649**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$21,297**
Average Load	**23**	kW	NF COE:	**$0.11**	/kw-hr	Current Fuel Costs	**$108,070**
Estimated peak loa	**45.153**	kW	Total	**$0.67**		**Total Electric**	
Average Sales	**197,772**	kW-hours				**$133,322**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**46,967**	gal	
Fuel Oil:	**5%**	Estimated heating fuel cost/gallon	**$6.50**		
Wood:	**95%**	$/MMBtu delivered to user	**$58.96**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**5,636**		**$305,283**

Transportation (Estimated)

Estimated Diesel: **16,968** gal Estimated cost **$6.50**

Total Transportation **$110,290**

Energy Total **$548,894**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **18,708**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.25	/kw-hr
Estimated Diesel OM	**$3,955**	$0.02	
New fuel cost	**$102,894**	$0.52	
Avg Non-Fuel Costs:	**$25,252**	$0.11	
New cost of electricity	**$0.77** per kW-hr		

Savings **($45,084)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Water Treatment Plant

			Value
Water Jacket	**2,947**	gal	**$19,158**
Stack Heat	**0**	gal	**$0**

Capital cost	**$63,215**		
Annual ID	**$5,295**		
Annual OM	**$1,264**		
Total Annual costs	**$6,560**		
Heat cost	**$20.14**	$/MMBtu	

Savings **$12,598**

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs	$0.13	
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	45.2%

Other Resources

Venetie

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	
Propane:	

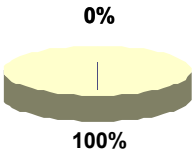
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Venetie District Heat_Village Council has been submitted by: Venetie Village Council for a heat recover project. The total project budget is: $1,308,500 with $88,500 requested in grant funding and $20,000 as matching funds.

Wainwright

Energy Used

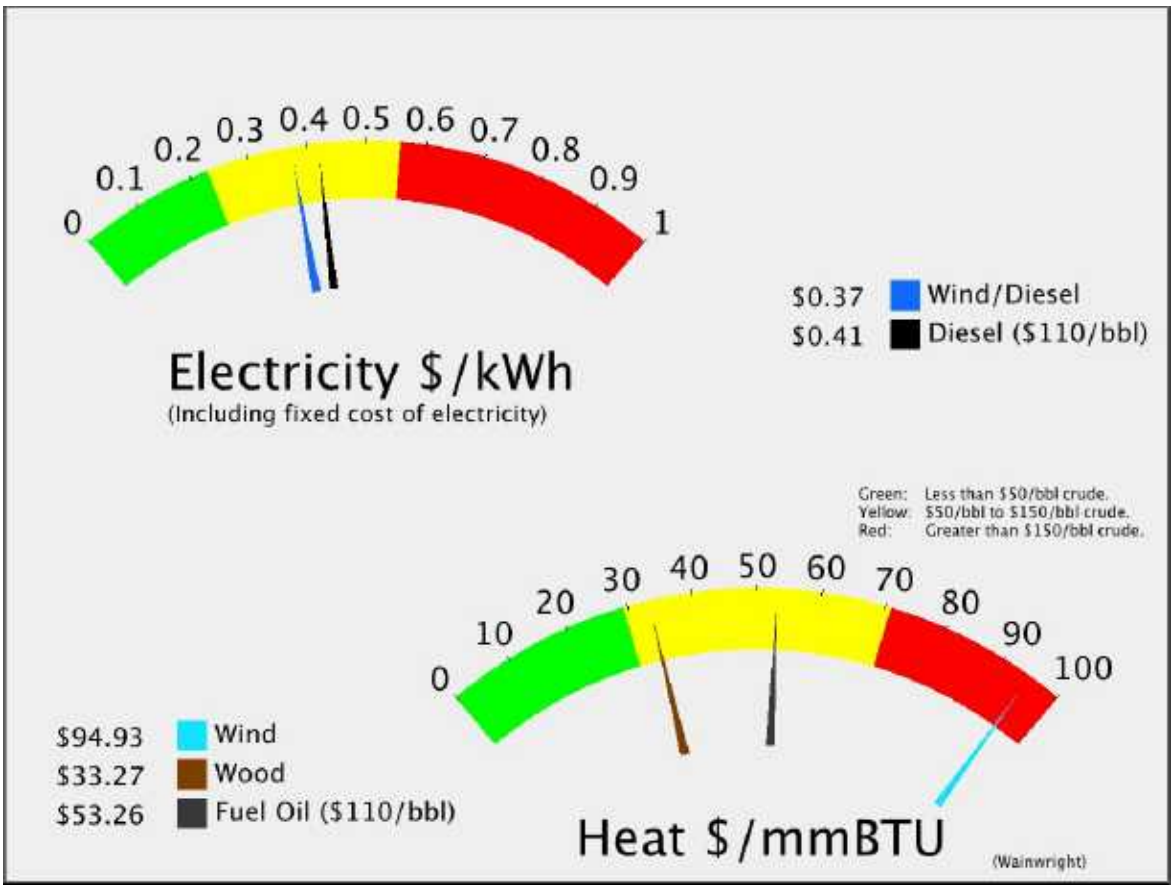


Total: Per capita

Heat Per capita POPULATION: 540

Transportation Per capita

Electricity: **$3,315** Per capita



Wainwright

Regional Corporation
Arctic Slope Regional Corp.

House 40
Senate : **T**

POPULATION 540 LATITUDE: 70d 38m N LONGITUDE: 160d 01m **North Slope Borough**

LOCATION Wainwright is located on the Chukchi Sea coast, 3 miles northeast of the Kuk River estuary.

ECONOMY Economic opportunities in Wainwright are influenced by its proximity to Barrow and the fact that it is one of the older, more established villages. Most of the year-round positions are in borough services. Sale of local Eskimo arts and crafts supplement income. Bowhead and beluga whale, seal, walrus, caribou, polar bear, birds and fish are harvested.

HISTORY In 1826, the Wainwright Lagoon was named by Capt. F.W. Beechey for his officer, Lt. John Wainwright. A map of 1853 indicates the name of the village as "Olrona." It's Inupiat name was "Olgoonik." The region around Wainwright was traditionally well-populated, though the present village was not established until 1904, when the Alaska Native Service built a school here and instituted medical and other services. The site was reportedly chosen by the captain of the ship delivering school construction materials, because sea-ice conditions were favorable for landing. A post office was established in 1916, and a city was formed in 1962. Coal was mined at several nearby sites for village use, the closest about 7 miles away. Today, though, most houses are heated by fuel oil. A U.S. Air Force Distance Early Warning (DEW) Station was constructed nearby.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.89** /kw-hr

Current efficiency	**13.57**	kW-hr/gal	Fuel COE	**$0.35**	/kw-hr	Estimated Diesel OM	**$85,023**
Consumption in 200	**306,986**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$194,394**
Average Load	**485**	kW	NF COE:	**$0.05**	/kw-hr	Current Fuel Costs	**$1,499,872**
Estimated peak loa	**970.58**	kW	Total	**$0.42**		**Total Electric**	
Average Sales	**4,251,151**	kW-hours					**$1,779,290**

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:		gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.89**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.38**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu			

Transportation (Estimated)

Total Transportation

Estimated Diesel: gal Estimated cost **$5.89**

Energy Total

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator Upgrade

Status **Pending**

Acheivable efficiency **14.8** kW-

New Fuel use **282,358**

Capital cost	**$125,000**		
Annual Capital cost	**$10,471**	$0.00	/kw-hr
Estimated Diesel OM	**$85,023**	$0.02	
New fuel cost	**$1,379,546**	$0.32	
Avg Non-Fuel Costs:	**$279,418**	$0.05	
New cost of electricity	**$0.40** per kW-hr		

Savings

$109,856

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Municipal Services Bldg.

