Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE–2019–BT–STD–0033]

RIN 1904–AE78

Energy Conservation Program: Energy Conservation Standards for Single Package Vertical Units

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

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy (DOE) is initiating an effort to determine whether to amend the current energy conservation standards for single package vertical air conditioners (SPVACs) and single package vertical heat pumps (SPVHPs), collectively referred to as single package vertical units (SPVUs). This request for information (RFI) solicits information from the public to help DOE determine whether amended standards for SPVUs, a category of covered commercial equipment, would result in significant additional energy savings and whether such standards would be technologically feasible and economically justified. DOE welcomes written comments from the public on any subject within the scope of this document (including those topics not specifically raised in this RFI), as well as the submission of data and other relevant information.

DATES: Written comments and information are requested and will be accepted on or before June 23, 2020.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2019–BT–STD–0033 and/or RIN 1904–AE78, by any of the following methods:

1. *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.
2. *Email: SPVU2019STD@ee.doe.gov.* Include the docket number EERE–2019–BT–STD–0033 and/or RIN 1904–AE78 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. Telephone: (202) 287–1445. 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, 6th Floor, Washington, DC 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.

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

Docket: The docket for this activity, which includes **Federal Register** notices, comments, and other supporting documents/materials, is available for review at *http://www.regulations.gov.* All documents in the docket are listed in the *http://www.regulations.gov* index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at: *http://www.regulations.gov/#!docketDetail;D=EERE-2019-BT-STD-0033.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Ms. Catherine Rivest, 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) 586–7335. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Mr. Eric Stas, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 586–5827. Email: *Eric.Stas@hq.doe.gov.*

For further information on how to submit a comment or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287–1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov.*

SUPPLEMENTARY INFORMATION:

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I. Introduction

A. Authority and Background

The Energy Policy and Conservation Act, as amended (EPCA),[1] Public Law 94–163 (42 U.S.C. 6291–6317, as codified), among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial

[1] All references to EPCA in this document refer to the statute as amended through America's Water Infrastructure Act of 2018, Public Law 115–270 (Oct. 23, 2018).

equipment. Title III, Part C [2] of EPCA (42 U.S.C. 6311–6317, as codified), added by Public Law 95–619, Title IV, section 441(a), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This equipment includes SPVUs, which are a category of small, large, and very large commercial package air conditioning and heating equipment and the subject of this RFI. (42 U.S.C. 6311(1)(B)–(D)) EPCA prescribed initial standards for this equipment. (42 U.S.C. 6313(a)(1)–(2))

Under EPCA, DOE's energy conservation program consists essentially of four parts: (1) Testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6311), energy conservation standards (42 U.S.C. 6313), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), and the authority to require information and reports from manufacturers (42 U.S.C. 6316).

Federal energy efficiency requirements for covered equipment established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption for particular State laws or regulations, in accordance with the procedures and other provisions set forth under EPCA. (42 U.S.C. 6316(b)(2)(D))

The Energy Independence and Security Act of 2007 (EISA 2007), Public Law 110–140, amended EPCA in relevant part to establish equipment classes and minimum energy conservation standards for SPVUs. (42 U.S.C. 6313(a)(10)(A)) In doing so, the EISA 2007 amendments established Federal energy conservation standards for SPVUs at levels that generally corresponded to the levels in the 2004 edition of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings* (*i.e.,* ASHRAE Standard 90.1–2004). On March 23, 2009, DOE published a final rule that codified the statutory equipment classes and energy conservation standards for SPVUs into DOE's regulations in the Code of Federal Regulations (CFR) at 10 CFR 431.97. 74 FR 12058, 12073–12074 (March 2009 final rule).

EPCA further required that, not later than 3 years after the date of enactment of EISA 2007, DOE must review ASHRAE Standard 90.1, with respect to SPVACs and SPVHPs in accordance with the procedures established under 42 U.S.C. 6313(a)(6). (42 U.S.C. 6313(a)(10)(B)) Additionally, in acknowledgement of technological changes that yield energy efficiency benefits, Congress further directed DOE through EPCA to consider amending the existing Federal energy conservation standards for SPVUs, each time ASHRAE amends Standard 90.1 with respect to such equipment. (42 U.S.C. 6313(a)(6)(A)) When triggered in this manner, DOE must undertake and publish an analysis of the energy savings potential of amended energy efficiency standards, and amend the Federal standards to establish a uniform national standard at the minimum level specified in the amended ASHRAE Standard 90.1, unless DOE determines that there is clear and convincing evidence to support a determination that a more-stringent standard level as a national standard would produce significant additional energy savings and be technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(A)(i)–(ii))

On September 23, 2015, DOE published amendments to the SPVU standards in accordance with the 3-year review prescribed by EPCA as amended by EISA 2007 and in response to the 2013 update to ASHARE Standard 90.1 (*i.e.,* ASHRAE Standard 90.1–2013). 80 FR 57438 (September 2015 final rule). For four of the six SPVU equipment classes, DOE adopted the levels specified ASHRAE Standard 90.1–2013. 80 FR 57438, 57439 (Sept. 23, 2015). For the remaining two equipment classes, DOE concluded that there is clear and convincing evidence to support more stringent standards than the levels in ASHRAE Standard 90.1–2013. *Id.* Compliance dates for the amended standards were as follows: SPVACs and SPVHPs <65,000 Btu/h cooling capacity beginning September 23, 2019; SPVACs and SPVHPs ≥65,000 and <135,000 Btu/h cooling capacity, beginning October 9, 2015; and SPVACs and SPVHPs ≥135,000 and <240,000 Btu/h cooling capacity, beginning October 9, 2016. 80 FR 57438, 57438 (Sept. 23, 2015). The current energy conservation standards are codified at 10 CFR 431.97.

The currently applicable DOE test procedure for SPVUs is set forth at 10 CFR 431.96. DOE's test procedures for SPVUs were established in a final rule for commercial heating, air-conditioning, and water-heating equipment published on May 16, 2012. 77 FR 28928. The current test procedure incorporates by reference American National Standards Institute (ANSI)/Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Standard 390–2003, *Performance Rating of Single Package Vertical Air-Conditioners and Heat Pumps* (ANSI/AHRI 390–2003), omitting section 6.4. The current test procedure also requires that manufacturers adhere to additional provisions in paragraphs (c) and (e) of 10 CFR 431.96. Paragraph (c) of 10 CFR 431.96 provides the method for an optional compressor break-in period, while paragraph (e) of 10 CFR 431.96 provides specifications for addressing key information typically found in the installation and operation manuals.

ASHRAE Standard 90.1 has been updated on several occasions since the 2013 version, the most recently being released on October 26, 2016 (*i.e.,* ASHRAE Standard 90.1–2016). However, the standard levels for SPVUs remain unchanged from the 2013 version.

In those situations where ASHRAE has not acted to amend the levels in Standard 90.1 for the equipment types enumerated in the statute, EPCA also provides for a 6-year-lookback to consider the potential for amending the uniform national standards. (42 U.S.C. 6313(a)(6)(C)) Specifically, pursuant to EPCA, DOE is required to conduct an evaluation of each class of covered equipment in the ASHRAE Standard 90.1 ''every 6 years'' to determine whether the applicable energy conservation standards need to be amended. (42 U.S.C. 6313(a)(6)(C)(i)) DOE must publish either a notice of proposed rulemaking (NOPR) to propose amended standards or a notice of determination that existing standards do not need to be amended. (42 U.S.C. 6313(a)(6)(C)(i)(I)–(II)) In making a determination, DOE must evaluate whether amended standards would result in significant additional conservation of energy and are technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(C)(i)(I); 42 U.S.C. 6313(a)(6)(A)) In proposing new standards under the 6-year-lookback review, DOE must undertake the same considerations as if it were adopting a standard that is more stringent than an amendment to ASHRAE Standard 90.1. (42 U.S.C. 6313(a)(6)(C)(i)(II); 42 U.S.C. 6313(a)(6)(B)) This is a separate statutory review obligation, as differentiated from the obligation triggered by an ASHRAE Standard 90.1 amendment, as previously discussed.

