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–2022–BT–STD–0014]

RIN 1904–AF39

Energy Conservation Program: Energy Conservation Standards for Small Electric Motors

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

ACTION: Notification of proposed determination and request for comment.

SUMMARY: The Energy Policy and Conservation Act, as amended (''EPCA''), prescribes energy conservation standards for various consumer products and certain commercial and industrial equipment, including small electric motors. EPCA also requires the U.S. Department of Energy (''DOE'') to periodically determine whether more-stringent, amended standards would be technologically feasible and economically justified, and would result in significant energy savings. In this notification of proposed determination (''NOPD''), DOE has initially determined that amended energy conservation standards for small electric motors would not be cost-effective, and, thus, is not proposing to amend its energy conservation standards for this equipment. DOE requests comment on this proposed determination and the associated analyses and results.

DATES:

Meeting: DOE will hold a webinar on March 15, 2023, from 1:00 p.m. to 4:00 p.m. See section V, ''Public Participation,'' for webinar registration information, participant instructions, and information about the capabilities available to webinar participants.

Comments: Written comments and information are requested and will be accepted on or before April 7, 2023.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov,* under by docket number EERE–2022–BT–STD–0014. Follow the instructions for submitting comments.

Alternatively, interested persons may submit comments, identified by docket number EERE–2022–BT–STD–0014, by any of the following methods:

Email: SmallElecMotors2022STD0014@ee.doe.gov. Include the docket number EERE–2022–BT–STD–0014 in the subject line of the message.

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.

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 telefacsimiles (''faxes'') will be accepted. For detailed instructions on submitting comments and additional information on this process, see section IV of this document.

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.

The docket web page can be found at *www.regulations.gov/docket/EERE–2022–BT–STD–0014.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section VII, ''Public Participation,'' for further information on how to submit comments through *www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT:

Mr. Jeremy Dommu, 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. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Mr. Matthew Ring, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 586–2555. Email: *Matthew.Ring@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) 286–1445 or by email: *ApplianceStandardsQuestions@ee.doe.gov.*

SUPPLEMENTARY INFORMATION:

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I. Synopsis of the Proposed Determination

The Energy Policy and Conservation Act, Public Law 94–163, as amended (''EPCA''),[1] authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Title III, Part C[2] of EPCA[3] established the Energy Conservation Program for Certain Industrial Equipment, (42 U.S.C. 6311–6317). These products includes small electric motors (''SEMs''), the subject of this final determination.

DOE is issuing this NOPD pursuant to the EPCA requirement that not later than 3 years after issuance of a determination that standards do not need to be amended, DOE must publish either a notification of determination that standards for the product do not need to be amended, or a notice of proposed rulemaking (NOPR) including new proposed energy conservation standards (proceeding to a final rule, as appropriate).

For this proposed determination, DOE analyzed small electric motors subject to standards specified in 10 CFR 431.446. DOE first analyzed the technological feasibility of more energy efficient SEMs with lower energy use. For those SEMs for which DOE determined higher standards to be technologically feasible, DOE evaluated whether more stringent standards would also be cost effective by conducting preliminary life-cycle cost (''LCC'') and payback period (''PBP'') analyses.

Based on the results of the analyses, summarized in section V of this document, DOE has tentatively determined that more stringent energy conservation standards would not be cost effective. Therefore, DOE has tentatively determined that the current standards for SEMs do not need to be amended.

II. Introduction

The following section briefly discusses the statutory authority underlying this proposed determination, as well as some of the historical background relevant to the establishment of standards for SEMs.

A. Authority

EPCA authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part C 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 SEMs, the subject of this document. (42 U.S.C. 6311(13)(G)) EPCA directed DOE to prescribe initial test procedures and standards for this equipment. (42 U.S.C. 6317(b))

The energy conservation program under EPCA consists essentially of four parts: (1) testing, (2) labeling, (3) the establishment of Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6311), test procedures (42 U.S.C. 6314; 6317), labeling provisions (42 U.S.C. 6315), energy conservation standards (42 U.S.C. 6313; 6317), and the authority to require information and reports from manufacturers (42 U.S.C. 6316; 42 U.S.C. 6296).

Subject to certain criteria and conditions, DOE is required to develop test procedures to measure the energy efficiency, energy use, or estimated annual operating cost of covered equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(3)(A) and 42 U.S.C. 6295(r)) EPCA directed DOE to establish a test procedure for those SEMs for which DOE determined that energy conservation standards would (1) be technologically feasible and economically justified and (2) result in significant energy savings. (42 U.S.C. 6317(b)(1)) Manufacturers of covered equipment must use the Federal test procedures as the basis for: (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6316(a); 42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that equipment (42 U.S.C. 6314(d)). Similarly, DOE must use these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(s)) The DOE test procedures for small electric motors appear at title 10 of the Code of Federal Regulations (''CFR'') part 431, subpart X.

EPCA further directed DOE to prescribe energy conservation standards for those SEMs for which test procedures were established. (42 U.S.C. 6317(b)(2)) Additionally, EPCA prescribed that any such standards shall not apply to any SEM which is a component of a covered product under 42 U.S.C. 6292(a) or covered equipment under 42 U.S.C. 6311 of EPCA. (42 U.S.C. 6317(b)(3)) Federal energy conservation requirements generally supersede State laws or regulations concerning energy conservation testing, labeling, and standards. (42 U.S.C. 6316(a) and 42 U.S.C. 6316(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. (*See* 42 U.S.C. 6316(a); 42 U.S.C. 6297))

DOE must periodically review its already established energy conservation standards for covered equipment no later than 6 years from the issuance of a final rule establishing or amending a standard for covered equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)) This 6-year look-back provision requires that DOE publish either a determination that standards do not need to be amended or a NOPR, including new proposed standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Public Law 116–260 (Dec. 27, 2020), which reflect the last statutory amendments that impact Parts A and A–1 of EPCA.

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

[3] 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 (October 23, 2018).

U.S.C. 6295(m)(1)) EPCA further provides that, not later than 3 years after the issuance of a final determination not to amend standards, DOE must publish either a notification of determination that standards for the product do not need to be amended, or a NOPR including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(3)(B)) DOE must make the analysis on which a determination is based publicly available and provide an opportunity for written comment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(2))

A determination that amended standards are not needed must be based on consideration of whether amended standards will result in significant conservation of energy, are technologically feasible, and are cost effective as described in 42 U.S.C. 6295(o)(2)(B)(i)(II). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) If the Secretary prescribes any new or amended energy conservation standard for any type (or class) of covered equipment, such standards shall be designed to achieve the maximum improvement in energy efficiency which the Secretary determines is technologically feasible and economically justified. (42 U.S.C. 6316(a); 42 U.S.C. 6295(o)(2)(A)) Among the factors DOE considers in evaluating whether a proposed standard level is economically justified includes whether the proposed standard at that level is cost-effective, as defined under 42 U.S.C. 6295(o)(2)(B)(i)(II). Under 42 U.S.C. 6295(o)(2)(B)(i)(II), an evaluation of cost-effectiveness requires DOE to consider 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, initial charges, or maintenance expenses for the covered equipment that are likely to result from the standard. (42 U.S.C. 6316(a); 42 U.S.C. 6295(n)(2) and 42 U.S.C. 6295(o)(2)(B)(i)(II)) DOE is publishing this NOPD in satisfaction of the 3-year review requirement in EPCA following a determination that standards need not be amended. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(3)(B))

B. Background

1. Current Standards

The current energy conservation standards for SEMs are located in title 10 CFR 431.446, and are presented in Table II–1 and Table II–2.