			Value
Water Jacket	**46,048**	gal	**$271,029**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,358,815**

Annual ID **$113,823**

Annual OM **$27,176**

Total Annual costs **$141,000**

Heat cost **$27.71** $/MMBtu

Savings

$130,029

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **1000**

kW-hr/year **2038001**

Met Tower? **no**

Homer Data? **yes**

Wind Class **5**

Avg wind speed **7.50** m/s

		per kW-hr	Heat Cost $/MMBtu :
Capital cost	**$6,410,697**		
Annual Capital	**$430,900**	$0.21	$61.95
Annual OM	**$95,616**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$526,515**	$0.26	**$75.70**
Non-Fuel Costs		$0.07	
Alternative COE:		**$0.32**	
% Community energy		48%	
New Community COE		**$0.36**	

(includes non-fuel and diesel costs)

Savings

$233,439

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost **$500,000**

Annual ID **$33,608**

Capital per MMBt **$13.18**

Fuel cost per MMBtu **$20.09**

Total per MMBT **$33.27**

Annual Heat

Other Resources

Wainwright

Tidal:

Wave:

Coal Bed Methane: CONFIRMED RESOURCE

Natural Gas: Basin has industrial-scale exploration potential

Coal: CONFIRMED RESOURCE

Propane:

Renewable Fund Project List:

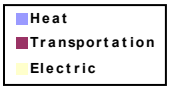
For detailed information, consult the AEA web site. akenergyauthority.org

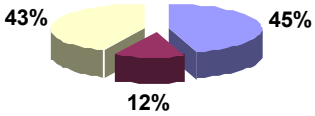
A project titled: Wainwright Coal Bed Methane Phase III has been submitted by: North Slope Borough for an Other project. The total project budget is: $1,101,728 with $500,000 requested in grant funding and $601,728 as matching funds.

A project titled: Wainwright Heat Recovery has been submitted by: North Slope Borough for a Heat Recovery project. The total project budget is: $3,612,000 with $3,300,000 requested in grant funding and $312,000 as matching funds.

Wales

Energy Used





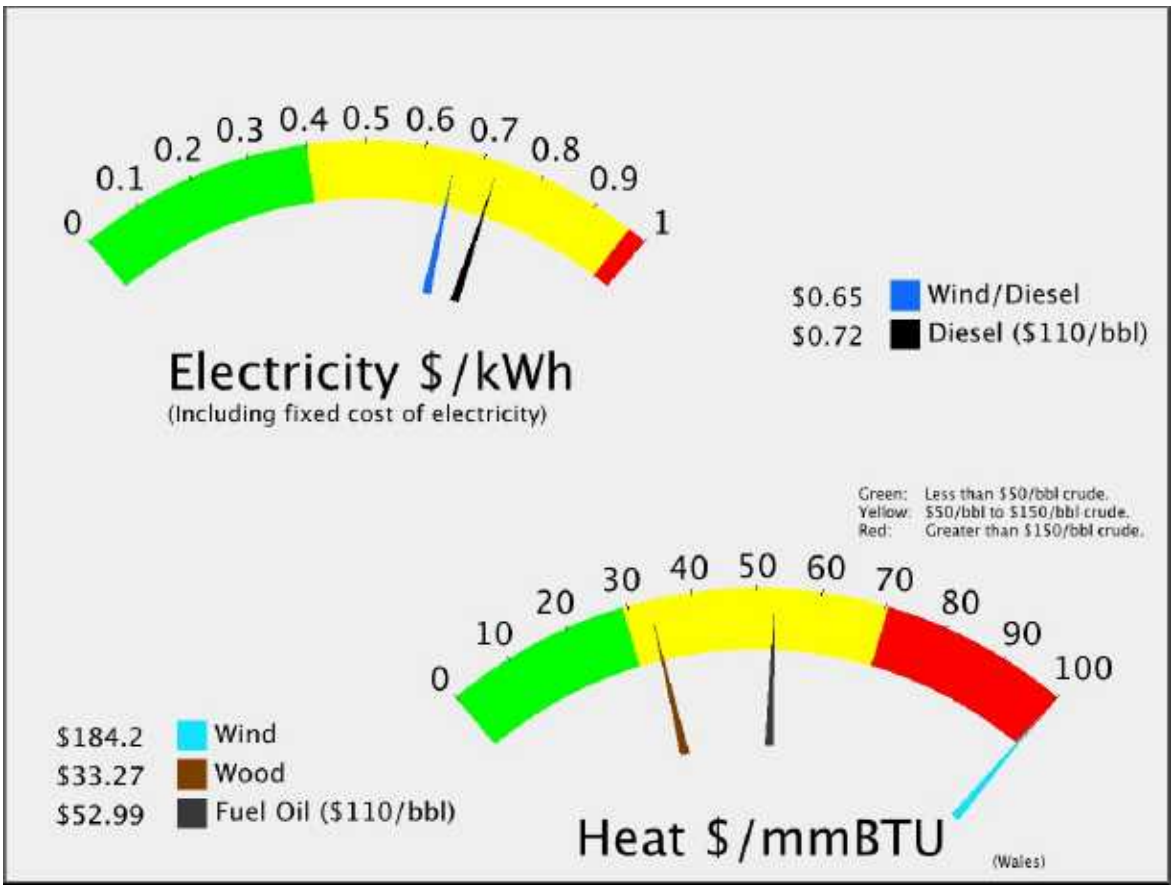
Total: **$5,783** Per capita

Heat **$2,609** Per capita

Transportation **$706** Per capita

Electricity: **$2,468** Per capita

POPULATION: 136



Wales

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 136 LATITUDE: 65d 37m N LONGITUDE: 168d 05m **Unorganized**

LOCATION Wales is located on Cape Prince of Wales, at the western tip of the Seward Peninsula, 111 miles northwest of Nome.

ECONOMY The economy of Wales is based on subsistence hunting and fishing, trapping, Native arts and crafts, and some mining. A private reindeer herd is managed out of Wales and local residents are employed to assist in the harvest. Whales, walrus, polar bear, moose, salmon, and other fish are utilized.

HISTORY A burial mound of the "Birnirk" culture (500 A.D. to 900 A.D.) was discovered near Wales and is now a national landmark. In 1827 the Russian Navy reported the Eskimo villages of "Eidamoo" near the coast and "King-a-ghe" further inland. In 1890, the American Missionary Association established a mission here, and in 1894 a reindeer station was organized. A post office was established in 1902. Wales became a major whaling center due to its location along migratory routes, and it was the region's largest and most prosperous village, with more than 500 residents. The influenza epidemic in 1918-19 claimed the lives of many of Wales' finest whalers. The City government was incorporated in 1964.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.86** /kw-hr

Current efficiency	**12.90**	kW-hr/gal	Fuel COE	**$0.45**	/kw-hr	Estimated Diesel OM	**$10,313**
Consumption in 200	**47,428**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$134,072**
Average Load	**59**	kW	NF COE:	**$0.26**	/kw-hr	Current Fuel Costs	**$230,325**
Estimated peak loa	**117.73**	kW	Total	**$0.73**		**Total Electric**	
Average Sales	**515,660**	kW-hours				**$374,709**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**60,578**	gal	
Fuel Oil:	**100%**	Estimated heating fuel cost/gallon	**$5.86**		
Wood:	**0%**	$/MMBtu delivered to user	**$53.12**		**Total Heating Oil**
Electricity:	**0.0%**	Community heat needs in MMBtu	**7,269**		**$354,761**

Transportation (Estimated)

Estimated Diesel: **16,392** gal Estimated cost **$5.86**

Total Transportation **$95,995**

Energy Total **$825,466**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Powerhouse Upgrade

Status **Pending**

Acheivable efficiency **14** kW-

New Fuel use **43,690**

Capital cost	**$100,000**		
Annual Capital cost	**$8,377**	$0.02	/kw-hr
Estimated Diesel OM	**$10,313**	$0.02	
New fuel cost	**$212,169**	$0.41	
Avg Non-Fuel Costs:	**$144,385**	$0.26	
New cost of electricity		**$0.64**	per kW-hr