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

While the statute continues to defer to ASHRAE's lead on covered equipment subject to Standard 90.1, it does allow for a comprehensive review of all such equipment and the potential for adopting more-stringent standards, where supported by the requisite clear and convincing evidence. That is, DOE interprets ASHRAE's not amending Standard 90.1 with respect to a product or equipment type as ASHRAE's determination that the standard applicable to that product or equipment type is already at an appropriate level of stringency, and DOE will not amend that standard unless there is clear and convincing evidence that a more-stringent level is justified. In those instances where DOE makes a determination that the standards for the equipment in question do not need to be amended, the statute requires the Department to revisit that decision within three years to either make a new determination or propose amended standards. (42 U.S.C. 6313(a)(6)(C)(iii)(II))

DOE is publishing this RFI to collect data and information to inform its decision consistent with its obligations under EPCA.

B. Rulemaking Process

As discussed, DOE is required to conduct an evaluation of each class of covered equipment in ASHRAE Standard 90.1 every 6 years. (42 U.S.C. 6313(a)(6)(C)(i)) In making a determination of whether standards for such equipment need to be amended, DOE must follow specific statutory criteria. DOE must evaluate whether amended Federal standards would result in significant additional conservation of energy and are technologically feasible and economically justified. (42 U.S.C. 6313(a)(6)(C)(i) (*referencing* 42 U.S.C. 6313(a)(6)(A)(ii)(II)) To determine whether a potential proposed standard is economically justified, EPCA requires that DOE determine whether the benefits of the standard exceed its burdens by considering, to the greatest extent practicable, the following seven factors:

(1) The economic impact of the standard on manufacturers and consumers of the equipment subject to the standard;

(2) The savings in operating costs throughout the estimated average life of the covered equipment in the type (or class) compared to any increase in the price of, initial charges for, or maintenance expenses of the covered equipment that 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 equipment 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 (Secretary) considers relevant.

(42 U.S.C. 6313(a)(6)(C)(i)(II) (*referencing* 42 U.S.C. 6313(a)(6)(B)(ii)(I)–(VII)))

DOE fulfills these and other applicable requirements by conducting a series of analyses throughout the rulemaking process. Table I.1 shows the individual analyses that are performed to satisfy each of the requirements within EPCA.

TABLE I.1—EPCA REQUIREMENTS AND CORRESPONDING DOE ANALYSIS

EPCA requirement	Corresponding DOE analysis
Significant Energy Savings	• Shipments Analysis. • National Impact Analysis. • Energy and Water Use Determination.
Technological Feasibility	• Market and Technology Assessment. • Screening Analysis. • Engineering Analysis.
Economic Justification:	
1. Economic impact on manufacturers and consumers	• Manufacturer Impact Analysis. • Life-Cycle Cost and Payback Period Analysis. • Life-Cycle Cost Subgroup Analysis. • Shipments Analysis.
2. Lifetime operating cost savings compared to increased cost for the product.	• Mark-ups for Product Price Determination. • Energy and Water Use Determination. • Life-Cycle Cost and Payback Period Analysis.
3. Total projected energy savings	• Shipments Analysis. • National Impact Analysis.
4. Impact on utility or performance	• Screening Analysis. • Engineering Analysis.
5. Impact of any lessening of competition	• Manufacturer Impact Analysis.
6. Need for national energy and water conservation	• Shipments Analysis. • National Impact Analysis.
7. Other factors the Secretary considers relevant	• Employment Impact Analysis. • Utility Impact Analysis. • Emissions Analysis. • Monetization of Emission Reductions Benefits. • Regulatory Impact Analysis.

As detailed throughout this RFI, DOE is publishing this document seeking input and data from interested parties to aid in the development of the technical analyses on which DOE will ultimately rely to determine whether (and if so, how) to amend the energy conservation standards for SPVUs.

II. Request for Information and Comments

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in the development of the technical and economic analyses regarding whether amended standards for SPVUs may be warranted. DOE also welcomes comments on other issues relevant to this data-gathering process that may not specifically be identified in this document.

In addition, as an initial matter, DOE seeks comment on whether there have been sufficient technological or market changes since the most recent standards

update that may justify a new rulemaking to consider more-stringent standards. Specifically, DOE seeks data and information that could enable the agency to determine whether DOE should propose a ''no new standard'' determination because a more-stringent standard: (1) Would not result in a significant additional savings of energy; (2) is not technologically feasible; (3) is not economically justified; or (4) any combination of foregoing.

A. Equipment Covered by This Process

This RFI covers equipment that meet the definitions of SPVACs and SPVHPs, as codified at 10 CFR 431.92. The definitions for SPVACs and SPVHPs were established under EPCA, as amended by EISA 2007 (*see* 42 U.S.C. 6311(22) and (23)), and codified in the March 2009 final rule. 74 FR 12058, 12061, 12073 (March 23, 2009).

DOE defines a ''single package vertical air conditioner'' as air-cooled commercial package air conditioning and heating equipment that:

(1) Is factory assembled as a single package that:

(i) Has major components that are arranged vertically;

(ii) Is an encased combination of cooling and optional heating components; and

(iii) Is intended for exterior mounting on, adjacent interior to, or through an outside wall;

(2) Is powered by single- or three-phase current;

(3) May contain one or more separate indoor grilles, outdoor louvers, various ventilation options, indoor free air discharges, ductwork, well plenum, or sleeves; and

(4) Has heating components that may include electrical resistance, steam, hot water, or gas, but may not include reverse cycle refrigeration as a heating means.

10 CFR 431.92

DOE defines ''single package vertical heat pumps'' as a single package vertical air conditioner that: (1) Uses reverse cycle refrigeration as its primary heating source and (2) may include secondary supplemental heating by means of electrical resistance, steam, hot water, or gas. *Id.*

Issue A.1 DOE requests comment on whether the definitions for SPVUs require any revisions—and if so, how those definitions should be revised. Please provide the rationale for any suggested change.

Issue A.2 DOE requests comment on whether additional equipment definitions are necessary to close any potential gaps in existing coverage between equipment types. If there are such gaps, DOE also seeks input on whether equipment currently exists in the market that are in such a gap or whether they are being planned for introduction.

B. Market and Technology Assessment

The market and technology assessment that DOE routinely conducts when analyzing the impacts of a potential new or amended energy conservation standard provides information about the SPVUs industry that will be used in DOE's analysis throughout the rulemaking process. DOE uses qualitative and quantitative information to characterize the structure of the industry and market. DOE identifies manufacturers, estimates market shares and trends, addresses regulatory and non-regulatory initiatives intended to improve energy efficiency or reduce energy consumption, and explores the potential for efficiency improvements in the design and manufacturing of SPVUs. DOE also reviews product literature, industry publications, and company websites. Additionally, DOE considers conducting interviews with manufacturers to improve its assessment of the market and available technologies for SPVUs.

1. Energy Efficiency Descriptor

For SPVUs, DOE currently prescribes energy efficiency ratio (EER) as the cooling mode metric and coefficient of performance (COP) as the heating mode metric. 10 CFR 431.96. These energy efficiency descriptors are the same as those included in ASHRAE 90.1–2016 for SPVUs. EER is the ratio of the produced cooling effect of the SPVU to its net work input, expressed in Btu/watt-hour, and measured at standard rating conditions. COP is the ratio of the produced heating effect of the SPVU to its net work input, when both are expressed in identical units of measurement, and measured at standard rating conditions. DOE's test procedure for SPVUs does not include a seasonal metric that accounts for part-load performance.