TABLE II–1—FEDERAL ENERGY CONSERVATION STANDARDS FOR POLYPHASE SMALL ELECTRIC MOTORS

Motor horsepower/standard kilowatt equivalent	Average full load efficiency		
	Open motors (number of poles)		
	6	4	2
0.25/0.18	67.5	69.5	65.6
0.33/0.25	71.4	73.4	69.5
0.5/0.37	75.3	78.2	73.4
0.75/0.55	81.7	81.1	76.8
1/0.75	82.5	83.5	77.0
1.5/1.1	83.8	86.5	84.0
2/1.5	N/A	86.5	85.5
3/2.2	N/A	86.9	85.5

TABLE II–2—FEDERAL ENERGY CONSERVATION STANDARDS FOR CAPACITOR-START INDUCTION-RUN AND CAPACITOR-START CAPACITOR-RUN SMALL ELECTRIC MOTORS

Motor horsepower/standard kilowatt equivalent	Average full load efficiency		
	Open motors (number of poles)		
	6	4	2
0.25/0.18	62.2	68.5	66.6
0.33/0.25	66.6	72.4	70.5
0.5/0.37	76.2	76.2	72.4
0.75/0.55	80.2	81.8	76.2
1/0.75	81.1	82.6	80.4
1.5/1.1	N/A	83.8	81.5
2/1.5	N/A	84.5	82.9
3/2.2	N/A	N/A	84.1

2. History of Standards Rulemakings for Small Electric Motors

On March 9, 2010, DOE established the current energy conservation standards for small electric motors. 75 FR 10874 (''March 2010 Final Rule''). On January 19, 2021, DOE published a notice of final determination for small electric motors. 86 FR 4885 (''January 2021 Final Determination'') that these standards need not be amended. In the January 2021 Final Determination, while DOE determined that more stringent standards would be technologically feasible, DOE also determined that more stringent energy conservation standards would not be cost effective. 86 FR 4885, 4906. Therefore, DOE determined that the current standards for SEMs did not need to be amended. *Id.*

In support of the present review of the SEM energy conservation standards, DOE published a request for information, which identified various issues on which DOE sought comment to inform its determination of whether the standards need to be amended. 87 FR 23471; April 20, 2022 (''April 2022 RFI''). On May 11, 2022, DOE published

a notice which extended the comment period for the April 2022 RFI to no later than June 20, 2022. 87 FR 28782.

DOE received comments in response to the April 2022 RFI from the interested parties listed in Table II–3.

TABLE II–3—APRIL 2022 RFI WRITTEN COMMENTS

Commenter(s)	Reference in this NOPD	Comment number in the docket	Commenter type
Air-Conditioning, Heating, and Refrigeration Institute (''AHRI'') and Association of Home Appliance Manufacturers (''AHAM'').	AHRI and AHAM	11	Trade Association.
National Electrical Manufacturers Association	NEMA	8	Trade Association.
California Investor-Owned Utilities (''CA IOUs'')—Pacific Gas and Electric Company, San Diego Gas and Electric, and Southern California Edison.	CA IOUs	9	Utilities.
QM Power	QM Power	10	Manufacturer.

A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.[4]

C. Deviation From Appendix A

In accordance with section 3(a) of 10 CFR part 430 subpart C, appendix A (''appendix A''), applicable to covered equipment under 10 CFR 431.4, DOE notes that it is deviating from the provision in appendix A regarding the comment period for a NOPR. Section 6(f)(2) of appendix A specifies that the length of the public comment period for a NOPR will not be less than 75 days. For this proposed determination, DOE has opted to instead provide a 60-day comment period. As stated previously, DOE requested comment in the April 2022 RFI on the technical and economic analyses that would be used to determine whether a more stringent standard would result in significant conservation of energy and is technologically feasible and economically justified. DOE has determined that a 60-day comment period, in conjunction with the prior April 2022 RFI, provides sufficient time for interested parties to review the proposed rule and develop comments.

III. General Discussion

DOE developed this proposed determination after considering comments, data, and information from interested parties that represent a variety of interests. This notice also addresses issues raised by these commenters.

A. Equipment Classes and Scope of Coverage

When evaluating and establishing energy conservation standards, DOE divides covered equipment into product classes by the type of energy used or by capacity or other performance-related features that justify differing standards. In making a determination whether a performance-related feature justifies a different standard, DOE must consider such factors as the utility of the feature to the consumer and other factors DOE determines are appropriate. (42 U.S.C. 6316(a); 42 U.S.C. 6295(q)) The equipment classes for this proposed determination are discussed in further detail in section IV.A.4 of this document. This proposed determination covers equipment defined as a NEMA general purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with NEMA Standards Publication MG1–1987, including IEC metric equivalent motors. 10 CFR 431.442.[5] The scope of coverage is discussed in further detail in section IV.A.1 of this document.

B. Test Procedure

As noted previously, EPCA directed DOE to establish a test procedure for those SEMs for which DOE determined that energy conservation standards would (1) be technologically feasible and economically justified and (2) result in significant energy savings. (42 U.S.C. 6317(b)(1)) EPCA also sets forth generally applicable criteria and procedures for DOE's adoption and amendment of test procedures. (42 U.S.C. 6314(a)) Manufacturers of covered equipment must use these test procedures to certify to DOE that their product complies with energy conservation standards and to quantify the efficiency of their product. (42 U.S.C. 6316(a); 42 U.S.C. 6295(s); and 42 U.S.C. 6314(d)) DOE's current energy conservation standards for SEMs are expressed in terms of average full load efficiency. (*See* 10 CFR 431.446)

DOE adopted test procedures for SEMs in July of 2009 (74 FR 32059) and subsequently amended them in May of 2012. 77 FR 26608. Most recently, on January 4, 2021, DOE published a final rule amending test procedures for SEMs. 86 FR 4. In that final rule, DOE further harmonized its test procedures with industry practice by updating a currently incorporated testing standard to reference that standard's latest version, incorporating a new industry testing standard that manufacturers would be permitted to use in addition to those industry standards currently incorporated by reference, and harmonizing certain test conditions with current industry standards to improve the comparability of test results for SEMs.

C. Technological Feasibility

1. General

In evaluating potential amendments to energy conservation standards, DOE conducts a screening analysis based on information gathered on all current technology options and prototype designs that could improve the efficiency of the products or equipment that are the subject of the determination. As the first step in such an analysis, DOE develops a list of technology options for consideration in consultation with manufacturers, design engineers, and other interested parties. DOE then determines which of those means for improving efficiency are technologically feasible. DOE considers technologies incorporated in commercially available products or in working prototypes to be technologically feasible. 10 CFR 431.4; sections 6(b)(3)(i) and 7(b)(1) of appendix A to 10 CFR part 430 subpart C (''Process Rule'').

After DOE has determined that particular technology options are technologically feasible, it further evaluates each technology option in light of the following additional

[4] The parenthetical reference provides a reference for information located in the docket. (Docket No. EERE–2022–BT–STD–0014, which is maintained at *www.regulations.gov*). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

[5] The term ''IEC'' refers to the International Electrotechnical Commission.

screening criteria: (1) practicability to manufacture, install, and service; (2) adverse impacts on product utility or availability; (3) adverse impacts on health or safety; and (4) unique-pathway proprietary technologies. 10 CFR 431.4; sections 6(b)(3)(ii)–(v) and 7(b)(2)–(5) of the Process Rule. Section IV.A.3 of this document discusses the results of the screening analysis for SEMs, particularly the designs DOE considered, those it screened out, and those that are the basis for the standards considered in this proposed determination.

2. Maximum Technologically Feasible Levels

As when DOE proposes to adopt an amended standard for a type or class of covered equipment, in this analysis it must determine the maximum improvement in energy efficiency or maximum reduction in energy use that is technologically feasible for such a product. (42 U.S.C. 6316(a); 42 U.S.C. 6295(p)(1)) Accordingly, in the engineering analysis, DOE determined the maximum technologically feasible (''max-tech'') improvements in energy efficiency for SEMs, using the design parameters for the most efficient products available on the market or in working prototypes. The max-tech levels that DOE determined for this analysis are described in section IV.B of this proposed determination.

D. Energy Savings

1. Determination of Savings

As explained in section III.D.2 of this document, DOE did not separately evaluate the national energy savings of the considered amended standards because it has tentatively determined that the potential standards would not be cost-effective as defined in EPCA.[6] (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A); 42 U.S.C. 6295(n)(2))

2. Significance of Savings

In determining whether amended standards are needed, DOE must consider whether such standards will result in significant conservation of energy. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(A)) The significance of energy savings offered by a new or amended energy conservation standard cannot be determined without knowledge of the specific circumstances surrounding a given rulemaking. For example, some covered products and equipment have most of their energy consumption occur during periods of peak energy demand. The impacts of these products on the energy infrastructure can be more pronounced than products with relatively constant demand. Accordingly, DOE evaluates the significance of energy savings on a case-by-case basis.

