



Encouraging CHP Through Partnership

Presentation to ASERTTI – State and Local Clean Energy Forum

February 11-14, 2007 – Washington, DC

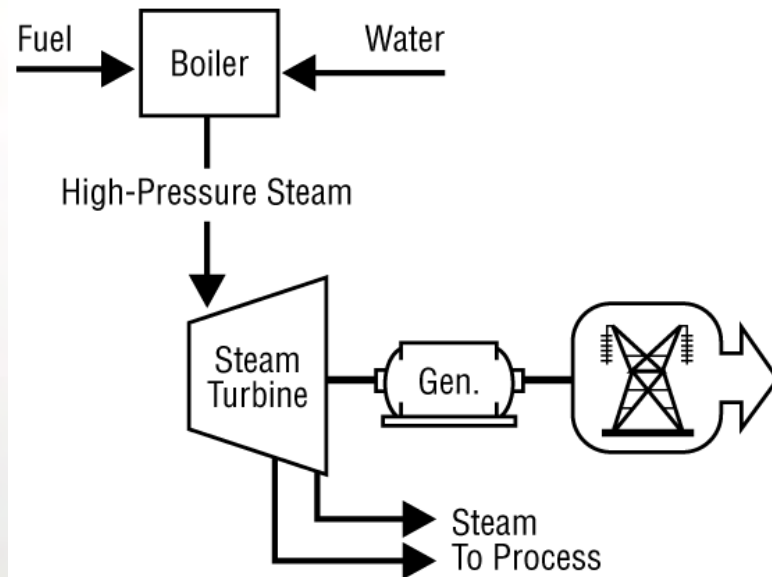
Tom Frankiewicz, EPA CHP Partnership

Combined Heat and Power

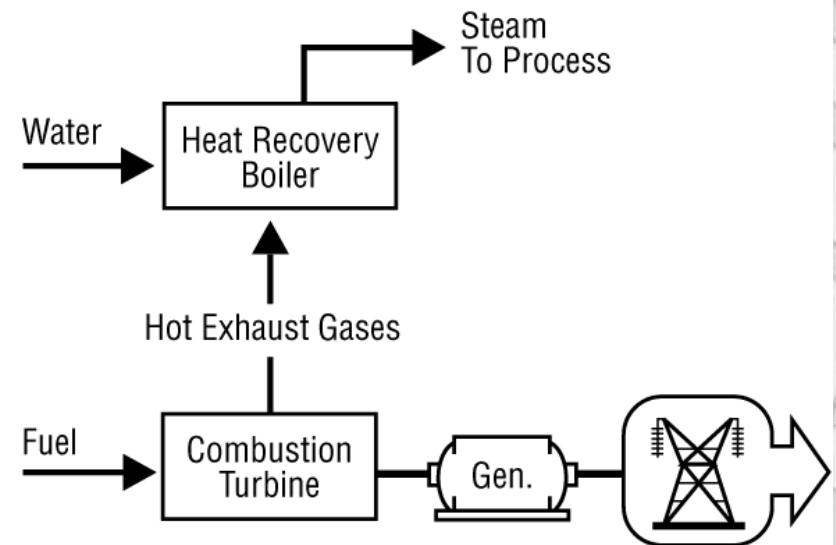
- CHP or Cogeneration
- Generation of Heat and Power from a Single Fuel Source
- Fuel and Equipment Neutral

Typical CHP Systems

Steam Boiler/Steam Turbine:



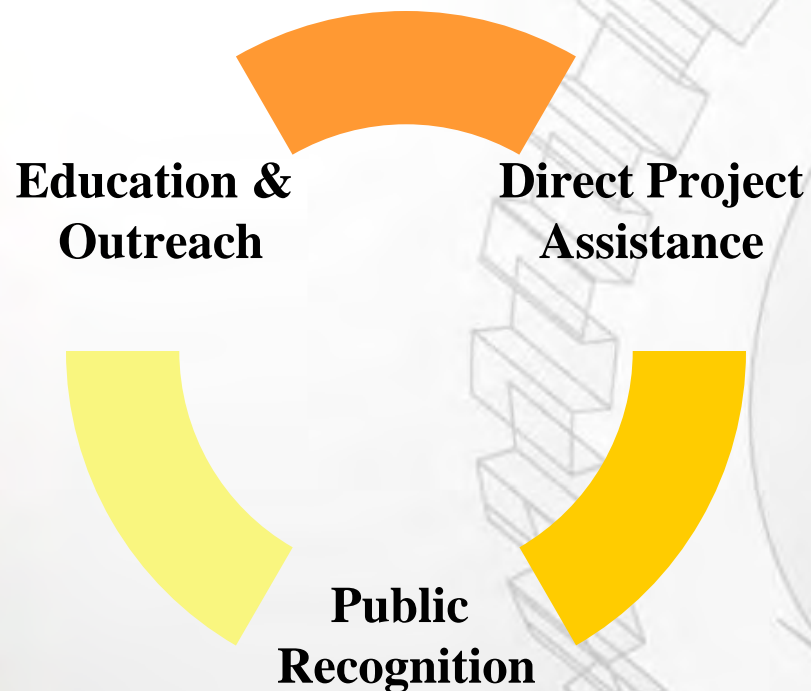
Gas Turbine or Engine/Heat Recovery Unit:



Advantages of Combined Heat and Power (CHP)

- More efficient than separate generation of electricity and heat.
- Lower operating cost. Higher efficiency translates to reduced fuel consumption.
- Reduces emissions of all pollutants. Including NO_x, SO_x, and CO₂
- Increased reliability and power quality also adds significant value.

