

Ohio Senate Public Utilities Committee

Interested Party Written Testimony – Ohio Senate Bill 58

April 23, 2013

Chairman Seitz and members of the Ohio Senate Public Utilities Committee, thank you for the opportunity for The Heat Is Power Association to submit written testimony regarding Ohio Senate Bill 58. The Heat is Power Association is the trade association for the Waste Heat to Power industry. Our members range in size from large manufacturers to smaller technology developers and manufacturers, project developers, component suppliers, and industrial end users in Ohio and throughout the United States. Member companies based in Ohio include Echogen Power Systems and Hyundai Ideal.

Waste heat to power (WHP) installations capture the heat generated as a by-product from industrial processes and convert that heat into electricity without combustion and without emissions. Waste heat to power encompasses a suite of technologies and applications that can improve industrial energy efficiency and reduce emissions anywhere heat is vented or wasted. Cement, paper, steel and oil and gas are good examples of energy intensive industries where waste heat to power applications have been successful.

We were very pleased last year when Ohio SB 315 identified Waste Energy Recovery (WER), referred to by the industry as Waste Heat to Power (WHP)¹, projects as either renewable energy generation under Ohio's Renewable Portfolio Standard (RPS) or energy efficiency projects under Ohio's Energy Efficiency Resource Standard (EERS). By recognizing that waste heat to power produces electricity with the environmental attributes equivalent to renewable resources and also allows facilities that produce industrial waste heat to improve their overall energy efficiency, Ohio established itself as a leader in industrial efficiency policy and a leading state for investment by our industry.

In fact, Ohio's leadership was on display in February when the National Association of Regulatory Utility Commissioners passed a "Resolution Supporting the Inclusion of Waste Heat to Power Technologies in State and Federal Clean Energy Policies and Programs" (please see Attachment B), in part, as a result of a presentation by former Ohio Public Utilities Commissioner Cheryl Roberto.

We are concerned that SB 58, whose stated objective is to review and possibly modify the energy efficiency, peak demand reduction, and alternative energy resource provisions established by Ohio law governing competitive retail electric service, will erode that national leadership position to the detriment of industry and electric consumers in Ohio. Specially, we believe that the newly-authorized inclusion of waste energy recovery as a renewable resource and in the energy efficiency standards makes it possible

¹ Waste Energy Recovery (WER) and Waste Heat to Power (WHP) are two different terms that have the same meaning. WER is the term used in Ohio legislation while WHP is the term most commonly used in industry.

to cost-effectively meet the energy efficiency benchmarks going forward.

The Ohio RPS and EERS as written position Ohio to attract capital for WER project investment. These types of projects and the associated revenues they generate should provide incentive for the most energy intensive industries to look at innovative strategies to reduce their energy use, improve their competitive position and create jobs in Ohio.

However, as issuance of the final regulations drags on slowly, momentum and enthusiasm from potential investors wanes as well. Further, introduction and debate regarding legislation like SB 58 only delays the implementation of energy saving WER projects as developers and industrial waste heat owners wait on the sidelines. We urge you to take action to ensure:

- Ohio continues to support and expand the targets for renewable energy and energy efficiency in Ohio.
- WER and other forms of emission-free power generation continue to be treated as renewable energy resources.
- The legislature and Utilities Commission are diligent in ensuring the utility distribution and transmission system is managed in a manner that is safe and fair to all participants while ensuring a streamlined and transparent interconnection process. All forms of distributed generation continue to face challenges with regard to interconnection barriers.
- Utilities, industrials, regulators and third party service providers work together in a framework that establishes clear goals and targets, clearly establishes the financial incentives available for those efficiency projects, and provides certainty that the utilities will be able to provide the funds once those projects are implemented. These actions will help improve industrial energy efficiency.
- Annual targets for energy efficiency are not frozen, as we believe targets are the most cost effective way to deal with new capacity requirements as well as reduce the need for the most inefficient generating resources.
- There continue to be separate categories for EERS and RPS resources.
- All existing contracts will be upheld under the current EERS/RPS benchmarks as they are today if a decision to alter them were to be made in the future.

