[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 431

Energy Conservation Program: Test Procedures for Compressors, Notice of Petition for Rulemaking

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

ACTION: Notice of petition for rulemaking; request for comment.

SUMMARY: On April 17, 2019, the Department of Energy (DOE) received a petition from Atlas Copco North America, Inc. (Atlas Copco) asking DOE to allow compressor manufacturers to determine the applicable full-load package isentropic efficiency, part-load package isentropic efficiency, package specific power, maximum full-flow operating pressure, full-load operating pressure, full-load actual volume flow rate, and pressure ratio at full-load operating pressure using either the DOE test procedure or the consensus industry test method, International Organization for Standardization 1217:2009 (ISO 1217). Through this notice, DOE seeks comment on the petition, as well as any data or information that could be used in DOE's determination on whether to proceed with the petition.

DATES: Written comments and information are requested on or before **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Interested persons are encouraged to submit comments, identified by "Test Procedure for Compressors," by any of the following methods:

1. *Federal eRulemaking Portal*: *http://www.regulations.gov*. Follow the instructions for submitting comments.
2. *E-mail*: *CompressorPetition2019PET0017@ee.doe.gov*. Include Docket No. EERE-2019-BT-PET-0017 in the subject line of the message.

3. *Postal Mail*: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.
4. *Hand Delivery/Courier*: Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., Suite 600, Washington, D.C., 20024. Telephone: (202) 287-1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

Docket: For access to the docket to read background documents, or comments received, go to the Federal eRulemaking Portal at: *http://www.regulations.gov/docket?D=EERE-2019-BT-PET-0017*.

FOR FURTHER INFORMATION CONTACT: Mr. Pete Cochran, U.S. Department of Energy, Office of the General Counsel, 1000 Independence Avenue, SW., Washington, DC 20585. Telephone: (202) 586-9496. E-mail: *Peter.Cochran@hq.doe.gov*.

SUPPLEMENTARY INFORMATION: The Administrative Procedure Act (APA), 5 U.S.C. 551 *et seq.*, provides among other things, that "[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule." (5 U.S.C. 553(e)) DOE received a petition from Atlas Copco, as described in this notice and set forth verbatim below, requesting that DOE allow compressor manufacturers to determine the applicable full-load package isentropic efficiency, part-load package isentropic efficiency, package specific power, maximum full-flow operating pressure, full-load operating pressure, full-load actual volume flow rate, and pressure ratio at full-load operating pressure using either the DOE test procedure or the consensus industry test method, ISO 1217. In support of its petition, Atlas Copco also provided declarations, including supporting exhibits, from two individuals. These documents are available

in the docket at *http://www.regulations.gov/docket?D=EERE-2019-BT-PET-0017*. In promulgating this petition for public comment, DOE is seeking views on whether it should grant the petition and undertake a rulemaking to amend the test procedure for compressors. By seeking comment on whether to grant this petition, DOE takes no position at this time regarding the merits of the suggested rulemaking or the assertions made by Atlas Copco.

Atlas Copco argues that the compressor test procedure should be amended for two main reasons. First, Atlas Copco states that existing data generated using ISO 1217 is sufficient to determine energy efficiency compliance for the numerous state efficiency standards now being adopted or considered. As a result, requiring manufacturers to retest compressors using the DOE test procedure would result in millions of dollars of needless and duplicative testing. Second, Atlas Copco argues that DOE issued the compressor test procedure in violation of Section 12(d) of the National Technology Transfer Advancement Act of 1995, 110 Stat. 783, March 7, 1996, Public Law 104–113, 15 U.S.C. 272 note, which requires use of industry consensus test standards, such as ISO 1217, unless the Secretary of Energy informs the Director of the Office of Management and Budget of the specific reasons the Department is compelled to depart from that consensus standard. Atlas Copco contends no such notification was made, nor was there any appropriate basis to depart from the ISO 1217 standard.

DOE welcomes comments and views of interested parties on any aspect of the petition for rulemaking.

Submission of Comments

DOE invites all interested parties to submit in writing by **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]** comments and information regarding this petition.

Submitting comments via http://www.regulations.gov. The *http://www.regulations.gov* webpage will require you to provide your name and contact information prior to submitting comments. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *http://www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through *http://www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *http://www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *http://www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or postal mail. Comments and documents via email, hand delivery, or postal mail will also be posted to *http://www.regulations.gov*. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information in your cover letter each time you submit comments, data, documents, and other information to DOE. If you submit via postal mail or hand delivery, please provide all items on a CD, if feasible, in which case it is not necessary to submit printed copies. No telefacsimiles (faxes) will be accepted.

Comments, data, and other information submitted electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English, and free of any defects or viruses. Documents should not include any special characters or any form of encryption, and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: one copy of the document marked "Confidential" including all the information believed to be confidential, and one copy of the document marked "Non-confidential" with the information believed to be confidential deleted. Submit these documents via email or

on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include: (1) a description of the items; (2) whether and why such items are customarily treated as confidential within the industry; (3) whether the information is generally known by or available from other sources; (4) whether the information has previously been made available to others without obligation concerning its confidentiality; (5) an explanation of the competitive injury to the submitting person which would result from public disclosure; (6) when such information might lose its confidential character due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

DOE considers public participation to be a very important part of its process for considering rulemaking petitions. DOE actively encourages the participation and interaction of the public during the comment period. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in determining how to proceed with a petition. Anyone who wishes to be added to DOE mailing list to receive future notices and information about this petition should contact Appliance and Equipment Standards Program staff at (202) 287-1445 or via e-mail at *ApplianceStandardsQuestions@ee.doe.gov*.

Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notice of petition for rulemaking.

Signed in Washington, D.C. on May 13, 2019

Daniel R Simmons
Assistant Secretary
Energy Efficiency and Renewable Energy

BEFORE THE
UNITED STATES DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY
& RENEWABLE ENERGY

PETITION OF ATLAS COPCO NORTH AMERICA FOR RULEMAKING TO STREAMLINE AND HARMONIZE ROTARY AIR COMPRESSOR ENERGY EFFICIENCY TEST STANDARDS AND TO AUTHORIZE USE OF EXISTING RELIABLE EFFICIENCY DATA AND TEST METHODS FOR COMPLIANCE WITH 10 C.F.R. PARTS 429 AND 431

Atlas Copco North America respectfully petitions the U.S. Department of Energy (DOE) to amend the language of its rotary air compressor efficiency test rule ("Test Rule")[1] in order to make clear to state regulators and to the wider public that manufacturers can also satisfy Test Rule obligations by using the consensus industry test method for rotary air compressor energy efficiency, ISO 1217:2009, which is published by the International Organization for Standardization ("ISO 1217"), including ISO 1217 results obtained before 2017.

For reasons described below, DOE should do so because:

(a) In adopting the Test Rule, DOE ignored and violated section 12(d) of the National Technology Transfer and Advancement Act of 1995[2], which mandates use of ISO 1217, as a consensus industry standard, absent compelling reasons to depart from it explained in writing by the Secretary of Energy to

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[1] The Test Rule added the following provisions to Title 10, Code of Federal Regulations §§ 429.63, 429.70(h), 429.134(p), 431.342, 431.343, 431.344, Appendix A to Subpart T – Uniform Test Method for Certain Air Compressors, as added by 82 Fed. Reg. 1052 (Jan. 4, 2017).

[2] 110 Stat. 783, March 7, 1996, Public Law 104–113, Section 12(d); 15 U.S.C. § 272 note. The statutory language provides:

(d) UTILIZATION OF CONSENSUS TECHNICAL STANDARDS BY FEDERAL AGENCIES; REPORTS.—

(1) IN GENERAL.—Except as provided in paragraph (3) of this subsection, ***all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies***, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments. . . .

(3) EXCEPTION.—If compliance with paragraph (1) of this subsection is inconsistent with applicable law or otherwise impractical, a Federal agency or department may elect to use technical standards that are not developed or adopted by voluntary consensus standards bodies if the head of each such agency or department transmits to the Office of Management and Budget an explanation of the reasons for using such standards. Each year, beginning with fiscal year 1997, the Office of Management and Budget shall transmit to Congress and its committees a report summarizing all explanations received in the preceding year under this paragraph.

(4) DEFINITION OF TECHNICAL STANDARDS.—As used in this subsection, the term "technical standards" means performance-based or design-specific technical specifications and related management systems practices.

(Emphasis supplied).

the Director of the Office of Management and Budget (OMB), something DOE plainly failed to do; and

(b) In failing to correct the Test Rule and expressly allow the use of ISO 1217 data to certify energy efficiency performance, DOE in effect is mandating that air compressor manufacturers incur millions of dollars of useless and duplicative testing to satisfy state energy efficiency mandates, even though ISO 1217 data already provide accurate data characterizing rotary air compressor energy efficiency. This situation makes the uncorrected Test Rule "unreasonably burdensome" within the meaning of section 343(a)(2) of the Energy Policy and Conservation Act (EPCA), 42 U.S.C. § 6314(a)(2).

SUMMARY

In its final rulemaking notice promulgating the Test Rule, DOE adopted regulatory language based in large part on ISO 1217. 82 Fed. Reg. 1052 (Jan. 4, 2017). Indeed, DOE stated in the preamble that for most rotary air compressor models, manufacturers would and could rely on existing ISO 1217 data, 82 Fed. Reg. 1052, 1090, 1094-95. DOE, however, did not write express authorization to use ISO 1217 data into the Test Rule's regulatory language.

State regulators are separately imposing rotary air compressor energy efficiency standards by statute or regulation because DOE has declined to finalize its energy efficiency standard, even though DOE posted such a "Final Rule Package" on its website in December 2016. Such state statutes and regulations also expressly reference the Test Rule as adopted in order to measure energy efficiency, but do so without any reference to ISO 1217. The state language does not authorize any use of prior or current ISO 1217 data to satisfy testing and certification requirements.

Consequently, these state requirements will likely trigger very costly and needlessly duplicative testing obligations unless manufacturers go to each state to argue for clarification to allow use of ISO 1217 and persuade the state authorities to do so. For one state (Vermont), these requirements will have to be met before July 1, 2020, for another (California), before January 1, 2022. As many as thirteen other state legislatures are actively considering requirements worded almost identically to California's testing mandate. That duplicative testing threatens to waste tens of millions of dollars better spent to improve rotary air compressor efficiency than in re-testing models which have already been shown to be efficient enough to pass the state standards.

As a customer acceptance test, ISO 1217 data reports energy efficiency results from tests of a single unit of a rotary air compressor model, the one to be supplied to the customer. Atlas Copco and other manufacturers have compiled a large number of ISO 1217 test results on many different basic rotary air compressor models since 2009, even though only a small number of units of any specific basic model are ordinarily sold in a year. Sometimes only one unit – or no units -- of a particular basic model are sold in a year.

By contrast, the Test Rule, by cross-referencing 10 C.F.R. § 429.11, ordinarily requires test results from ***two*** UNITS of each rotary air compressor MODEL. § 429.11(b):

> ***The minimum number of units tested shall be no less than two***, except where . . . (2) [o]nly one unit of the basic model is produced, in which case, that unit must be tested and the test results must demonstrate that the basic model performs at or better than applicable standard(s). . . . .