Savings **$9,779**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**7,114**	gal	**$41,663**
Stack Heat	**0**	gal	**$0**

Capital cost	**$164,823**		
Annual ID	**$13,807**		
Annual OM	**$3,296**		
Total Annual costs	**$17,103**		
Heat cost	**$21.76**	$/MMBtu	

Savings **$24,560**

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **391951**

Met Tower? **no**

Homer Data? **yes**

Wind Class **7**

Avg wind speed **8.50** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.30	$88.46
Annual OM	**$18,389**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$136,721**	$0.35	**$102.20**
Non-Fuel Costs		$0.28	
Alternative COE:		**$0.63**	
% Community energy		76%	
New Community COE		**$0.64**	

(includes non-fuel and diesel costs)

Savings

$46,195

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	35.1%

Other Resources

Wales

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

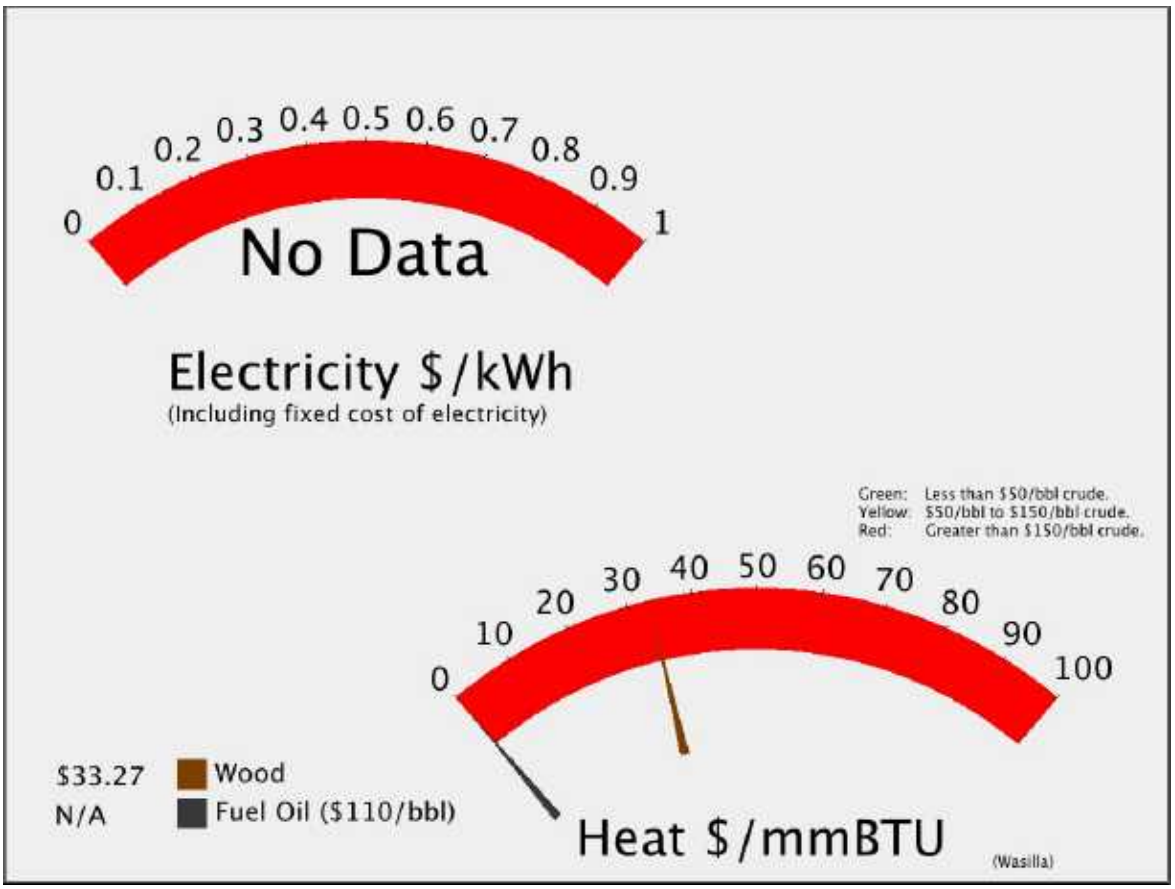
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Wasilla

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	7028
Transportation	Per capita		
Electricity:	Per capita		



Wasilla

Regional Corporation
Cook Inlet Region, Inc.

House 14
Senate : **G**

POPULATION 7028 LATITUDE: 61d 34m N LONGITUDE: 149d 26m **Matanuska-Susitna Bor**

LOCATION Wasilla is located midway between the Matanuska and Susitna Valleys, on the George Parks Highway. It lies between Wasilla and Lucille Lakes, 43 miles north of Anchorage, about one hour's drive.

ECONOMY Approximately 30% of the Wasilla workforce commutes to Anchorage. The local economy is diverse, and residents are employed in a variety of government, retail, and professional service positions. Tourism, agriculture, wood products, steel and concrete products are part of the economy. 120 area residents hold commercial fishing permits. Wasilla is the home of the Iditarod Trail Committee and Iron Dog Race.

HISTORY Wasilla was named after the respected local Dena'ina Indian, Chief Wasilla (also known as Chief Vasili). In the Dena'ina Athabascan Indian dialect, Wasilla" is said to mean "breath of air." Other sources claim the Chief derived his name from the Russian language and that "Vasili" is a variation of the Russian name "William." The townsite was established in 1917 at the intersection of the Carle Wagon Road (now Wasilla-Fishhook Road) and the newly-constructed Alaska Railroad. It was a supply base for gold and coal mining in the region through World War II. The Matanuska-Susitna valley was settled by many Colony homesteaders in the 1930s. Construction of the George Parks Highway through Wasilla in the early 1970s provided direct access to Anchorage. This enabled families to live in Wasilla and commute to Anchorage for employment. The City was incorporated in 1974."

Alternative Energy Resources

	Capital cost	per kW-hr	Heat Cost $/MMBtu :	
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
	Non-Fuel Costs			
	Alternative COE:			
	% Community energy			**Savings**
	New Community COE (includes non-fuel and diesel costs)			

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Wasilla

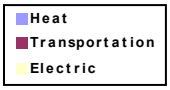
Tidal:	
Wave:	
Coal Bed Methane:	CONFIRMED RESOURCE
Natural Gas:	CONFIRMED RESOURCE
Coal:	COAL SHIPPED ON ROAD SYSTEM FROM NEARBY MINE
Propane:	

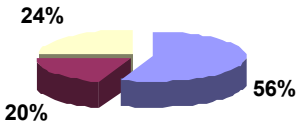
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Whale Pass