On July 20, 2018, DOE published an RFI (July 2018 TP RFI) to collect information and data to consider amendments to DOE's test procedure for SPVUs. 83 FR 34499. As part of the July 2018 TP RFI, DOE requested comment on whether adoption of a cooling-mode metric that integrates part-load performance would better represent full-season efficiency for SPVUs. 83 FR 34499, 34503 (July 20, 2018). If DOE amends the SPVU test procedure to incorporate a part-load metric, it would conduct any analysis for future standards rulemakings, if any, based on the amended test procedure.

2. Equipment Classes

For SVPUs, the current energy conservation standards specified in 10 CFR 431.97 are based on six equipment classes determined according to the following performance-related features that provide utility to the consumer: Cooling capacity and whether the equipment is an air conditioner or a heat pump. Table II.1 lists the current six equipment classes for SPVUs:

TABLE II.1—CURRENT SPVU EQUIPMENT CLASSES

	Equipment class
1 ..	SPVAC <65,000 Btu/h.
2 ..	SPVHP <65,000 Btu/h.
3 ..	SPVAC ≥65,000 Btu/h and <135,000 Btu/h.
4 ..	SPVHP ≥65,000 Btu/h and <135,000 Btu/h.
5 ..	SPVAC ≥135,000 Btu/h and <240,000 Btu/h.
6 ..	SPVHP ≥135,000 Btu/h and <240,000 Btu/h.

Issue B.1 DOE requests feedback on the current SPVU equipment classes and whether changes to these individual equipment classes and their descriptions should be made or whether certain classes should be merged or separated. Specifically, DOE requests comment on opportunities to combine equipment classes that could reduce regulatory burden. DOE further requests feedback on whether combining certain classes could impact product utility by eliminating any performance-related features or impact the stringency of the current energy conservation standard for these equipment. DOE also requests comment on separating any of the existing equipment classes and whether it would reduce any compliance burdens.

3. Model Counts

For this RFI, DOE conducted a review of the current market for SPVUs based on models included in DOE's Compliance Certification Database.[3] Table II.2 shows the number of models listed within the DOE Compliance Certification Database that DOE has identified for each class of SPVUs. Based on DOE's review of equipment currently available on the market, DOE did not identify any SPVAC models with a cooling capacity greater than

[3] DOE's Compliance Certification Database can be found at *https://www.regulations.doe.gov/certification-data/products.html#q=Product_Group_s%3A** (Last accessed Jan. 29, 2020).

135,000 Btu/h or SPVHP models with cooling capacities greater than 65,000 Btu/h.

TABLE II.2—NUMBER OF MODELS UNDER CURRENT SPVU EQUIPMENT CLASSES

Cooling capacity range (Btu/h)	Number of models	
	SPVACs	SPVHPs
<65,000	411	221
≥65,000 and <135,000	58	0
≥135,000 and <240,000	0	0

Issue B.2 DOE requests comment on whether there are units currently available on the market in the following equipment classes: SPVHP ≥65,000 Btu/h and <135,000 Btu/h, SPVAC ≥135,000 Btu/h and <240,000 Btu/h, and SPVHP ≥135,000 Btu/h and <240,000 Btu/h.

4. Technology Assessment

In analyzing the feasibility of potential new or amended energy conservation standards, DOE uses information about existing and past technology options and prototype designs to help identify technologies that manufacturers could use to meet and/or exceed a given set of energy conservation standards under consideration. In consultation with interested parties, DOE intends to develop a list of technologies to consider in its analysis. That analysis will likely include a number of the technology options DOE previously considered during its most recent rulemaking for SPVUs (*i.e.,* the September 2015 final rule). 80 FR 57438 (Sept. 23, 2015). A complete list of those prior options appears in Table II.3.

TABLE II.3—TECHNOLOGY OPTIONS FOR SPVUS CONSIDERED IN THE DEVELOPMENT OF THE SEPTEMBER 2015 FINAL RULE

Technology Options	
Heat Exchanger Improvements.	Increased frontal coil area. Increased depth of coil. Microchannel heat exchangers. Dual condenser heat exchangers.
Indoor Blower and Outdoor Fan Improvements.	Improved fan motor efficiency. Improved fan blades.
Compressor Improvements.	Improved compressor efficiency. Multi-speed compressors.

TABLE II.3—TECHNOLOGY OPTIONS FOR SPVUS CONSIDERED IN THE DEVELOPMENT OF THE SEPTEMBER 2015 FINAL RULE—Continued

Other Improvements ..	Thermostatic expansion valves. Electronic expansion valves. Thermostatic cyclic controls.

In addition, DOE conducted preliminary market research by examining manufacturer product literature and published technical literature (*e.g.,* reports, journal articles, or presentations) which identified specific technologies and design options, and DOE will consider these along with others identified during the rulemaking process, should it determine that a rulemaking is necessary. Table II.4 lists additional technology options that DOE may consider in a future SPVU energy conservation standards rulemaking.

TABLE II.4—OTHER TECHNOLOGY OPTIONS FOR SPVUS

Technology Options	
Indoor Blower and Outdoor Fan Improvements.	Variable speed condenser fan/motor. Variable speed indoor blower/motor.

Issue B.4 DOE seeks information on the technologies listed in Table II.3 regarding their applicability to the current market and how these technologies may impact the efficiency of SPVUs, as measured according to the DOE test procedure. DOE also seeks information on how these technologies may have changed since they were considered in the September 2015 final rule analysis. Specifically, DOE seeks information on the range of efficiencies or performance characteristics that are currently available for each technology option.

Issue B.5 DOE seeks information on the technologies listed in Table II.4 regarding their market adoption, costs, and any concerns with incorporating them into equipment (*e.g.,* impacts on consumer utility, potential safety concerns, manufacturing/production/implementation issues).

Issue B.6 DOE seeks comment on other technology options that it should consider for inclusion in its analysis and if these technologies may impact equipment features or consumer utility.

DOE did not evaluate several technology options in the September 2015 final rule for the following reasons:

- Data were not available to evaluate the energy efficiency characteristics;
- The test procedure would not measure the energy impact of these technologies; and
- Available data suggest that the efficiency benefits of the technology are negligible.

80 FR 57438, 57454–57455 (Sept. 23, 2015)

DOE did not evaluate microchannel heat exchangers for the September 2015 final rule engineering analysis because there was insufficient information regarding improvements to the overall system's energy efficiency. 80 FR 57438, 57455 (Sept. 23, 2015).

Issue B.7 DOE requests information and data on how microchannel heat exchangers may impact overall system energy efficiency for SPVUs.

In addition, DOE did not consider the following technologies for the engineering analysis because they were determined not to have a measured impact on energy consumption based on the DOE test procedure:

- Thermostatic Expansion Valves (TXVs) and Electronic Expansion Valves (EEVs);
- Thermostatic Cyclic Controls, and
- Multi-Speed Compressors, *Id.*

As discussed in section II.B.1 of this RFI, the current DOE test procedure for SPVUs measures efficiency at full-load steady-state conditions, while TXV, EEV, thermostatic cyclic controls, and multi-speed compressor technologies only provide benefit at part-load conditions. TXVs and EEVs regulate the

flow of liquid refrigerant entering the evaporator and can adapt to changes in operating conditions, such as variations in temperature, humidity, and compressor staging. As a result, TXVs and EEVs can control for optimum system operating parameters over a wide range of operating conditions, and are a consideration in evaluating improved seasonal efficiency. Thermostatic cyclic controls more accurately monitor room temperature and allow for modulation of performance to match room conditions, which impacts seasonal energy savings. Multi-speed compressors (*e.g.,* two-speed, variable-capacity, and variable-speed compressors) enable modulation of the refrigeration system cooling capacity, allowing the unit to match the cooling load. This modulation can improve efficiency by reducing off-cycle losses and can improve heat exchanger effectiveness at part-load conditions by operating at a lower mass flow rate.