10 C.F.R. § 429.11(b)(Emphasis supplied.)

Testing of two units using the DOE Test Rule will reportedly cost around $4,000 per basic model at the trade association's laboratory, and will likely cost more at other testing laboratories for manufacturers who are not part of the trade association. As there are estimated to be around 6,000 basic models offered for sale in the United States, and as such testing appeared to be required of all basic models offered for sale in Vermont by July 1, 2020 and other states by January 1, 2022, the costs may easily exceed $20 million if Vermont and other states read the literal terms of the DOE Test Rule to preclude use of ISO 1217 data. Regrettably, it is believed that most of this testing under the Test Rule would duplicate existing ISO 1217 energy efficiency test data without changing the compliance determination.

The inability to use existing ISO 1217 testing, particularly for basic models which are ordered infrequently, creates an unreasonable hardship for manufacturers. These manufacturers, in order to offer their rotary compressors for sale in a state, are required by state law (and section 343(d)(1) of the Energy Policy and Conservation Act (EPCA), 42 U.S.C. § 6314(d)(1)) to make public representations about energy efficiency based on DOE test data. These representations include written representations to state agencies such as the Vermont Public Service Commission, agencies that are imposing energy efficiency requirements on rotary air compressors.

Because there are about 6,000 different rotary air compressor MODELS subject to the Test Rule offered for sale in the United States, and only about 23,700 UNITS sold from these models for 2013, the most recent year for which such data are available. As a result, the burden of requiring testing of two UNITS for each MODEL will be disproportionately high unless reliable ISO 1217 test results (including existing data) can also be used as a basis to satisfy the Test Rule obligations.

DOE had anticipated publishing its air compressor efficiency standard in late January 2017 (DOE Efficiency Rule), but that publication did not occur and still has not occurred. This combination of circumstances, i.e., the failure to expressly allow the use of ISO 1217 and the failure to publish the efficiency standard, has created confusion about applicable testing requirements among manufacturers of rotary air compressors and among state regulators anxious to adopt similar efficiency standards.

Two states – Vermont and California -- have already adopted air compressor energy efficiency standards based on the DOE Efficiency Rule, with language expressly requiring use of the Test Rule to certify compliance, without any provision allowing use of ISO 1217 data to certify compliance. The compliance date in Vermont is next year, on July 1, 2020. The compliance date for California – almost one seventh of the U.S. market – and other states adopting model legislation based on California's, is January 1, 2022.

Energy efficiency advocates recently testified before the U. S. House Energy and Commerce Committee that thirteen additional state legislatures are considering similar legislation, set forth in a model act. While the model legislation uses the DOE Efficiency Rule and expressly incorporates DOE's Test Rule, it does not reference or expressly authorize the use of ISO 2017 data to demonstrate compliance with the state efficiency standards. The compliance date in the model legislation is January 1, 2022.

These state actions, and proposed additional state actions, reliant upon a flawed Test Rule, threaten major problems in the rotary air compressor market and will impose undue testing burdens on manufacturers such as

Atlas Copco while doing nothing to improve air compressor efficiency in the field. As a consequence Atlas Copco believes that a large number of rotary air compressor models will be withdrawn from the market to avoid these significant testing costs, ***including a large number of models that comply with the substantive efficiency standards the states are adopting.***

At best, Atlas Copco anticipates that it and other manufacturers will have to repeatedly participate in repetitive state rulemaking proceedings as occurred in California in order to make explicit that ISO 1217 data can be used to certify compliance with efficiency standards On April 10, 2019, The California Energy Commission (CEC) finally addressed the issue, adopting an order that expressly authorizes use of ISO 1217 data to certify compliance. The CEC did so in response to an Atlas Copco petition, but did not amend the actual rule language that the Model Legislation copied. Consequently, the costly and time-consuming exercise of explaining the Test Rule problems to each set of state regulators and obtaining specific clarifications from each state may have to be repeated in every state that adopts the Model Legislation.

Atlas Copco respectfully petitions DOE to amend the Test Rule to correct these serious problems and to conform to the requirements of section 343(a)(2) of EPCA, 42 U.S.C. § 6314(a)(2), and section 12(d) of the National Technology Transfer and Advancement Act (NTTAA).

Part I of this Petition summarizes information from the DOE Technical Support Document (TSD) and from air compressor experts in order to explain the size and nature of the United States market for rotary air compressors.

Part II of this Petition summarizes the complicated procedural history of the Test Rule, the enforcement of which has been suspended by DOE.

Part III examines the minor but very costly differences between testing under ISO 1217 and testing under the Test Rule. The Petition does so using expert witness declarations attached to the petition.

Part IV explains how section 343(d)(1) of EPCA, 42 U.S.C. § 6314(d)(1), applies to the written representations about compressor efficiency made under state laws and regulations. Those state requirements use the federal Test Rule and do not expressly allow for the use of ISO 1217 test methods or past ISO 1217 test rules to satisfy those requirements. Because of the state compliance deadlines, manufacturers need DOE to make early and authoritative changes in the Test Rule to permit use of ISO 1217 testing and results to meet Test Rule requirements or the manufacturers will face large, costly and duplicative testing requirements.

Part V reviews recent regulatory and legislative actions by Vermont and California, and explains the very costly – and apparently unintended – results of DOE's failure to make explicit provision in the Test Rule for the use of ISO 1217 test data to satisfy Test Rule obligations under EPCA.