Energy Used





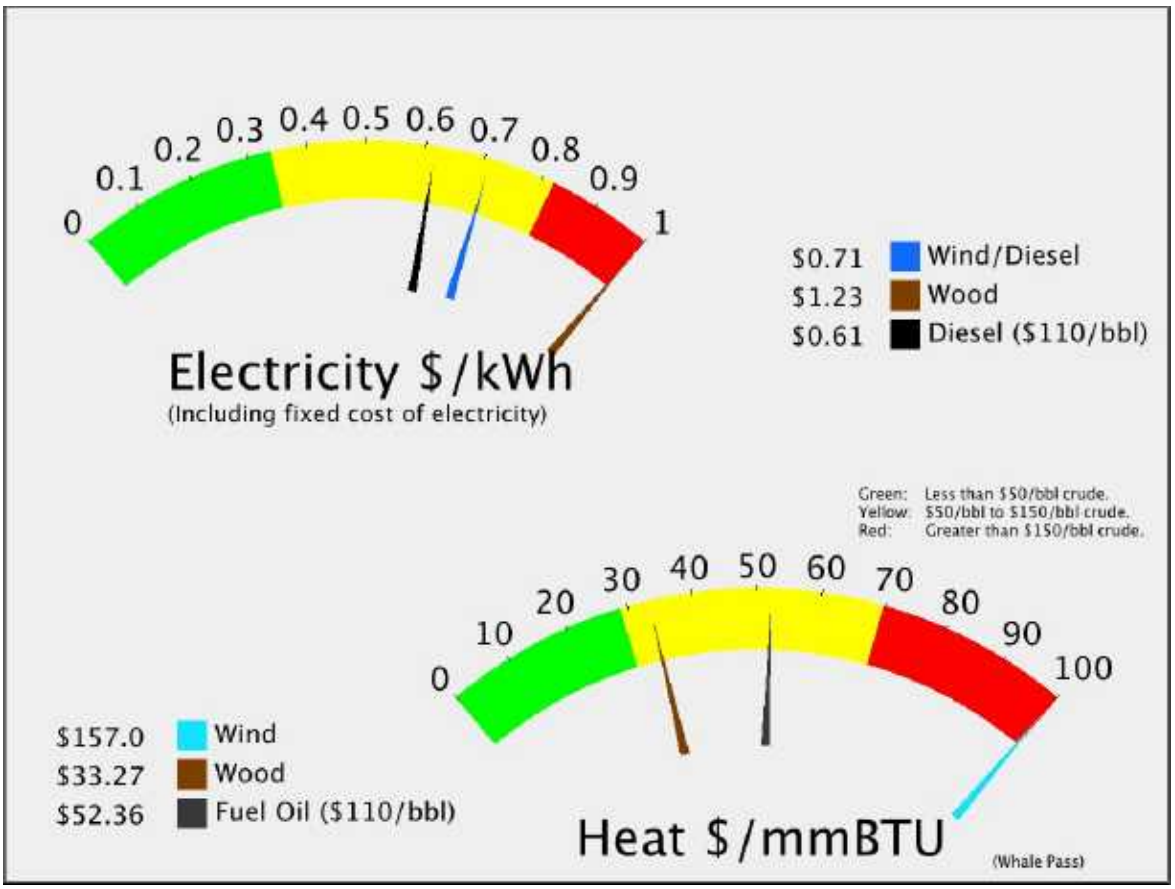
Total: $10,004 Per capita

Heat **$5,559** Per capita

Transportation **$2,021** Per capita

Electricity: **$2,424** Per capita

POPULATION: 56



Whale Pass

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 56 LATITUDE: 56d 06m N LONGITUDE: 133d 10m **Unorganized**

LOCATION Whale Pass lies on the northeast coast of Prince of Wales Island. It is north of Coffman Cove on Forest Development Road (FDR) 25, about 64 road miles north of Klawock.

ECONOMY Logging operations, related services, and the school provide the only steady employment. Subsistence activities and public assistance payments supplement income.

HISTORY The area has been the site of logging camps continuously since 1964. In the early 1980s, the last camp moved out, and the area was permanently settled as the result of a State land disposal sale. The logging road was completed in 1981, and private phones were installed in 1992.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$4.79** /kw-hr

Current efficiency	**12.12**	kW-hr/gal	Fuel COE	**$0.41**	/kw-hr	Estimated Diesel OM	**$5,450**
Consumption in 200	**23,454**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$50,511**
Average Load	**31**	kW	NF COE:	**$0.19**	/kw-hr	Current Fuel Costs	**$112,248**
Estimated peak loa	**62.215**	kW	Total	**$0.62**		**Total Electric**	
Average Sales	**272,502**	kW-hours				**$168,209**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**53,808**	gal	
Fuel Oil:	**35%**	Estimated heating fuel cost/gallon	**$5.79**		
Wood:	**65%**	$/MMBtu delivered to user	**$52.48**	**Total Heating Oil**	
Electricity:	**0.0%**	Community heat needs in MMBtu	**6,457**	**$311,330**	

Transportation (Estimated)

Estimated Diesel:	**19,559**	gal	Estimated cost	**$5.79**	**Total Transportation**
					$113,169

Energy Total **$592,708**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:			Capital cost	**$0**			
			Annual Capital cost	**$0**	$0.00	/kw-hr	
Status			Estimated Diesel OM	**$5,450**	$0.02		
Acheivable efficiency	**14**	kW-	New fuel cost	**$97,210**	$0.36		**Savings**
New Fuel use	**20,312**		Avg Non-Fuel Costs:	**$55,961**	$0.19		**$15,039**
			New cost of electricity		**$0.55** per kW-hr		

Diesel Engine Heat Recovery

Heat Recovery System Installed?
Is it working now?
BLDGs connected and working:

			Value
Water Jacket	**3,518**	gal	**$20,355**
Stack Heat	**0**	gal	**$0**

Capital cost	**$87,101**		
Annual ID	**$7,296**		
Annual OM	**$1,742**		
Total Annual costs	**$9,038**		**Savings**
Heat cost	**$23.25**	$/MMBtu	**$11,317**

Alternative Energy Resources

Wood

Installed KW **43**

kW-hr/year **317782**

Installation Type **Wood ORC**

Electric Wood cost **$150/cd**

Wood Required **402** Cd/Y

Stove Wood cost **250.00** $/Cd

			Heat Cost $/MMBtu :
Capital cost	**$1,508,032**	per kW-hr	
Annual Capital	**$101,363**	$0.32	
Annual OM	**$118,137**	$0.37	
Fuel cost:	**$60,237**	$0.19	-90
Total Annual Cost	**$279,738**	$0.88	**$29.76**
Non-Fuel Costs		$0.21	
Alternative COE:		**$1.09**	
% Community energy		117%	
New Community COE		**$1.23**	

(includes non-fuel and diesel costs)

Savings

($111,529)

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **417173**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.28	$83.11
Annual OM	**$19,572**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,904**	$0.33	**$96.86**
Non-Fuel Costs		$0.21	
Alternative COE:		**$0.54**	
% Community energy		153%	
New Community COE		**$0.71**	

(includes non-fuel and diesel costs)

Savings

$30,305

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	39.5%

Other Resources

Whale Pass

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

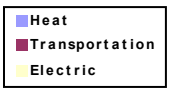
Renewable Fund Project List:

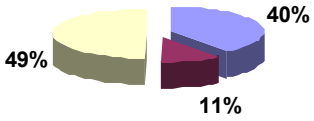
For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Neck Lake hydro_APT has been submitted by: Alaska Power & Telephone Company for a Hydro The total project budget is: $2,440,000 with $1,952,000 requested in grant funding and $488,000 as matching funds.

