



Making America Competitive through Industrial Energy Efficiency

The industrial and commercial sectors, which represent nearly three-quarters of total U.S. energy use,¹ hold great potential for efficiency improvements. Encouraging manufacturers and commercial property owners to generate power onsite with technologies like combined heat and power and waste heat to power can create jobs, strengthen America's competitiveness, and make our grid more resilient.

- **Combined heat and power (CHP)** uses a single source for electric generation to create heat as well as electricity. CHP's key advantage is efficiency – twice the energy efficiency of the average power plant.²
- **Waste heat to power (WHP)** uses industrial waste heat (or other energy-laden waste streams that is typically released into the atmosphere) and captures it to generate electricity with no additional fuel, no combustion, and no incremental emissions.

CHP provides nearly 9 percent of U.S. electricity. There are more than 4,300 installations nationwide, with at least one in every state. While CHP is already fueling many of America's factories, tremendous potential remains to increase deployment and make American businesses and institutions more competitive and resilient, while reducing emissions. The Department of Energy and Environmental Protection Agency have identified 130 gigawatts of remaining CHP technical potential – the equivalent of 260 conventional power plants.³ In 2008, DOE's Oak Ridge National Laboratory (ORNL) projected that CHP could supply 20 percent of U.S. electric capacity by 2030. Under this scenario, we could:

- Create nearly 1 million new highly-skilled technical jobs across the country;
- Save the equivalent of nearly half the total energy consumed by U.S. households annually.
- Produce 200 gigawatts – equal to the power produced by 400 conventional power plants;⁴
- Reduce pollution by an amount equivalent to that produced by approximately one-half of the current passenger vehicles on the road.

Even achieving more modest targets (like increasing existing deployment by 40 gigawatts, or 50 percent from today's levels) would offer significant economic, reliability and environmental benefits.⁵

WHP is gaining increasing attention as a source of clean and reliable power. WHP is considered a renewable energy source in 17 state renewable portfolio standards and an efficiency resource in three energy efficiency resource standards.⁶ ORNL projects that WHP could generate another 15 gigawatts of electric capacity, 80 percent of which is in the energy-intensive petroleum refining, chemicals, primary metals and non-metallic minerals manufacturing industries.⁷

Improve the Combined Heat and Power Investment Tax Credit

In order to realize the potential and resulting benefits which CHP and WHP offer, businesses need help in financing these projects. Improving the existing Investment Tax Credit (ITC) would provide this assistance, increasing deployment and reducing energy waste.

- Add WHP to the existing ITC
- Increase the ITC for highly efficient CHP and WHP to 30 percent
- Increase the capacity limitation by applying the ITC to a project's first 25 megawatts
- Remove the 50 megawatt project size limitation
- Allow projects to qualify for the investment tax credit based upon the date a project begins construction, rather than the date it is placed in service



Sources

¹ DOE, Jan. 2015, “Quadrennial Technology Review - 2015 Framing Document”

(<http://energy.gov/sites/prod/files/2015/01/f19/DOEQTR2015FramingDocument.pdf>).

² Oak Ridge National Laboratory (ORNL), Dec. 1, 2008, “Combined Heat and Power: Effective Energy Solutions for a Sustainable Future,” at 6

(http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_report_12-08.pdf).

³ DOE-EPA, 2012, “Combined Heat and Power: A Clean Energy Solution,” at 14 (at

http://www.epa.gov/chp/documents/clean_energy_solution.pdf).

⁴ ORNL at 4.

⁵ DOE-EPA, at 3 (finding that achieving this target would save energy users \$10 billion a year compared to current energy use, support \$40-\$80 billion in new capital investment over the next decade, save one-quadrillion Btus of energy, and reduce emissions by 150-million metric tons of CO₂ annually).

⁶ Catalog of States in Which Waste Heat to Power is Provided Incentives in Renewable Energy and Energy Efficiency Policies and Programs, The Heat is Power Association, November 2014.

⁷ ICF International for ORNL, March 2015, “Waste Heat to Power Market Assessment”

(<http://bit.ly/1CiEZAb>).