DOE notes that the technologies identified in Table II.4 (*i.e.,* variable speed condenser fan motors and variable speed indoor blower motors) would likewise not have a measured impact on energy consumption based on the current test procedure. These technologies allow for varying fan speed to reduce airflow rate at part-load operation, which is not accounted for under the current metric.

As discussed in section II.B.1 of this RFI, DOE may consider adopting for SPVUs a cooling-mode metric that integrates part-load performance.

Issue B.8 DOE requests comment and data on how the following technology options would impact the measured energy consumption for SPVUs based on the current DOE test procedure: TXVs and EEVs, thermostatic cyclic controls, multi-speed compressors, variable speed condenser fan motors, and variable speed indoor blower motors. In the event DOE were to amend the metric for the SPVU standards to account for part-load performance, DOE requests data on the efficiency improvement associated with these technology options when considering part-load operation. In addition, DOE requests data on any other technology options not listed above that would improve the efficiency of equipment under part-load conditions.

Finally, DOE did not consider the following technologies for the engineering analysis because they were commonly found in most baseline and higher-efficiency SPVUs:

- Improved Fin Design,
- Improved Tube Design, and
- Hydrophilic Film Coating on Fins.

Id.

Issue B.9 DOE requests comment on whether the above technology options are still commonly found in both baseline and higher-efficiency SPVUs.

C. Screening Analysis

The purpose of the screening analysis is to evaluate the technologies that improve equipment efficiency to determine which technologies will be eliminated from further consideration and which will be passed to the engineering analysis for further consideration.

DOE determines whether to eliminate certain technology options from further consideration based on the following criteria:

(1) *Technological feasibility.* Technologies that are not incorporated in commercial equipment or in working prototypes will not be considered further.

(2) *Practicability to manufacture, install, and service.* If it is determined that mass production of a technology in commercial products and reliable installation and servicing of the technology could not be achieved on the scale necessary to serve the relevant market at the time of the compliance date of the standard, then that technology will not be considered further.

(3) *Impacts on equipment utility or equipment availability.* If a technology is determined to have significant adverse impact on the utility of the equipment to significant subgroups of consumers, or result in the unavailability of any covered equipment type or class with performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as equipment generally available in the United States at the time, it will not be considered further.

(4) *Adverse impacts on health or safety.* If it is determined that a technology will have significant adverse impacts on health or safety, it will not be considered further.

(5) *Unique-Pathway Proprietary Technologies.* If a design option utilizes proprietary technology that represents a unique pathway to achieving a given efficiency level, that technology will not be considered further.

See 10 CFR part 430, subpart C, appendix A, 6(c)(3) and 7(b).

Technology options identified in the technology assessment are evaluated against these criteria using DOE analyses and inputs from interested parties (*e.g.,* manufacturers, trade organizations, and energy efficiency advocates). Technologies that pass through the screening analysis are referred to as ''design options'' in the engineering analysis. Technology options that fail to meet one or more of the five criteria are eliminated from consideration.

Issue C.1 DOE requests feedback on what impact, if any, the five screening criteria described in this section would have on each of the technology options listed in Table II.3 and Table II.4 with respect to SPVUs. Similarly, DOE seeks information regarding how these same criteria would affect consideration of any other technology options not already identified in this document with respect to their potential use in SPVUs.

DOE did not screen out any technology options in the September 2015 final rule based on any of the screening criteria. Table II.5 summarizes the preliminary technology options which DOE intends to examine further as part of the engineering analysis.

TABLE II.5—PRELIMINARY TECHNOLOGY OPTIONS FOR SPVUS

Technology Options	
Heat Exchanger Improvements.	Increased frontal coil area.
	Increased depth of coil.
	Microchannel heat exchangers.
	Dual condenser heat exchangers.
Indoor Blower and Outdoor Fan Improvements.	Improved fan motor efficiency.
	Improved fan blades.
	Variable speed condenser fan/motor.
	Variable speed indoor blower/motor.
Compressor Improvements.	Improved compressor efficiency.
	Multi-speed compressors.
Other Improvements ..	Thermostatic expansion valves.
	Electronic expansion valves.
	Thermostatic cyclic controls.

D. Engineering Analysis

The engineering analysis estimates the cost-efficiency relationship of equipment at different levels of increased energy efficiency (efficiency levels). This relationship serves as the basis for the cost-benefit calculations for consumers, manufacturers, and the Nation. In determining the cost-efficiency relationship, DOE estimates the increase in manufacturer production cost (MPC) associated with increasing the efficiency of equipment above the baseline (*i.e.,* the current minimum energy conservation standards), up to the maximum technologically feasible (max-tech) efficiency level for each equipment class.

DOE historically has used the following three methodologies to generate incremental manufacturing costs and establish efficiency levels (ELs) for analysis: (1) The design-option

approach, which provides the incremental costs of adding to a baseline model design options that will improve its efficiency; (2) the efficiency-level approach, which provides the relative costs of achieving increases in energy efficiency levels, without regard to the particular design options used to achieve such increases; and (3) the cost-assessment (or reverse engineering) approach, which provides ''bottom-up'' manufacturing cost assessments for achieving various levels of increased efficiency, based on detailed cost data for parts and materials, labor, shipping/packaging, and investment for models that operate at particular efficiency levels.

1. Baseline Efficiency Levels

For each established equipment class, DOE selects a baseline model as a reference point against which any changes resulting from new or amended energy conservation standards can be measured. The baseline model in each equipment class represents the characteristics of common or typical equipment in that class. Typically, a baseline model is one that just meets the current minimum energy conservation standards and provides basic consumer utility.

If it determines that a rulemaking is necessary, consistent with this analytical approach, DOE tentatively plans to consider the current minimum energy conservation standards [4] to establish the baseline efficiency levels for each equipment class. As discussed in section II.B.1 of this document, the current standards for SPVUs are based on the full-load metrics (*i.e.,* EER and COP). The current standards for SPVUs are found at 10 CFR 431.97 and are presented in Table II.6 of this document. As discussed, the majority of equipment currently available on the market are at the minimum energy conservation standard levels.

TABLE II.6—CURRENT SPVU ENERGY CONSERVATION STANDARD LEVELS

Equipment class	Minimum energy conservation standard level
SPVAC <65,000 Btu/h	EER = 11.0.
SPVHP <65,000 Btu/h	EER = 11.0. COP = 3.3.
SPVAC ≥65,000 Btu/h and <135,000 Btu/h.	EER = 10.0.
SPVHP ≥65,000 Btu/h and <135,000 Btu/h.	EER = 10.0. COP = 3.0.
SPVAC ≥135,000 Btu/h and <240,000 Btu/h.	EER = 10.0.
SPVHP ≥135,000 Btu/h and <240,000 Btu/h.	EER = 10.0. COP = 3.0.

To inform its data collection in this RFI, DOE initially reviewed data in DOE's Compliance Certification Database to characterize the distribution of efficiencies for SPVU equipment currently available on the market, analyzing cooling and heating efficiency separately. DOE is making available for comment a document that provides the distributions of EER and COP for SPVUs in all three equipment classes for which DOE has identified units: SPVAC <65,000, SPVAC ≥65,000 Btu/h and <135,000 Btu/h, and SPVHP <65,000 Btu/h.[5]

Issue D.1 DOE requests feedback on whether using the current established minimum energy conservation standards for SPVUs are appropriate baseline efficiency levels for DOE to apply to each equipment class in evaluating whether to amend the current energy conservation standards for this equipment, or if there are different efficiency levels DOE should consider to evaluate the baseline efficiency levels in order to better evaluate amending energy conservation standards for this equipment.

