[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 431

[Docket No. EERE-2013-BT-STD-0040]

RIN: 1904-AC83

Energy Conservation Program for Certain Commercial and Industrial Equipment: Gas Compressors; Request for Information

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Request for information (RFI).

SUMMARY: The U.S. Department of Energy (DOE) is considering establishing energy conservation standards for commercial and industrial compressors. To date, DOE has proposed to consider energy conservation standards only for compressors intended to compress air, rather than gas. As a result, DOE's current efforts have focused solely on air compressors. However, DOE is also aware that compressors used to compress natural gas may also use a substantial amount of energy. To improve its understanding of natural gas compressors and their related markets, DOE requests information, comment, and supporting data about the characteristics and energy use of this equipment.

DATES: DOE will accept written comments, data, and information on this notice, but no later than **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Interested persons are encouraged to submit comments electronically. However, interested persons may submit comments, identified by docket number EERE-2013-BT-STD-0040 or Regulation Identifier Number (RIN) 1904-AC83, by any of the following methods:

- Federal eRulemaking Portal: www.regulations.gov Follow the instructions for submitting comments.
- E-mail: compressors@ee.doe.gov Include EERE-2013-BT-STD-0040 and/or RIN 1904-AC83 in the subject line of the message. Submit electronic comments in WordPerfect, Microsoft Word, portable document format (PDF), or American Standard Code for Information Interchange (ASCII) file format, and avoid the use of special characters or any form of encryption.
- Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue SW, Washington, D.C. 20585-0121. Telephone: (202) 586-2945. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.
- Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, 6th Floor, 950 L'Enfant Plaza SW, Washington, D.C. 20024. Telephone: (202) 586-2945. If possible, please submit all items on a CD, in which case it

is not necessary to include printed copies.

Instructions: All submissions received must include the agency name and docket number or RIN for this rulemaking. No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on the rulemaking process, see section III of this document (Public Participation).

Docket: The docket is available for review at www.regulations.gov, including *Federal Register* notices, comments, and other supporting documents/materials (search EERE-2013-BT-STD-0040). All documents in the docket are listed in the www.regulations.gov index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

A link to the docket web page can be found at: http://www1.eere.energy.gov/buildings/appliance_standards/rulemaking.aspx/ruleid/58. This web page contains a link to the docket for this notice on the www.regulations.gov site. The www.regulations.gov web page contains instructions on how to access all documents, including public comments, in the docket. See section III for further information on how to submit comments through www.regulations.gov.

FOR FURTHER INFORMATION CONTACT: Mr. James Raba, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies, EE-5B, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-8654. Email: compressors@ee.doe.gov.

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue SW, Washington, D.C. 20585. Telephone: (202) 586-8145. Email: Michael.Kido@hq.doe.gov.

Ms. Johanna Hariharan, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue SW, Washington, D.C. 20585. Telephone: (202) 287-6307. Email: Johanna.Hariharan@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

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I. Authority and Background

Title III of the Energy Policy and Conservation Act, 42 U.S.C. 6291, et seq., (EPCA) sets forth a variety of provisions designed to improve the energy efficiency of products and commercial equipment. (All references to EPCA refer to the statute as amended through the American Energy Manufacturing Technical Corrections Act (AEMTCA 2012), Pub. L. 112-210 (December 18, 2012)). Part C of Title III (42 U.S.C. 6311−6317), which was subsequently re-designated as Part A–1 for editorial reasons, establishes an energy conservation program for certain industrial equipment, which includes compressors, the subject of today's notice. (42 U.S.C. 6311(2)(B)(i)) Unlike some other types of equipment included in EPCA, the term "compressors" is undefined.

Section 341 of EPCA, 42 U.S.C. 6312, provides a general statement of purpose to improve the efficiency of a variety of industrial equipment to conserve the energy resources of the Nation. Accordingly, section 341 further provides that the Secretary of Energy may, by rule, classify certain equipment as covered equipment if a determination is made that doing so is necessary to carry out the purposes of Part A-1 of EPCA. Consistent with this process, DOE is currently considering whether to regulate the efficiency of a specific group of compressors – commercial and industrial air compressors. 77 FR 76972 (December 31, 2012). DOE received comments from interested parties, which are available in docket number EERE-2013-BT-STD-0040. The comments were considered in developing a Framework Document to explain the relevant issues, analyses, and processes it anticipates using when considering new energy conservation standards for commercial and industrial air compressors. DOE issued that document and conducted a public meeting to discuss its contents earlier this year. 79 FR 6839 (Feb. 5, 2014).