Attached to this statement is a fact sheet about waste heat to power and The Heat is Power Association, followed by the NARUC resolution mentioned above. These documents explain WHP's ability to provide secure, clean, and affordable power

In summary, Ohio's RPS and EERS policies are critical for realizing Ohio's potential for waste heat to power deployment. As the Ohio Senate Public Utilities Committee contemplates modifications to Ohio's mandatory standards, we respectfully request that you keep in mind that without Ohio utilities at the table with regard to WER project development, Ohio will lose out on tremendous opportunities to develop this readily available, base load, distributed energy resource that produces power without combustion and without emissions. Waste heat to power uses innovative technologies, some developed and manufactured in Ohio, that make U.S. energy more secure, clean, and affordable.

We appreciate the opportunity to provide input and stand ready to provide additional detail regarding any of these points if and when there are additional opportunities to do so. We look forward to helping Ohio grow in jobs, efficiency, revenue and reputation as a result of being out in front in industrial efficiency and renewable energy.

Attachment A – HiP Fact Sheet

What is Waste Heat?

Anywhere there is an industrial process that involves transforming raw materials into useful products – steel mills, paper plants, refineries, chemical plants, oil and gas pipelines, and general manufacturing -- heat is generated as a byproduct. This byproduct or waste heat is often produced 24 hours a day, seven days a week, 365 days a year.

What is Waste Heat to Power?

Waste Heat to Power (WHP) is the process of using recovered waste heat to generate electricity using a variety of proven and readily available technologies. One recent analysis by the Environmental Protection Agency¹ estimates that the waste heat produced by American industry could generate 10 GW emission-free electricity annually, enough to power 10 million American homes, produce \$3 billion in savings for industry, and create 160,000 new American jobs.

Technologies that Transform Waste Heat to Power

Waste Heat to Power systems use the same technologies as geothermal and solar thermal energy systems to capture heat at the source and convert it into electricity. No combustion. No emissions.

Waste heat to power isn't new, yet it is often overlooked as an industrial energy option. Steam turbine technology has been used for WHP systems since the 1970's. More recently, technologies based on the Organic Rankine Cycle, Kalina Cycle, and the Sterling Engine, proven in the geothermal and solar thermal industries, are being used to capture waste heat at lower temperatures and at smaller scales than the more traditional steam cycles used in the power industry. Thermoelectrics, high pressure CO₂ working fluids and other new developments are creating additional opportunities for waste heat to be economically converted into useful power. Through the application of these technologies, industrial waste heat is no longer just a byproduct – it is source for emission-free electricity, just like traditional renewables.

Why Waste Heat to Power Development is Lagging Traditional Renewable Sources

Although the resource is abundant and the technology is readily available and proven, emission-free Waste Heat to Power continues to be overlooked and underdeveloped.

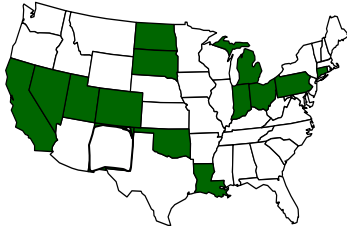
Government and regulatory support for other forms of emission-free electricity such as wind and solar has diverted investment away from WHP. Since the 2006 inclusion of an investment tax credit for solar power in the US tax code, annual solar installation has grown by over 1,600 percent, a compound annual growth rate of 76 percent². Given equal tax treatment, industrial waste heat could provide enough emission-free

“When you're talking about waste heat, every business, every industry, is generating some sort of energy byproduct, some sort of heat; it's going up in smoke stacks and nobody is using it. And the question is, can we capture that energy and use it in a smart way?”

--President Barack Obama

¹ EPA Waste Heat to Power Systems Paper: http://www.epa.gov/chp/documents/waste_heat_power.pdf

² Solar Energy Industries Association: <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>



States with policies favorable for WHP

electricity to power 10 million American homes, provide hundreds of thousands of new American jobs, and support critical US manufacturing industries. Fourteen states -- CA, CO, CT, IL, IN, LA, MI, NV, ND, OH, OK, SD, UT, and WV -- provide incentives to develop Waste Heat to Power resources, incentives WHP needs if it is to compete in the marketplace with traditional resources such as low priced coal and natural gas and subsidized renewables which, like Waste Heat to Power, generate emission-free electricity.

What The Heat is Power Association is Doing to Gain Recognition for Waste Heat as a Clean, Emission-Free Resource

The Heat is Power Association advocates for federal, state and local recognition of Waste Heat to Power as a reliable, abundant and emission-free source of electricity. Our efforts include educating policy makers, regulators, and energy and environmental stakeholders about the barriers to deployment of WHP technologies and advocating for fair and equivalent treatment of WHP. Our interests in policy development include eliminating barriers such as interconnection challenges to WHP deployment, gaining inclusion of WHP as an emission-free resource in state and federal clean energy programs such as renewable portfolio and energy efficiency standards, and obtaining equivalent tax treatment for WHP on the state and federal levels with other sources of emission-free electricity.