As discussed in section V.C.2 of this document, DOE has determined that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA when determining whether to amend its standards for a given covered product or equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(C)) See also section IV.E of this document (discussing in greater detail DOE's analysis of the available data in reaching this determination). Consequently, DOE did not separately determine whether the potential energy savings would be significant for the purpose of 42 U.S.C. 6295(n)(2).

E. Cost Effectiveness

Under EPCA's six-year-lookback review provision for existing energy conservation standards at 42 U.S.C. 6295(m)(1), cost-effectiveness of potential amended standards is a relevant consideration both where DOE proposes to adopt such standards, as well as where it does not. In considering cost-effectiveness when making a determination of whether existing energy conservation standards do not need to be amended, DOE considers the savings in operating costs throughout the estimated average life of the covered product compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered product that are likely to result from a standard. (42 U.S.C. 6295(m)(1)(A)(referencing 42 U.S.C. 6295(n)(2))) Additionally, any new or amended energy conservation standard prescribed by the Secretary for any type (or class) of covered product shall be designed to achieve the maximum improvement in energy efficiency which the Secretary determines is technologically feasible and economically justified. 42 U.S.C. 6295(o)(2(A) Cost-effectiveness is one of the factors that DOE must ultimately consider under 42 U.S.C. 6295(o)(2)(B) to support a finding of economic justification, if it is determined that amended standards are appropriate under the applicable statutory criteria. (42 U.S.C. 6295(o)(2)(B)(i)(II)))

As discussed in section V.C.2 of this document, DOE has determined that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA when determining whether to amend its standards for a given covered product or equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(C)) See also section IV.E of this document (discussing in greater detail DOE's analysis of the available data in reaching this determination).

IV. Methodology and Discussion of Related Comments

This section addresses the analyses DOE has performed for this proposed determination with regard to SEMs. Separate subsections address each component of DOE's analyses. DOE used several analytical tools to estimate the impact of potential energy conservation standards. The first tool is a spreadsheet that calculates the LCC savings and PBP of potential energy conservation standards. The NIA uses a second spreadsheet set that provides shipments projections and calculates NES and net present value of total consumer costs and savings expected to result from potential energy conservation standards. These spreadsheet tools are available on the website: *www.regulations.gov/docket/EERE-2022-BT-STD-0014.*

In response to the April 2022 RFI, DOE received several comments to maintain the current standards. NEMA encouraged DOE to reach the same conclusion as the previous rulemaking (*i.e.,* the January 2021 Final Determination) and propose a determination again. NEMA stated that in their observation, there have been no significant technology or market changes for these products since the January 2021 determination that might cause a change in conclusions. (NEMA, No. 8 at p. 2) CA IOUs commented that there is limited opportunity for additional energy efficiency in the current scope of SEMs. (CA IOUs, No. 9 at p. 1) AHRI and AHAM commented that they see no reason to move forward with a full-blown rulemaking as the

[6] The March 2010 Final Rule estimated the national energy savings achieved by the current energy conservation standards to be 2.20 quads of primary energy savings (*i.e.,* 0.29 quad at TSL 4b for polyphase SEMs and 1.91 quad at TSL 7 for single phase SEMs). The March 2010 Final Rule also estimated that the TSL resulting in the maximum national energy savings would provide a total of 2.70 quads of primary energy savings (*i.e.,* 0.37 quad at TSL 7 for polyphase SEMs and 2.33 quad at TSL 8 for single phase SEMs). 75 FR 10874, 10916 (March 9, 2010). The March 2010 Final Rule also estimated that the TSL directly above the current energy conservation standards would be 2.67 quads of primary energy savings (*i.e.,* 0.34 quad at TSL 5 for polyphase SEMs and 2.33 quad at TSL 8 for single phase SEMs). Although DOE did not separately evaluate the potential energy savings under the considered amended standards, this previous analysis, which also relied on the technology options described in section IV.A.2 of this document, indicates an lower limit of approximatively 0.47 quads of primary energy ($2.67 - 2.20 = 0.47$) and an upper limit of approximatively 0.5 quad of primary energy savings ($2.70 - 2.20 = 0.50$)

market and technologies have not changed substantially, and recommended DOE issue a determination not to amend standards. (AHRI and AHAM, No. 11 at p. 6) In this notice, DOE is proposing a determination not to amend the current standards because of the following when compared to the January 2021 Final Determination: (1) the SEM efficiencies available on the market remain unchanged, (2) there have been no significant technology updates; (3) incremental costs are not expected to change significantly; and (4) the life-cycle cost analysis inputs of the 2021 Final Determination remain applicable. As such, in this NOPD, DOE has tentatively determined that the analysis and conclusions from the January 2021 Final Determination continue to apply, and therefore more stringent SEM standards would not be cost-effective (*i.e.,* negative LCC results at all analyzed efficiency levels). Further details on this tentative conclusion is provided in the following sections.

Separately, AHAM & AHRI commented that EPCA's timeline for reviewing determination rulemakings is not realistic, in that it does not allow enough time for the market to shift in order for DOE to assess whether more stringent standards might be justified. (AHRI and AHAM, No. 11 at p. 6–7) EPCA requires that DOE must periodically review its already established energy conservation standards. Specifically, EPCA requires that, not later than 3 years after the issuance of a final determination not to amend standards, DOE must publish either a notification of determination that standards for the product do not need to be amended, or a NOPR including new proposed energy conservation standards (proceeding to a final rule, as appropriate). (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(3)(B)) As DOE is bound by EPCA's requirements, DOE is publishing this NOPD in satisfaction of the 3-year review requirement in EPCA.

A. Market and Technology Assessment

DOE develops information in the market and technology assessment that provides an overall picture of the market for the products concerned, including the purpose of the products, the industry structure, manufacturers, market characteristics, and technologies used in the products. This activity includes both quantitative and qualitative assessments, based primarily on publicly available information. The subjects addressed in the market and technology assessment for this proposed determination include (1) a determination of the scope and equipment classes, (2) manufacturers and industry structure, (3) existing efficiency programs, (4) shipments information, (5) market and industry trends, and (6) technologies or design options that could improve the energy efficiency of SEMs. The key findings of DOE's market assessment are summarized in the following sections.

1. Scope of Coverage

In this analysis, DOE relied on the definition of SEMs in 10 CFR 431.442, which defines SEMs as a NEMA general purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with NEMA Standards Publication MG1–1987, including IEC metric equivalent motors. Any equipment meeting the definition of SEMs is included in DOE's scope of coverage, though all products within the scope of coverage may not be subject to standards.

DOE regulates the energy efficiency of those SEMs that fall within three topologies (*i.e.,* arrangements of component parts): capacitor-start induction-run (''CSIR''), capacitor-start capacitor-run (''CSCR''), and polyphase motors. See 10 CFR 431.446. EPCA prescribes that standards for SEMs do not apply to any SEM which is a component of a covered product or covered equipment under EPCA. (42 U.S.C. 6317(b)(3)) DOE's current energy conservation standards only apply to SEMs manufactured alone or as a component of another piece of non-covered equipment. 10 CFR 431.446(a).

