[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 430

[Docket No. EERE-2014–BT–STD–0048]

RIN: 1904-AD37

Energy Conservation Standards for Central Air Conditioners and Heat Pumps: Availability of Provisional Analysis Tools

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

ACTION: Notice of data availability.

SUMMARY: The U.S. Department of Energy (DOE) has completed a provisional analysis of the potential economic impacts and energy savings that could result from promulgating amended energy conservation standards for central air conditioners and heat pumps. At this time, DOE is not proposing any energy conservation standards for central air conditioners and heat pumps. Instead, this analysis will be used in support of the Appliance Standards Federal Rulemaking Advisory Committee (ASRAC) central air conditioners and heat pumps working group, which has been established to negotiate potential proposed amended energy conservation standards for central air conditioners and heat pumps standards and to discuss certain aspects of the proposed Federal test

procedure. The analysis for this NODA is available at: https://www1.eere.energy.gov/buildings/appliance_standards/rulemaking.aspx?ruleid=104 . DOE encourages stakeholders to provide any additional data or information that may improve the analysis during the course of the working grouip meetings.

DATES: DOE will accept comments, data, and other information regarding this NODA and its related analyses no later than **December 31, 2015**. See section IV, "Submission of Comments," of this NODA for further details.

ADDRESSES: Any comments submitted must identify the NODA on Energy Conservation Standards for Central Air Conditioners and Heat Pumps, and provide docket number EERE-2014-BT-STD-0048 and/or Regulatory Identification Number (RIN) 1904-AD37. Comments may be submitted using any of the following methods:

1. Federal eRulemaking Portal: www.regulations.gov. Follow the instructions for submitting comments.

2. E-mail: ASRAC@ee.doe.gov. Include the docket number and/or RIN in the subject line of the message. Submit electronic comments in WordPerfect, Microsoft Word, PDF, or ASCII file format, and avoid the use of special characters or any form of encryption.

3. Postal Mail: Ms. Brenda Edwards, 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: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW., Suite 600, Washington, DC, 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.

No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on the rulemaking process, see section IV of this document (Submission of Comments).

DOCKET: The docket, which includes Federal Register notices, comments, and other supporting documents/materials, is available for review at www.regulations.gov. 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 webpage can be found at: http://www.regulations.gov/#!docketDetail;D=EERE-2014-BT-STD-0048. The

www.regulations.gov webpage contains instructions on how to access all documents in the docket, including public comments.

For detailed instructions on submitting comments and additional information on the rulemaking process, see section IV, "Submission of Comments," of this document. For further information on how to submit a comment or review other public comments and the docket, contact Ms. Brenda Edwards at (202) 586-2945 or by email: Brenda.Edwards@ee.doe.gov.

FOR FURTHER INFORMATION CONTACT: Mr. Antonio Bouza, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-4563. E-mail: central air conditioners and heat pumps@ee.doe.gov.

Mr. Eric Stas or Ms. Johanna Hariharan, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-9507 or (202) 287-6307. E-mail: Eric.Stas@hq.doe.gov or Johanna.Hariharan@hq.doe.gov.

For further information on how to review other public comments and the docket, contact Ms. Brenda Edwards at (202) 586-2945 or by email: Brenda.Edwards@ee.doe.gov.

SUPPLEMENTARY INFORMATION:

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I. Authority

Title III, Part B[1] of the Energy Policy and Conservation Act of 1975, as amended, (EPCA or the Act), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified) sets forth a variety of provisions designed to improve energy efficiency and established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering most major household appliances (collectively referred to as "covered

[1] For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

products"), which includes the residential central air conditioners and heat pumps that are the subject of this rulemaking.[2] (42 U.S.C. 6292(a)(3))

The National Appliance Energy Conservation Act of 1987 (NAECA), Pub. L. 100-12, included amendments to EPCA that established the original energy conservation standards for central air conditioners and heat pumps. (42 U.S.C. 6295(d)(1)-(2))

EPCA, as amended, also requires DOE to conduct two cycles of rulemakings to determine whether to amend the energy conservation standards for central air conditioners and heat pumps. (42 U.S.C. 6295(d)(3)) More recently, EPCA was amended to require DOE to review the standards for each of its consumer products not later than every six years to determine whether such standards should be amended. (42 U.S.C. 6295(m)(1)) Under this "six-year-lookback" authority, DOE must publish a notice of proposed rulemaking (NOPR) to propose amended standards for residential central air conditioners and heat pumps, or a notice of determination that the existing standards do not need to be amended. Id.

