



INTERMOUNTAIN  
**CHP**  
APPLICATION  
CENTER

# CHP Tools and Resources Update

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Intermountain CHP Summit  
Golden Colorado  
May 17, 2006



# Overview

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- Website
- Tools
- Database

# www.intermountainchp.org

**InterMountain Combined Heat and Power Regional Application Center**  
REGIONAL APPLICATION ASSISTANCE FOR COMBINED HEAT AND POWER

**Welcome!**

[Register Now for the Intermountain CHP Summit May 16-17, Golden CO](#)

The Intermountain CHP Center was formed by the U.S. Department of Energy to increase adoption of CHP in the states of Arizona, Colorado, New Mexico, Utah, and Wyoming.

CHP is a significant, and growing, piece of the puzzle to meeting our region's energy needs. CHP leads to increased efficiency, economic vitality, environmental quality, greater energy flexibility, increased homeland security, and higher energy reliability.

Combined cooling, heating, and power (CHP) refers to generating electricity at or near the place where it is used, and then "recycling" the waste heat and using it for space heating, water heating, process steam for industrial steam loads, humidity control, air conditioning, water cooling, product drying, or for nearly any other thermal energy need. The end result is significantly more efficient than doing each of these separately.

We invite you to explore how CHP can benefit our region's businesses and communities, and how the Intermountain CHP Center can help with technical assistance, project support, education, policy reform, grant information, and other goals.

**CHP Tip of the Week**  
[Cogeneration and Onsite Power Production](#) and [Distributed Generation](#) are two highly-recommended bi-monthly magazines focused on CHP issues, technologies, trends, and case studies. They are available free.  
[See Past Tips](#)

**News**

- [CHP JOB ANNOUNCEMENT - Intermountain CHP Center \(Apply by May 15th\)](#)
- [Intermountain Regional CHP Summit May 16-17, 2006, Golden, CO](#)
- [EPRI Solutions Distributed Energy and Renewable Energy Outlook, May 18-19, 2006, Boulder, CO](#)
- [Distributed Energy Association of Arizona, June 12, 2006, Sedona, AZ - Contact \[billmurphy@cox.net\]\(mailto:billmurphy@cox.net\)](#)
- [National Accounts Conference, August 9-11, 2006, Keystone, CO](#)
- [Western Governors' Association White Paper on CHP](#)
- [New White Paper from WADE: "Building Integrated Cooling, Heat & Power For Cost-Effective Carbon Mitigation - Status and Prospects for Canada, China, India and the USA"](#)
- [Arizona Interconnection Standards and DG/CHP Policy](#)
- [Free Technical Assistance and Screenings for CHP Projects](#)

[Go to our CHP News Page](#)

[Go to our Calendar of Upcoming Events](#)

**Navigation Menu:**

- What is CHP?
- Information for Policy Makers
- Information for Businesses
- Installations & Case Studies
- State-by-State Information
- Grants, Incentives, RFPs
- News and Media
- Events & Presentations
- National CHP Resources
- Intermountain CHP Initiative
- CHP Buyer's Guide
- About Us
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# Website Highlights

- News and Events
- CHP tip of the day (send us yours!!!)
- Buyers Guide (subscribe now!!! enlist your friends!! )
- State by State Information (updates welcome)
- Installations and Case Studies (let us know & we will add yours)
- Resources and Tools
  - Regulatory
  - Technical

# Tools

- CHP Emissions Calculator
  - EPA CHP Partnership
  - Compares CHP system CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub> emissions to the emissions from a system that uses separate heat and power
- The tool will work with a minimum of three inputs:
  - The type of CHP system being evaluated (also known as the CHP prime mover).
  - The size/capacity of the CHP system being evaluated.
  - The type of fuel used to run the CHP system.

# CHP Emissions Calculator

Microsoft Excel - CHP Emissions Calculator

chptechinput

1. CHP: Type of System  Submit

2. CHP: Electricity Generating Capacity  kW Submit

3. CHP: How Many Identical Units (i.e., engines) Does This System Have?  Submit

4. CHP: How Many Hours per Year Does the CHP System Operate?

As a number of hours per year

OR As a percentage  0% Submit

5. CHP: Does the System Provide Heating or Cooling or Both?

If Heating and Cooling: How many of the hours are in cooling mode?

As a number of hours per year

OR as a percentage of the hours?  0%

If Heating and Cooling: Does the System Provide Simultaneous Heating and Cooling?  Submit

Introduction \ Inputs \ Results \ SubThermalCalculator \ SubGenSources /

Ready NUM

[http://www.epa.gov/chp/project\\_resources/calculator.htm](http://www.epa.gov/chp/project_resources/calculator.htm)

INTERMOUNTAIN CHP CENTER  
[www.intermountainCHP.org](http://www.intermountainCHP.org)