DOE received several comments regarding scope. QM Power noted that while the narrow scope of the current SEM definition does not allow for much efficiency improvement, it also does not align with current practices in industry in that efficiency of larger equipment can be improved by using higher efficiency motors (including the addition of variable speed). QM Power recommended that the definition of SEMs or small non-small-electric-motors electric motors (''SNEMs'') [7] would better suit more efficient applications, including permanent magnet alternating current (''PMAC''), permanent magnet synchronous motors (''PMSM''), electronically commutated motor (''ECM''), and other similar technologies. (QM Power, No. 10 at pp. 2–3, 6) Separately, CA IOUs agreed with DOE in including SNEMs within scope of the electric motors rulemaking. (CA IOUs, No. 9 at pp. 1–2)

AHRI and AHAM urged DOE to maintain the current scope of the energy conservation standards and test procedures for SEMs. In particular, they noted that they would oppose inclusion in scope special/definite purpose motors because these motors are already part of finished products that are currently regulated. They also noted that applying standards to these motors adds costs and reduces choices and does little if anything to further energy savings goals. (AHRI and AHAM, No. 11 at pp. 1–3) In addition, AHRI and AHAM recommended that DOE should take a finished-product approach to energy efficiency regulations. They urged DOE to maintain the statutory exemption provided for SEMs which are a component of a covered product (42 U.S.C. 6317(b)(3)) Further, they noted that more efficient motors would likely be larger and heavier, and therefore there would be space constraints that would prevent OEMs from using larger motors if standards are updated. (AHRI and AHAM, No. 11 at pp. 3–5) Finally, AHAM & AHRI commented that should DOE decide to include definite and special purpose motors under the scope of SEMs or electric motors, they do not agree that a different policy should apply to SEMs that are imported inside a covered product versus a small electric motor imported on its own but destined for or used in covered products or equipment manufactured domestically, as it would place a disincentive on domestic manufacturing. (AHRI and AHAM, No. 11 at p. 5)

As previously stated in section III.A of this document, the scope of this proposed determination pertains only to equipment meeting the definition of small electric motor, as codified in 10 CFR 431.442, which includes general purpose single speed induction motors. *See* 42 U.S.C. 6311(13)(G) and 10 CFR 431.442. Special purpose and definite purpose motors are not general purpose motors and therefore are not covered under the statutory or regulatory definition of ''small electric motor'' and are not ''small electric motors'' under DOE's statutory or regulatory framework.

Single-speed induction motors, as delineated and described in MG1–1987, fall into five categories: split-phase, shaded-pole, capacitor-start (both CSIR and CSCR), PSC, and polyphase. Of these five motor categories, DOE determined in the March 2010 Final Rule that only CSIR, CSCR, and polyphase motors were able to meet the relevant performance requirements in

[7] In the separate electric motors energy conservation standards rulemaking, DOE analyzed SNEMs, *i.e.,* additional small-size electric motors which do not meet the definition of SEMs. See Docket No. EERE–2020–BT–STD–0007.

NEMA MG1–1987 and fell within the general purpose alternating current motor category, as indicated by the listings found in manufacturers' catalogs. 75 FR 10874, 10882–10883. Therefore, for this proposed determination, DOE only considered the currently regulated SEMs subject to energy conservation standards.

Further, EPCA provides that standards shall not apply to any SEM which is a component of a covered product covered equipment under section. (42 U.S.C. 6317(b)(3)) DOE has evaluated the scope of the SEM standards in this proposed determination in accordance with the direction prescribed in EPCA. With respect to the comments regarding or implicating electric motors outside the scope of the SEMs definition, such discussion is outside the scope of this proposed determination. More information on the scope of the energy conservation standards for electric motors covered under 10 CFR part 431, subpart B is provided in a separate rulemaking, under the docket number EERE–2020–BT–STD–0007.

2. Technology Options

In the April 2022 RFI, DOE requested comment on any changes to the technology options since the January 2021 Final Determination that could affect whether DOE could propose a ''no-new-standards'' determination. DOE also sought comment on whether there were any updated or new technology options that DOE should consider in its analysis. 87 FR 23471, 23473.

QM Power commented that high-efficiency technologies are readily available in today's market, including brushless direct current (''BLDC''), PMAC, PMSM, ECMs, and are growing quickly as viable alternatives to more-mature technologies. QM Power provided examples of studies where upgrading a shaded-pole motor with a Q-Sync motor provided 79 percent savings in power consumption, and upgrading an ECM design with a Q-Sync motor provided 45 percent savings in power consumption. (QM Power, No. 10 at p. 5) QM Power also noted that their Q-Sync motors exceed current DOE standards for SEMs by 15–27 percent, but this technology doesn't fall under any current DOE definition. Accordingly, they recommended including PMAC, PMSM and similar technologies under the current definition of SEM (or SNEMs); or create another category which allows participation of highly energy efficient motors. (QM Power, No. 10 at p. 2)

NEMA stated that in their observation, there have been no significant technology or market changes for these products since the previous determination. (NEMA, No. 8 at p. 2) CA IOUs commented that they are unaware of any market changes that warrant tighter energy conservation standards. (CA IOUs, No. 9 at p. 1)

As discussed previously, the scope of this proposed determination pertains only to equipment meeting the definition of small electric motor, as codified in 10 CFR 431.442, which includes general purpose single speed induction motors. *See* 42 U.S.C. 6311(13)(G) and 10 CFR 431.442. Therefore, the scope of this determination does not include any non-induction electric motors, such as those suggested by QM Power.

Otherwise, for this evaluation, DOE considered each of the technology options analyzed in the January 2021 Final Determination and examined any changes to the availability of these design options since the publication of the January 2021 Final Determination. In addition, DOE also researched whether there were any new technologies that could improve the efficiency of SEMs.

To perform this analysis, DOE created a database of currently available SEMs to assess whether the market has changed since the January 2021 Final Determination (*i.e.,* ''2022 SEM Database''). The 2022 SEM Database was created from manufacturer catalog data, and included key information including motor efficiency. DOE collected performance data from product literature and catalogs distributed by four major motor manufacturers: ABB (which includes the manufacturer formerly known as Baldor Electric Company), Nidec Motor Corporation (which includes the US Motors brand), Regal-Beloit Corporation (which includes the Marathon and Leeson brands), and WEG Electric Motors Corporation.[8] Based on market information from the Low-Voltage Motors World Market Report,[9] DOE estimates that the four major motor manufacturers noted above comprise the majority of the U.S. SEM market and are consistent with the motor brands considered in the January 2021 Final Determination and March 2010 Final Rule.

Based on a review of the 2022 SEM Database, DOE found that the efficiencies of SEMs on the market have stayed largely the same since the January 2021 Final Determination. Therefore, DOE has tentatively determined that because SEM efficiencies haven't changed, no significant technical advancements in induction motor technology pertaining to potential higher SEM efficiency have been made since publication of the January 2021 Final Determination. Further, no comments suggested additional technology options that were not previously considered in the January 2021 Final Determination. Accordingly, DOE maintains the same technology options for review in this determination as from the January 2021 Final Determination.

In summary, for this analysis, DOE considers the technology options shown in Table IV–1. Detailed descriptions of these technology options can be found in chapter 3 of the January 2021 Final Determination TSD.

TABLE IV–1—JANUARY 2021 FINAL DETERMINATION SMALL ELECTRIC MOTORS TECHNOLOGY OPTIONS

Type of loss to reduce	Technology option applied
I^2R Losses	Use a copper die-cast rotor cage.
	Reduce skew on conductor cage.
	Increase cross-sectional area of rotor conductor bars.
	Increase end ring size.
	Changing gauges of copper wire in stator.
	Manipulate stator slot size.

[8] ABB (Baldor-Reliance): Online Manufacturer Catalog, accessed January 3, 2019. Available at *https://www.baldor.com/catalog#category=2*; Nidec: Online Manufacturer Catalog, accessed December 26, 2018. Available at *ecatalog.motorboss.com/Catalog/Motors/ALL;* Regal (Marathon and Leeson): Online Manufacturer Catalog, accessed December 27, 2018. Available at *https://www.regalbeloit.com/Products/Faceted-Search?category=Motors&brand=Leeson,Marathon%20Motors*; WEG: Online Manufacturer Catalog, accessed December 24, 2018. Available at *https://catalog.wegelectric.com/.*

[9] Based on the Low-Voltage Motors, World Market Report (OMDIA Report November 2020) Table 1: Market Share Estimates for Low-voltage Motors: Americas; Suppliers' share of the Market:2019.

TABLE IV–1—JANUARY 2021 FINAL DETERMINATION SMALL ELECTRIC MOTORS TECHNOLOGY OPTIONS—Continued

Type of loss to reduce	Technology option applied
Core Losses	Decrease radial air gap. Change run-capacitor rating. Improve grades of electrical steel. Use thinner steel laminations. Anneal steel laminations. Add stack height (*i.e.,* add electrical steel laminations). Use high-efficiency lamination materials. Use plastic bonded iron powder.
Friction and Windage Losses	Use better bearings and lubricant. Install a more efficient cooling system.

DOE requests comment on its tentative conclusion that there have been no significant technical advancements since the last rulemaking, and that the technology options developed for the January 2021 Final Determination are still applicable.