EPCA provides criteria for prescribing amended energy conservation standards for residential central air conditioners and heat pumps. More specifically, DOE is required to consider standards that: (1) achieve the maximum improvement in energy

[2] All referenced to EPCA in this document refer to the statute as amended through the Energy Efficiency Improvement Act of 2015 (EEIA 2015), Pub. L. 114-11 (April 30, 2015).

efficiency that is technologically feasible and economically justified; and (2) result in significant conservation of energy. (42 U.S.C. 6295(o)(2)(A) and (o)(3)(B)) To determine whether a proposed standard is economically justified, DOE will, after receiving comments on the proposed standard, determine whether the benefits of the standard exceed its burdens by, to the greatest extent practicable, considering the following seven factors:

1. The economic impact of the standard on manufacturers and consumers of products subject to the standard;
2. The savings in operating costs throughout the estimated average life of the covered products in the type (or class) compared to any increase in the price, initial charges, or maintenance expenses for the covered products which are likely to result from the standard;
3. The total projected amount of energy savings likely to result directly from the standard;
4. Any lessening of the utility or the performance of the covered products likely to result from the standard;
5. The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;
6. The need for national energy conservation; and
7. Other factors the Secretary of Energy considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i))

EPCA also directs that DOE may not prescribe an amended or new standard if the standard is likely to result in the unavailability in the United States in any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States at the time that the standard is prescribed. (42 U.S.C. 6295(o)(4))

Before proposing a standard, DOE typically seeks public input on the analytical framework, models, and tools that DOE will use to evaluate standards for the product at issue and the results of preliminary analyses DOE performed for the product. This notice announces the availability of the preliminary analysis of the economic impacts and energy savings of potential amended energy conservation standards.

II. History of the Energy Conservation Standards Rulemaking for Central Air Conditioners and Heat Pumps

A. Background

As noted above, EPCA, as amended, established energy conservation standards for central air conditioners and heat pumps, as well as requirements for DOE to conduct two cycles of rulemaking to determine whether these standards should be amended. (42 U.S.C. 6295(d)(1)-(3)) The first cycle culminated in a final rule published in the Federal Register on August 17, 2004 (the August 2004 Rule), which prescribed energy conservation standards for central air conditioners and heat pumps manufactured or

imported on and after January 23, 2006. 69 FR 50997. DOE completed the second of the two rulemaking cycles by publishing a direct final rule on June 27, 2011 (2011 Direct Final Rule). 76 FR 37408. The 2011 Direct Final Rule (2011 DFR) amended standards for central air conditioners and heat pumps manufactured or imported on or after January 1, 2015.

Pursuant to the EPCA's six-year review requirement under 42 U.S.C. 6295 (m)(1), DOE must publish a notice of proposed rulemaking to propose amended standards for residential air conditioners and heat pumps, or a notice of determination that the existing standards do not need to be amended, by June 6, 2017 (*i.e.*, the date six years after issuance of the last amended standards for these products). In furtherance of this process, DOE published a request for information ("the RFI") regarding central air conditioners and heat pumps on November 5, 2014. 79 FR 65603. DOE published the RFI to solicit comments on whether to amend the current energy conservation standards for residential central air conditioner and heat pump products. The RFI also described the procedural and analytical approaches that DOE anticipated to use in order to evaluate energy conservation standards for central air conditioners and heat pumps.

B. Current Status

The analyses described in this NODA were developed to support a potential energy conservation standard for central air conditioners and heat pumps. The Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) recently established a

working group in accordance with the Federal Advisory Committee Act (FACA) and the Negotiated Rulemaking Act (NRA) to negotiate proposed amended energy conservation standards for central air conditioners and heat pumps standards and to discuss certain aspects of the proposed Federal test procedure. 80 FR 40938 (July 14, 2015) The purpose of the working group will be to discuss and, if possible, reach consensus on a proposed rule for amended energy conservation standards for central air conditioners and heat pumps and provide recommendations to DOE regarding certain aspects of the proposed test procedure. The working group consists of representatives of parties having a defined stake in the outcome of the proposed standards and amended test procedure, and will consult as appropriate with a range of experts on technical issues.

To examine these issues, and others as necessary, DOE will provide to all parties in the negotiation data and an analytical framework complete and accurate enough to support their deliberations. DOE is publishing this analysis to inform a prospective negotiation.

In this NODA, DOE is not proposing any energy conservation standards for central air conditioners and heat pumps. DOE may revise the analyses presented in this NODA based on any new or updated information or data it obtains during the course of the negotiations. DOE encourages interested parties to provide any additional data or information that may improve the analysis.