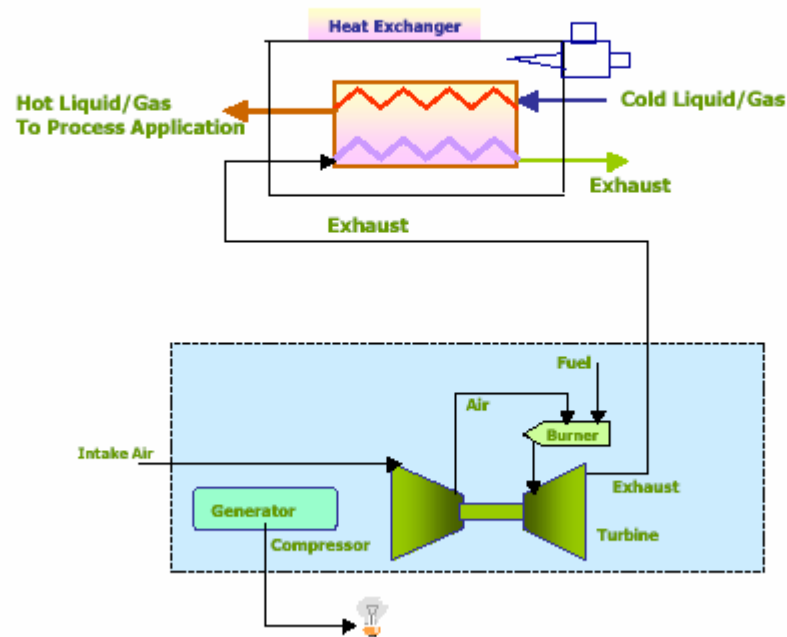
# CHP Tool

## (DOE Industrial Technologies Program)

- <http://www1.eere.energy.gov/industry/bestpractices/software.html#chp>
- Industrial process heating systems.
  - Fuel fired furnaces, boilers, ovens, heaters, heat exchangers etc.
- Gas turbine exhaust gases supply heat.
- Performance data and cost information for commercially available gas turbines
- “Ball-park” estimate for payback period
- What-if analysis for various utility costs

# CHP Tool

## 1. Fluid Heating in Heat Exchanger



ORNL with E3M Inc.

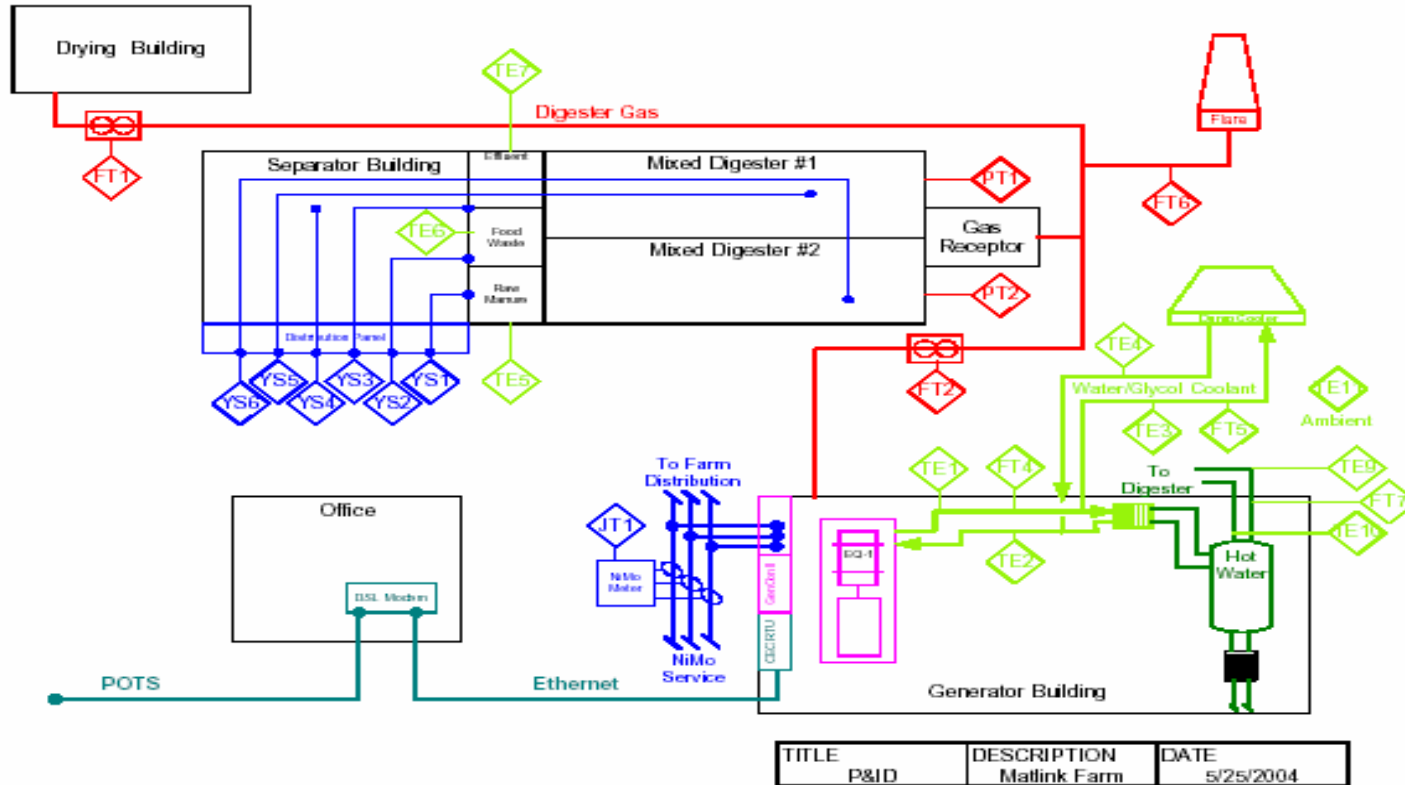
# Databases

- ASERTTI DG Database [www.dgdata.org](http://www.dgdata.org)
  - Database of performance of live installations
  - Prime mover
  - Fuel
  - Location
  - Site type

Optional source credit

# Agriculture, Small, NY Matlink Farms

**Site Schematic Diagram**



[chp.nyserda.org](http://chp.nyserda.org)

# Databases

- Database of State Incentives for Renewable Energy (DSIRE)

<http://www.dsireusa.org/>

Regulatory Requirements Database for  
Small Electric Generators

<http://www.eea-inc.com/rrdb/DGRegProject/>