Representative Henry Waxman
Co-Chair, Bicameral Task Force on Climate Change
2204 Rayburn House Office Building
Washington, DC 20515

Senator Sheldon Whitehouse
Co-Chair, Bicameral Task Force on Climate Change
Hart Senate Office Bldg. Room 717
Washington, DC, 20510

Dear Representative Waxman and Senator Whitehouse:

We are grateful for the opportunity to respond to your January 31 request for actions the federal government can take to address climate change. We participate in a diverse coalition that includes representatives from the business, environmental, labor and contractor communities. The Alliance for Industrial Efficiency is committed to enhancing manufacturing competitiveness and reducing carbon emissions through industrial energy efficiency. We want to ensure that you consider the economic and environmental benefits of Combined Heat and Power (CHP) and Waste Heat Recovery (WHR) as you move forward with policy recommendations to reduce emissions and respond to the effects of climate change. We believe that both the Administration and Congress have authority to increase investments in these technologies and hope that you will pursue such opportunities going forward.

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 emitted into the air, with a mere 32 percent actually delivered to customers. Ratepayers subsidize this inefficiency by paying for fuel that never reaches the end user. The unfortunate results are lost competitiveness and jobs, as well as increased pollution.

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 dramatically lowers emissions and increases fuel efficiency – allowing utilities and companies to effectively "get more with less." As Figure 2 illustrates, total fuel 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).

The related opportunity for energy savings, Waste Heat Recovery, can provide new sources of emissions-free electricity or useful thermal energy simply by recovering the heat and steam produced in a variety of industrial processes, just as the waste heat may be recovered from power generation plants. Processes such as metallurgy and pipeline compression require major energy inputs, and with Waste Heat to

Power,[1] the waste heat by-product is recuperated from the process exhaust gas and transferred through a heat exchanger to produce power with no additional emissions.

FIGURE 1: Losses from Conventional Power Generation[2] (TWh)

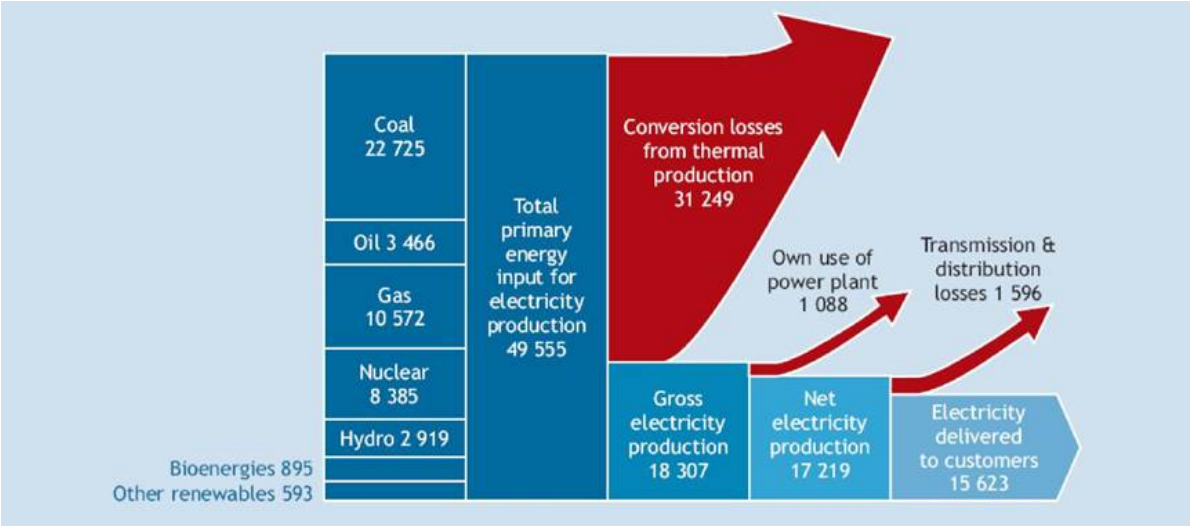
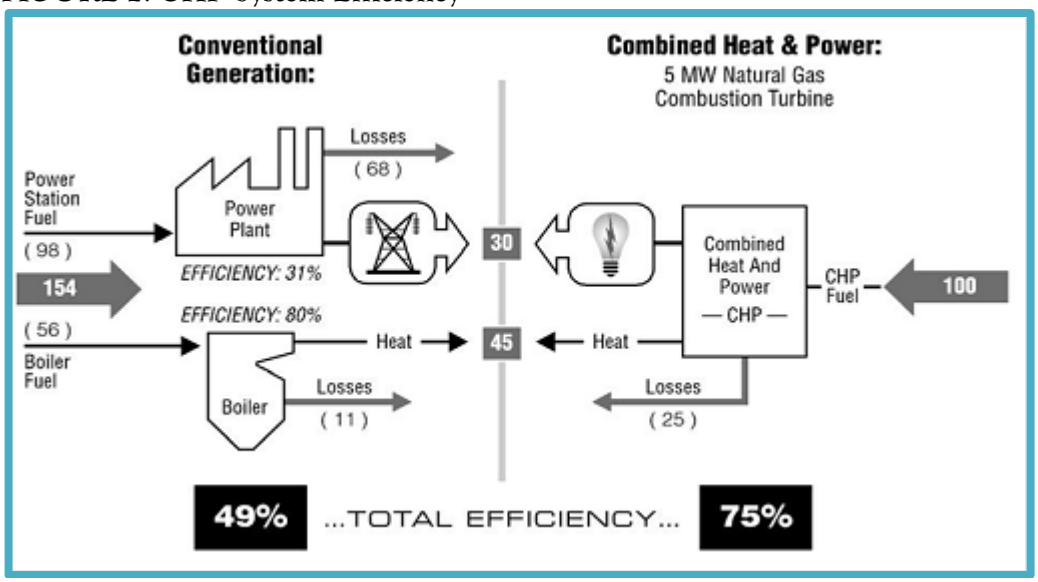