III. Summary of the Analyses Performed by DOE

DOE conducted provisional analyses of central air conditioners and heat pumps in the following areas: (1) engineering; (2) consumer impacts (life-cycle cost and payback period); (3) national impacts (including energy savings); and (4) manufacturer impacts. The tools used in preparing these analyses and their respective results are available at: http://www.regulations.gov/#!docketDetail;D=EERE-2014-BT-STD-0048. Each individual spreadsheet includes an introduction that provides an overview of the contents of the spreadsheet. These spreadsheets present the various inputs and outputs to the analysis and, where necessary, instructions. Brief descriptions of the provisional analyses and of the supporting spreadsheet tools are provided below.

DOE also prepared a technical support document (TSD) containing a detailed written account of the provisional analyses and the results generated from these analyses, which are described for the four major anlyses below. The TSD is available at: http://www.regulations.gov/#!docketDetail;D=EERE-2014-BT-STD-0048.

A. Engineering Analysis

The engineering analysis establishes the relationship between the manufacturer production cost (MPC) and efficiency levels of central air conditioners and heat pumps. This relationship serves as the basis for calculations performed in the other analytical tools to estimate the costs and benefits to individual consumers, manufacturers, and the Nation. The engineering analysis identifies representative baseline products, which is the

starting point for analyzing technologies that provide energy efficiency improvements. "Baseline product" refers to a model or models having features and technologies typically found in minimally-efficient products currently available on the market and, for products already subject to energy conservation standards, a model that just meets the current standard. After identifying the baseline models, DOE estimated manufacturer selling prices by using a consistent methodology and pricing scheme that includes material costs and manufacturer markups.

B. Life-Cycle Cost and Payback Period Analyses

The LCC and PBP analyses determine the economic impact of potential standards on individual consumers, starting in the compliance year. The LCC is the total cost of purchasing, installing, and operating a central air conditioner or heat pump over the course of its lifetime. The LCC analysis compares the LCCs of products designed to meet possible energy conservation standards with the LCC of the product likely to be installed in the absence of standards. DOE determines the LCC by considering: (1) the total installed cost to the consumer (which consists of manufacturer selling price, distribution channel markups, installation costs, and sales taxes); (2) the range of annual energy consumption of central air conditioners and heat pumps as they are used in the field; (3) the operating and maintenance costs of central air conditioners and heat pumps (*e.g.*, energy cost); (4) product lifetime; and (5) a discount rate that reflects the real consumer cost of capital and puts the LCC in present-value terms.

The PBP represents the number of years needed to recover the increase in purchase price (including installation costs) of higher-efficiency central air conditioners and heat pumps through savings in the operating cost. PBP is calculated by dividing the incremental increase in installed cost of the higher-efficiency product, compared to the baseline product, by the annual savings in operating costs.

For each considered standards case corresponding to each efficiency level, DOE measures the change in LCC relative to the no-standards case, which reflects the market in the absence of amended energy conservation standards, including market trends for products that exceed the current energy conservation standards.

DOE developed nationally-representative household samples for central air conditioners and heat pumps from the 2009 residential energy consumption survey (RECS). DOE analyzed the net effect of potential amended central air conditioner and heat pump standards on consumers by calculating the LCC savings and PBP for each household by efficiency level. Inputs to the LCC calculation include the installed cost to the consumer (purchase price, including sales tax where appropriate, plus installation cost), operating costs (energy expenses, repair costs, and maintenance costs), the lifetime of the product, and a discount rate. Inputs to the payback period calculation include the installed cost to the consumer and first-year operating costs.

DOE performed the LCC and PBP analyses using a spreadsheet model combined with Crystal Ball[3] to account for uncertainty and variability among the input variables. Each Monte Carlo simulation consists of 10,000 LCC and PBP calculations using input values that are either sampled from probability distributions and household samples or characterized with single-point values. The analytical results include a distribution of 10,000 data points showing the range of LCC savings for a given efficiency level relative to the no-standards-case efficiency distribution. In performing an iteration of the Monte Carlo simulation for a given consumer, product efficiency is chosen based on its probability. If the chosen product efficiency is greater than or equal to the efficiency of the standard level under consideration, the LCC and PBP calculation reveals that a consumer is not impacted by the standard level. By accounting for consumers who already purchase more-efficient products, DOE avoids overstating the potential benefits from increasing product efficiency through amended energy conservation standards.

For each potential standard level, the primary outputs of the LCC and PBP analyses are: (1) average LCC; (2) average PBPs; (3) average LCC savings relative to the no-new-standards case; and (4) the percentage of consumers that experience a net cost.

[3] Crystal Ball is a commercial software program used to conduct stochastic analysis using Monte Carlo simulation. A Monte Carlo simulation uses random sampling over many iterations of the simulation to obtain a probability distribution of results. Certain key inputs to the analysis are defined as probability distributions rather than single-point values.