The EPA CHP Partnership



Our Partners

- State and Local Government
- Major Energy Users
- Utilities
- CHP Industry

Market Opportunities for CHP

- Traditional Applications
- Market Opportunities
 - Hotels and Casinos
 - Municipal Waste Water Treatment
 - Biorefineries – Ethanol Production
 - Biomass-fired CHP
 - Utility-Owned CHP
 - Data Centers



Resources for New Markets

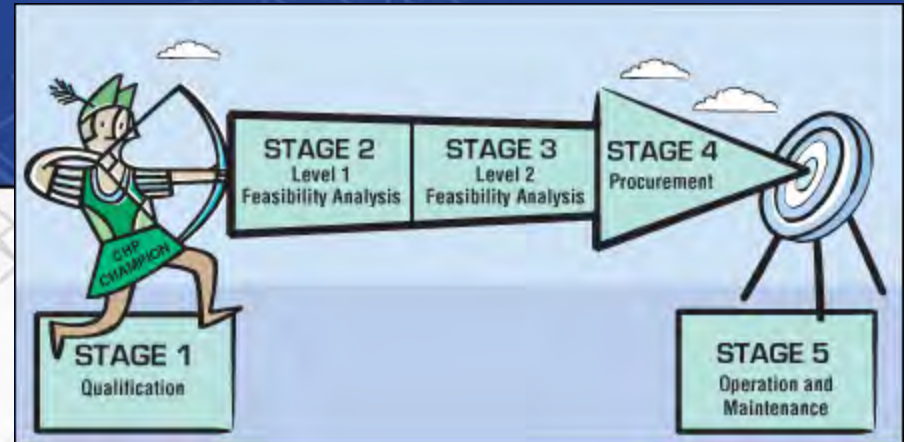
- Municipal WWTF
 - Assessment of CHP
- Hotels and Casinos
 - Market Study and Fact Sheets
 - Collaboration with Casino Industry
- CHP for Ethanol Refineries
 - Assessment of CHP for Biorefineries
 - Outreach to Ethanol Community, Development of Education Materials

Project and Technical Resources

- Program Expertise
- Tools and Resources
- Our Partners & Collaborators
 - Market intelligence
 - Referrals and collaboration

Project Resources

- Procurement Guide
- CHP Emissions Calculator
- Funding Database



CHP Results

Annual Emissions Analysis

	CHP System	Displaced Electricity Production	Displaced Thermal Production	Emissions Reduction	Percent Reduction
NO _x (ton/year)	23.01	208.81	6.09	185.89	85%
SO ₂ (ton/year)	0.11	542.78	4.41	542.09	100%
CO ₂ (ton/year)	21,203	92,200	4,876	75,773	78%
Carbon (metric ton/year)	5,810	25,146	1,330	20,665	78%
Fuel Consumption (MMBtu/year)	364,153	940,211	60,945	636,938	64%
Acres of Forest				20,665	
Number of Cars				12,916	

This CHP project will reduce emissions of Carbon Dioxide (CO₂) by 75,773 tons per year
This is equal to 20,665 metric tons of carbon equivalent (MTCE) per year

This reduction is equal to the carbon absorbed by 20,665 acres of forest

OR

This reduction is equal to the carbon absorbed by 12,916 cars off the road

CHP Funding Opportunities

Sort by	Name	Type	State
	Adv Power System Tech Program - Sec 1224	Rebate	National
	Agriculture Energy Efficiency Program	Grant	AL
	Alaska Power Project Loan Fund	Loan	AK

Public Recognition

- Energy Star CHP Awards for Highly Efficient CHP
- Assistance with Press and Public Outreach for Partners' Projects
- Support for Deployment of New Projects
- Partner GHG Reports and Partnership Annual Updates

Recognizing Environmental Benefit

- Key to encouraging CHP-DG is in recognizing it's primary benefits:
 - Higher efficiency
 - Onsite thermal and electrical generation (avoided transmission & distribution losses)
 - State-of-the-art technology (emission offsets)
- CHP can be most (cost) effectively installed during new build or boiler replacement/equipment upgrade.

CHP Partnership



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Or visit our website at

www.epa.gov/chp



1,904,000

**Annual
Emissions
of More Than
1.9 Million
Automobiles**

or



2,856,000

**Planting
More
Than
2.8 Million
Acres of Trees**