Issue D.2 DOE requests feedback on the appropriate baseline efficiency levels for any newly analyzed equipment classes that are not currently in place or for any contemplated combined equipment classes, as discussed in section II.B.2 of this document. For newly analyzed equipment classes, DOE requests energy use data to develop a baseline relationship between energy use and adjusted volume.

As discussed in section II.B.1 of this document, if DOE were to amend the SPVU test procedure to incorporate a part-load metric, it would conduct any analysis for the energy conservation standards rulemaking based on the amended test procedure, including considering baseline efficiency levels based on a part-load metric.

Issue D.3 To the extent that it is available, DOE seeks data and information regarding part-load performance for SPVUs currently on the market, in the event that DOE amends the SPVU test procedure to include a part-load energy efficiency metric.

2. Maximum Available and Maximum Technologically Feasible Levels

As part of DOE's analysis, DOE considers the maximum available efficiency level, which is the highest-efficiency unit currently available on the market. DOE also considers the max-tech efficiency level, which it defines as the level that represents the theoretical maximum possible efficiency if all available design options are incorporated in a model. In many cases, the max-tech efficiency level is not commercially available because it is not economically feasible.

For the September 2015 final rule, DOE surveyed the AHRI Directory, manufacturers' websites, and technical literature to determine the highest efficiency that SPVU equipment could attain. DOE also discussed what an appropriate max-tech level would be with manufacturers. For all six equipment classes, DOE determined that the maximum technologically feasible efficiency was the maximum available efficiency. For the September 2015 final rule analysis, DOE did not develop COP efficiency levels independent of EER efficiency levels. Rather, DOE developed the COP efficiency levels using a relationship between EER and COP from AHRI Database market data, thus determining a ''median'' COP level for each EER efficiency level. Therefore, DOE did not separately analyze maximum available COP levels as part of the September 2015 final rule. See section II.B.4 of this document for further discussion on heating efficiency levels. *See* chapter 5 of the 2015 final rule technical support document (TSD).[6]

Table II.7 shows the maximum-available efficiency levels considered for the September 2015 final rule and based on the current market for each equipment classes, as identified in DOE's Compliance Certification Database.

[4] The current standards for SPVUs with cooling capacities <65,000 Btu/h are applicable to equipment manufactured on or after September 23, 2019. The current standards for SPVUs with cooling capacities ≥65,000 Btu/h and <135,000 Btu/h are applicable to equipment manufactured on or after October 9, 2015. The current standards for SPVUs with cooling capacities ≥135,000 Btu/h and <240,000 Btu/h are applicable to equipment manufactured on or after October 9, 2016.

[5] The supplemental file be found in docket EERE–2019–BT–STD–0033 at *https://www.regulations.gov/document?D=EERE-2019-BT-STD-0033-0001.*

[6] The 2015 final rule TSD can be found in docket EERE–2012–BT–STD–0041–0027 at *https://www.regulations.gov/document?D=EERE-2012-BT-STD-0041-0027.*

TABLE II.7—MAXIMUM-AVAILABLE EFFICIENCY LEVELS FOR SPVUS

Equipment class	2015 Final rule	Current market
SPVAC <65,000 Btu/h	12.3 EER	12.5 EER.
SPVHP <65,000 Btu/h	12.3 EER	12.0 EER.
	3.9 COP	4.1 COP
SPVAC ≥65,000 Btu/h and <135,000 Btu/h	10.0 EER	11.2 EER.
SPVHP ≥65,000 Btu/h and <135,000 Btu/h *	10.0 EER	N/A.
	3.0 COP.	
SPVAC ≥135,000 Btu/h and <240,000 Btu/h *	N/A	N/A.
SPVHP ≥135,000 Btu/h and <240,000 Btu/h *	N/A	N/A.

* Based on DOE's review of equipment currently available on the market, DOE did not identify any SPVAC models with a cooling capacity greater than 135,000 Btu/h or SPVHP models with cooling capacities greater than 65,000 Btu/h.

Issue D.4 DOE seeks input on whether the current maximum available efficiency levels are appropriate and technologically feasible for potential consideration as possible energy conservation standards for the equipment at issue. Although the Department has tentatively concluded that the maximum available efficiency level for SPVUs would be the max-tech level, DOE also seeks input as to what efficiency levels should be considered max-tech.

Issue D.5 DOE seeks feedback on what design options would be incorporated at a max-tech efficiency level. DOE also seeks information as to whether there are limitations on the use of certain combinations of design options.

As discussed in section II.B.1 of this document, if DOE were to amend the SPVU test procedure to incorporate a part-load metric, it would conduct any analysis for an energy conservation standards rulemaking based on the amended test procedure, including considering efficiency levels based on a part-load metric.

Issue D.6 DOE seeks data and information regarding incremental and maximum-available efficiency levels for each equipment class in the event that the SPVU test procedure includes a part-load energy efficiency metric. In particular, DOE seeks energy use data for equipment operating at part-load capacities, for example, at the part-load test conditions specified in AHRI Standard 340/360 (I/P)–2019, ''2019 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.'' In addition, DOE requests information on the technologies for improving part-load operation, including the order in which manufacturers would likely add such technologies.

3. Manufacturer Production Costs and Manufacturing Selling Price

As described at the beginning of this section, the main outputs of the engineering analysis are cost-efficiency relationships that describe the estimated increases in manufacturer production cost associated with higher-efficiency equipment for the analyzed equipment classes. For the September 2015 final rule, DOE developed the cost-efficiency relationships using a combination of the efficiency level and reverse-engineering approaches, performing teardowns of equipment available on the market at different efficiency levels to estimate the efficiency improvements and costs associated with incorporating specific design options into the assumed baseline model for each analyzed equipment class. 80 FR 57438, 57456–57459 (Sept. 23, 2015).

Issue D.7 DOE requests feedback on how manufacturers would incorporate the technology options listed in Table II.3 and Table II.4 to increase energy efficiency in SPVU efficiencies beyond the current levels. This includes information on the order in which manufacturers would incorporate the different technologies to incrementally improve the efficiencies of equipment. DOE also requests feedback on whether the increased energy efficiency would lead to other design changes that would not occur otherwise. DOE is also interested in information regarding any potential impact of design options on a manufacturer's ability to incorporate additional functions or attributes in response to consumer demand.

Issue D.8 DOE also seeks input on the increase in MPC associated with incorporating each particular design option. Specifically, DOE is interested in whether and how the costs estimated for design options in the September 2015 final rule have changed since the time of that analysis. DOE also requests information on the investments necessary to incorporate specific design options, including, but not limited to, costs related to new or modified tooling (if any), materials, engineering and development efforts to implement each design option, and manufacturing/production impacts.

Issue D.9 DOE requests comment on whether certain design options may not be applicable to (or incompatible with) specific equipment classes.

DOE directly analyzed one equipment class in the September 2015 final rule (*i.e.,* SPVACs with a cooling capacity <65,000 Btu/h). DOE then performed a more limited analysis of the other equipment classes based on limited physical/virtual teardowns and scaling the results from the analysis conducted for SPVACs with a cooling capacity <65,000 Btu/h. *See* chapter 5 of the September 2015 final rule TSD for the cost-efficiency curves developed in that rulemaking. 80 FR 57438, 57459–57460 (Sept. 23, 2015).

Issue D.10 DOE seeks feedback on whether the approach of directly analyzing the SPVACs <65,000 Btu/h equipment class and scaling the results to other equipment classes is appropriate for a future SPVU energy conservation standards rulemaking, should one be undertaken. DOE requests comment on whether it is necessary to individually analyze all or some of the available equipment classes.

As discussed in the September 2015 final rule, for SPVACs ≥65,000 and <135,000 Btu/h, there were no models on the market above the ASHRAE level, and for SPVHPs ≥65,000 and ≥135,000 Btu/h and SPVUs ≥135,000 Btu/h and <240,000 Btu/h, there were no models on the market at all. As a result, DOE had no basis with which to develop higher efficiency levels or conduct analyses for those equipment classes. As a result, DOE adopted amended standards for those equipment classes equivalent to levels specified in ASHRAE Standard 90.1–2013, as required by EPCA. 80 FR 57438, 57456 (Sept. 23, 2015).