Part VI discusses the inflexible testing language of the model legislation which is being advocated in thirteen additional states, language which makes no provision for the use of ISO 1217. These results threaten costly disruptions of the rotary air compressor market in these states and elsewhere in the United States, problems that are not offset by any actual improvement in rotary air compressor efficiency in the field.

Part VII explains how DOE has violated section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 by departing from an applicable and workable voluntary industry consensus test

standard without providing the specific written justifications by the Secretary of Energy for such departures to the Office of Management and Budget (OMB).

Part VIII proposes specific language to amend the regulations, language that expressly allows the use of reliable ISO 1217 data as an alternative means to satisfy test rule, certification and public representation requirements under EPCA.

I. United States Rotary Air Compressor Market Subject to Test Rules.

Atlas Copco is a worldwide manufacturer of rotary air compressors and other industrial equipment. The company sells rotary air compressors throughout the United States under the Atlas Copco, Quincy Compressor, Chicago Pneumatic, and Fiac brand names. Declaration of David P. Prator ¶ 37 ("Prator Dec.") Atlas Copco currently offers over 800 distinct rotary air compressor models subject to the proposed Test Rule. *Id.* ¶ 38.

In its 2016 rulemaking, DOE estimated the size of the United States rotary air compressor market for the models of air compressors which would be subject to DOE's efficiency rule[3] and Test Rule.[4] DOE December 2016 Technical Support Document (TSD), Section 9.3, pp. 9-2 to 9-7..[5] The DOE TSD estimated that there were about 23,700 compressors sold in the United States in 2013 of sizes which would have been regulated by the proposed rule. TSD, Sections 9.3.3, 9.3.4, pp. 9-6 to 9-7. Seventy (70) percent (about 18,100 units) were fixed speed air cooled units. *Id.* Table 9.3.4. DOE forecast that 27,900 rotary air compressors covered by the standards would be shipped nationally in calendar 2022. *Id.*

In order to estimate compressor shipments, DOE used data on compressor shipments from manufacturers and subject matter experts. Final Rule Package, pp. 214-215. DOE then used the projections of annual equipment shipment data to project national energy savings and net present value for the potential standards levels. *Id.* p. 216.

Atlas Copco's expert, Mr. David Prator, has reviewed market data (including data gathered by the trade association, the Compressed Air & Gas Institute (CAGI)) as part of his duties for Atlas Copco and he assesses that the DOE market estimates and forecasts for the United States are reasonably accurate.[6] Prator Dec. ¶ 46.

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[3] DOE's efficiency rule for air compressors was issued as a pre-publication notice of Final Rule on December 5, 2016 ("Efficiency Rule") but never published in the Federal Register

[4] The Test Rule actually covers several additional compressor categories which would not be subject to the Efficiency Rule; the difference in numbers is not material for the purposes of this petition, because the state actions focus on the same models as the posted DOE Efficiency Rule for compressors.

[5] https://www.regulations.gov/document?D=EERE-2013-BT-STD-0040-0082?

[6] Evidentiary support for this petition is provided by the Declaration of David P. Prator, an industry expert with forty-eight years of experience in the rotary air compressor industry. Mr. Prator has worked for almost five decades in efforts to improve energy efficiency and testing accuracy for such machines, efforts by Atlas Copco and by the air compressor manufacturers' trade association, the Compressed Air & Gas Institute (CAGI). His declaration includes (a) pricing data on 2019 air compressor efficiency testing, and (b) air compressor efficiency test data comparing two methods used to test the efficiency of the same model of air compressor. Mr. Prator's declaration sets forth his expert qualifications. Prator Dec. ¶ 3, 8-34.

DOE's estimates are derived using a macroeconomic approach very similar to what Mr. Prator and his colleagues have used for Atlas Copco to estimate market demand for rotary air compressors. *Id.*

One reasonably accurate way to forecast future demand for industrial and commercial rotary air compressors is to utilize known compressor sales data and to use estimated changes in Gross Domestic Product (GDP) to determine how that rotary air compressor market will grow or shrink. Prator Dec. ¶43. Atlas Copco has found that this method works not only for projections of United States demand, but also for U.S. regions or for large states such as California. *Id.*

Atlas Copco estimates that there are nearly 6,000 distinct basic rotary air compressor MODELS offered for sale in the United States that are subject to the Test Rule. *Id.* ¶ 40. These rotary air compressors are expensive, customized machines tailored to industrial or commercial needs for a wide range of specific air flows, pressures, and performance characteristics.

As noted above, for the size of machines covered by the December 2016 version of the Efficiency Rule, DOE has estimated that the total U.S. rotary air compressor market for all manufacturers in 2013 was only about 23,700 machines of the sizes to be covered by the Efficiency Rule. These machines came from around 6,000 distinct basic rotary air compressor models, virtually all of which are believed to be offered for sale throughout the U.S. On average, only about four UNITS of each different MODEL of rotary air compressor are sold in the United States in a year.

In commercial terms, these numbers mean that the U.S. rotary air compressor market is a highly customized market. Unless tempered by the use of existing ISO 1217 test data, the Test Rule would impose highly burdensome certification and testing requirements and costs based on the erroneous assumption that such costs can be spread across a large number of units sold.

II. Test Rule Background.

The Test Rule was proposed on May 5, 2016, 81 Fed. Reg. 27720, and proved highly controversial. Many parties commented, a number of them noting the high cost of testing relative to the small number of units sold from any particular model. These comments were made both at the June 20, 2016 public hearing and in writing by the July 5, 2016 deadline.