3. Screening Analysis

DOE uses the following five screening criteria to determine which technology options are suitable for further consideration in an energy conservation standards rulemaking:

(1) Technological feasibility. Technologies that are not incorporated in commercial products or in commercially viable, existing 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 projected compliance date of the standard, then that technology will not be considered further.

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

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

(5) Unique-pathway proprietary technologies. If a technology has proprietary protection and represents a unique pathway to achieving a given efficiency level, it will not be considered further, due to the potential for monopolistic concerns.

10 CFR 431.4; 10 CFR part 430, subpart C, appendix A, sections 6(b)(3) and 7(b).

In summary, if DOE determines that a technology, or a combination of technologies, fails to meet one or more of the listed five criteria, it will be excluded from further consideration in the engineering analysis.

DOE did not receive any comments on the screening analysis. Further, as discussed in section IV.A.2, DOE has tentatively determined that no significant technical advancements in induction motor technology have been made since the January 2021 Final Determination. Finally, a review of the 2022 SEM Database did not identify any new technology options that should be screened in.

Accordingly, DOE is maintaining the screening analysis from the January 2021 Final Determination, which screened out three of the technology options presented in Table IV.1: reducing the air gap below 0.0125 inches, amorphous metal laminations, and plastic bonded iron powder (''PBIP''). 86 FR 4885, 4894. DOE finds that all of the remaining technology options meet the other screening criteria (*i.e.,* practicable to manufacture, install, and service and do not result in adverse impacts on consumer utility, product availability, health, or safety). For additional details, see chapter 4 of the January 2021 Final Determination TSD.

4. Equipment Classes

In general, when evaluating and establishing energy conservation standards, DOE divides the covered product into classes by (1) the type of energy used, (2) the capacity of the product, or (3) any other performance-related feature that affects energy efficiency and justifies different standard levels, considering factors such as consumer utility. (42 U.S.C. 6316(a); 42 U.S.C. 6295(q)) For the analysis in the January 2021 Final Determination, DOE considered the 62 equipment classes that it already regulates based on motor category, horsepower rating, and number of poles. 86 FR 4885, 4892–4893.

The first characteristic used to establish equipment classes is phase count. Polyphase and single-phase equipment classes are used to differentiate motors based on the fundamental differences in how the two types of motors operate. 10 CFR 431.446(a). Second, equipment classes are differentiated by the topology of single-phase motors. 10 CFR 431.446(a). DOE identified two topologies of single-phase motors meeting the statutory definition of small electric motors: CSIR and CSCR. CSIR and CSCR motors both utilize a capacitor (''start-capacitor'') and two windings (''start-winding'' and ''run-winding''). Third, the current energy conservation standards also differentiate classes based on the number of poles in a motor. 10 CFR 431.446(a). The number of poles in an induction motor determines the synchronous speed (*i.e.,* revolutions per minute). Finally, DOE employs motor horsepower as an equipment class setting factor under the current energy conservation standards. 10 CFR 431.446(a). Average full load efficiency generally correlates with motor horsepower (*e.g.,* a 3-horsepower motor is usually more efficient than a ¼-horsepower motor). *Id.*

For this analysis, DOE did not identify any other performance-related features affecting consumer utility or efficiency applying to the motors falling within the scope of this proposed determination. Further, DOE did not receive any comments suggesting updating the equipment classes considered in the January 2021 Final Determination. Accordingly, DOE has maintained the same equipment classes from the January 2021 Final Determination, presented in Table IV.2.

TABLE IV–2—JANUARY 2021 FINAL DETERMINATION SUMMARY OF SMALL ELECTRIC MOTOR EQUIPMENT CLASSES

Motor topology	Pole configuration	Motor output power (hp)
Single-phase:		
CSIR	2, 4, 6	0.25–3
CSCR	2, 4, 6	0.25–3
Polyphase	2, 4, 6	0.25–3

B. Engineering Analysis

The purpose of the engineering analysis is to establish the relationship between the efficiency and cost of SEMs. There are two elements to consider in the engineering analysis; the selection of efficiency levels to analyze (*i.e.,* the ''efficiency analysis'') and the determination of product cost at each efficiency level (*i.e.,* the ''cost analysis''). In determining the performance of higher-efficiency equipment, DOE considers technologies and design option combinations not eliminated by the screening analysis. For each equipment class, DOE estimates the baseline cost, as well as the incremental cost for the product/equipment at efficiency levels above the baseline. The output of the engineering analysis is a set of cost-efficiency ''curves'' that are used in downstream analyses (*i.e.,* the LCC and PBP analyses and the NIA).

1. Efficiency Analysis

DOE typically uses one of two approaches to develop energy efficiency levels for the engineering analysis: (1) relying on observed efficiency levels in the market (*i.e.,* the efficiency-level approach), or (2) determining the incremental efficiency improvements associated with incorporating specific design options to a baseline model (*i.e.,* the design-option approach). Using the efficiency-level approach, the efficiency levels established for the analysis are determined based on the market distribution of existing products (in other words, based on the range of efficiencies and efficiency level ''clusters'' that already exist on the market). Using the design option approach, the efficiency levels established for the analysis are determined through detailed engineering calculations and/or computer simulations of the efficiency improvements from implementing specific design options that have been identified in the technology assessment. DOE may also rely on a combination of these two approaches. For example, the efficiency-level approach (based on actual products on the market) may be extended using the design option approach to interpolate to define ''gap fill'' levels (to bridge large gaps between other identified efficiency levels) and/or to extrapolate to the ''max-tech'' level (particularly in cases where the ''max tech'' level exceeds the maximum efficiency level currently available on the market).

In the January 2021 Final Determination, DOE relied on the design-option approach, consistent with the March 2010 Final Rule. In the design option approach, DOE considered efficiency levels corresponding to motor designs that met or exceeded the efficiency requirements of the current energy conservation standards at 10 CFR 431.446. 86 FR 4885, 4895–4898. In the April 2022 RFI, DOE requested comments on whether the methodologies employed in the January 2021 Final Determination engineering analysis, specifically regarding the adoption of the motor designs and associated efficiency levels considered in the March 2010 Final Rule analysis as the basis for the final determination, still apply. 87 FR 23471, 23473. In response, NEMA stated that in their observation, the methodologies employed by DOE in the previous determination engineering analysis still apply. (NEMA, No. 8 at p. 3) DOE did not receive any other comments.

As discussed in section IV.2. of this document, the 2022 SEM Database determined no significant technical advancements in induction motor technology that could lead to more efficient designs relative to the analysis considered in the January 2021 Final Determination (which relied on the motors modeled for the March 2010 Final Rule). Further, DOE tentatively determined that the available range of efficiency values of SEMs on the market in the 2022 SEM Database have stayed largely the same since the January 2021 Final Determination. Accordingly, DOE is tentatively considering the methodologies employed in the January 2021 Final Determination engineering analysis for this determination.

Therefore, consistent with the January 2021 Final Determination, for the engineering analysis, DOE considered one representative equipment class for each of the CSCR and polyphase motor topologies. 86 FR 4885, 4895–4896. Equipment classes in both the polyphase and CSCR topologies were directly analyzed due to the fundamental differences in their starting and running electrical characteristics. Similar to the conclusions from the January 2021 Final Determination, DOE did not consider a CSIR motor representative unit. 86 FR 4885, 4895. This is because the minimum energy conservation standards adopted in the March 2010 Final Rule (and which are established in 10 CFR 431.446(a)) represented the maximum technologically feasible efficiency for CSIR motors, and DOE was unable to identify any additional design options that passed the screening criteria that would indicate that a motor design meeting a higher efficiency level is technologically feasible and commercially viable. *Id.*

Accordingly, the proposed representative equipment classes are outlined in Table IV–3.

