The Alliance for Industrial Efficiency

February 25, 2013

Congressman Ed Whitfield
Chair, Subcommittee on Energy and Power of the
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

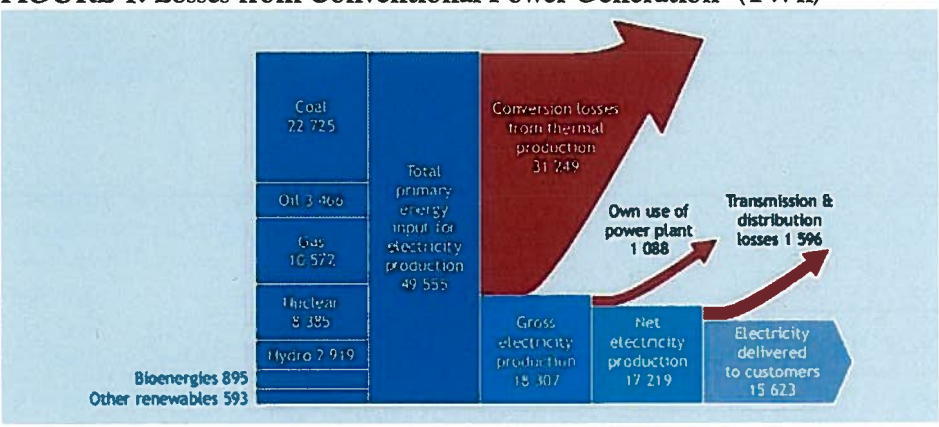
Congressman Bobby Rush
Ranking Member, Subcommittee on Energy
and Power of the Committee on Energy
and Commerce
2268 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Whitfield and Ranking Member Rush:

The Alliance for Industrial Efficiency (AIE) is pleased that the Subcommittee on Energy and Power is holding a hearing to assess opportunities in energy efficient technologies, particularly in the area of industrial efficiency. The Alliance is a diverse coalition representing the business, environmental, labor and contractor communities and is committed to enhancing manufacturing competitiveness through industrial energy efficiency. We want to emphasize the economic and reliability benefits associated with Combined Heat and Power (CHP) and Waste Heat Recovery (WHR) and ask that this letter be submitted for the official Hearing Record.

U.S. power generation is woefully inefficient – and has not improved since Dwight Eisenhower occupied the White House. In fact, as Figure 1 (below) illustrates, roughly two-thirds of energy inputs (68 percent) are simply wasted, with a mere 32 percent actually delivered to customers. Ratepayers subsidize this inefficiency by paying for power that never reaches the end user. The unfortunate results are lost competitiveness and jobs, as well as increased pollution.

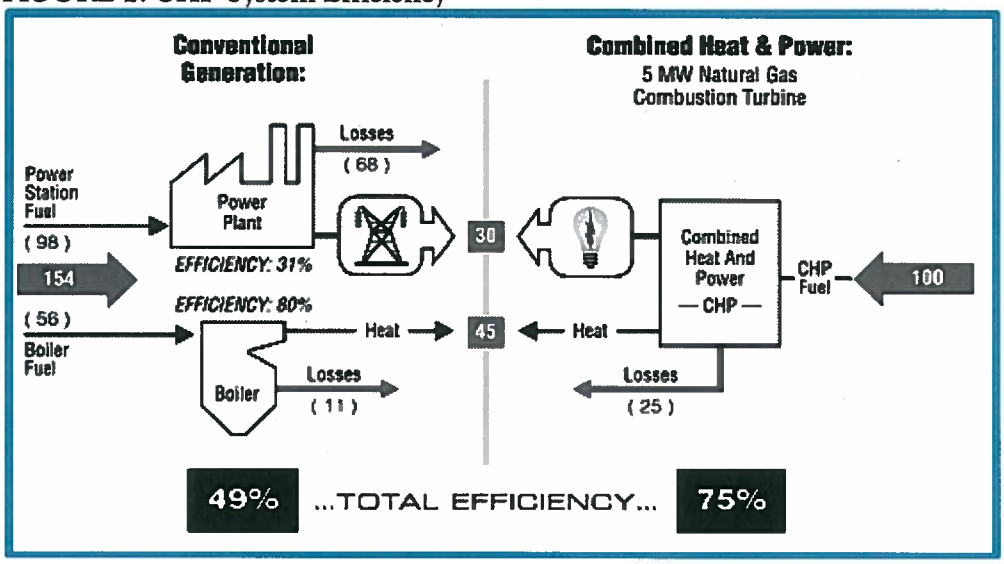
FIGURE 1: Losses from Conventional Power Generation[1] (TWh)