Issue D.11 DOE requests information on how to conduct the cost-efficiency

analyses for equipment classes without models on the market and for which DOE does not have data, and whether the approach used in the 2015 final rule is appropriate.

To account for manufacturers' non-production costs and profit margin, DOE applies a non-production cost multiplier (the manufacturer mark-up) to the MPC. The resulting manufacturer selling price (MSP) is the price at which the manufacturer distributes a unit into commerce. For the September 2015 final rule, DOE used a manufacturer mark-up of 1.28 for all SPVUs. See chapter 5 of the September 2015 final rule TSD.

Issue D.12 DOE requests feedback on whether manufacturer mark-up of 1.28 is appropriate for SPVUs, or if a different value would be more appropriate.

E. Mark-Ups Analysis and Distribution Channels

In generating end-user price inputs for the life-cycle cost (LCC) analysis and the national impact analysis (NIA), DOE must identify distribution channels (*i.e.,* how the products are moved from the manufacturer to the consumer), and estimate relative sales volumes through each channel. Additionally, DOE needs to determine the cost to the commercial consumer of a baseline piece of equipment that satisfies the currently applicable standards, and the cost of the more-efficient piece of equipment the consumer would purchase under potential new and/or amended standards. By applying a multiplier called a ''mark-up'' to the MSP, DOE estimates the commercial consumer's price. The appropriate mark-ups for determining the end-user equipment price depend on the distribution channels (*i.e.,* how equipment is distributed from the manufacturer to the consumer), and estimated relative sales volumes through each channel.

In the September 2015 final rule, DOE identified four distribution channels based on a literature review and interviews with SPVU manufacturers, two distribution channels representing the sale of new equipment, and two representing the sale of replacement equipment. A recent literature review indicates that the end users of SPVUs have not changed since the September 2015 final rule. 80 FR 57438, 57460–57461 (Sept. 23, 2015).

In the first new equipment distribution channel, an SPVU manufacturer sells the product to a heating, ventilation, and air conditioning (HVAC) distributor, who sells to a modular building manufacturer, who sells to the end user.

Manufacturer → HVAC Distributor → Modular Building Manufacturer → End User

In the second new equipment distribution channel, an SPVU manufacturer sells the product to an HVAC distributor, who sells to a modular building manufacturer, who sells to the end user, via a general contractor.

Manufacturer → HVAC Distributor → Modular Building Manufacturer → General Contractor → End User

In the first replacement distribution channel, an SPVU manufacturer sells the product to an HVAC distributor, who sells it to a modular building distributor, who sells it to the end user.

Manufacturer → HVAC Distributor → Modular Building Distributor → End user

Finally, in the second replacement distribution channel, an SPVU manufacturer sells the product to an HVAC distributor, who sells it to a mechanical contractor, who sells it to the end user.

Manufacturer → HVAC Distributor → Mechanical Contractor → End user

Were DOE to undertake an energy conservation standards rulemaking, DOE would determine the mark-ups for wholesalers, modular building manufacturers, and contractors by examining the updated versions of the sources of information used in the previous energy conservation standards rulemaking for SPVUs. In the September 2015 final rule, DOE developed baseline and incremental mark-ups based on available financial data. More specifically, DOE based the air-conditioning wholesaler/distributor mark-ups on data from the Heating, Air Conditioning, and Refrigeration Distributors International (HARDI) 2013 Profit Report.[7] DOE also used financial data from the U.S. Census Bureau [8] to estimate mark-ups for modular building manufacturers, modular building distributors, mechanical contractors, and general contractors. *See* Chapter 6 of the September 2015 final rule TSD for more details on mark-ups and distribution channels.

Issue E.1 DOE requests information on the existence of any distribution channels other than the four distribution channels identified in the September 2015 final rule that are used to distribute the SPVU equipment at issue into the market. DOE also requests data on the fraction of SPVUs that go through each of the four identified distribution channels, as well as the fraction of sales that go through any other identified channels. DOE also welcomes comment on its approach to estimating mark-ups and any financial data available that would assist DOE in developing mark-ups for the various segments in the above-mentioned distribution channels.

F. Energy Use Analysis

As part of a typical rulemaking process, DOE conducts an energy use analysis to identify how equipment is used by consumers, and thereby determine the energy savings potential of energy efficiency improvements. To determine the energy savings potential, DOE develops estimates of the annual unit energy consumption (UEC) for each efficiency level developed in the engineering analysis. The energy savings are calculated by comparing the UEC of a baseline product to the UECs of higher-efficiency products. In the September 2015 final rule, DOE used Energy Plus,[9] a whole building energy simulation program, to develop estimates of the UECs for SPVUs. SPVUs are most commonly used in modular buildings, such as classrooms, telecommunications shelters, and modular offices for a variety of other industries. In the September 2015 final rule, DOE simulated the energy use in three types of buildings: Modular offices, modular schools, and telecommunications structures. DOE developed State-specific unit energy consumption estimates in order to account for the variability of energy use by climate. 80 FR 57438, 57462 (Sept. 23, 2015).

1. Model Buildings

DOE developed three prototypical building models to simulate modular offices, modular schools, and telecommunications structures. For offices and schools, a 1,568 sq. ft. wood-frame structure was developed that had performance characteristics (lighting density, ventilation, envelope, economizer usage) meeting the requirements of ASHRAE 90.1–2004. Schedules and load profiles were taken from the DOE commercial reference buildings for primary schools and small offices. For telecommunications shelters, a 240 sq. ft. precast concrete structure was developed. These shelters were assumed to operate with a constant thermal load of 6.86 kW (23,400 Btu/h)

[7] Heating, Air-conditioning & Refrigeration Distributors International (HARDI), 2013 Profit Report (2012 Data) (Available at: *http://www.hardinet.org/Profit-Report*).

[8] Available at: *https://www.census.gov/programs-surveys/economic-census.html.*

[9] Available at: *http://apps1.eere.energy.gov/buildings/energyplus/.*

during all hours of the year, thus requiring year-round cooling. DOE plans to continue to use the model building approach as it provides DOE with the capability to measure the diverse loads conditions that SPVUs encounter in the field. For a detailed discussion of the building models see Chapter 7 of the 2015 final rule TSD.

Issue F.1 DOE requests comment on the simulation approach that was used in the analysis for the September 2015 final rule. Specifically, should any other types of commercial buildings be included in the energy use analysis?

Issue F.2 DOE seeks input on the assumption that the internal cooling load of telecommunications structures is constant. As part of the energy use analysis for the September 2015 final rule, DOE could not identify a source for the typical load profiles of telecommunications structures, as it did for schools and offices. Instead, DOE based its cooling load assumptions on computer server room environments, which maintain a constant cooling load. DOE requests input on whether this was a valid basis for comparison and how cooling loads may vary as telecommunications traffic changes throughout the day.

Issue F.3 DOE requests feedback on the use of economizers in telecommunications structures. As part of the energy use analysis for the September 2015 final rule, DOE assigned economizers to offices and schools in all climate zones except for the hot-humid regions (zones 1A, 2A, 3A, and 4A), in line with ASHRAE guidelines for economizer use. There are no ASHRAE guidelines for economizers in telecommunications structures, and discussions with manufacturers indicated that economizer use is driven by individual corporate user specifications, not climate zone. Manufacturers estimated that 45 percent of telecommunications structures have economizers and that 55 percent do not. Therefore, in the energy use analysis, DOE simulated all telecommunications buildings with and without economizers and weighted the results using the 45 percent and 55 percent market share breakdown. DOE seeks input on this approach and requests input about whether economizers should be assigned by climate zone.