White Mountain

Energy Used





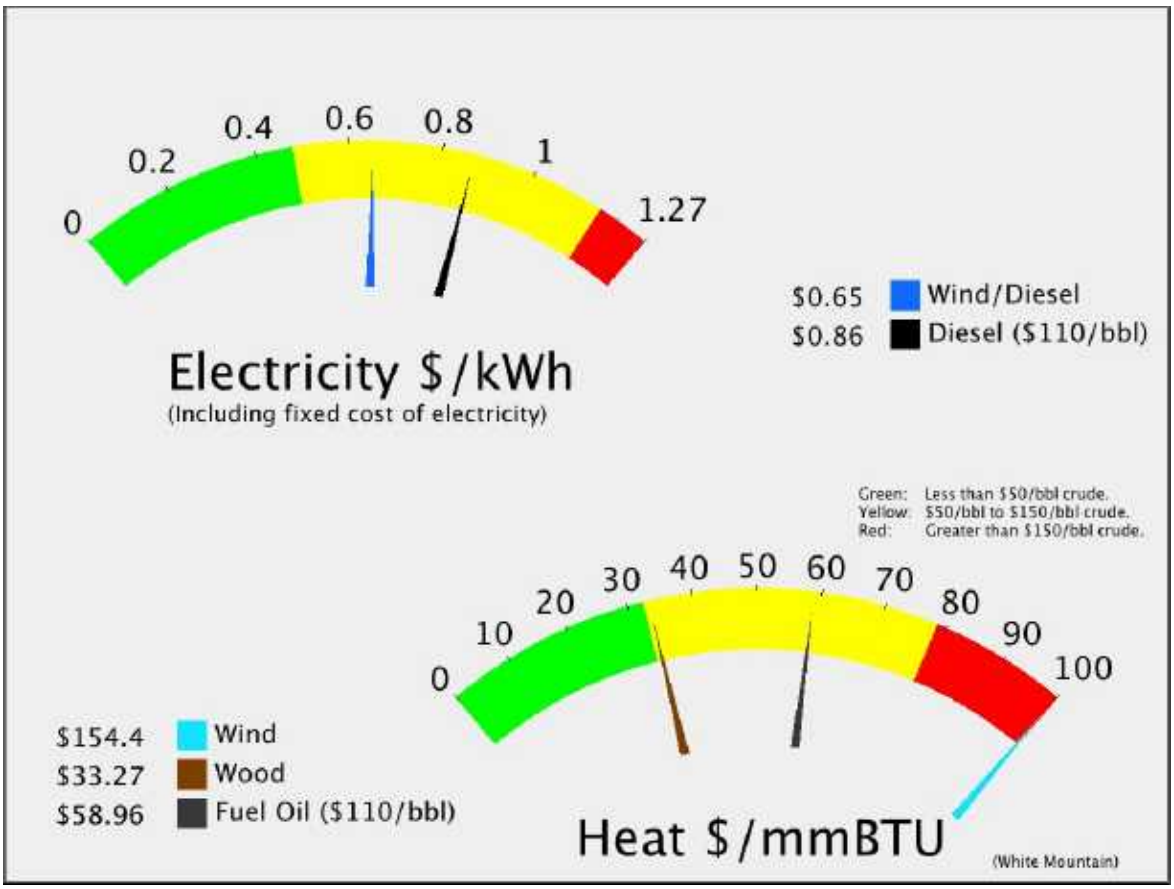
Total: **$5,129** Per capita

Heat **$2,030** Per capita

Transportation **$549** Per capita

Electricity: **$2,549** Per capita

POPULATION: 215



White Mountain

Regional Corporation
Bering Straits Native Corp.

House 39
Senate : **T**

POPULATION 215 LATITUDE: 64d 41m N LONGITUDE: 163d 24m **Unorganized**

LOCATION White Mountain is located on the west bank of the Fish River, near the head of Golovin Lagoon, on the Seward Peninsula. It is 63 miles east of Nome.

ECONOMY The entire population depends on subsistence hunting and fishing, and most spend the entire summer at fish camps. Salmon, other fish, beluga whale, seal, moose, reindeer, caribou, and brown bear are utilized. The school, native store, post office, city, IRA and airline agents provide the only local employment. Construction outside of town and firefighting provide seasonal employment. Four residents hold commercial fishing permits. Ivory and bone carvings contribute some cash. A reindeer farm is run by a local resident.

HISTORY The Eskimo fish camp of Nutchirviq" was located here. The bountiful resources of both the Fish and Niukluk Rivers supported the area's Native populations. White Mountain grew after the influx of prospectors during the gold rush of 1900. The first structure was a warehouse built by the miner Charles Lane to store supplies for his claim in the Council District. It was the site of a government-subsidized orphanage which became an industrial school in 1926. A post office was opened in 1932. The City government was incorporated in 1969."

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.52** /kw-hr

Current efficiency	**10.97**	kW-hr/gal	Fuel COE	**$0.68**	/kw-hr	Estimated Diesel OM	**$12,893**
Consumption in 200	**79,141**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$111,349**
Average Load	**74**	kW	NF COE:	**$0.17**	/kw-hr	Current Fuel Costs	**$436,534**
Estimated peak loa	**147.18**	kW	Total	**$0.87**		**Total Electric**	
Average Sales	**644,654**	kW-hours				**$560,776**	

Space Heating (Estimated)

2000 Census Data

Fuel Oil:	**80%**
Wood:	**20%**
Electricity:	**0.0%**

2008 Estimated Heating Fuel used:	**66,994**	gal
Estimated heating fuel cost/gallon	**$6.52**	
$/MMBtu delivered to user	**$59.10**	
Community heat needs in MMBtu	**8,039**	

Total Heating Oil

$436,523

Transportation (Estimated)

Estimated Diesel: **18,128** gal Estimated cost **$6.52**

Total Transportation

$118,119

Energy Total **$1,115,418**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Generator & Switchgear Upgrade

Status **Completed**

Acheivable efficiency **14** kW-

New Fuel use **61,986**

Capital cost	**$600,000**		
Annual Capital cost	**$50,260**	$0.08	/kw-hr
Estimated Diesel OM	**$12,893**	$0.02	
New fuel cost	**$341,907**	$0.53	
Avg Non-Fuel Costs:	**$124,242**	$0.17	
New cost of electricity	**$0.66** per kW-hr		

Savings

$44,367

Diesel Engine Heat Recovery

Heat Recovery System Installed? **Y**

Is it working now? **Y**

BLDGs connected and working:

Powerhouse Only

			Value
Water Jacket	**11,871**	gal	**$77,351**
Stack Heat	**0**	gal	**$0**

Capital cost	**$206,054**	
Annual ID	**$17,260**	
Annual OM	**$4,121**	
Total Annual costs	**$21,381**	
Heat cost	**$16.30**	$/MMBtu

Savings

$55,970

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW **200**

kW-hr/year **411392**

Met Tower? **no**

Homer Data? **yes**

Wind Class **4**

Avg wind speed **7.00** m/s

			Heat Cost $/MMBtu :
Capital cost	**$1,760,485**	per kW-hr	
Annual Capital	**$118,332**	$0.29	$84.28
Annual OM	**$19,301**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$137,633**	$0.33	**$98.02**
Non-Fuel Costs		$0.19	
Alternative COE:		**$0.53**	
% Community energy		64%	
New Community COE (includes non-fuel and diesel costs)		**$0.64**	

Savings

$149,165

Biomass For Heat

Heat Deliverd: **425000** BTU/hr

Cords/day: **1.8**

Hours per year **6000**

Wood (cordwood or willows) **$225** $/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**
Annual Heat	31.7%

Other Resources

White Mountain

Tidal:

Wave:

Coal Bed Methane:

Natural Gas:

Coal:

Propane:

