

EPA's Combined Heat and Power Partnership

Combined heat and power (CHP), or cogeneration, is an efficient and clean approach to generating electric power and useful thermal energy from a single fuel source. CHP is used to replace or supplement conventional separate heat and power (SHP) (i.e., central station electricity available via the grid and an onsite boiler or heater). Every CHP application involves the generation of electricity and the recovery of otherwise-wasted thermal energy. Therefore, CHP provides greater energy efficiency and environmental benefits than SHP.

Benefits of CHP

CHP systems achieve fuel use efficiencies of 60 to 80 percent, compared to a typical SHP efficiency range of 45 to 55 percent. This improvement in efficiency translates to:

- Energy cost savings from reduced fuel use
- Reduced emissions of greenhouse gases and other regulated air pollutants
- Increased electricity-supply reliability and power quality
- Reduced grid congestion and transmission and distribution losses

For these reasons, businesses and others have installed more than 85,000 megawatts (MW) of CHP capacity in the United States, making CHP a proven pollution reduction technology option.

The U.S. Environmental Protection Agency (EPA) established the CHP Partnership as a voluntary program that promotes efficient CHP technologies across the United States. The Partnership works closely with energy users, the CHP industry, state and local governments, and other clean energy stakeholders to facilitate the development of new projects and to promote their environmental and economic benefits.

Benefits of Joining the CHP Partnership

The Partnership offers a variety of tools and services designed to facilitate and promote Partners' development of CHP projects. In addition to the offerings listed, check out the complete list of tools, services, and benefits on the CHP Partnership website: www.epa.gov/chp.

Direct Project Assistance

- CHP project qualification to determine whether CHP is worth considering at a particular facility.
- Technical assistance for candidate sites, including spark spread analyses, permitting guidance, level 1 feasibility studies, and third-party review of feasibility/design studies.
- The CHP Emissions Calculator, which compares the anticipated CO₂, SO₂, and NO_x emissions from a CHP system to the emissions from a SHP system.

Public Recognition

- ENERGY STAR® CHP Awards and publicity.
- A profile on the Partnership website with information about each Partner.
- An annual Certificate of Greenhouse Gas Reduction—a certificate that shows the carbon reductions associated with Partner projects.

What You Can Do to Encourage CHP

Energy Users. Evaluate your needs for clean, reliable power, as well as heating and/or cooling, and consider CHP. Potential CHP users include industrial facilities, data centers, universities, commercial or institutional buildings, district energy systems, hotels/casinos, ethanol production facilities, wastewater treatment facilities, and industrial and power parks. Energy users can achieve emissions reductions, cost savings, and increased reliability with CHP.

CHP Project Developers and Equipment Manufacturers/Suppliers. Take advantage of the CHP Partnership's market development activities, tools, permitting guidance, networking, and project recognition to increase your profile, effectively target energy users, and expand your business.

Utilities. Establish policies and rates that facilitate CHP development in your service territory. In areas of electric grid congestion or high demand, CHP can reduce load pockets by freeing up transmission capacity, and offer grid support at times of peak demand. Through teaming with customers that have large thermal demands, a generation utility can use CHP to efficiently produce electricity and thermal energy, while receiving revenue for the thermal energy that would otherwise be wasted.

State and Local Governments. Review energy policies in your state to ensure that they are not creating barriers to CHP deployment by energy users. Using CHP to improve the efficiency of the energy sector helps state and local governments meet energy and air quality goals.

Education & Outreach

- Information for regulators, policymakers, and utilities to encourage energy efficiency and CHP.
- Peer-to-peer marketing and networking at workshops and conferences.
- Examples of model state policies for promoting CHP, such as output-based emissions regulations, CHP-friendly utility rates, and renewable portfolio standards that include CHP.
- Information about CHP markets.
- Topical email announcements highlighting Partnership activities, funding opportunities, and upcoming events.

Other Resources

- Information about the CHP project development process, including access to tools and recommendations to facilitate successful projects.
- Information about CHP prime movers, including cost and performance characteristics.
- Current information on state and federal incentives applicable to CHP, including financial incentives and favorable regulatory treatment.
- Technical white papers and clean energy policy resource documents.

Your Role as a Partner

Partners work with EPA to promote CHP benefits and support the development of new CHP capacity. EPA provides tools and services to support Partners as they investigate and develop new CHP capacity.

Partners agree to:

- Assess the potential for CHP development at their facilities.
- Support development of new CHP projects.
- Publicize the energy, environmental, and economic benefits of their projects.
- Government partners also agree to promote the benefits of CHP and support the development of projects within their respective jurisdictions.
- Help EPA determine greenhouse gas emissions prevented by annually providing data on existing CHP projects and new project development, as well on other CHP-related activities.

For more information about the EPA's CHP Partnership, including how to join, contact:



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