

Fact Sheet: *Efficiency Standards for Natural Gas Compressors*

Summary: DOE will take the first step toward establishing energy efficiency standards for new natural gas compressor units by issuing a Request for Information (RFI). Several types of compressor technologies exist in the market today with varying efficiency levels; this is true for the compressors themselves and for the engines or turbines that drive them. DOE plans to examine each of these technologies to determine the viability of future energy efficiency standards.

Preliminary estimates suggest that natural gas compressors consumed 2 quads of energy, in 2012¹, about 2 percent of total U.S. energy use. It is the major consumer of energy in the gathering, processing, transmission and storage segments of the natural gas supply chain. The U.S. natural gas pipeline industry is facing the twin challenges of increased flexibility and capacity expansion. To meet these challenges, the industry requires improved choices in natural gas compression to address new construction and enhancement of the currently installed infrastructure. In the RFI, DOE requests information, comment, and supporting data about the characteristics and energy use of gas compressors.

In the United States, over 1,700 compressor stations enable transmission of natural gas through interstate pipelines and tens of thousands of additional units are located at processing plants, storage facilities and gathering networks throughout the country. These facilities vary in their size and energy requirements. For example, stations located along interstate pipelines are often very large (typically including 4 units² per station). Natural gas compression facilities are not sold “off-the-shelf;” they are constructed onsite by joining the natural gas compressor with engines, motors, filtration, driers, pressure and flow regulators, pollution controls, monitoring hardware, and other equipment. These and other factors require DOE to carefully consider if and how it is most appropriate to set efficiency standards for natural gas compressors.

DOE has already been considering establishing energy efficiency standards for commercial and industrial “compressors.” DOE initially indicated its intention to cover only compressors intended to compress air, rather than natural gas. But preliminary data reviewed by DOE indicate that there is the potential for energy savings from regulating the efficiency of these natural gas compressors. As a result, DOE is weighing whether to modify its current regulatory efforts involving air compressors to include natural gas compressors, or to develop a separate rulemaking activity specifically geared toward natural gas compressors. (DOE’s statutory authority, EPCA Section 341, treats “compressors” as a single type of equipment and does not provide a further definition.)

¹ Recent data provided by the Energy Information Administration (EIA) indicate that the annual amount of natural gas used to transport natural gas through the pipeline system was about 0.7 quadrillion Btu. In addition to the pipeline natural gas use, compressors are used in the gathering and processing of natural gas, which is accounted for in the 1.4 quadrillion Btu of natural gas reported by EIA as “lease and plant fuel.”

² A compressor “unit” consists of an engine or motor attached to a gas compressor; e.g., a natural gas-fired turbine to turn a centrifugal compressor

The RFI is just the beginning of the process. There is tremendous opportunity for experts and stakeholders to constructively engage in the possible development of these standards. DOE seeks a variety of different types of information to help inform its decision regarding how, if at all, to regulate natural gas compressor energy efficiency, including:

- Annual shipments of gas compressors by equipment type, size, use, and if equipment is shipped as a package or in separate components;
- Types and sizes of equipment, as well as design, performance characteristics and compression principles used in gas compressors;
- Applications of gas compressors, and characteristics of compressors unique to each application type;
- Typical energy use by application type;
- Opportunities to improve the efficiency of gas compressors, including if such improvements may impact compressor performance or safety;
- Existing test measures for compressors, and if they would be appropriate for rating gas compressors;
- Existing safety standards for manufacturing and operating compressors that DOE should consider;
- Current and planned efforts by manufacturers to improve gas compressor efficiency;
- Characteristics distinguishing gas and air compressors, and whether these differences impact energy efficiency performance; and
- Comments on the market for gas compressors, including relevant information on how they are marketed, sold, shipped and assembled.

DOE will be accepting comments on the RFI for 30 days after it is published in the Federal Register, on July 29, 2014. The complete RFI, as well as instructions on submitting comments can be found on www.regulations.gov.