America's Responsible Energy Future

Waste Heat to Power could provide the energy equivalent of over 60,000,000 barrels of oil annually. We cannot continue to ignore this ready, proven resource that supports American jobs, key industries, and the environment. As Congress and state legislatures debate our energy future, Waste Heat to Power as an emission-free and energy efficiency resource must be part of the picture.

Who is The Heat is Power Association?

The Heat is Power Association is the trade association of the waste heat to power industry. A not-for-profit organization, Heat is Power is committed to educating decisions makers and the public about the characteristics of waste heat to power as a source for electricity and an economic driver for global competitiveness. The Heat is Power Association promotes the efficient, industrial use of emission-free electricity generated through waste heat to power processes. Our members include WHP technology manufacturers, packagers, project developers, industrial end users, component manufacturers, research institutions, and other industry associations and WHP stakeholders.

To learn more about Waste Heat to Power and The Heat is Power Association visit heatispower.org or email susan@heatispower.org.

Attachment B – NARUC Resolution

ERE-1 Resolution Supporting the Inclusion of Waste-Heat-to-Power Technologies in State and Federal Clean Energy Policies and Programs

**Sponsored by the Committee on Energy Resources & the Environment
Adopted by the NARUC Board of Directors February 6, 2013**

WHEREAS, Waste-Heat-to-Power is the process of capturing heat discarded by an existing energy conversion process and using that heat to generate power; and

WHEREAS, Waste-Heat-to-Power generates power with no new fuel and without combustion or related emissions; and

WHEREAS, Energy-intensive industrial processes – such as those occurring at refineries, steel mills, glass furnaces, pipeline pump and compressor stations, and cement kilns – all release hot exhaust gases and waste streams that can be harnessed with well-established technologies to generate electricity; and

WHEREAS, Opportunities exist for cost-effective applications of Waste-Heat-to-Power technologies in commercial and institutional energy systems; and

WHEREAS, The recovery of industrial waste heat for power is a largely untapped type of Combined Heat and Power (CHP), which is the use of a single fuel source to generate both thermal energy (heating or cooling) and electricity; and

WHEREAS, Waste-Heat-to-Power is a form of distributed generation that provides environmental and economic benefits; and

WHEREAS, Waste-Heat-to-Power is similar to CHP in that it can help industrial energy consumers to use most efficiently fuels consumed onsite to deliver energy; and

WHEREAS, On August 30, 2012, President Obama signed an Executive Order to accelerate investments in industrial energy efficiency, calling for 40 GW of new Energy Efficiency and CHP by 2020, including Waste Heat to Power; and

WHEREAS, In support of the Executive Order, the Department of Energy (DOE) and Environmental Protection Agency (EPA) released a new report: Combined-Heat-and-Power: a Clean Energy Solution that provides a foundation for national discussions on effective ways to achieve 40 GW of new, cost-effective CHP, including Waste-Heat-to-Power, by 2020; and

WHEREAS, Accelerating investment in industrial energy efficiency in an efficient and cost-effective manner benefits manufacturers, utilities, and consumers and can improve American manufacturing competitiveness and create jobs while improving the nation's energy system and reducing harmful emissions; and

WHEREAS, Waste-Heat-to-Power has been omitted from some clean energy policies, including the federal investment tax credit, many State renewable and clean energy portfolio standards, energy efficiency resource standards, and various utility rebate programs and investments; and

WHEREAS, Fourteen States have recognized Waste-Heat-to-Power technology for inclusion in their State renewable and clean energy portfolio standards and/or energy efficiency resource standards; now, therefore be it

RESOLVED, That the Board of Directors of the National Association of Regulatory Utility Commissioners convened at its 2013 Winter Committee Meetings in Washington, D.C., is committed to working with the Waste-Heat-to-Power, Combined-Heat-and-Power, utilities and the broader energy efficiency community to help ensure that Waste-Heat-to-Power technologies are included in discussions on energy efficiency, distributed generation and clean energy technologies and are considered in the development of policies to allow for the more rapid adoption of waste heat-to-energy technologies, including explicit eligibility of Waste-Heat-To-Power in State energy efficiency resource standards and for consideration in State renewable and clean energy portfolio standards.

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