FIGURE 2: CHP System Efficiency[3]



Combined Heat and Power and Waste Heat Recovery together can provide a sizable portion of U.S. electric capacity, dramatically lowering greenhouse gas emissions. Indeed, in 2008, Department of Energy's Oak Ridge National Laboratory (ORNL) found that CHP could potentially provide 156 gigawatts of new, clean power by 2030 – twenty percent of U.S. electric capacity, equal to the capacity of

[1]Waste heat to power (WHP) is one type of waste heat recovery (WHR). WHP uses waste heat from industrial processes to generate electricity with no additional emissions. Another form of WHR is heat captured for useful thermal applications.

[2] 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).

[3] 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).

more than 300 conventional power plants.[4] At this level of full-scale deployment, ORNL found that "carbon emissions could be reduced by more than 800million metric tons (MMT) per year, the equivalent of taking more than half of the current passenger vehicles in the U.S. off the road. In this 20 percent scenario, over 60 percent of the projected increase in CO_2 emissions between now and 2030 could be avoided."[5] At the same time, these clean and efficient technologies, would generate $234 billion in new investment and create nearly 1 million new highly-skilled, technical jobs.[6]

CHP thus reduces fuel use and associated emissions of all pollutants. In light of the emission benefits associated with CHP and WHR, we urge the Bicameral Task Force on Climate Change to consider actions and policies that encourage their use. Indeed, there are a number of policy options that the Administration can pursue with its existing authority to increase federal procurement and deployment of CHP and WHR. Such policies will make our nation more resilient to the effects of climate change by allowing our manufacturers, universities and hospitals to "keep the lights on" during extreme weather events that compromise the electric grid. There are also a variety of tax and authorizing measures that Congress can adopt to help incentivize investments in CHP and WHR by lowering financing costs and creating a market for these technologies. These specific recommendations are outlined in the attached memo.

We believe that CHP and WHR provide a scalable, cost-effective approach to lowering greenhouse gas emissions and improving our nation's resilience to climate change while simultaneously enhancing U.S. manufacturing competitiveness. We look forward to working with the Bicameral Task Force on Climate Change to further explore policy options to help realize the full potential of these technologies.

Sincerely,

David Gardiner
Executive Director
Alliance for Industrial Efficiency

On behalf of
Heat is Power Association (HiP)
International Association of Sheet Metal Air, Rail and Transportation (SMART) Workers
Mechanical Contractors Association of America (MCAA)
National Electrical Contractors Association (NECA)
Ormat Technologies Inc.
Pew Charitable Trusts
Recycled Energy Development (RED)
Sheet Metal & Air Conditioning Contractors' National Association (SMACNA)
TAS Energy
Veolia Energy North America

[4] 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).
[5] *Id.* (internal citations omitted).
[6] *Id*