

April 15, 2013

Rep. Kevin Brady  
Chair, Ways and Means Tax Reform Working Group on Energy  
Cannon House Office Building  
Washington, DC 20515

Rep. Mike Thompson  
Vice Chair, Ways and Means Tax Reform Working Group on Energy  
Cannon House Office Building  
Washington, DC, 20515

***Comments: Energy Tax Reform***

Dear Representative Brady and Representative Thompson,

The Heat is Power Association is pleased to provide input to the Ways and Means Committee as you evaluate and recommend modifications to the federal tax code. These comments augment the testimony we were grateful to offer as we met in person during the energy efficiency roundtable discussion. As the national Association for companies and stakeholders interested in the conversion of waste heat into fuel-free and emission-free electricity, we appreciate your efforts at comprehensive tax reform and, in particular, your efforts to improve the country's infrastructure while ensuring the tax code provides parity through technology neutrality.

**About Waste Heat to Power (WHP)**

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 throughout the United States.

Waste heat to power (WHP) installations capture the heat generated as a by-product from industrial processes and convert that heat into electricity through a process that does not involve burning any additional fuels or emitting any additional pollution or greenhouse gases. The process to convert industrial waste heat to electricity is almost identical to the process used to convert geothermal energy to electricity; both processes use the same technologies and produce the same emission-free electricity as other renewable resources.

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.

**The Impact of current tax treatment and current tax priorities**

*Current tax policies incent known technologies rather than encouraging innovation and new approaches.*

For many years, the tax code has been used to promote the deployment of numerous energy technologies because they had specific strategic, environmental or geographic benefits that were deemed important at the time. The need for many of these benefits continues to this day. Unfortunately, the history of tax code

provisions in the energy infrastructure area is that of specifying individual technologies with precise technical requirements for qualification. This approach has focused on the known, well-advocated technologies regardless of whether other technologies or approaches could also provide comparable benefits.

The effect of these policies has been to establish an energy landscape dominated by preferred technologies that receive tax support while other, often new and sometimes even more beneficial or cost effective, technologies receive no benefits and thus do not find a foothold in the marketplace. Additional resources continue to flow to the incented technologies and their purveyors, providing little motivation to develop new technologies or improve already incented technologies.

Every year, the Ways and Means Committee is faced with numerous requests to add new technologies to the tax code to address the artificial barrier to competition that is created by this system of specifying particular technologies for tax credit. But it is rare for legislation addressing these requests to make it out of Committee, through the Congress, and be signed into law. We support a reform of the tax code that describes the outcome policymakers desire, instead of a listing of the technologies known at that time that could achieve that end. Whether the desired outcome is the supply of electricity with no emissions or specific efficiencies or particularly high availabilities or certain capacity factors, the federal government should get out of the business of picking the technologies it wants to see deployed at the expense of stifling innovation, and get in the business of encouraging the desired outcome.

The waste heat to power industry is a perfect case in point. Where emission-free power from wind, solar, hydro and geothermal resources are encouraged and incented with investment and production tax credits, emission-free power produced from waste heat currently receives no support from the tax code.

Interestingly, federal agencies like the U.S. Department of Energy and the U.S. Environmental Protection Agency promote WHP within their CHP programs rather than within their renewables programs. However, where CHP traditionally involves the installation of a new highly efficient natural gas turbine or boiler and CHP often has economy of scale through larger sized projects, WHP uses different technologies at smaller scale which are also used in the geothermal industry, and generate power without combustion and without emissions.

Many of our members sell into both the geothermal and WHP markets, utilizing the exact same technology. When the technology is sold to a geothermal developer, a 30% investment tax credit is applied to the transaction; however when the same technology is sold to a WHP developer, no such credit is offered, even though emission-free power is produced in both cases.

Because the playing field for waste heat to power is not level with other emission-free technologies like geothermal, the opportunities for waste heat to power are often overlooked. Thus, this readily available, base load, distributed energy source that requires no additional combustion to produce emission-free electricity is largely going to waste.

Our members believe that ultimately the desired benefits the tax code has been used to promote can and should be achieved with technology neutrality as a fundamental principal. We recognize this would help advance not just our industry, but all of those that are to come from the genius of American innovation.