Because the term "compressors" is undefined by EPCA, DOE considered a variety of definitions for this term in order to help ensure a reasonable level of clarity with respect to the type of equipment that might be regulated. In its ongoing proceeding, DOE offered for comment the following definition for "commercial and industrial compressors" to clarify the coverage of any potential test procedure or energy conservation standard:

Compressor: A compressor is an electric-powered device that takes in air or gas at atmospheric pressure and delivers the air or gas at a higher pressure. Compressors typically have a specific ratio, the ratio of delivery pressure to supply pressure, greater than 1.20.

After further evaluating this definition and considering the comments it received, DOE revisited this definition and offered a revised version. That version, which is based on International Organization for Standardization (ISO) Technical Report (TR) 12942, provides a different definition of the term "compressor" from DOE's initial approach. (ISO TR 12942 provides a means to classify modern compressor types along with definitions and related terms that can be utilized in technical and contractual specifications such as a manufacturer's literature and industrial statistics.) The revised definition DOE offered for public comment reads as follows:

Compressor: a machine or apparatus converting different types of energy into the potential energy of gas pressure for displacement and compression of gaseous media to any higher pressure values above atmospheric pressure with pressure-increase ratios exceeding 1.1.[1]

DOE is continuing to consider revisions to this definition, however, due at least in part to submitted comments in which some parties have commented that the specified ratio should be different to avoid overlapping with what the compressor industry generally treats as "blowers," equipment for which DOE may also establish standards. See 78 FR 7306 (Feb. 1, 2013) (announcing DOE's issuance of a framework document related to the potential setting of energy conservation standards for industrial fans and blowers).

[1] International Organization for Standardization (ISO), ISO 12942, Compressors—Classification— Complementary information to ISO 5390, International Organization for Standardization (ISO), 2012.

DOE notes that the vast majority of compressors are air compressors. According to Current Industrial Reports from the U.S. Census Bureau,[2] shipments of new air compressors totaled 3.8 million in 2006, while shipments of new gas compressors were only around 6,000 units. As such, DOE at this point is considering establishing standards that would address only those compressors intended to compress air.[3]

While DOE's focus up until now has centered primarily on those compressors that are intended to compress air, compressors are used in a wide variety of applications and may be used to compress different types of gases. DOE is aware that compressors intended to compress other gases such as natural gas (i.e. gas compressors) may, both collectively and individually, use a substantial amount of energy, as such compressors are often very large. An important application of gas compressors is the pipeline transport of natural gas. The drivers for such compressors can be natural gas turbines (particularly since gas is an easily accessible fuel out in the field), steam turbines, internal combustion engines, or electric motors. 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 production 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."[4]

[2] Pumps and Compressors: 2006. Current Industrial Reports. U.S. Census Bureau. Available at:
[3] See p. 3 of the Framework Document. Available at: http://www.regulations.gov/#!documentDetail;D=EERE-2013-BT-STD-0040-0001.
[4] Energy Information Administration, Annual Energy Outlook 2014, Table 2.

In the Framework Document, DOE stated that it is considering the possibility of setting air compressor standards based on equipment size as measured in rated horsepower (hp). This approach would help align its efforts with the current energy efficiency standards for electric motors, as codified in subpart B of Title 10 of the Code of Federal Regulations, Part 431 (10 CFR Part 431) by covering compressor equipment rated from 1 through 500 hp. Because compressors often rely on the use of an electric motor to operate, aligning compressor standards in this manner could provide a relatively straight-forward approach that parallels the approach already established for electric motors. DOE may take a similar approach with respect to gas compressors as well but seeks comment on the appropriateness of doing so.

To inform its decision making regarding gas compressors, DOE requests information, comment, and supporting data about the characteristics, applications and energy use of gas compressors. In particular, DOE seeks comment and information about the topics below.