G. Life-Cycle Cost and Payback Period Analysis

DOE conducts the LCC and PBP analysis to evaluate the economic effects of potential energy conservation standards for SPVUs on individual customers. For any given efficiency level, DOE measures the PBP and the change in LCC relative to an estimated baseline level. The LCC is the total customer expense over the life of the equipment, consisting of purchase, installation, and operating costs (expenses for energy use, maintenance, and repair). Inputs to the calculation of total installed cost include the cost of the equipment—which includes MSPs, distribution channel markups, and sales taxes—and installation costs. Inputs to the calculation of operating expenses include annual energy consumption, energy prices and price projections, repair and maintenance costs, equipment lifetimes, discount rates, and the year that compliance with new and amended standards is required.

1. Repair and Maintenance Costs

In order to develop annual operating costs and savings for the life-cycle cost analysis, DOE must estimate repair and maintenance costs over the lifetime of the SPVU. In the September 2015 final rule, DOE used RS Means [10] in order to develop annualized repair and maintenance costs. The repair costs represent the expenses associated with repairing or replacing a damaged component of an SPVU that has failed, and the first instance of a significant repair typically occurs about 10 years after purchase. The materials portion of the repair cost scales with the manufacturer selling price, although the labor portion stays constant, so higher-efficiency units will typically have higher repair costs. The annual maintenance cost represents expenses associated with ensuring continued operation of the covered equipment over time, something which remained constant across all efficiency levels. For a detailed discussion of the repair and maintenance cost estimates, see Chapter 8 of the 2015 final rule TSD. RS Means is a leading source for facility repair and maintenance data for space conditioning equipment, and, as such, DOE intends to continue to use RS Means for any future rulemakings for SPVUs.

Issue G.1 DOE requests feedback and data on whether maintenance costs differ in comparison to the baseline maintenance costs for any of the specific technology options listed in Table II.3 and Table II.4. To the extent that these costs differ, DOE seeks supporting data and an explanation of the reasons for those differences.

Issue G.2 DOE requests information and data on the frequency of repair and repair costs by equipment class for the technology options listed in Table II.3 and Table II.4. While DOE is interested in information regarding each of the listed technology options, DOE is also interested in the extent to which consumers simply replace, as opposed to repair, failed equipment.

H. Shipments Analysis

DOE develops shipments forecasts of SPVUs to calculate the national impacts of potential amended energy conservation standards on energy consumption, net present value (NPV), and future manufacturer cash flows. DOE shipments projections are based on available historical data broken out by equipment class, capacity, and efficiency. Current sales estimates allow for a more accurate model that captures recent trends in the market. In the September 2015 final rule, DOE used three data sources to develop its shipments model: (1) Actual shipments of SPVUs in 2005 provided by AHRI; (2) a graph displaying the shipments trend from 2006–2014 provided by AHRI, and (3) floor space production data from the modular building institute from 1994–2005. 80 FR 57438, 57469–57470 (Sept. 23, 2015). The modular building floor space production data was used to develop shipments prior to 2005, which is necessary to account for replacement shipments in future years once the older stock of SPVUs reach the end of their useful life. Future new construction shipments for offices and schools were based on floor space projections from the 2015 Energy Information Administration's *Annual Energy Outlook* (*AEO*).[11] New construction shipments for the telecommunication sector were based on data of power and communication line construction from the U.S. Census.[12] DOE intends to project future shipments using the most current *AEO* and Census data, as new shipments of SPVUs should track floor space of the industries that use SPVUs.

Issue H.1 DOE requests the most recent annual sales data for SPVUs (*i.e.,* number of shipments), as well as historical annual sales data going back to 2015. DOE also requests the shipments by equipment class and efficiency level for the most recent year available and if possible, for each year going back to 2015.

Table II.8 presents the shipments and market shares from the year 2015 in the

[10] RS Means, CostWorks 2014 (2014) (Available at: *http://www.rsmeansonline.com*) (Last accessed Feb. 27, 2014).

[11] Available at: *https://www.eia.gov/outlooks/aeo/pdf/0383(2015).pdf* (Last accessed April 18, 2015).

[12] Available at: U.S. Census Bureau. County Business Patterns. *www.census.gov/econ/cbp/index.html* (Last accessed April 15, 2014).

National Impact Analysis [13] spreadsheet for the September 2015 final rule. As requested in Issue H.1 DOE seeks to update this table with shipments and market shares by EER bin for the most recent year available. Interested parties are also encouraged to provide additional shipments data as may be relevant.

TABLE II.8—SUMMARY TABLE OF SHIPMENTS-RELATED DATA REQUESTS FOR SPVUS

Equipment class	Annual sales (2015)	Fraction of annual sales (%)			
		9–10 EER	10–11 EER	11–12 EER	>12 EER
SPVAC <65,000 Btu/h	41,741	80.8	18.1	1.1	0
SPVHP <65,000 Btu/h	17,343	80.8	18.1	1.1	0
SPVAC ≥65,000 Btu/h and <135,000 Btu/h	1,868	80.8	18.1	1.1	0
SPVHP ≥65,000 Btu/h and <135,000 Btu/h*	0	N/A	N/A	N/A	N/A
SPVAC ≥135,000 Btu/h and <240,000 Btu/h*	0	N/A	N/A	N/A	N/A
SPVHP ≥135,000 Btu/h and <240,000 Btu/h*	0	N/A	N/A	N/A	N/A

* DOE did not identify any SPVAC models with a cooling capacity greater than 135,000 Btu/h or SPVHP models with cooling capacities greater than 65,000 Btu/h.

If disaggregated fractions of annual sales are not available at the equipment class or efficiency level, DOE requests more aggregated fractions of annual sales at the equipment category level.

Issue H.2 In the September 2015 final rule, DOE determined that SPVU lifetimes range from 10 to 25 years, with an average lifetime of 15 years. 80 FR 57438, 57467 (Sept. 23, 2015). DOE requests comment on the estimated average lifetime of 15 years, as well as any new data or information about the lifetimes of SPVUs. DOE also requests input on whether the lifetimes changes by equipment class, efficiency, or end use.

I. Manufacturer Impact Analysis

The purpose of the manufacturer impact analysis (MIA) is to estimate the financial impact of amended energy conservation standards on manufacturers of SPVUs, and to evaluate the potential impact of such standards on direct employment and manufacturing capacity. The MIA includes both quantitative and qualitative aspects. The quantitative part of the MIA primarily relies on the Government Regulatory Impact Model (GRIM), an industry cash-flow model adapted for each product in this analysis, with the key output being industry net present value (INPV). The qualitative part of the MIA addresses the potential impacts of energy conservation standards on manufacturing capacity and manufacturing employment, as well as factors such as product characteristics, impacts on particular subgroups of firms, and important market and product trends.

As part of the MIA, DOE intends to analyze impacts of amended energy conservation standards on subgroups of manufacturers of covered equipment, including small business manufacturers. DOE uses the Small Business Administration's (SBA) small business size standards to determine whether manufacturers qualify as small businesses, which are listed by the applicable North American Industry Classification System (NAICS) code.[14] Manufacturing of SPVUs is classified under NAICS 333415, ''Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing,'' and the SBA sets a threshold of 1,250 employees or less for a domestic entity to be considered as a small business. This employee threshold includes all employees in a business' parent company and any other subsidiaries.

One aspect of assessing manufacturer burden involves examining the cumulative impact of multiple DOE standards and the product-specific regulatory actions of other Federal agencies that affect the manufacturers of a covered product or equipment. While any one regulation may not impose a significant burden on manufacturers, the combined effects of several existing or impending regulations may have serious consequences for some manufacturers, groups of manufacturers, or an entire industry. Assessing the impact of a single regulation may overlook this cumulative regulatory burden. In addition to energy conservation standards, other regulations can significantly affect manufacturers' financial operations. Multiple regulations affecting the same manufacturer can strain profits and lead companies to abandon product lines or markets with lower expected future returns than competing products. For these reasons, DOE conducts an analysis of cumulative regulatory burden as part of its rulemakings pertaining to appliance efficiency.