Atlas Copco estimates, based on its knowledge of the industry and work with CAGI, that for most basic rotary air compressor models, the manufacturers possess air compressor efficiency data from testing using the ISO 1217 acceptance test. Prator Dec. ¶ 53. Atlas Copco has tested compressor models using ISO 1217 and with the more recent DOE test method and obtained comparable efficiency results. Prator Dec. ¶ 55-57 (setting forth results).

The DOE Test Rule expresses energy efficiency standards in terms of isentropic efficiency. The ISO 1217 test data can be used to derive the isentropic efficiency of a basic rotary air compressor model. Prator Dec. ¶ 53. Annex H of ISO 1217 makes the required link between the parameters measured in the test and provides for the calculation of isentropic efficiency, the basis to determining compliance with efficiency standards.

Consequently, these ISO 1217 data can provide a valid factual basis on which a manufacturer could determine and, if appropriate, certify compliance with the applicable efficiency standard for a basic rotary air compressor

model. *Id.* As noted below, DOE's rulemaking record suggests that ISO 1217 data would have been usable to certify compliance with the Efficiency Rule.

The DOE Test Rule adopted in January 2017 is based on ISO 1217, with changes intended to improve the reliability and repeatability of test results. Prator Dec. ¶ 58. At the June 20, 2016 federal rulemaking hearing (Transcript, pp. 130, 133, 155, https://www.regulations.gov/document?D=EERE-2013-BT-STD-0040-0044) and in subsequent comments submitted to DOE, major concerns were expressed about invalidating the results of reliable prior efficiency tests, tests which were conducted at considerable cost.

In response, DOE stated in the January 4, 2017 notice promulgating the final Test Rule that it did not intend to invalidate or prevent the use of ISO 1217:2009 test data to comply with DOE rules

> If historical test data is based on the same [ISO 1217] methodology being adopted in this final [Test] rule, then manufacturers may use this data for the purposes of representing any metrics subject to the representations requirements.

82 Fed. Reg. 1052, 1090, 1094 (citing similar language). Indeed, DOE concluded that ***for ninety percent of current compressor models, no additional testing would be needed since prior data could be used***. *Id.* 1094-95.

Indeed, in the Final Rule Package for the DOE Efficiency Rule, DOE made similar statements: "if historical test data is consistent with values that will be generated when testing with the test methods established in this final rule, then manufacturers may use this data for the purposes of representing any metrics subject to representations requirements." DOE December 2016 Final Rule Package, P. 234 (citing DOE, Public Meeting Transcript, No. 0016 at p. 136).

In the January 4, 2017 Test Rule notice, however, DOE postponed acting on key aspects of an enforcement sampling plan in large part because of issues about sample size in a customized market. 82 Fed. Reg. 1052, 1096. Instead, DOE planned to take further comments, but no such request for comments has been published in the time elapsed since then.

This deferral by DOE of the enforcement sampling plan and its subsequent failure to publish a final efficiency standard have created great confusion among compressor manufacturers about how DOE will address testing results, permissible tolerances with the ISO 1217 test method, and related matters. Prator Dec. ¶ 63.

DOE repeatedly postponed the Test Rule's effective date. 82 Fed. Reg. 31890, 31891 (July 11, 2017) (noting postponements of effective date from February 3, 2017 to July 3, 2017). In that same notice, DOE stated that while it was gathering further information about problems with the Test Rule, "DOE will not seek to enforce compliance of the test procedure final rule for a period of 180 days from the July 3, 2017." *Id.*

On December 6, 2017, DOE issued an "Enforcement Statement" concerning Air Compressor Test Procedures, and revised it on June 8, 2018. DOE stated that:

> At this time, DOE has not published a final rule establishing either energy conservation standards or a freestanding labeling requirement for compressors. Given these circumstances, ***there will be no enforcement of EPCA's requirement as to representations with respect***

to the compressor test procedure final rule unless or until compliance with a standard is required or an obligation to label air compressors is established.

(Emphasis supplied). https://www.energy.gov/gc/downloads/enforcement-statement-air-compressor-test-procedures

III. Minor but Costly Differences between ISO 1217 and Test Rule Terms.

The DOE Test Method is explicitly based on major portions of the consensus air compressor industry test standard for customer acceptance, i.e., ISO 1217. 82 Fed. Reg. 1052. According to DOE, the changes DOE made in the DOE Test Method are intended to improve the reliability and repeatability of test results. *Id.*

Testing with the DOE Test Method measures the exact same parameters that the ISO 1217 test method measures.[7] Knuffman Dec. ¶ 14. In both the DOE Test Method and in ISO 1217, as amended in 2016, after gathering the data, the same mathematical calculation is then conducted to determine the isentropic efficiency of the tested model of rotary air compressor. *Id.*

There are, however, several costly differences between the methods, differences which have little effect on accurate compliance certification. The DOE Test Method requires more data points at specific time intervals, which in turn requires automated sampling and special software. *Id.* ¶ 16. Moreover, the test equipment must yield more precise measurements than ISO 1217 requires and the source of electricity for the testing must be more rigorously controlled to prevent voltage fluctuations. *Id.*

Atlas Copco's comparative testing of its rotary compressor models with both test methods suggests that the differences in accuracy between ISO 1217 testing and the DOE Test Method are minimal. Prator Dec. ¶¶ 55-57. The differences between machines tested suggest that these differences are as likely to be small idiosyncratic differences with the machines or in the application of the test methods as they are actual differences in accuracy. *Id.*

Quincy Compressor's experience with the DOE Test Method, however, shows that the differences with ISO 1217 are expensive. Quincy had to spend over $50,000 in order to acquire the equipment and software needed for its laboratory to carry out the DOE test method, even though Quincy conducts production line testing using ISO 1217. Knuffman Dec. ¶ 22. To conduct the testing required by the DOE Test Rule method, Quincy had to incur substantial additional costs to train laboratory personnel, calibrate equipment, and develop internal Quality Assurance/Quality Control protocols. *Id.* ¶ 23.