TABLE IV–3—JANUARY 2021 FINAL DETERMINATION REPRESENTATIVE EQUIPMENT CLASSES

Representative unit No.	Motor topology	Pole configuration	Motor output power (hp)
1	Polyphase	4	1.00
2	Single-phase CSCR	4	0.75

Given that DOE was unable to identify any additional design options for improving efficiency that passed the screening criteria and were not already considered in the January 2021 Final Determination engineering analysis, DOE analyzed the same motor designs that were developed for the January 2021 Final Determination. 86 FR 4885, 4896. For each representative equipment class, DOE established an efficiency level for each motor design that exhibited improved efficiency over the baseline design. DOE considered the current minimum energy conservation standards as the baseline efficiency levels for each representative equipment class. *Id.*

For higher efficiency levels, DOE considered both space-constrained and non-space-constrained scenarios, consistent with the January 2021 Final Determination.[10] 86 FR 4885, 4896–4897. The design levels prepared for the space-constrained scenario included baseline and intermediate levels, a level for a design using a copper rotor, and a max-tech level with a design using a copper rotor and exotic core steel. The high-efficiency space-constrained designs incorporate copper rotors and exotic core steel in order to meet comparable levels of efficiency to the high-efficiency non-space-constrained designs while meeting the parameters for minimally increased stack length. The design levels created for the non-space-constrained scenario corresponded to the same efficiency levels created for the space-constrained scenario. *Id.*

2. Cost Analysis

The cost analysis portion of the Engineering Analysis is conducted using one or a combination of cost approaches. The selection of cost approach depends on a suite of factors, including the availability and reliability of public information, characteristics of the regulated product and the availability and timeliness of purchasing the equipment on the market. The cost approaches are summarized as follows:

- *Physical teardowns:* Under this approach, DOE physically dismantles a commercially available product, component-by-component, to develop a detailed bill of materials for the product.
- *Catalog teardowns:* In lieu of physically deconstructing a product, DOE identifies each component using parts diagrams (available from manufacturer websites or appliance repair websites, for example) to develop the bill of materials (''BOM'') for the product.
- *Price surveys:* If neither a physical nor catalog teardown is feasible (for example, for tightly integrated products such as fluorescent lamps, which are infeasible to disassemble and for which parts diagrams are unavailable) or cost-prohibitive and otherwise impractical (*e.g.,* large commercial boilers), DOE conducts price surveys using publicly available pricing data published on major online retailer websites and/or by soliciting prices from distributors and other commercial channels.

In the January 2021 Final Determination, DOE relied on a standard BOM that was constructed for the March 2010 Final rule for each motor design that includes direct material costs and labor time estimates along with costs, which was the basis for determining the manufacturer production costs (''MPC''). For the January 2021 Final Determination, DOE updated the material and labor costs to be representative of the market in 2019 using the historical Bureau of Labor Statistics Producer Price Indices (''PPI'')[11] for each commodity's industry. 86 FR 4885, 4897–4989. In addition, DOE updated labor costs and markups based on the most recent and complete version (*i.e.* 2012) of the Economic Census of Industry by the U.S. Census Bureau.[12] Finally, to account for manufacturers' non-production costs and profit margin, DOE applied a multiplier (the manufacturer markup) to the MPC. The resulting manufacturer selling price (''MSP'') is the price at which the manufacturer distributes a unit into commerce. DOE developed an average manufacturer markup by examining the annual Securities and Exchange Commission (''SEC'') 10–K reports filed by publicly-traded manufacturers primarily engaged in appliance manufacturing and whose combined product range includes SEMs. *Id.*

In the April 2022 RFI, DOE requested comment on whether and how the costs estimated for motor designs considered in the January 2021 Final Determination have changed since the time of that analysis. DOE also requested information on the investments (including related costs) 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. 87 FR 23471, 23473. In response, NEMA commented that across the board, including for labor, tooling, materials, semi-conductors, shipping, engineering, development, certification, costs have increased over the last 12 months and especially over the last 6 months. They noted that costs may be as much as 50 percent higher than 2020–2021, and are expected to remain at elevated levels for the next 2–3 years. Further, they noted that lead times for materials have also dramatically lengthened, with certain equipment being unavailable. (NEMA, No. 8 at p. 3) QM Power commented that the move towards higher efficiency alternatives has a cost of entry. Generally, they noted that higher efficiency motors are more expensive than their lower-efficiency counterpart but through adoption, increased volumes as well as incentives, cost can be driven down. (QM Power, No. 10 at p. 5)

DOE notes that a significant portion of the costs associated with SEMs is attributed to the fluctuating metal prices of several motor components. These include steel laminations, copper wiring, and rotor die-casting aluminum or copper. To account for the variable prices of components that are dependent on fluctuating metal prices, in the January 2021 Final Determination, DOE used an inflation adjusted five-year average price point for these components. (*See* Chapter 5 of the 2021 Final Determination TSD). For this NOPD, DOE performed an initial evaluation of the latest Bureau of Labor Statistics PPI and determined that the five-year average price point for these components would increase, in turn increasing the MSPs that were determined in the January 2021 Final Determination. However, DOE notes that the MSP increase would apply to all efficiency levels and therefore incremental costs are not expected to change significantly from the January 2021 Final Determination. Finally, any

[10] The stack length for the polyphase representative unit increased from 4.4 in for the current baseline level up to 6.0 in (36% increase) for the non-space constrained design and stayed constant at 3.6 in (0% increase) for the space constrained designs. The stack length for the CSCR representative unit increased from 4.6 in for the current baseline level up to 6.0 in (30% increase) for the non-space constrained design and increased from 3.45 in for the current baseline level up to 3.6 in (4% increase) for the space constrained designs. (See Chapter 5 of the January 2021 Final Determination for further details).

[11] *www.bls.gov/ppi/.*

[12] U.S. Census Bureau, 2012 Economic Census of Industry Series Reports for Industry, U.S. Department of Commerce, 2012; NAICS code 3353121 ''Fractional Horsepower Motors'' Production workers hours and wages. Although some summary statistics of the 2017 Economic Census for Manufacturing is currently available, the detailed statistics for the U.S. is estimated to be released in the time frame of November 2020-September 2021. *https://www.census.gov/programs-surveys/economic-census/about/release-schedules.html.*

increase in costs would further substantiate the determination that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA because while costs might increase, the efficiencies would stay the same. Consequently, DOE did not further evaluate the January 2021 Final Determination cost analysis, and maintained the cost evaluation from the January 2021 Final Determination for this NOPD.

3. Cost-Efficiency Results

As discussed in the previous sections, DOE determined there were no significant technical advancements in induction motor technology that could lead to more efficient or lower cost motor designs relative to the analysis considered in the January 2021 Final Determination. DOE has initially determined that the MSPs that were determined in the January 2021 Final Determination would likely increase as a result of costs increases of components of SEMs. However, as described previously, the MSP increase would apply to all efficiency levels and therefore incremental costs are not expected to change significantly from the January 2021 Final Determination. Any increase in costs would further substantiate the determination that amended standards would not be cost-effective because while costs might increase, the efficiencies would stay the same. Therefore, for this NOPD, DOE has tentatively concluded that the analysis from the January 2021 Final Determination continues to apply.

Accordingly, the engineering analysis results are four MSP-versus-full-load efficiency curves that represent two relationships (space-constrained and non-space-constrained scenarios) for the representative equipment classes for polyphase and CSCR motors. Table IV–4 and Table IV–5 present the results from the January 2021 Final Determination. Further discussion is provided in Chapter 5 of the January 2021 Final Determination TSD.

TABLE IV–4—JANUARY 2021 FINAL DETERMINATION EFFICIENCY AND MSP DATA FOR POLYPHASE MOTOR

Efficiency level	Efficiency (%) (design 1/design 2)*	MSP (2019$) (design 1/design 2)*
Baseline	83.5/83.5	159.35/159.23
EL 1	85.3/85.2	258.97/180.16
EL 2	86.2/86.3	266.99/216.77
EL 3 (Max-tech)	87.7/87.8	1,845.90/360.87

* Design 1 denotes the space constrained design, and design 2 denotes the non-space constrained design.

TABLE IV–5—JANUARY 2021 FINAL DETERMINATION EFFICIENCY AND MSP DATA FOR CSCR MOTOR

Efficiency level	Efficiency (%) (design 1/design 2)*	MSP (2019$) (design 1/design 2)*
Baseline	81.7/81.8	176.31/169.38
EL 1	82.8/82.8	181.19/178.23
EL 2	84.1/84.0	190.24/189.11
EL 3	84.8/84.6	272.98/196.46
EL 4	86.8/86.7	281.69/213.66
EL 5 (Max-tech)	88.1/87.9	1,859.53/372.17

* Design 1 denotes the space constrained design, and design 2 denotes the non-space constrained design.

