

Combined Heat and Power

Description:

Combined Heat and Power (CHP), in this context, is really a suite of policies that enable large industrial customers to install systems that boil water to produce steam (heat) and use that steam to drive a turbine generator (power), where excess steam can be used for district heating or cooling. Sometimes referred to as cogeneration, the primary benefit of CHP is very high system efficiency. Whereas separate electricity and heat generation systems may have 40-50% efficiency, CHP systems have system efficiencies in the 70-80%+ range. The fuel for CHP systems is most commonly natural gas, which can yield a climate benefit over grid power, especially considering the enhanced thermal efficiency. A key consideration in CHP deployment is identifying the right application - a constant electric and heating/cooling load. Breweries, universities, hospital complexes, are all suitable applications. Excess steam in the summertime can be used for absorption chilling for cooling loads.

Discussion of the Policy:

CHP tends to suffer from the lack of a clear home in state policy, defined in some states as efficiency and in others as clean energy or even renewable. Some states include CHP explicitly in their Energy Efficiency Resource Standard (EERS), others in their Renewable Portfolio Standard (RPS), while others do not have clear statutory definition of CHP.

From a public policy perspective, a key consideration to deployment is having a clear utility tariff for utility customers who opt to add CHP. More specifically, utilities design 'stand-by' charges into their rates for customers that have onsite generation but who may need backup power from time to time when their on-site generation is offline. Clear and consistent tariff design is the lynchpin of CHP deployment. Legislation directing a public utilities commission (or their equivalent) to design and approve a clear standby charge for CHP is often going to be the best place to focus in this policy area¹.

Example State Programs:

In addition to enabling policies, several states have launched initiatives to drive CHP adoption:

- New York CHP Accelerator Program:
<http://www.nyserda.ny.gov/All-Programs/Programs/Combined-Heat-and-Power-Acceleration-Program>
- Northeast Clean Heat and Power Initiative:
<http://nechpi.org/>
- North Carolina Waste Awareness Reduction Network (WARN):
<http://www.ncwarn.org/wp-content/uploads/2013/02/CHP-Report-FINAL.pdf>

The U.S. Department of Energy (DOE) and Environmental Protection Agency (EPA) also have a partnership on CHP deployment, which stems from [President Obama's Executive Order](#) setting a goal of 40 gigawatts (GW) of

¹ For more on CHP standby tariffs, see this Regulatory Assistance Project white paper:
www.raonline.org/press-release/standby-rates-for-combined-heat-and-power-need-a-fresh

CHP by 2020 (a 50% increase from present trends). Technical assistance is available from DOE to help states and industrial customers deploy CHP through the [CHP TAP Program](#) and EPA maintains a [database of CHP incentives](#).

Key Components:

Combined Heat and Power policies may include:

- Clear definition of CHP as either an energy efficiency or clean energy technology in an EERS, RPS or Clean Energy Standard.
- Interconnection/Net Metering that allows for CHP.
- CHP friendly standby rates or tariff.
- Incentives for CHP projects.

More Information:

- American Council for An Energy-Efficient Economy (ACEEE) CHP Fact Sheet: www.aceee.org/files/pdf/fact-sheet/chp_policyposition0809.pdf
- ACEEE, Policies and Resources for CHP Deployment: Financial Incentives webpage: www.aceee.org/sector/state-policy/toolkit/chp/financial-incentives
- ACEEE, Policies and Resources for CHP Deployment webpage: www.aceee.org/sector/state-policy/toolkit/chp