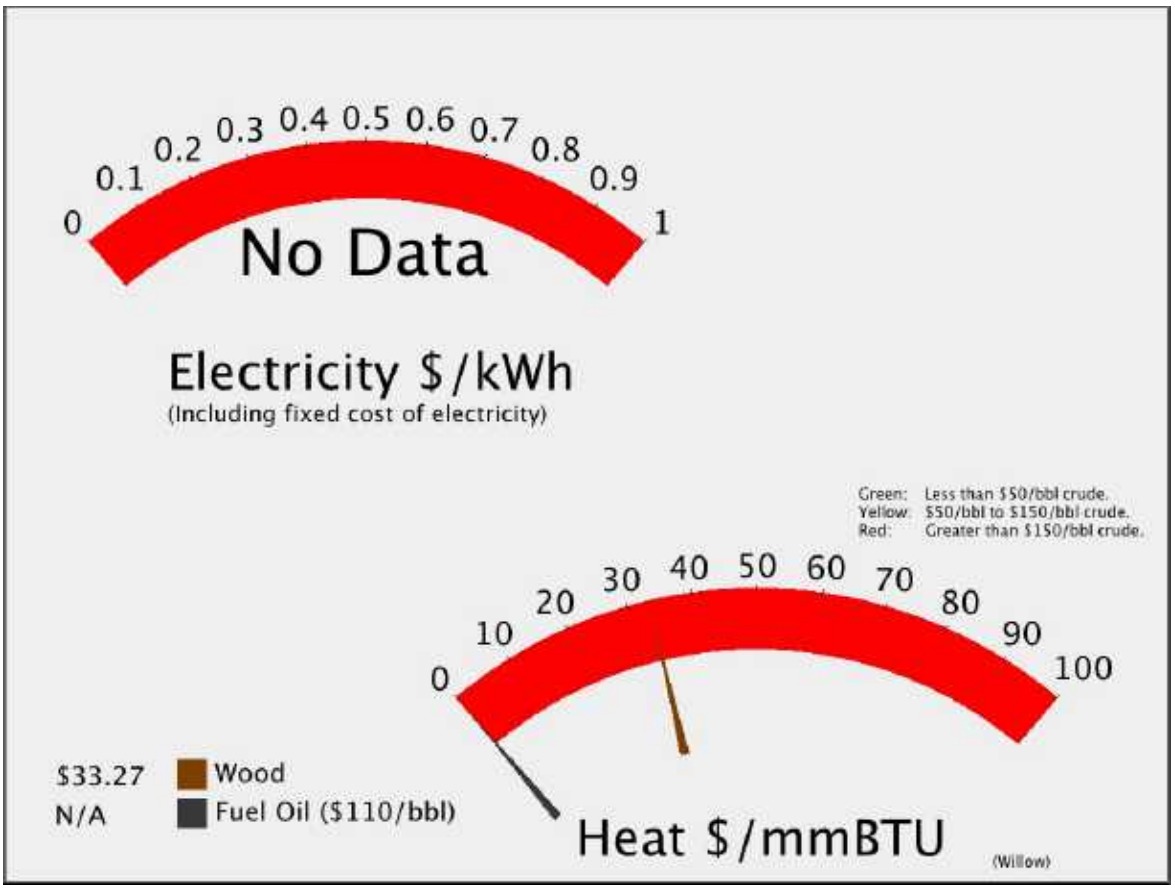
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Willow

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	2048
Transportation	Per capita		
Electricity:	Per capita		



Willow

Regional Corporation
Cook Inlet Region, Inc.

House 15
Senate : **H**

POPULATION 2048 LATITUDE: 61d 44m N LONGITUDE: 150d 02m **Matanuska-Susitna Bor**

LOCATION Willow is located in the Mat-Su Borough, between mile 60 and 80.7 of the George Parks Highway, north of Houston. Its western boundary is the Susitna River.

ECONOMY Many Willow residents are self-employed in a variety of businesses, including lodging, guiding and charter services, and retail stores. There are two saw mills and one prefabricated wood building manufacturer. Some residents are employed in the Palmer, Wasilla or Anchorage. 18 residents hold commercial fishing permits. Capitol Speedway attracts stockcar racing enthusiasts from the entire state.

HISTORY Dena'ina Athabascan Indians have occupied this area historically, living in semi-permanent villages. The community got its start when gold was discovered on Willow Creek in 1897. Supplies and equipment were brought in by boat to Knik. From there, a 26-mile summer trail went northwest, up Cottonwood Creek, and across Bald Mountain to Willow Creek. The winter sled trail went north, crossing the present line of the Alaska Railroad at Houston, and up the west end of Bald Mountain for 30 miles. This trail, dubbed the Double Ender Sled Trail is still being used by skiers, hunters, backpackers and snowmobile enthusiasts. The sleds then followed a trail along Willow Creek in an easterly direction, now Hatcher Pass Road. The Talkeetna Trail also passed through Willow and was used by dog teams and pack horses. Cabins to accommodate freighters and mail carriers were located at Nancy Lake, Willow and other points north. This route was the forerunner of the Parks Highway. During construction of the Alaska Railroad, surveyors, construction crews, homesteaders and other settlers came to Willow. A Railroad station house was constructed in 1920. During World War II, a radar warning station and airfield were built. The Trail's End Lodge was built in 1947; it subsequently became a post office in 1948. By 1954, Willow Creek was Alaska's largest gold mining district, with a total production approaching 18 million dollars. Land disposals, homestead subdivisions, and completion of the George Parks Highway in 1972 fueled growth in the area. In 1976, Alaskans selected Willow for their new State capital site. However, funding to enable the capital move was defeated in the November 1982 election.

Alternative Energy Resources

	Capital cost		per kW-hr	Heat Cost $/MMBtu :
Installed KW	Annual Capital			
kW-hr/year	Annual OM			
	Fuel cost:			
	Total Annual Cost			
		Non-Fuel Costs		
		Alternative COE:		
		% Community energy		**Savings**
		New Community COE (includes non-fuel and diesel costs)		

Biomass For Heat

Heat Deliverd:	**425000**	BTU/hr
Cords/day:	**1.8**	
Hours per year	**6000**	
Wood (cordwood or willows)	**$225**	$/cord

Garn heater installed cost	**$500,000**
Annual ID	**$33,608**
Capital per MMBt	**$13.18**
Fuel cost per MMBtu	**$20.09**
Total per MMBT	**$33.27**

Annual Heat

Other Resources

Willow

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	

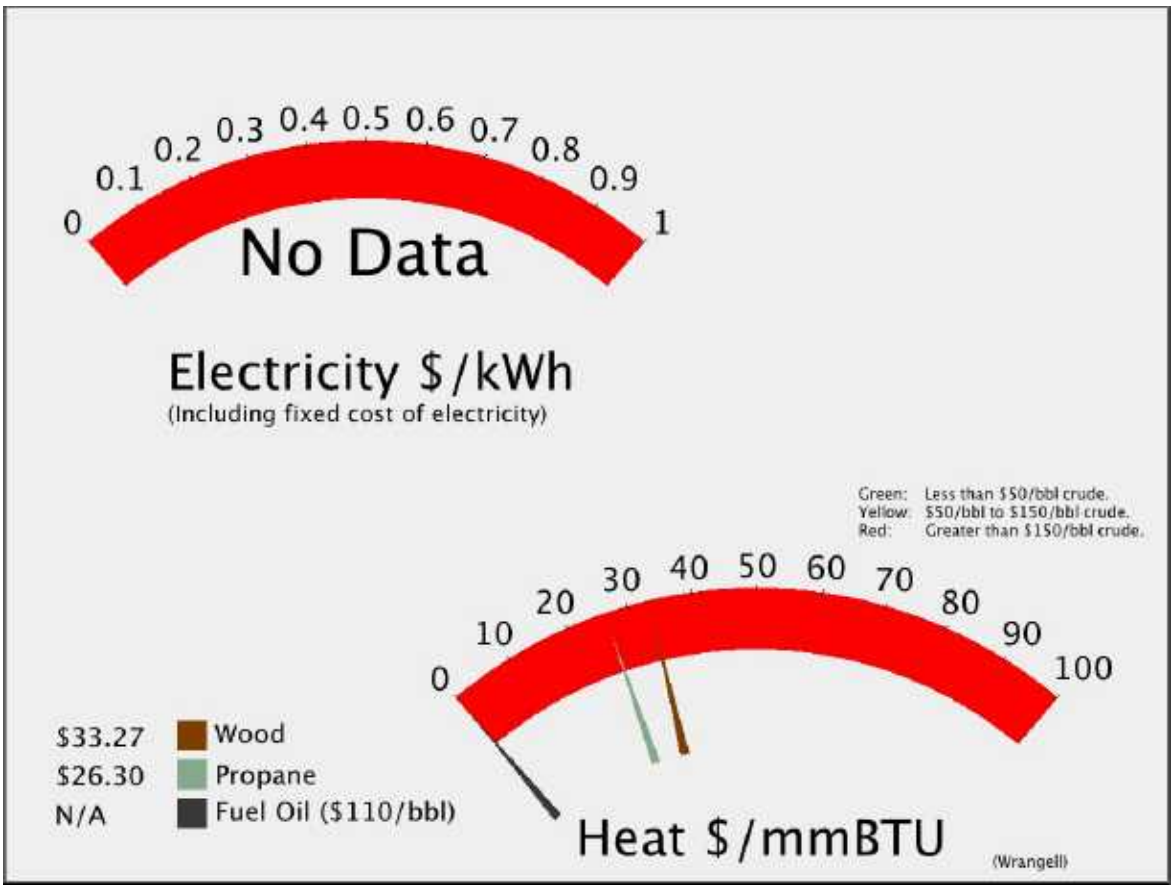
Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

Wrangell

Energy Used

Total:	Per capita		
Heat	Per capita	POPULATION:	2062
Transportation	Per capita		
Electricity:	Per capita		



Wrangell

Regional Corporation
Sealaska Corporation
House 2
Senate : **A**

POPULATION 2062 LATITUDE: 56d 28m N LONGITUDE: 132d 22m **City & Borough of Wran**

LOCATION The City of Wrangell is located on the northwest tip of Wrangell Island, 155 miles south of Juneau and 89 miles northwest of Ketchikan. It is near the mouth of the Stikine River, an historic trade route to the Canadian Interior.

