

Introduction

Combined heat and power (CHP) is a proven commercial technology that has been used for more than a century. A variety of commercial and industrial facilities use CHP to provide both electric and thermal energy from one fuel source, instead of purchasing electricity from the utility and burning fuel in an on-site furnace or boiler to produce thermal energy or purchasing thermal energy.¹⁸ Cost-effective,¹⁹ clean²⁰ CHP can provide a suite of benefits to the user, the electric system, and to the nation.²¹

Benefits of CHP for U.S. Businesses

- Reduces energy costs for the user
- Reduces risk of electric grid disruptions and enhances energy reliability
- Provides stability in the face of uncertain electricity prices.

Benefits of CHP for the Electric System

- Offers a low-cost approach to new electricity generation capacity
- Lessens the need for new transmission and distribution (T&D) infrastructure and enhances power grid security.²²

Benefits of CHP for the Nation

- Improves U.S. manufacturing competitiveness through increased efficiencies and reduced energy costs
- Offers a low-cost approach to new electricity generation capacity
- Provides an immediate path to lower greenhouse gas (GHG) emissions, in many cases through increased energy efficiency²³
- Uses abundant, clean, domestic energy sources
- Uses highly skilled American labor and American technology.



Source: Energy Solutions Center

Figure 1. A typical 1.5 MW gas turbine CHP system

¹⁸ Oak Ridge National Laboratory. (2008). *Combined Heat and Power, Effective Energy Solutions for a Sustainable Future*. CHP sites that are interconnected and require the utility to provide significant amounts of back-up electricity are not likely to defer investments because utilities invest to meet the peak demand and this back-up need must be part of the peak calculus. In some cases, there are opportunities to purchase thermal energy from a district energy system or steam loop.

¹⁹ See Appendix A for a discussion of evaluating the cost-effectiveness of a CHP program.

²⁰ State policymakers, project developers, advocates, utilities, and others have various definitions of “clean” energy. This guide does not attempt to create one definition, but rather recognizes that the primary audiences for the guide are state regulators and that they define it as they see fit.

²¹ U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA). *Combined Heat and Power: A Clean Energy Solution*. August 2012. www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf.

²² www.fortnightly.com/fortnightly/2012/08/capturing-distributed-benefits?authkey=ed2f91bfeb755dc6c222d2a76b32f98d675ae9db26fee62ecd0f798b0e67528b.

²³ U.S. EPA. *Fuel and Carbon Dioxide Emissions Savings Calculation Methodology for Combined Heat and Power System*. August 2012. www.epa.gov/chp/documents/fuel_and_co2_savings.pdf.



Successful implementation of supportive state policies by state utility regulators and other state policymakers is critical to achieving the above benefits, as well as the Obama Administration's and State and Local Energy Efficiency Action Network (SEE Action) Industrial Energy Efficiency and CHP Working Group's goal of 40 gigawatts (GW) of new CHP by 2020.

There are many resources that provide information on the design of CHP policies. This guide will provide state utility regulators and other state policymakers with actionable information to assist them in implementing key state policies that address barriers to, and promote opportunities for, CHP development. This guide recognizes that the process for initiating and implementing legislative and regulatory reforms to develop markets for CHP are different in every state. Moreover, state approaches to facilitating the financing of CHP and developing long-term comprehensive energy and energy assurance plans differ across the nation. For this reason, the concepts put forth in this paper should be considered by legislators, governors, state energy officials, and utility regulators.

This guide provides a summary of key CHP policies and provides examples of successful state regulatory implementation strategies that meet one or more of the three criteria:

- They achieve the intent of state policy (a policy may be established but not successfully executed).²⁴
- They send clear market signals.
- Where applicable, they adhere to the principle of ratepayer benefits or neutrality.

The guide assumes that statutes and/or regulations are already in place for these policies. The guide also recognizes that individual states will define clean energy and energy efficient technologies and practices consistent with their state goals and regulations. This guide does not explore the merits or problems with these policies and regulations.

²⁴ "Achieving the intent of state policy" focuses on implementation of certain features of the overall policy, or specific design features that may have unintended consequences that deter from meeting the final policy objective. For example, in Ohio, CHP was eligible under the state's renewable portfolio standard (as part of the advanced energy category); however, the state did not issue eligibility guidance for CHP resulting in no systems receiving credit under the standard (National Council on Electricity Policy, November 2009). Ohio recently amended the RPS, and waste heat to power is eligible now as a renewable resource. Ohio also adopted a separate energy efficiency resource standard with energy savings and peak demand reduction targets, and that includes CHP and waste heat to power systems as eligible.