While we have not provided specific language to make the energy provisions of the tax code technology neutral, we would point to the work being done by others like Advanced Energy Economy, which recently wrote in an Op-Ed in *The Hill* that "energy tax reform should focus the tax code on a core public purpose –

developing innovative technologies that make U.S. energy more secure, clean, and affordable. Tax provisions serving this purpose should be targeted, performance-based, and technology-neutral."

#### **Recommendations for pro-growth tax reform**

*We recommend technology neutral incentives that identify outcomes (e.g., emission-free power generated from readily available on-site resources). In lieu of technology neutrality, we recommend adding WHP to the existing 30% ITC and allowing MLP opportunities for WHP.*

One recent analysis by the Environmental Protection Agency<sup>1</sup> 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.

In the past, our industry has sought changes to the tax code to specifically define WHP and ensure WHP receives the support that other technologies delivering the same benefits receive. Examples of these proposals are attached and should be considered to the extent that the Committee does not pursue more comprehensive reform with simplicity and technology neutrality at its core.

As you will see, we have historically asked that WHP be provided the same 30 percent investment tax credit other base load emission-free electricity generation resources receive (e.g., geothermal power), and in the meantime be eligible to receive the 10 percent investment tax credit other energy efficiency technologies receive (e.g., CHP). Currently, WHP does not qualify for any production tax credit (PTC) or investment tax credit (ITC) under sections 45 or 48 of the US Tax Code (whereas traditional renewables and CHP do).

If the desired benefits in these sections of the tax code were defined as the provision of fuel-free, emission-free power that can be provided as a base load resource, rather than simply a list of technologies, we would be afforded the same incentive provided to geothermal, wind, and solar. A 30 percent ITC, similar to what these other emission-free renewable resources already receive, would help ensure all technologies were able to compete together.

Similarly, master limited partnership opportunities are not available for companies deploying WHP projects. Proposed legislation would expand MLPs, which are currently available to investors in energy portfolios of oil, natural gas, coal extraction, and pipeline projects, to include certain technologies that are in Sections 45 or 48 of the U.S. tax code; however, since WHP is not currently in section 45 or 48, it would not qualify under the proposed MLP legislation as introduced in the last Congress. Our industry has worked with Mr. Coons' office in the Senate and Mr. Thompson's office in the House and hope to see WHP included in the new version of the MLP offered this session. We urge this group to ensure that this is the case. Allowing WHP and other distributed generation resources to take advantage of master limited partnership structures would enhance the attractiveness of WHP for investors and industrial waste heat producers.

Included as part of this statement are a fact sheet about waste heat to power and The Heat is Power Association, as well as a Resolution Supporting Waste Heat to Power passed by the National Association of Regulatory Utility Commissioners (NARUC) earlier this year. These documents explain WHP's ability to provide secure, clean, and affordable power. Additionally, we have included a formal legislative definition of Waste Heat to Power [see appendix A – "Waste Heat Resource"] we would call on this committee to include as a qualified technology in the tax code should a comprehensive, technology neutral reform not be possible. There have been a number of definitions introduced over the past years, with a number of terms

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<sup>1</sup> EPA Waste Heat to Power Systems Paper: [http://www.epa.gov/chp/documents/waste\\_heat\\_power.pdf](http://www.epa.gov/chp/documents/waste_heat_power.pdf)

used to describe Waste Heat to Power. The industry has spent significant time and effort coming to the term Waste Heat to Power, and a definition that accurately describes the opportunity for generating emission-free power from waste heat.

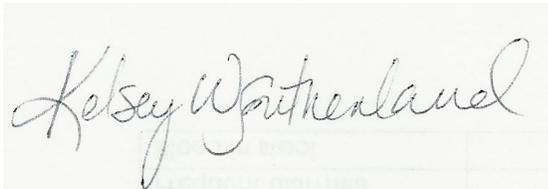
**Key question the Committee should be asking as it pursues comprehensive tax reform**

*As the Committee pursues comprehensive tax reform, we hope you will address the following questions:*

1. Should we continue to pick and choose technologies to incent or should we define the desired outcomes and allow all approaches and technologies capable of achieving the results to compete for the opportunity?
2. If technology neutral tax reform is not possible, should we ensure that all technologies used to produce emission-free power are added to the list of qualified technologies and offered the same tax treatment?

We thank you again for 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.

Sincerely,

A handwritten signature in black ink that reads "Kelsey Southerland". The signature is written in a cursive style and is positioned over a light-colored, slightly textured background.