Unlike ISO 1217, which is an acceptance test that may be run on a single unit of a model, when the DOE Test Method is used to certify compliance and make public representations, DOE rules provide that at least two units of the same model be tested, 10 C.F.R. § 429.63(a)(1), (cross-referencing 10 C.F.R. § 429.11(b) which sets two machine minimum) unless only one unit of a model is made, after which subsequent units must be based on a test of two units. § 429.11(b)(2).

[7] Statements in this section are based on the expert declaration of Mr. Chris Knuffman, who has spent twenty-six years in the air compressor industry, working for Quincy Compressor, an Atlas Copco subsidiary.

The 2019 cost of one DOE compliant test at CAGI's independent laboratory averages around $4,000 per model, which is a discounted rate for CAGI members. Prator Dec. ¶¶ 48-50. Non-CAGI members, who must rely on other laboratories, most likely will expend more than $4,000 to test each model offered. Without the ability to use prior data, there will be very substantial testing cost with little or no gain in accuracy.

The requirement to test two units per model also creates difficulties if a rotary air compressor is only made in response to a customer order, as is true with a number of rotary air compressor models. Those models are often tailored to precise customer needs for volume of air flow, energy, and other factors, making it less likely that there will be multiple units of the same model available to test particularly if testing is required ***just to offer the model for sale.***

The net result of the DOE Test Rule in its present form and its adoption by the states, as discussed below, will be to add significantly to the compliance burden and expense of manufacturers without any corresponding increase in actual energy efficiency.

In addition, because these tests are currently only required by two states, but the costs are nearly the same as would be incurred to comply with a national standard, some manufacturers will simply abandon markets such as Vermont, where the total number of units sold is very small, and until recent clarification of California's rule to allow use of existing ISO 1217 test results, were preparing to withdraw many models previously offered in California, where infrequent sales would not warrant the high costs of certification testing. The models withdrawn will include a large proportion which would comply with the efficiency standard, but for which the compliance testing is a prohibitive cost for such small sales.

IV. Written Representations about Energy Consumption to Other Parties Must Be Based on the Test Procedure Adopted by DOE under Section 343(d)(1) of the Energy Policy and Conservation Act (EPCA).

Under section 343(d)(1) of the Energy Policy and Conservation Act (EPCA),

> effective 180 days . . . after a test procedure rule applicable to any covered equipment is prescribed under this section, ***no manufacturer, distributor, . . . may make any representation – (A) in writing . . . respecting the energy consumption of such equipment or cost of energy consumed by such equipment,*** unless such equipment has been tested in accordance with such test procedure and such representation fairly discloses the results of such testing.

42 U.S.C. § 6314(d)(1) (emphasis supplied).

The adoption of California's and Vermont's energy efficiency rules will require manufacturers to provide written certification about the energy consumption of each of the rotary air compressor models offered for sale in those states.

Under the terms of the federal statute, those certifications must be based on testing in accordance with the Test Rule. DOE's suspension of enforcement of its Test Rule does not prevent the states from enforcing the Test Rule with respect to these manufacturer representations to these states for the purpose of certifying compliance

with state efficiency rules. Indeed, not only can the states enforce such Test Rule requirements under state law, they may also try to proceed in federal court under the citizen suit provision to enforce the DOE test rule.

Thus, while manufacturers may argue that testing according to ISO 1217 is "in accordance with such test procedure," the language of the Test Rule at present does not expressly provide that such is the case. Consequently, manufacturers will face a difficult choice if the statutory language is read literally by the courts or by the states, contrary to language in DOE's final rulemaking notice suggesting that ISO 1217 data can be used. Manufacturers will either have to test every compressor model they offer for sale in these states using DOE's elaborate Test Procedure or withdraw models not so tested from these markets, even if existing ISO 1217 data show these models will in fact comply with the state's energy efficiency standards.

Neither duplicative testing nor withdrawal of energy efficiency rotary compressors from important markets advances energy efficiency, the environment, or the public interest.

V. Recently Adopted State Energy Efficiency Standards Appear to Require Literal Compliance with DOE's Test Procedure, Not the Use of ISO 1217 Test Data.

A. Vermont Statutory Language Regulating Rotary Air Compressor Efficiency.

Vermont has the second smallest population of any state in the United States[8] and a rotary air compressor market estimated at less than fifty units per year in sizes which would have been regulated by the DOE Energy Conservation Rule.[9] Nonetheless, in May 2018, the Vermont Legislature mandated that by July 1, 2020, all rotary air compressors sold in that state must comply with the unpublished DOE efficiency standard as shown by testing using the DOE Test Procedure. 9 V.S.A. §§2795(a)(8), 2796(d)(2).

No proposed implementing regulations have yet explained how to certify compliance and upon what basis such certification can be made, https://publicservice.vermont.gov/content/vt-appliance-efficiency (visited April 9, 2019). As such, the likely manufacturer response will be to withdraw ALL rotary air compressor products from the Vermont market, given the disproportionate testing and certification costs in relation to the tiny volume of sales likely to be made. Such withdrawals are likely to hurt Vermont businesses by making important equipment unavailable but do nothing to improve energy efficiency in Vermont or anywhere else.