II. Discussion

DOE seeks a variety of different types of information to help inform its decision regarding how, if at all, to regulate gas compressor energy efficiency. To this end, DOE seeks detailed data regarding the following aspects related to gas compressors:

(1) Annual shipments.

a. DOE is seeking historical shipments data (specifically from 2003-2013) for gas compressors, with further breakdowns, where available, including, but not limited to, equipment type (both compression principle and driver type), equipment size, and

application. DOE is also interested in comments regarding how gas compressors are manufactured and shipped as original equipment from the manufacturer, for example, as a package (i.e., with both air end and primary driver), or as a separate component, or both.

(2) Equipment types and sizes.

a. DOE is seeking comment regarding the types of equipment used in gas compressors. Specifically, DOE is interested in information regarding the compression principles (e.g., positive-displacement or dynamic compressors) and primary driver types (e.g., natural gas or steam turbines or electric motors) used in gas compressors, as well as what design, construction, and performance characteristics would be attributed to each type. DOE is also interested in information regarding the compression principles and driver types used in gas compressors based on application type.

b. DOE is also seeking comment regarding how gas compressors are sized (e.g., by brake horsepower, input/output pressure, or delivered air volume) and the general sizes of gas compressors based on both equipment and application type.

(3) Applications.

a. DOE is aware that an important application of gas compressors is in the transportation, production, and processing of natural gas. DOE seeks comment on other major applications (e.g., injection, withdrawal, lifting, or filling) in which gas compressors are used.

b. DOE also seeks information regarding any particular characteristics or features that are unique to each of these different applications.

(4) Typical energy use in each application type.

DOE seeks comment regarding the typical energy use of gas compressors broken down by, where available, application type, equipment type, and equipment size.

(5) Typical energy efficiency by equipment type.

DOE is interested in information regarding the typical range in efficiency levels of gas compressors broken down by equipment type and size.

(6) DOE is interested in what opportunities, if any, for improving gas compressor energy efficiency are possible and how these efficiency improvements may, or may not, impact equipment performance, features, utility or safety.

(7) DOE requests comment on whether the test procedures in ISO 1217:2009[5] and ISO 5389:2005,[6] which address the testing of displacement and turbo compressors, respectively, would be appropriate for rating gas compressors. DOE also requests information on other applicable test procedures it should consider along with any deficiencies or issues that would need to be addressed prior to adopting a regulation mandating a particular test procedure.

(8) DOE requests feedback regarding any safety issues, regulations, codes, or standards (e.g., National Fire Protection Association requirements) that must be considered in the manufacture, testing, and use of gas compressors.

(9) DOE seeks information on any voluntary efforts by manufacturers that are already in place to improve the energy efficiency of gas compressors and what type of future voluntary efforts to improve efficiency, if any, are likely to occur in the near future.

[5] International Organization for Standardization (ISO), ISO 1217, Displacement compressors— Acceptance tests, International Organization for Standardization (ISO), 2009.
[6] International Organization for Standardization (ISO), ISO 5389, Turbocompressors — Performance test code, International Organization for Standardization (ISO), 2005.

(10) DOE seeks information regarding whether there are particular characteristics that would readily distinguish an “air compressor” from a “gas compressor” and whether those characteristics play any role with respect to the energy efficiency performance of these two categories of compressors.

(11) DOE requests comment on the market for natural gas compressors, and how they are marketed, sold, shipped, and assembled.

III. Public Participation

DOE invites all interested parties to submit in writing by the date specified previously in the DATES section of this RFI, comments and information on matters addressed in this notice and on other matters relevant to DOE's consideration of gas compressors.

DOE considers public participation to be a very important part of the process for developing test procedures. DOE actively encourages the participation and interaction of the public during the comment period at each stage of the rulemaking process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the rulemaking process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this rulemaking should contact Ms. Brenda Edwards at (202) 586-2945, or via email at Brenda.Edwards@ee.doe.gov.

Issued in Washington, D.C., on July 28, 2014.

Kathleen B. Hogan
Deputy Assistant Secretary
Energy Efficiency and Renewable Energy

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