Northwest CHP Application Center

Combined Heat and Power for the states of
Alaska, Idaho, Montana, Oregon and Washington
in cooperation with the U.S. Department of Energy

WASTE HEAT TO POWER III

Welcome and Introduction

Houston, TX

September 25-26, 2007

Dave Sjoding

WELCOME

To the third Waste Heat to Power conference

A joint effort of four groups

- **Texas Industries of the Future**
- **Gulf Coast CHP Application Center**
- **Northwest CHP Application Center**
- **Pacific CHP Application Center**

OUR SPONSORS – A BIG THANK YOU!

Our sponsors have helped us greatly in putting on this conference.

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WHY TEXAS AND THE GULF COAST?

Previous conferences held at UC Irvine

Turbosteam shared their waste heat to power potential data for the Western Governors Association CHP White Paper

- **Texas is the national leader in potential with 2,726 MWs capacity**
- **Louisiana – 617 MWs**
- **Total of two states – Over 3,300 MWs**
- **Total U.S. 17,389 MWs**
- **Data includes steam pressure drop, natural gas compressor stations, flared tail & stack gas**
- **Other low temperature potential is additional**

CONFERENCE OVERVIEW

Two one day workshops

September 25th

- **The "nuts & bolts" of industrial waste heat to power**
- **A training and exploration of the topic focus**

September 26th

- **Waste Heat to Power Industrial Roundtable**
- **Time for cross-talk**

ALUMINUM SMELTING – BRIEF EXAMPLE

Gasses off the pot line cut 20 to one before environmental clean up

Why? - Too hot!

Potential? – We think YES!

THREE KEY DOE STUDIES ON WASTE HEAT – from the Industrial Technologies Program

Energy Use, Loss and Opportunities Analysis: U.S. Manufacturing & Mining – December 2004

Energy Loss Reduction and Recovery in Industrial Energy systems – November 2004 - Industrial Technologies Program - Technology Roadmap

Engineering Scoping Study of Thermoelectric Generator System for Industrial Waste Heat Recovery – November 2006

THE TOP FIVE ENERGY-INTENSIVE INDUSTRIES

Think about loss reduction and recovery opportunities

- **Petroleum Refining**
- **Chemicals**
- **Forest Products**
- **Iron and Steel**
- **Food & Beverage**

At lower temperature we add natural gas compressor stations

Opportunity knocks

OF THE TOP TWENTY OPPORTUNITIES FOR ENERGY-INTENSIVE INDUSTRIES

Six are waste heat recovery and CHP is a seventh

Waste heat recovery from gasses and liquids in petroleum, chemicals and forest products ranks number one

CHP ranks number two

THE “NUTS & BOLTS”

How do you think through whether or not you have a viable Project?

Technologies vary

- **Some traditional and common**
- **Some are less well known**

Enjoy the day – Stay for the second workshop