B. California Compressor Efficiency Rule.

The California Energy Commission ("CEC" or "Commission") voted at its January 9, 2019 business meeting to adopt a rotary air compressor efficiency standard ("California Efficiency Rule") where the regulatory language

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[8] The 2018 population of Vermont is estimated at 623,960 people. http://worldpopulationreview.com/states/vermont-population. California's is estimated at 39,776,830. http://worldpopulationreview.com/states/california-population/

[9] As noted above, a reasonably accurate way to estimate the size of a state's rotary air compressor market is to use the state's percentage share of US GDP and apply that percentage to total US rotary air compressor sales for that year. Vermont's GDP in 2013 was $29,099M. https://fred.stlouisfed.org/series/VTNGSP) and the US GDP in 2013 was $16,784,900M. https://countryeconomy.com/gdp/usa?year=2013. Based on Vermont's percentage share of US GDP, or 0.1733%, the sale of about 42 compressor units is predicted in Vermont. There are an estimated 6,000 different models of rotary air compressor to choose from.

requires that compliance be certified using the DOE Test Method. Existing CEC rules set detailed requirements for such testing and certification on the State's Modern Appliance Efficiency Database (MAEDBS),[10] requirements which require advance state approval of the testing laboratory.

The California Efficiency Rule, as proposed on November 16, 2018,[11] and as adopted without change on January 9, 2019, requires that all rotary air compressor models subject to the rule and offered for sale in the California market must be tested using the DOE Test Procedure (without reference to ISO 1217) and certified as compliant. The compliance date is January 1, 2022. (The use of Alternate Efficiency Demonstration Methods (AEDMs) is allowed, based on DOE Test Method Testing to validate the method's accuracy.) The terms of the rules appeared to preclude testing results obtained prior to California's approval of the testing laboratory for that procedure.

Fortunately, on April 10, the Commission clarified in an order that use of ISO 1217 testing from the past was a permissible basis for certification.[12] This order finally came after a February 1, 2019 request for regulatory clarification and a March 6, 2019 petition to reopen the rulemaking to clarify these issues.

Neither Atlas Copco nor any other manufacturer should have to go to the substantial effort and expense to seek such clarification from additional states to make the ***federal*** test rule workable.

VI. Proposed Model Legislation Pending before Multiple State Legislatures Will Regulate Rotary Air Compressor Efficiency Starting January 1, 2022 and Mandate Use of DOE's Needlessly Costly Test Procedure rather Than ISO 1217, the Industry Consensus Standard.

The Appliance Standards Awareness Project (ASAP) and American Council for an Energy-Efficient Economy (ACEE), organizations which have been very active in promoting the adoption of energy efficiency standards, have presented a "Model Act for Establishing State Appliance and Equipment Energy and Water Standards ("Model Act") to the states to regulate, among other kinds of equipment, the same rotary air compressors as DOE's Efficiency Rule would have regulated, and the same classes as California's new rule will regulate. A link to the proposed Model Act can be found at:

https://appliance-standards.org/sites/default/files/2019_Model_Bill_ASAP_Jan_24_2018.pdf

Section 4(a)(i)[13] of the Model Act would apply the law's provisions to air compressors. Section 5 establishes prescriptive efficiency and testing standards for air compressors, by reference to the federal test procedure:

> **5) Section 5. Standards.**
> a) Not later than one year after the date of enactment of this Act, the Commissioner, in consultation with [heads of other appropriate agencies], shall adopt regulations, in accordance

[10] https://cacertappliances.energy.ca.gov/Login.aspx.
[11] California Energy Commission Docket # 18-AAER-05, TN# 225912-1 at https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=18-AAER-05 .
[12] https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=18-AAER-05, TN# 227640.
The order was adopted on April 10; it was posted on the docket on April 12. Paragraphs 5-7 of the order on page 2-3 address the concerns about testing.
[13] Section references contained in Section VI of this Petition are to the Model Act, unless otherwise stated.

> with the provisions of Chapter [number of section in state law dealing with setting regulations], establishing minimum efficiency standards for the types of new products set forth in Section 4. b) The regulations shall provide for the following minimum efficiency standards: i) Air compressors that meet the twelve criteria listed on page 350 to 351 of the "Energy Conservation Standards for Air Compressors" final rule issued by the U.S. Department of Energy on December 5, 2016 shall meet the requirements in Table 1 on page 352 following the instructions on page 353 ***and as measured in accordance with Appendix A to Subpart T of Part 431 of Title 10 of the Code of Federal Regulations —"Uniform Test Method for Certain Air Compressors"—as in effect on July 3, 2017.***

(Emphasis supplied). In March 7, 2019 written testimony before the House Energy and Commerce Committee, the Executive Director of ASAP reported that "at least a half a dozen state legislatures are considering state standards in 2019." Testimony of Mr. Andrew deLaski, p. 13 at

https://appliance-standards.org/sites/default/files/deLaskiHouseECtestimony030719.pdf.

See also, Hearing on "Wasted Energy: DOE's Inaction on Efficiency Standards and Its Impact on Consumers and the Climate" at

https://energycommerce.house.gov/committee-activity/hearings/rescheduled-hearing-on-wasted-energy-doe-s-inaction-on-efficiency.

Indeed, in response to questions from the Committee during the hearing, Mr. deLaski reported that thirteen states are now considering such legislation:

> Mr. Welch of Vermont: . . . Can you explain the relative role of the states in [this efficiency standard process]?
>
> Mr. deLaski: . . . [In the absence of federal action, leaders such as Vermont are acting to fill the gap.] ***There are another thirteen states considering similar legislation*** [to Vermont's]."

https://energycommerce.house.gov/committee-activity/hearings/rescheduled-hearing-on-wasted-energy-doe-s-inaction-on-efficiency (at 3:49 to 3:50 in this four hour hearing)(Emphasis supplied).