[1] International Energy Agency, 2008, "Combined Heat and Power: Evaluating the benefits of greater global investment," at 6 (Figure 3) (http://www.iea.org/papers/2008/chp_report.pdf).

Fortunately, cleaner and more cost-effective alternatives already exist in the form of Combined Heat and Power. Indeed, by capturing and reusing waste heat, a CHP system can convert what would otherwise be wasted energy into additional electricity and useful thermal energy (heat). This approach reduces costs and increases energy efficiency – allowing utilities and companies to effectively "get more with less." As Figure 2 illustrates, total energy use is significantly greater with conventional separate heat and power generation (here 154 units) than it is under combined heat and power (here 100 units).

FIGURE 2: CHP System Efficiency[2]



The related opportunity for energy savings using Waste Heat Recovery can provide new sources of electricity and useful thermal energy simply by recovering the heat and steam produced in a variety of industrial processes that otherwise would be emitted into the atmosphere.

By dramatically reducing electric power demand (and related energy costs) for industrial sources, combined heat and power can help make U.S. manufacturing more competitive. For instance, the ArcelorMittal steel facility in East Chicago, Indiana, reports $100 million in annual electricity savings from WHR and CHP.[3] Industrial CHP facilities can use the money they save on energy to expand production and employment. Such savings are already being realized at thousands of locations nationwide. According to the Department of Energy Database, 3,850 CHP and WHR installations already produce 82 gigawatts of clean and efficient power around the country.[4]

What's more, CHP and WHR projects can increase the reliability of our power sector, by ensuring that manufacturers, universities and hospitals "keep the lights on" during extreme weather events that can compromise the electric grid. We witnessed these benefits this winter during Superstorm Sandy, when many communities in the Northeast and Mid-Atlantic went without power. Yet Co-Op city, a 60,000-

[2] U.S. EPA, "Output-Based Environmental Regulations Fact Sheet" (http://www.epa.gov/chp/state-policy/obr_factsheet.html) (Note that this figure is for illustration only. CHP performance relative to separate heat and power depends on numerous site- and project-specific factors).
[3] Chris Steiner, "Gray is the New Green," *Forbes*, Sept. 15, 2008 (http://www.forbes.com/forbes/2008/0915/054_2.html).
[4] CHP Installation Database developed by ICF for ORNL and DOE, 2012 (http://www.eea-inc.com/chpdata/index.html).

resident community in New York with a CHP system, still had heat and light.[5] Similar success stories exist across the region.[6]

The potential for increased deployment of CHP and WHR is great. Indeed, in 2008, the Department of Energy's Oak Ridge National Laboratory (ORNL) found that CHP could produce 20 percent of U.S. electric capacity (or 156 gigawatts of new, clean power) by 2030.[7] This addition is equal to the capacity of more than 300 conventional power plants. According to ORNL, such full-scale deployment would generate $234 billion in new investment and create nearly one million new highly-skilled, technical jobs,[8] in the design, construction, installation and maintenance of CHP equipment.

On August 31, 2012, the Administration took a first step to challenge the nation to realize this potential by issuing an Executive Order (EO 13624) establishing a goal of increasing CHP deployment by 50 percent (40 gigawatts) by the year 2020. We commend the Administration for recognizing the benefits of industrial efficiency; however, we believe Congress should support a more aggressive deployment goal, as reflected in The Smart Energy Act, which was introduced with bipartisan support by Representatives Bass and Matheson, and others, in the 112th Congress. A provision in this legislation contained a goal of *doubling* CHP deployment during the same period. This bold vision is needed to advance technologies that are vital to our economy and to our nation's electric reliability. This ambitious goal is also consistent with the seminal 2008 ORNL report.

