



# The Alliance for Industrial Efficiency

September 4, 2014

Assistant Secretary Dave Danielson  
c/o Ms. Brenda Edwards  
U.S. Department of Energy, Building Technologies Office  
Mailstop EE-5B  
1000 Independence Avenue SW  
Washington, DC 20585-0121

Attention Docket No. EERE-2013-BT-STD-0040

**Re: Energy Conservation Program for Certain Commercial and Industrial Equipment:  
Gas Compressors; Request for Information [Docket No. EERE-2013-BT-STD-0040], 79  
Fed. Reg. 45377 (Aug. 5, 2014)**

Dear Assistant Secretary Danielson:

The Alliance for Industrial Efficiency (hereinafter, “The Alliance”) appreciates this opportunity to respond to the Request for Information concerning the Energy Conservation Program for Gas Compressors (hereinafter “RFI”). The Alliance is a diverse coalition that includes representatives from the business, environmental, labor and contractor communities. We are committed to enhancing manufacturing competitiveness and reducing emissions through industrial energy efficiency, particularly in the form of clean and efficient combined heat and power (CHP) and waste heat to power (WHP). DOE seeks information on opportunities for improving gas compressor energy efficiency. Waste heat to power on natural gas transmission pipelines offers a proven means of conserving energy associated with gas compressors. Given the availability of this technology, we urge DOE to establish efficiency standards for gas compressors that support its use.

As DOE recognizes in the RFI, significant amounts of natural gas are needed to transport natural gas throughout the pipeline system.<sup>1</sup> Some of this gas is lost as wasted heat during the transportation process. Waste heat to power on natural gas transmission pipelines enables operators to recapture otherwise wasted heat and generate electricity with no incremental emissions. In this way, waste heat to power can enhance compressor energy efficiency.

DOE seeks information on efforts by manufacturers to improve the energy efficiency of gas compressors. Notably, Alliance member, Ormat Technologies, Inc., has voluntarily pursued efforts to improve the energy efficiency of gas compressors through its Recovered Energy

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<sup>1</sup> DOE, Aug. 5, 2014, 79 Fed. Reg. 45377, 45379, “Request for Information: Energy Conservation Program for Certain Commercial and Industrial Equipment: Gas Compressors” (0.7 quadrillion Btu used annually to transport natural gas through the pipeline system).

Generation (REG) units (using what is known as organic rankine cycle - ORC - technology). Ormat has successfully installed this technology on 19 natural gas pipeline compression stations throughout the United States. These units capture exhaust (or waste heat) from gas turbine compressors and use it to generate 5 to 6 megawatts of clean electricity at each site (or roughly 100 megawatts of clean power nationwide). This electricity, in turn, can be sold to local utilities or used on site to provide additional emission-free power to the compressor station. ORC units produce electricity without compromising the productivity, function, or safety of the compressor station or transmission line.

The potential of ORC technology on natural gas compressors is great. Pipeline owners and operators *should* have a clear financial interest to permit waste heat applications at their compressor stations, because they are paid for the use of the steam and heat which would otherwise be wasted. But, absent regulation, it is difficult to convince owners and operators to consider a technology that falls outside of their core business practice. In a 2009 report, the Interstate Natural Gas Association of America notes that waste heat to power projects on compressors have only been installed where the technology qualifies for economic incentives (e.g., by crediting it in a renewable portfolio standard (RPS) or as a green power resource).<sup>2</sup> Any efficiency standards developed for gas compressors should similarly incorporate elements to promote WHP. There are more than 1,400 compressor stations on natural gas pipelines throughout the U.S.<sup>3</sup> With appropriate regulatory incentives, many of these pipelines could be candidates for ORC technology.<sup>4</sup> Heat recovery technology should also be considered as new pipelines and new compressor stations are planned.

As DOE explores potential gas compressor efficiency standards pursuant to the Energy Policy and Conservation Act, we urge it to consider the potential for waste heat to power at compressor stations and to adopt standards that support its use where appropriate. To do so, standards should be based on the amount of energy, rather than the quantity of gas, delivered by compressor stations. This approach would credit the additional electricity produced by waste heat to power systems.

The Alliance is grateful for this opportunity to comment and looks forward to working with DOE as it develops energy efficiency standards for gas compressor technology.

Sincerely,



David Gardiner, Executive Director  
Alliance for Industrial Efficiency

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<sup>2</sup> Interstate Natural Gas Association of America, Nov. 2009, "Status of Waste Heat to Power Projects on Natural Gas Pipelines," at (<http://www.ingaa.org/File.aspx?id=9373>),

<sup>3</sup> U.S. Energy Information Administration, June 2007, "About U.S. Natural Gas Pipelines – Transporting Natural Gas" ([http://www.eia.gov/pub/oil\\_gas/natural\\_gas/analysis\\_publications/ngpipeline/fullversion.pdf](http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/fullversion.pdf)).

<sup>4</sup> INGAA 2009, *supra* note 2 (exploring the technical, regulatory, policy, and institutional status of specific energy recovery options for pipelines and identifying up to 100 potential waste heat to power projects on existing compressors given existing economics and policies),