While the engineering analysis focused on two representative units, the energy use and life-cycle cost analyses (*see* sections IV.D and IV.E of this document) considered two additional representative units to separately analyze consumers of integral (*i.e.,* with horsepower greater than or equal to 1 hp) single-phase CSCR small electric motors and fractional (*i.e.,* with horsepower less than 1 hp) polyphase small electric motors. In the January 2021 Final Determination, DOE extrapolated the results from the units studied in the engineering analysis for the two supplementary representative units (Representative Unit #3, Single-phase CSCR, 4-pole, 1hp; Representative Unit #4, Polyphase, 4-pole, 0.5hp). Further discussion on the scaling methodology and cost-efficiency results for the two supplementary representative units are provided in Chapter 5 of the January 2021 Final Determination TSD.

DOE requests comments on its tentative conclusion that the results of the engineering analysis from the January 2021 Final Determination continue to appropriately apply because: (1) there are no significant technical advancements in induction motor technology that could lead to more efficient or lower cost motor designs since that time, and (2) increases in costs and MSPs only further substantiate that higher efficiencies continue to be cost-ineffective.

C. Markups Analysis

The markups analysis develops appropriate markups (*e.g.,* retailer markups, distributor markups, contractor markups) in the distribution chain and sales taxes to convert the MSP estimates derived in the engineering analysis to SEM consumer costs, which are then used in the LCC and PBP analysis and in the manufacturer impact analysis. At each step in the distribution channel, companies mark up the price of the product to cover business costs and profit margin. DOE develops baseline and incremental markups for each actor in the distribution chain. Baseline markups are applied to the price of products with baseline efficiency, while incremental markups are applied to the difference in price between baseline and higher-efficiency models (the incremental cost increase). The incremental markup is typically less than the baseline markup and is designed to maintain similar per-unit operating profit before and after new or amended standards.[13]

[13] Because the projected price of standards-compliant products is typically higher than the price of baseline products, using the same markup

Continued

In the April 2022 RFI, DOE requested information on the existence of any distribution channels other than the channels that were identified in the January 2021 Final Determination. DOE also requested data on the fraction of sales that go through these channels and any other identified channels. DOE further noted that in the January 2021 Final Determination, DOE identified three distribution channels for small electric motors and estimated their respective shares of sales volume: (1) from manufacturers to original equipment manufacturers (''OEMs''), who incorporate motors in larger pieces of equipment, to OEM equipment distributors, to contractors, and then to end-users (65 percent of shipments); (2) from manufacturers to wholesale distributors, to OEMs, to OEM equipment distributors, to contractors, and then to end-users (30 percent of shipments); and (3) from manufacturers to distributors or retailers, to contractors and then to end-users (5 percent of shipments). 87 FR 23471, 23473

DOE reviewed the data sources used to develop distribution channels and sales tax. DOE has tentatively concluded that the markups for each step in the distribution channel, and sales taxes are comparable to the estimates developed for the January 2021 Final Determination.

In response to the April 2022 RFI, NEMA commented that internet sales may be increasing, but that they did not have insight into this. NEMA further commented that 90 percent of units are sold to equipment manufacturers (*i.e.,* OEMs), the remaining 10 percent is sold through distribution which is sold to smaller OEMs building equipment. They noted that very few units are sold as a replacement for failed units. (NEMA, No. 8 at p. 4) NEMA further stated that OEMs demand that motor suppliers support numerous system efficiency levels in order for them to meet DOE requirements. They noted that SEM distribution continue to evolve as more finished equipment with embedded motors are produced offshore, and that offshore manufacturers often manufacture the motors that are embedded and sent to the U.S. market. They noted that the internet provides direct access to retail and commercial customers for these offshore products, and estimated that offshore SEMs could be in excess of 50 percent of the units imported, depending on how one sets the scope of products impacted. (NEMA, No. 8 at p. 3)

As noted previously, in the January 2021 Final Determination, DOE estimated that few units would be sold as replacement via channel 3 (*i.e.,* 5 percent). In addition, DOE assumed that 65 percent of motors are sold directly to OEMs (*i.e.,* via channel 1) while 30 percent are sold to OEMs through distribution (*i.e.,* via channel 2). DOE notes that these channels also include internet sales and imported SEMs. The estimate provided by NEMA would instead result in the following estimates of fraction of shipments: 90 percent of shipments via channel 1; 10 percent of shipments via channel 2; and 0 percent of shipments via channel 3. DOE notes that the baseline and incremental markups associated with Channel 1 are lower than the baseline and incremental markups associated with channel 2, which includes additional distributor markups. Therefore, this change results in a slightly lower shipments-weighted average baseline and incremental markup for small electric motors (6 and 4 percent less respectively), which could in turn decrease the calculated consumer cost of a small electric motor at each EL. However, because this decrease is relatively small and impacts all ELs, DOE has tentatively concluded that such update would still result in comparable incremental changes in consumer costs with increasing ELs and comparable LCC savings results. In addition, due to the separate increase in MSPs across all ELs since the publication of the January 2021 Final Determination (*see* section IV.B.2 of this document), which in turn increases the resulting consumer costs across all ELs, DOE has tentatively concluded that such updates would result in comparable consumer costs and LCC savings results.

DOE requests comments on its tentative conclusion that the revised market shares by distribution channel and revised markups and sales taxes would still result in SEM consumer costs and LCC savings that are comparable to the estimates developed for the January 2021 Final Determination.

D. Energy Use Analysis

The purpose of the energy use analysis is to determine the annual energy consumption of small electric motors at different efficiencies in representative U.S. applications, and to assess the energy savings potential of increased small electric motor efficiency. The energy use analysis estimates the range of energy use of small electric motors in the field (*i.e.,* as they are actually used by consumers). The energy use analysis provides the basis for other analyses DOE performed, particularly assessments of the energy savings and the savings in consumer operating costs that could result from adoption of amended or new standards.

In the April 2022 RFI, DOE requested information on whether the results of the January 2021 Final Determination energy use were still relevant. Specifically, DOE requested inputs on whether the inputs to the energy use calculation used in the January 2021 Final Determination were still relevant. DOE further requested data and information related to various inputs to the energy use calculation: (1) the distribution of shipments across applications and sectors by equipment class or by motor topology and horsepower; (2) typical operating hours by application and sector; (3) typical motor load by application and sector; and (4) typical load profiles (*i.e.,* percentage of annual operating hours spent at specified load points) by application and sector. 87 FR 23471, 23473

In response to the April 2022 RFI, NEMA stated that the hours of use and distribution data from the previous iteration of the rulemaking remain sufficient for the purposes of making a determination on this review of standards. (NEMA, No. 8 at p. 2)

Table IV–6 presents the average energy consumption, from section 7.3 of the January 2021 Final Determination TSD, for each SEM representative unit and efficiency level.[14] DOE has tentatively concluded that the average energy consumption for these small electric motors are equal to the estimates developed for the January 2021 Final Determination, as the technology options at each efficiency level, and usage inputs, have not changed.

for the incremental cost and the baseline cost would result in higher per-unit operating profit. While such an outcome is possible, DOE maintains that in markets that are reasonably competitive it is unlikely that standards would lead to a sustainable increase in profitability in the long run.

[14] The analysis focuses on two representative units identified in the engineering analysis. In addition, for each equipment class group, the January 2021 Final determination also analyzed an additional representative unit to include consumers of integral single-phase CSCR small electric motors and fractional polyphase small electric motor. *See* Section 7.1 of the January 2021 Final Determination TSD.

TABLE IV–6—JANUARY 2021 FINAL DETERMINATION AVERAGE ENERGY USE BY EFFICIENCY LEVELS

Rep. unit	Description	Kilowatt-hours per year					
		EL 0	EL 1	EL 2	EL 3	EL 4	EL 5
1	Single-phase (CSCR), 4 pole, 0.75 hp	1,653.6	1,628.2	1,598.5	1,583.8	1,536.0	1,509.0
2	Polyphase, 4 pole, 1 hp	2,092.8	2,047.7	2,020.8	1,983.8		
3	Single-phase (CSCR), 4 pole, 1 hp	2,191.9	2,159.1	2,122.7	2,103.9	2,043.2	2,008.0
4	Polyphase, 4 pole, 0.5 hp	1,152.6	1,117.9	1,096.7	1,068.1		

DOE requests comments on its tentative conclusion that the average energy use results for small electric motors are the same as the estimates developed for the January 2021 Final Determination.