The proposed Model Act concerning compressor testing does not by its terms allow the use of ISO 1217 data as opposed to the DOE Test Procedure. While a different DOE test rule allowing use of ISO 1217 data would preempt contrary state law, it is far less certain that DOE comments in a final rulemaking notice would have any such effect.

VII. DOE's Test Rule Departures from ISO 1217 Violate the Requirements of Section 12(d) of the National Technology Transfer and Advancement Act.

Atlas Copco urges that DOE amend the Test Rule in order to allow use of reliable ISO 1217 data and thereby comply fully with the mandate of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104–113, Section 12(d) (15 U.S.C. § 272 note).

The NTTAA applies to DOE. That law directs agencies like DOE to use technical standards that are developed or adopted by voluntary consensus standards bodies, unless their use would be inconsistent with applicable law or otherwise impractical.

In the case of the compressor test standards, despite boilerplate language in the notice of proposed rulemaking about reliance on consensus standards, DOE ultimately failed to incorporate the applicable consensus industry test standards (ISO 1217), in the Test Rule and thus failed to comply with the procedural requirements of the NTTAA. The Test Rule's failure to explicitly allow the use of the consensus standards in the air compressor context have already inflicted and will continue to inflict significant costs and duplicative testing burdens on the regulated community with scant improvements in accuracy.

The NTAA provides in pertinent part that:

> (d) UTILIZATION OF CONSENSUS TECHNICAL STANDARDS BY FEDERAL AGENCIES
> (1) IN GENERAL.— Except as provided in paragraph (3) of this subsection, ***all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments. . . .***
> (3) EXCEPTION.—If compliance with paragraph (1) of this subsection is inconsistent with applicable law or otherwise impractical, a Federal agency or department may elect to use technical standards that are not developed or adopted by voluntary consensus standards bodies if the head of each such agency or department transmits to the Office of Management and Budget an explanation of the reasons for using such standards. . . .
> (4) DEFINITION OF TECHNICAL STANDARDS.— As used in this subsection, the term "technical standards" means performance based or design-specific technical specifications and related management systems practices.

Section 12(d), Pub. L. No. 104-113, 110 Stat. 783 (Emphasis supplied).

In its notices concerning the DOE Test Rule, there was no reference to the NTTAA and no effort to implement its statutory requirements, particularly those requiring detailed written justification by the Secretary of Energy to the Office of Management and Budget for DOE's costly departures from ISO 1217 standards. Instead, DOE completely omits any language expressly authorizing the use of ISO 1217 data and test methods, while failing to demonstrate that the provisions of ISO 1217 DOE has changed or omitted were either "impractical or inconsistent with" the EPCA provisions DOE is implementing here.

Moreover, there was no indication that any such changes were warranted before the implementation date of the energy conservation standards in another five years. Data generated using the ISO 1217 standard would have provided a solid evidentiary basis on which to make accurate representations about energy efficiency of existing equipment in order to satisfy the mandate of 42 U.S.C. § 6314(d), which requires that public representations of energy efficiency and cost savings be based on test data. Nothing in the proposed or final rule notices suggest that eliminating the express use of, and/or deviating from, the ISO 1217 consensus test method was warranted in order to protect regulatory agencies or sophisticated industrial customers from being misled or confused about the energy performance of the air compressors they would consider for purchase.

Despite the absence of any demonstrated need to depart from the industry consensus test standard, especially for the period before the compliance date for the proposed but not finalized energy conservation rule, more than five years from now, DOE ignored the NTTAA mandate in order to make changes that DOE preferred. DOE's changes have created potentially costly and serious practical problems without better protecting purchasers, the environment, or saving more energy. These problems include the potential invalidation of years of costly test data and the resulting need to develop new testing protocols and new data in a rush and at great expense – the very consequences that NTTAA was intended to avoid, i.e. the elimination of "unnecessary duplication and complexity in the development and promulgation of conforming assessments and measures." NTTAA, Section 12(b)(3); 15 U.S.C. §272 note.

VIII. Proposed Amendment to 10 C.F.R. Section 431.344

Atlas Copco respectfully requests that DOE amend 10 C.F.R. Section 431.344, Test Procedure for measuring and determining energy efficiency of compressors, by adding the italicized language to the subsection (b) as shown below:

> (b) Testing and calculations. Determine the applicable full-load package isentropic efficiency (n isen, FL), part-load package isentropic efficiency (n isen, PL), package specific power, maximum full-flow operating pressure, full-load operating pressure, full-load actual volume flow rate, and pressure ratio at full-load operating pressure using ***either*** the test procedure set forth in appendix A of this subpart ***or according to ISO 1217 including the 2016 amendment.***

The purpose of this proposed change is to make clear that reliable data generated using ISO 1217:2009 is usable under the rules, both to certify compliance with federal and state energy efficiency standards and in order to make public representations about the energy efficiency of rotary air compressor models covered by the test standard and any federal or state energy efficiency standards. DOE's final rulemaking notice stated that such data were usable for these purposes, and DOE's cost analysis for its Efficiency Rule assumed that such data were so usable.

Adoption of this rule will allow manufacturers to comply with state efficiency standards without having to conduct duplicative, more complicated and costly testing to establish what ISO 1217 data already show – that their rotary air compressor models comply with the efficiency standard. The savings in cost and equally or more important, in engineering staff time, will allow manufacturers to concentrate on upgrading rotary air compressor energy efficiency for those models which do not meet efficiency requirements.

Respectfully submitted,

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