ECONOMY Wrangell's economy is based on commercial fishing and timber from the Tongass National Forest. Fishing and fish processing are an important segment of the economy. 250 residents hold commercial fishing permits. Dive fisheries are also under development -- 60 divers harvest sea urchins, sea cucumbers and geoducks. Although Wrangell offers a deep-water port, they cater to the smaller cruise ships. Stikine River sportfishing attracts independent travelers. The Alaska Pulp Corp. sawmill was sold to Silver Bay Logging and reopened in April 1998 with 33 employees.

HISTORY Wrangell is one of the oldest non-Native settlements in Alaska. In 1811, the Russians began fur trading with area Tlingits, and built a stockade named Redoubt Saint Dionysius in 1834. The Island was named for Ferdinand Von Wrangel, manager of the Russian-American Co. around 1830. The British of Hudson's Bay Co. leased the fort in 1840, and named the stockade Fort Stikine. A large Stikine Indian village known as Kotzlitzna was located 13 miles south of the fort. The Tlingits claimed their own ancient trade rights to the Stikine River, and protested when the Hudson Bay Company began to use their trade routes. But two epidemics of smallpox, in 1836 and 1840, reduced the Tlingit population by half. The fort was abandoned in 1849 when furs were depleted. The fort remained under the British flag until Alaska's purchase by the U.S. in 1867. In 1868, a U.S. military post called Fort Wrangell was established, named for the Island. The community continued to grow as an outfitter for gold prospectors in 1861, 1874-77, and in 1897. Riotous activity filled gambling halls, dance halls, and the streets. Thousands of miners traveled up the Stikine River into the Cassiar District of British Columbia during 1874, and again to the Klondike in 1897. Glacier Packing Company began operating in Wrangell in 1889. The Wilson & Sylvester Sawmill provided packing boxes for canneries, and lumber for construction. The City was incorporated in 1903. By 1916, fishing and forest products had become the primary industries -- four canneries and a cold storage plant were constructed by the late 1920s. In the 1930s, cold packing of crab and shrimp was occurring. Abundant spruce and hemlock resources have helped to expand the lumber and wood products industry. The Alaska Pulp Corporation sawmill, Wrangell's largest employer, closed in late 1994.

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**800**
kW-hr/year	**1614200**
Met Tower?	**no**
Homer Data?	**yes**
Wind Class	**6**
Avg wind speed	**8.10** m/s

			Heat Cost $/MMBtu :
Capital cost	**$5,359,034**	per kW-hr	
Annual Capital	**$360,211**	$0.22	$65.38
Annual OM	**$75,732**	$0.05	$13.75
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$435,944**	$0.27	**$79.13**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Alternative Energy Resources

Hydro

Installed KW	**4000**
kW-hr/year	**18000000**
Site	**Sunrise Lake Woronofski Isle**
Study plan effort	**reconnaissance**
Plant Factor	%
Penetration	

			Heat Cost $/MMBtu :
Capital cost	**$12,579,200**	per kW-hr	
Annual Capital	**$603,068**	$0.03	$9.82
Annual OM	**$80,192**	$0.00	$1.31
Fuel cost:	**$0**	$0.00	
Total Annual Cost	**$683,260**	$0.04	**$11.12**

Non-Fuel Costs

Alternative COE:

% Community energy

New Community COE

(includes non-fuel and diesel costs)

Savings

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	

Other Resources

Wrangell

Tidal:	SOME POTENTIAL
Wave:	
Coal Bed Methane:	
Natural Gas:	
Coal:	
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

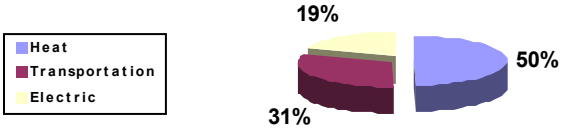
A project titled: Gustavus/Angoon/Wrangell/Nikiski Tidal Feasibility Study has been submitted by: Alaska Tidal Energy Company for a Tidal project.

A project titled: Sunrise Lake Hydro_Wrangell has been submitted by: City and Borough of Wrangell for a Hydro project. The total project budget is: $4,637,616 with $4,367,616 requested in grant funding and $ as matching funds.

A project titled: Wrangell Hydro Based Electric Boilers Construction has been submitted by: City and Borough of Wrangell for a Hydro/Heat project. The total project budget is: $3,260,000 with $3,260,000 requested in grant funding and $123,000 as matching funds.

Yakutat

Energy Used



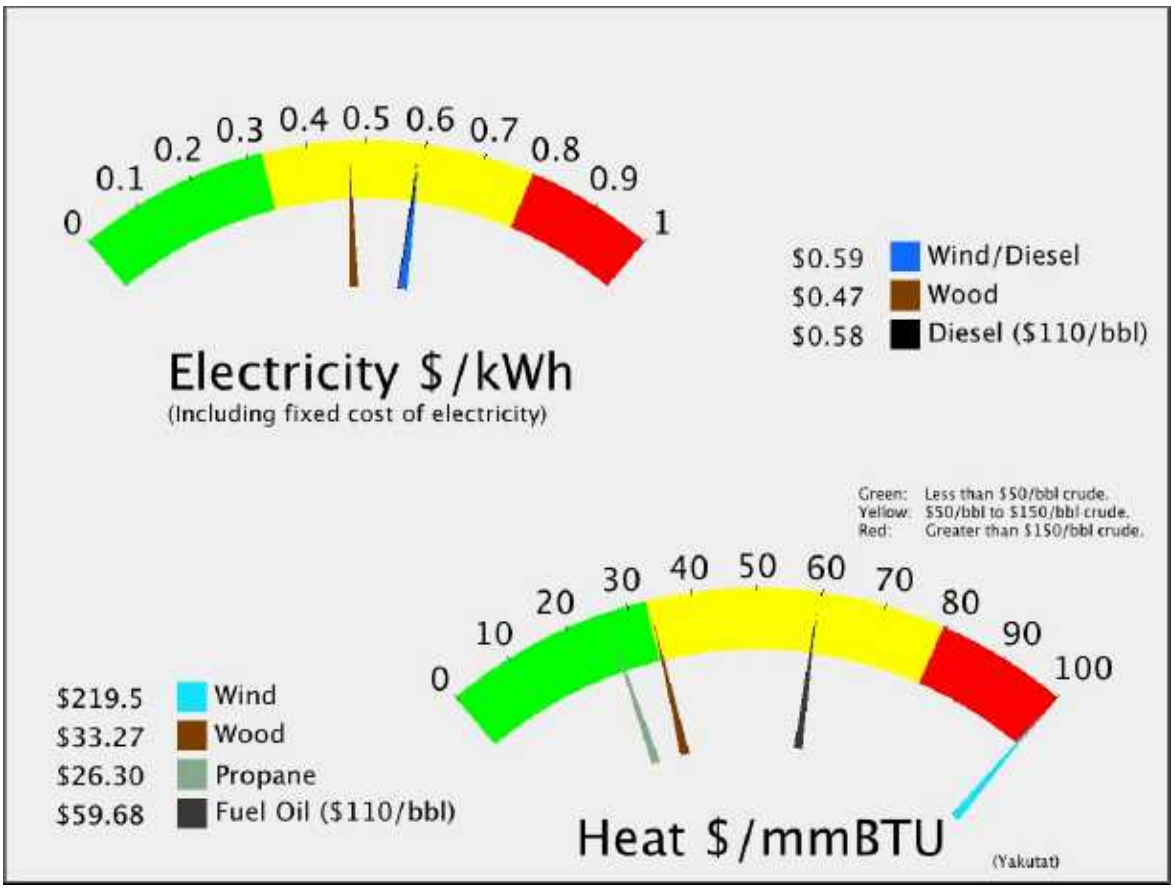
Total: $27,275 Per capita

Heat **$13,533** Per capita

Transportation **$8,435** Per capita

Electricity: **$5,307** Per capita

POPULATION: 621



Yakutat

Regional Corporation
Sealaska Corporation
House 5
Senate : **C**

POPULATION 621 LATITUDE: 59d 33m N LONGITUDE: 139d 44m **City & Borough of Yakut**