Issue I.1 To the extent feasible, DOE seeks the names and contact information of any domestic or foreign-based manufacturers that distribute SPVUs in commerce in the United States.

Issue I.2 DOE identified small businesses as a subgroup of manufacturers that could be disproportionally impacted by amended energy conservation standards. DOE requests the names and contact information of small business manufacturers (as defined by the SBA's size threshold) of SPVUs that distribute products in commerce in the United States. In addition, DOE requests comment on any other manufacturer subgroups that could be disproportionally impacted by amended energy conservation standards. DOE requests feedback on any potential approaches that could be considered to address impacts on manufacturers, including small businesses.

Issue I.3 DOE requests information regarding the cumulative regulatory burden impacts on manufacturers of SPVUs associated with: (1) Other DOE standards applying to different equipment that these manufacturers may also make and (2) equipment-specific regulatory actions of other Federal agencies. DOE also requests comment on its methodology for computing cumulative regulatory burden and whether there are any flexibilities it can consider that would reduce this burden while remaining consistent with the requirements of EPCA.

[13] Available at: *https://www.regulations.gov/document?D=EERE-2012-BT-STD-0041-0029* (Last accessed Sept 2, 2019).

[14] Available online at *https://www.sba.gov/document/support--table-size-standards.*

J. Other Energy Conservation Standards Topics

1. Market Failures

In the field of economics, a market failure is a situation in which the market outcome does not maximize societal welfare. Such an outcome would result in unrealized potential welfare. DOE welcomes comment on any aspect of market failures, especially those in the context of amended energy conservation standards for SPVUs.

2. Emerging Smart Technology Market

DOE published an RFI on the emerging smart technology appliance and equipment market. 83 FR 46886 (Sept. 17, 2018). In that RFI, DOE sought information to better understand market trends and issues in the emerging market for appliances and commercial equipment that incorporate smart technology. DOE's intent in issuing the RFI was to ensure that DOE did not inadvertently impede such innovation in fulfilling its statutory obligations in setting efficiency standards for covered products and equipment. DOE seeks comments, data, and information on the issues presented in that RFI as they may be applicable to energy conservation standards for SPVUs.

3. Other Issues

Additionally, DOE welcomes comments on any other aspects of energy conservation standards for SPVUs that may not specifically be identified in this document. In particular, DOE notes that under Executive Order 13771, ''Reducing Regulation and Controlling Regulatory Costs,'' Executive Branch agencies such as DOE are directed to manage the costs associated with the imposition of expenditures required to comply with Federal regulations. *See* 82 FR 9339 (Feb. 3, 2017). Consistent with that Executive Order, DOE encourages the public to provide input on measures DOE could take to lower the cost of its energy conservation standards rulemakings, recordkeeping and reporting requirements, and compliance and certification requirements applicable to SPVUs while remaining consistent with the requirements of EPCA.

III. Submission of Comments

DOE invites all interested parties to submit in writing by the date specified previously in the **DATES** section of this document, comments and information on matters addressed in this document and on other matters relevant to DOE's consideration of amended energy conservations standards for SPVUs. After the close of the comment period, DOE will review the public comments received and may begin collecting data and conducting the analyses discussed in this RFI.

Submitting comments via http://www.regulations.gov. The *http://www.regulations.gov* web page requires you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies Office 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. Following such instructions, 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/courier, or postal mail. Comments and documents submitted via email, hand delivery/courier, or postal mail also will 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 each time you submit comments, data, documents, and other information to DOE. If you submit via postal 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, written in English, and 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 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/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.

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 the process

for developing energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in 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 process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287–1445 or via email at *ApplianceStandardsQuestions@ee.doe.gov.*

Signed in Washington, DC, on February 21, 2020.

Alexander N. Fitzsimmons,

Deputy Assistant Secretary for Energy Efficiency, Energy Efficiency and Renewable Energy.

[FR Doc. 2020–08318 Filed 4–23–20; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2020–0411; Product Identifier 2018–SW–061–AD]

RIN 2120–AA64

Airworthiness Directives; Leonardo S.p.a. Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain Leonardo S.p.a. (Leonardo) Model A119 and AW119MKII helicopters. This proposed AD would require repetitive borescope inspections of the tail rotor gearbox (TGB) and depending on the inspection results, removing the TGB from service. This proposed AD was prompted by reports of corrosion on the internal surface of the 90-degree TGB output shaft. The actions of this proposed AD are intended to address an unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by June 23, 2020.

ADDRESSES: You may send comments by any of the following methods:

- *Federal eRulemaking Docket:* Go to *https://www.regulations.gov.* Follow the online instructions for sending your comments electronically.
- *Fax:* 202–493–2251.
- *Mail:* Send comments to the U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590–0001.
- *Hand Delivery:* Deliver to the ''Mail'' address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket on the internet at *https://www.regulations.gov* by searching for and locating Docket No. FAA–2020–0411; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the European Union Aviation Safety Agency (previously European Aviation Safety Agency) (EASA) AD, any comments received, and other information. The street address for Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

For service information identified in this proposed rule, contact Leonardo S.p.a. Helicopters, Emanuele Bufano, Head of Airworthiness, Viale G.Agusta 520, 21017 C.Costa di Samarate (Va) Italy; telephone +39–0331–225074; fax +39–0331–229046; or at *https://www.leonardocompany.com/en/home.* You may view the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N–321, Fort Worth, TX 76177.

FOR FURTHER INFORMATION CONTACT: Rao Edupuganti, Aviation Safety Engineer, Regulations and Policy Section, Rotorcraft Standards Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone 817–222–5110; email *rao.edupuganti@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to participate in this rulemaking by submitting written comments, data, or views. The FAA also invites comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

The FAA will file in the docket all comments received, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, the FAA will consider all comments received on or before the closing date for comments. The FAA will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. The FAA may change this proposal in light of the comments received.

Discussion

EASA, which is the Technical Agent for the Member States of the European Union, has issued EASA AD No. 2018–0156, dated July 24, 2018 (EASA AD 2018–0156) to correct an unsafe condition for Leonardo (formerly Finmeccanica S.p.A., AgustaWestland S.p.A., Agusta S.p.A.; and AgustaWestland Philadelphia Corporation, formerly Agusta Aerospace Corporation) Model A119 and AW119MKII helicopters with 90-degree TGB part number (P/N) 109–0440–06–101 or P/N 109–0440–06–105 having serial number 167, 169 through 172 inclusive, 215 through 225 inclusive, 227, 230, 232, 233, AW268, K3, K16, M47, or L29, installed. EASA advises of two reported occurrences of corrosion on the internal surface of the 90-degree TGB shaft installed on Model A119 helicopters. Further analysis identified a specific batch of parts that may be susceptible to similar conditions. Due to design similarity, Model AW119MKII helicopters are also affected.

EASA states that this condition, if not detected and corrected, could lead to failure of the tail rotor, possibly resulting in reduced control of the helicopter. Accordingly, EASA AD 2018–0156 requires performing repetitive endoscope inspections on the internal surface of the 90-degree TGB output shaft for corrosion and depending on the findings, replacing the TGB. EASA further states EASA AD 2018–0156 is considered an interim action and further AD action may follow.

FAA's Determination

These helicopters have been approved by EASA and are approved for operation in the United States. Pursuant to the FAA's bilateral agreement with the European Union, EASA has notified the FAA about the unsafe condition described in its AD. The FAA is proposing this AD after evaluating all known relevant information and determining that an unsafe condition is