CHP's and WHR's technical capacity clearly exceeds the Executive Order goal. In October 2010, ICF Consulting published a report – "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power" – assessing the technical market potential for CHP (exclusive of WHR) in the industrial, commercial/institutional, and multi-family residential market sectors in the U.S., finding that such potential approached 64 gigawatts in the industrial sector and 68 gigawatts in the commercial sector.[9] These findings were reaffirmed in a 2012 DOE-EPA report released alongside the industrial efficiency Executive Order.[10] Relatedly, analysis done for the EPA-DOE interagency Technical Assistance Program found that simply installing CHP in the industrial coal and oil boilers covered by the Boiler MACT Rule would produce in excess of 21 gigawatts of new CHP capacity – more than half of the Administration's recently announced goal.[11]

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[5] Williams, Diarmaid., Nov. 11, 2012, *Lessons Learned from Hurricane Sandy* http://www.cospp.com/content/cospp/en/articles/2012/11/lessons-learned-from-hurricane-sandy.html

[6] Pew Charitable Trusts, *Industrial Efficiency Technology Kept the Lights on During Hurricane Sandy* (compendium of articles and key excerpts available online at http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Other_Resource/clen-Sandy_Breifing_Web_Dec2012.pdf).

[7] Oak Ridge National Laboratory (ORNL), Dec. 1, 2008, *Combined Heat and Power: Effective Energy Solutions for a Sustainable Future*, at 4 (http://www1.eere.energy.gov/industry/distributedenergy/pdfs/chp_report_12-08.pdf).

[8] *Id*

[9] Commercial and Industrial CHP Potential from ICF's "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power (USCHPA-WADE ITC Study), Table 3 and Table 4, on p. 11 and p. 12 respectively (http://www.uschpa.org/files/public/USCHPA%20WADE_ITC_Report_FINAL%20v4.pdf). "The estimates of CHP technical potential are based on thermally loaded CHP systems sized to serve on-site electrical demands at target facilities and do not include export capacity", so the potential would be even higher if that were factored in.

[10] U.S. EPA and U.S. DOE, Aug. 2012, "Combined Heat and Power: A Clean Energy Solution," at 13. (http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_clean_energy_solution.pdf).

Unfortunately, many manufacturers are not able to realize the competitiveness benefits of CHP and WHR because of existing utility policies that often discriminate against distributed generation and limit the ability of manufacturers to get their electricity into the markets. These obstacles recently chilled a proposed project at a large silicon manufacturer in West Virginia. The industrial facility had planned to capture hot gases from its silicon furnaces to generate more than 60 megawatts of electricity. The company planned to use the money saved on electricity to finance an additional silicon furnace and increase its workforce by 20 percent. The project was ultimately tabled, however, because West Virginia Alloy could not sell its excess power into the grid. Elsewhere, unreasonable standby rates and interconnection fees make CHP and WHR projects cost prohibitive. Congress should support policies that lower these barriers. For instance, last spring, Governor Kasich worked with the Ohio General Assembly to develop legislation (SB 315) that allowed CHP to count toward compliance with the state's energy efficiency standard and allows WHR count toward either the state energy efficiency or renewable standard. Such measures help overcome barriers to industrial efficiency and allow U.S. manufacturers to realize the full economic benefits of CHP and WHR.

The Administration also can stimulate demand for CHP and WHR by encouraging deployment of CHP and WHR systems in federal buildings and procuring it when Washington is purchasing electricity. As the largest electricity user in the country, the federal government can save taxpayers money, reduce pollution, drive markets for CHP and WHR, and serve as a model for the private sector. Congress should thus support policies that encourage federal deployment and procurement of CHP and WHR.

We believe CHP and WHR provide a scalable, cost-effective approach to increasing manufacturing competitiveness and enhancing electric reliability. We look forward to working with your Subcommittee and the full Energy and Commerce Committee to explore policy options to help realize the full potential of these technologies.

Sincerely,

David Gardiner
Executive Director
Alliance for Industrial Efficiency