Kelsey Southerland  
Executive Director  
The Heat is Power Association  
[Kelsey@heatispower.org](mailto:Kelsey@heatispower.org)

**APPENDIX A- WASTE HEAT TO POWER MODIFICATIONS TO SECTION 48 and 45 OF THE TAX CODE**

SEC. 2. ENERGY CREDIT FOR WASTE HEAT TO POWER PROPERTY.

(a) IN GENERAL.—Subparagraph (A) of section 48(a)(3) of the Internal Revenue Code of 1986 is amended by striking “or” at the end of clause (vi), by inserting “or” at the end of clause (vii), and by adding at the end the following new clause:

“(viii) waste heat to power property,”

(b) WASTE HEAT TO POWER PROPERTY.— Subsection (c) of section 48 of such Code is amended by adding at the end the following new paragraph:

“(5) WASTE HEAT TO POWER PROPERTY —

“(A) WASTE HEAT TO POWER PROPERTY.—The term ‘waste heat to power property’ means property comprising a system which generates electricity through the recovery of a qualified waste heat resource.

“(B) QUALIFIED WASTE HEAT RESOURCE DEFINED.—The term ‘qualified waste heat resource’ means—

“(i) waste heat in a gas, in a liquid or in a solid media, that would otherwise be cooled or vented, or flared gas from any industrial process,

“(ii) waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented,

“(iii) a pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat, or

“(iv) such other forms of waste heat resources as the Secretary may determine.

“(C) EXCEPTION.—The term ‘qualified waste heat resource’ does not include any heat resource from a process whose primary purpose is the generation of electricity utilizing a fossil fuel.”

(c) TEMPORARILY 30-PERCENT ENERGY PROPERTY.— Clause (i) of section 48(a)(2)(A) of such Code is amended by striking “and” at the end of subclause (III) and by adding at the end the following new subclause:

“(V) energy property described in (3)(A)(viii), but only with respect to periods ending before January 1, 2018, and”.

(d) EFFECTIVE DATE.—The amendments made by this section shall apply to property placed in service after 18 months after the date of the enactment of this Act.



## Waste Heat to Power Emission-Free Power Generation Industrial Efficiency

### SEC. 3. PRODUCTION CREDIT FOR ELECTRICITY PRODUCED FROM WASTE HEAT.

(a) **IN GENERAL.**—Paragraph (1) of section 45(c) of the Internal Revenue Code of 1986 is amended by striking “and” at the end of subparagraph (H), by striking the period at the end of subparagraph (I) and inserting “,and”, and by adding at the end the following new subparagraph:

“(J) waste heat.”.

(b) **WASTE HEAT.**—Subsection (c) of section 45 of such Code is amended by adding at the end the following new paragraph:

“(11) **WASTE HEAT.**—The term ‘waste heat’ means a qualified waste heat resource (as defined by section 48(c)(5)).”.

(c) **DEFINITION OF FACILITY.**—Subsection (d) of section 45 of such Code is amended by adding at the end the following new paragraph:

“(12) **WASTE HEAT FACILITY.**—In the case of a facility using waste heat to produce electricity, the term ‘qualified facility’ means any facility owned by the taxpayer which is originally placed in service before January 1, 2018.”.

(d) **CREDIT RATE.**—Subparagraph (A) of section 45(b)(4) of such Code is amended by striking “or (11)” and inserting “(11), or (12)”.

(e) **EFFECTIVE DATE.**—The amendments made by this section shall apply to property placed in service after the date of the enactment of this Act.

### APPENDIX B- BACKGROUND INFORMATION

#### 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 Agency<sup>2</sup> 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

*“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**

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 CO<sub>2</sub> 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.

<sup>2</sup> EPA Waste Heat to Power Systems Paper: [http://www.epa.gov/chp/documents/waste\\_heat\\_power.pdf](http://www.epa.gov/chp/documents/waste_heat_power.pdf)

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 percent<sup>3</sup>. Given equal tax treatment, industrial waste heat could provide enough emission-free 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 WHP industry. A not-for-profit organization, Heat is Power is committed to educating decision 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.



<sup>3</sup> Solar Energy Industries Association: <http://www.seia.org/policy/finance-tax/solar-investment-tax-credit>

**APPENDIX C- NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS 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



## **Waste Heat to Power Emission-Free Power Generation Industrial Efficiency**

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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Adopted by the NARUC Board of Directors February 6, 2013