C. National Impact Analysis

The national impacts analysis (NIA) estimates the national energy savings (NES) and the net present value (NPV) of total consumer costs and savings expected to result from potential amended standards. DOE calculated NES and NPV for central air conditioners and heat pumps as the difference between a case without amended standards and each standards case.

DOE calculated the national annual energy consumption for each case using the appropriate per-unit annual energy use data multiplied by the projected central air conditioner and heat pump shipments for each year. Cumulative energy savings are the sum of the annual NES determined for the lifetime of central air conditioner or heat pumps shipped during a 30-year period assumed to start in the expected compliance year. The analysis period is 30 years, which is consistent with other rulemakings and sufficiently long to cover the expected life of the product. Energy savings include the full-fuel-cycle energy savings (*i.e.*, the energy needed to extract, process, and deliver primary fuel sources such as coal and natural gas, and the conversion and distribution losses of generating electricity from those fuel sources).

To develop the national NPV of consumer benefits from potential energy conservation standards, DOE calculated projected annual operating costs (energy costs and repair and maintenance costs) and annual installation costs for the no-new-standards case and the standards cases. DOE calculated annual energy expenditures from annual

energy consumption using forecasted energy prices (based on the Energy Information Administration's most recent Annual Energy Outlook) in each year. DOE calculated annual product expenditures by multiplying the price per unit times the projected shipments in each year.

The aggregate difference each year between operating cost savings and increased installation costs is the net savings or net costs. DOE multiplies the net savings in future years by a discount factor to determine their present value. The national NPV is the sum over time of the discounted net savings each year. Critical inputs to this analysis include shipments projections, estimated product lifetimes, product installed costs and operating costs, product annual energy consumption, the no-new-standard-case efficiency projection, and discount rates. DOE estimates the NPV of consumer benefits using both a 3-percent and a 7-percent real discount rate, in accordance with guidance provided by the Office of Management and Budget (OMB) to Federal agencies on the development of regulatory analysis.[4]

D. Manufacturer Impact Analysis

DOE performed a manufacturer impact analysis (MIA) to estimate the potential financial impact of potential amended energy conservation standards on manufacturers of central air conditioners and heat pumps. The MIA relied on the Government Regulatory

[4] Office of Management and Budget, OMB Circular A-4, section E, Identifying and Measuring Benefits and Costs (2003) (Available at: http://www.whitehouse.gov/omb/memoranda/m03-21.html).

Impact Model (GRIM), an industry cash-flow model used to estimate changes in industry value as a result of amended energy conservation standards. The primary quantitative output of this model is the industry net present value (INPV), which DOE calculates as the sum of industry annual cash flows, discounted to the present day using an industry-specific weighted average cost of capital, or manufacturer discount rate. The GRIM estimates the impacts of more-stringent energy conservation standards on the industry by comparing changes in INPV between a no-new-standards case and standards cases.

Key GRIM inputs include manufacturer production cost estimates from the Engineering Analysis and annual shipments forecast estimates from the National Impact Analysis. As part of the MIA, DOE also develops an analysis of industry financial parameters (*e.g.*, average industry tax rate, working capital rate, research and development expense rate, depreciation rate) and estimates conversion costs manufacturers would likely incur in order to comply with amended standards.

Additionally, DOE develops multiple manufacturer markup scenarios in order to capture uncertainty surrounding manufacturer pricing strategy following amended standards. For the central air conditioner and heat pump industry, DOE modeled three standards-case markup scenarios: (1) a preservation of baseline markup scenario; (2) a preservation of per-unit operating profit markup scenario; and (3) a tiered markup scenario. These scenarios result in varying revenue and cash flow impacts.

IV. Submission of Comments

DOE will accept comments, data, and information regarding all of the analyses described above, but no later than the date provided in the **DATES** section at the beginning of this NODA. Interested parties may submit comments, data, and any other information using any of the methods described in the **ADDRESSES** section at the beginning of this document.

Submitting comments via www.regulations.gov. The www.regulations.gov webpage will require you to provide your name and contact information. 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 itself 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. Otherwise, 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 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 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 below.

DOE processes submissions made through 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 www.regulations.gov provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery/courier, or mail. Comments and documents submitted via email, hand delivery/courier, or mail also will be posted to 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 in 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 each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery/courier, 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 to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, that are written in English, and that are free of any defects or viruses. Documents should not contain 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 latter 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/courier 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 that 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).

V. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this NODA.

Issued in Washington, DC, onAugust 21, 2015

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