LOCATION Yakutat is isolated among the lowlands along the Gulf of Alaska, 225 miles northwest of Juneau and 220 miles southeast of Cordova. It is at the mouth of Yakutat Bay, one of the few refuges for vessels along this stretch of coast. The Hubbard and Malaspina Glaciers are nearby.

ECONOMY Yakutat's economy is dependent on fishing, fish processing and government. 162 residents hold commercial fishing permits. North Pacific Processors is the major private employer. Recreational fishing opportunities, both saltwater and freshwater fishing in the Situk River, are world-class. Most residents depend on subsistence hunting and fishing. Salmon, trout, shellfish, deer, moose, bear and goats are harvested.

HISTORY Yakutat has a diverse cultural history. The original settlers are believed to have been Eyak-speaking people from the Copper River area who were conquered by the Tlingits. Yakutat means "the place where the canoes rest." In the 18th and 19th centuries, English, French, Spanish and Russian explorers came to the region. Fur traders were attracted to the region's sea otters. The Russian-American Co. built a fort in Yakutat in 1805 to harvest sea otter pelts. Because the Russians would not allow local Tlingits access to their traditional fisheries, a Tlingit war party attacked and destroyed the post. In 1884, the Alaska Commercial Co. opened a store in Yakutat. By 1886, the black sand beaches in the area were being mined for gold. In 1889 the Swedish Free Mission Church had opened a school and sawmill in the area. A cannery, sawmill, store and railroad were constructed beginning in 1903 by the Stimson Lumber Co. Most residents moved to the current site of Yakutat to be closer to this cannery, which operated through 1970. During World War II, a large aviation garrison and paved runway were constructed. Troops were withdrawn after the war, but the runway is still in use. The City of Yakutat was formed in 1948, but in 1992, the City was dissolved and a Borough was organized for the region.

Current Energy Status PCE

Electric (Estimates based on PCE)

Estimated Local Fuel cost @ $110/bbl **$5.60** /kw-hr

Current efficiency	**14.45**	kW-hr/gal	Fuel COE	**$0.42**	/kw-hr	Estimated Diesel OM	**$123,735**
Consumption in 200	**462,976**	gal	Est OM	**$0.02**	/kw-hr	Other Non-Fuel Costs:	**$927,275**
Average Load	**706**	kW	NF COE:	**$0.15**	/kw-hr	Current Fuel Costs	**$2,590,490**
Estimated peak loa	**1412.5**	kW	Total	**$0.59**		**Total Electric**	
Average Sales	**6,186,742**	kW-hours				**$3,641,500**	

Space Heating (Estimated)

2000 Census Data		2008 Estimated Heating Fuel used:	**1,274,263**	gal	
Fuel Oil:	**91%**	Estimated heating fuel cost/gallon	**$6.60**		
Wood:	**3%**	$/MMBtu delivered to user	**$59.82**		**Total Heating Oil**
Electricity:	**3.0%**	Community heat needs in MMBtu	**152,912**		**$8,404,148**

Transportation (Estimated)

Estimated Diesel: **794,230** gal Estimated cost **$6.60**

Total Transportation **$5,238,187**

Energy Total **$17,283,834**

Possible Upgrades to Current Power Plant

Power Plant - Performance Improvement to higher efficiency

Upgrade needed:

Complete Powerhouse

Status **Construction**

Acheivable efficiency **14.8** kW-

New Fuel use **453,617**

Capital cost	**$3,000,000**		
Annual Capital cost	**$251,300**	$0.04	/kw-hr
Estimated Diesel OM	**$123,735**	$0.02	
New fuel cost	**$2,538,124**	$0.41	
Avg Non-Fuel Costs:	**$1,051,010**	$0.15	
New cost of electricity	**$0.59** per kW-hr		

Savings **($198,934)**

Diesel Engine Heat Recovery

Heat Recovery System Installed? **?**

Is it working now?

BLDGs connected and working:

			Value
Water Jacket	**69,446**	gal	**$458,020**
Stack Heat	**0**	gal	**$0**

Capital cost **$1,977,498**

Annual ID **$165,648**

Annual OM **$39,550**

Total Annual costs **$205,198**

Heat cost **$26.74** $/MMBtu

Savings **$252,822**

Alternative Energy Resources

Wood

Installed KW	**816**	Capital cost	**$4,775,557**	per kW-hr
kW-hr/year	**6079630**	Annual Capital	**$320,992**	$0.05
Installation Type	**Wood ORC**	Annual OM	**$345,949**	$0.06
Electric Wood cost	**$150/cd**	Fuel cost:	**$1,152,428**	$0.19
Wood Required	**7683** Cd/Y	Total Annual Cost	**$1,819,369**	$0.30
Stove Wood cost	**250.00** $/Cd	Non-Fuel Costs		$0.17
		Alternative COE:		**$0.47**
		% Community energy		98%
		New Community COE		**$0.45**
		(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu :

-90

$29.76

Savings

$847,484

Alternative Energy Resources

Wind Diesel Hybrid

Installed KW	**100**	Capital cost	**$1,009,033**	per kW-hr
kW-hr/year	**127342**	Annual Capital	**$67,823**	$0.53
Met Tower?	**yes**	Annual OM	**$5,974**	$0.05
Homer Data?	**yes**	Fuel cost:	**$0**	$0.00
Wind Class	**3**	Total Annual Cost	**$73,797**	$0.58
Avg wind speed	**3.08** m/s	Non-Fuel Costs		$0.17
		Alternative COE:		**$0.75**
		% Community energy		2%
		New Community COE		**$0.59**
		(includes non-fuel and diesel costs)		

Heat Cost $/MMBtu :

$156.05

$13.75

$169.80

Savings

($17,930)

Biomass For Heat

Heat Deliverd:	**425000** BTU/hr	Garn heater installed cost	**$500,000**
Cords/day:	**1.8**	Annual ID	**$33,608**
Hours per year	**6000**	Capital per MMBt	**$13.18**
Wood (cordwood or willows)	**$225** $/cord	Fuel cost per MMBtu	**$20.09**
		Total per MMBT	**$33.27**
		Annual Heat	1.7%

Other Resources

Yakutat

Tidal:	
Wave:	
Coal Bed Methane:	
Natural Gas:	Basin has industrial-scale exploration potential
Coal:	SOME POTENTIAL
Propane:	Propane at $26.30 to end user based on $110/bbl oil

Renewable Fund Project List:

For detailed information, consult the AEA web site. akenergyauthority.org

A project titled: Yakutat Biomass Gasification Construction has been submitted by: Yakutat Power for a Biofuels project. The total project budget is: $3,633,600 with $3,393,600 requested in grant funding and $240,000 as matching funds.

A project titled: Yakutat Wave Energy Conversion has been submitted by: Yakutat Power for a Ocean/River project. The total project budget is: $6,944,000 with $6,900,000 requested in grant funding and $44,000 as matching funds.