E. Life-Cycle Cost and Payback Period Analysis

DOE conducts LCC and PBP analyses to evaluate the economic impacts on individual consumers of potential energy conservation standards for small electric motors. The effect of new or amended energy conservation standards on individual consumers usually involves a reduction in operating cost and an increase in purchase cost. DOE uses the following two metrics to measure consumer impacts:

- The LCC is the total consumer expense of an appliance or product over the life of that product, consisting of total installed cost (manufacturer selling price, distribution chain markups, sales tax, and installation costs) plus operating costs (expenses for energy use, maintenance, and repair). To compute the operating costs, DOE discounts future operating costs to the time of purchase and sums them over the lifetime of the product.
- The PBP is the estimated amount of time (in years) it takes consumers to recover the increased purchase cost (including installation) of a more-efficient product through lower operating costs. DOE calculates the PBP by dividing the change in purchase cost at higher efficiency levels by the change in annual operating cost for the year that amended or new standards are assumed to take effect.

For any given efficiency level, DOE measures the change in LCC relative to the LCC in the no-new-standards case, which reflects the estimated efficiency distribution of small electric motors in the absence of new or amended energy conservation standards. In contrast, the PBP for a given efficiency level is measured relative to the baseline product.

For each considered efficiency level in each product class, DOE calculated the LCC and PBP for a nationally representative set of consumers. For each sample consumer, DOE determines the energy consumption for the small electric motor and the appropriate electricity price. By developing a representative sample of consumers, the analysis captured the variability in energy consumption and energy prices associated with the use of small electric motors.

Inputs to the calculation of total installed cost include the cost of the product—which includes MPCs, manufacturer markups, retailer and distributor 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, product lifetimes, and discount rates. DOE creates distributions of values for small electric motor lifetime, discount rates, and sales taxes, with probabilities attached to each value, to account for their uncertainty and variability.

The computer model DOE uses to calculate the LCC and PBP relies on a Monte Carlo simulation to incorporate uncertainty and variability into the analysis. The Monte Carlo simulations randomly sample input values from the probability distributions and small electric motor user samples. 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-new-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. For the January 2021 Final Determination, DOE calculated the LCC and PBP for all consumers of small electric motors as if each were to purchase a new product in the expected year of required compliance with new or amended standards.

The subsections that follow provide discussion of each input to the LCC analysis used in the January 2021 Final Determination and whether and how each input may have changed since the publication of the January 2021 Final Determination.

1. Equipment Costs

To calculate consumer SEM costs, DOE multiplies the MPCs developed in the engineering analysis by the markups described previously (along with sales taxes). DOE uses different markups for baseline products and higher-efficiency products, because DOE applies an incremental markup to the increase in MSP associated with higher-efficiency products. As noted previously, while DOE has determined that MPCs and MSPs are likely higher due to cost increases of SEMs components, DOE has tentatively concluded that the incremental consumer costs between efficiencies have remained comparable to those in the January 2021 Final Determination. Moreover, the noted cost increases further substantiate a determination that amended standards would not be cost-effective. Therefore, in this proposed determination, DOE relied on the same consumer costs as estimated in the January 2021 Final Determination.

2. Installation Cost

Installation cost includes labor, overhead, and any miscellaneous materials and parts needed to install the product. In the January 2021 Determination, DOE found no evidence that installation costs would be impacted with increased efficiency levels and did not account for these costs in the LCC savings calculation (*See* section 8.2.1.5 of the January 2021 Final Determination TSD).

NEMA noted that more efficient SEMs tend to have higher inrush current on startup, and this could overload preexisting branch circuits in retrofit applications. They stated that this would apply both to 3-phase and single-phase designs, and in cord-and-plug SEM designs, the higher inrush currents

could exceed electrical safety requirements. As such, they commented that elevations of efficiency could necessitate rewiring of homes, and therefore, the LCC analysis should account for the costs to improve/replace branch circuit wiring if DOE chooses to pursue a more thorough reinvestigation of the LCC for this rulemaking. (NEMA, No. 8 at p. 4)

As noted previously in section IV.A.2 of this document, DOE is maintaining the same technology options for review in this determination as from the January 2021 Final Determination. As noted by NEMA, an increase in inrush current could necessitate rewiring of homes and result in increased installation costs. However, in the January 2021 Final Determination, the engineering analysis provided the inrush current (also known as ''locked rotor current'') at each of the efficiency levels analyzed (*See* Table 5.5.2, Table 5.5.4 of the January 2021 Final Determination TSD). The data shows that the locked rotor current either decreased at higher ELs or did not increase significantly (*i.e.,* the locked rotor current remained below the maximum limit corresponding to NEMA MG1 design requirements as noted in Table 5.5.2, Table 5.5.4 of the January 2021 Final Determination TSD). As such, as the efficiency increases, the inrush current would not exceed the NEMA MG1 design maximum limits and would not result in any increase in installation costs. Therefore, as the same technology options are being considered in this determination, DOE tentatively concludes that the installation costs would not be impacted with increased efficiency levels and has tentatively determined that the conclusions of the January 2021 Final Determination regarding installation costs are still valid. Accordingly, DOE did not account for these costs in the LCC savings calculation in this determination.

DOE seeks comment on its tentative conclusion that there are no changes in installation costs by efficiency level.

3. Annual Energy Consumption

As previously noted in section IV.D of this document, DOE has tentatively concluded that the average energy consumption for these small electric motors remains the same as the estimates developed for the January 2021 Final Determination. Therefore, DOE used those estimates in the analysis for this proposed determination.

4. Electricity Prices

In the January 2021 Final Determination, DOE derived electricity prices in 2019 using data from EEI Typical Bills and Average Rates reports. Based upon comprehensive, industry-wide surveys, this semi-annual report presents typical monthly electric bills and average kilowatt-hour costs to the customer as charged by investor-owned utilities. For the residential sector, DOE calculated electricity prices using the methodology described in Coughlin and Beraki (2018).[15] For the industrial and commercial sectors, DOE calculated electricity prices using the methodology described in Coughlin and Beraki (2019).[16] DOE's methodology allows electricity prices to vary by sector, region and season. In DOE's analyses, variability in electricity prices is chosen to be consistent with the way the consumer economic and energy use characteristics are defined in the LCC analysis.

In the January 2021 Final Determination, to estimate electricity prices in future years, DOE multiplied the 2019 energy prices by the projection of annual average price changes for each of the nine census divisions from the Reference case in *AEO2020,* which has an end year of 2050.[17] To arrive at prices in the compliance year (which was assumed to be 2028 in the January 2021 Final Determination), DOE multiplied the 2019 electricity prices by the projection of annual national-average residential, industrial, and commercial electricity prices provided by AEO *2020.* To estimate the trend after 2028, DOE used the average rate of change during 2028–2050. *See* section 8.2.2.2 of the of the January 2021 Final Determination TSD.

To assess the impact of electricity prices in this determination, DOE compared average electricity prices in the January 2021 Final Determination for 2028 (the starting year in the analysis) to a likely starting year if DOE performed a revised analysis in a new rulemaking.[18] To assess the impact of updated energy price estimates, DOE used 2021 EEI Typical Bills and Average Rates reports and *AEO* 2022 energy price trends.[19] DOE has found that weighted-average electricity prices across all sectors are slightly lower in 2029 ($0.085/kW in $2019) compared to 2028 weighted-average electricity prices used in the January 2021 Final Determination ($0.092/kW in 2018$). This is partly offset by a higher electricity price growth rate in AEO 2021 (−0.26%) compared to what was used in the January 2021 Final Determination (−0.30%) based on AEO 2019. Therefore, DOE has tentatively determined that the energy prices have not changed significantly from that estimated in the January 2021 Final Determination.[20] For this reason, DOE used the estimates from the January 2021 Final Determination in the analysis for this proposed determination.

5. Maintenance and Repair Costs

Repair costs are associated with repairing or replacing equipment components that have failed in an appliance; maintenance costs are associated with maintaining the operation of the equipment. Typically, small incremental increases in product efficiency produce no, or only minor, changes in repair and maintenance costs compared to baseline efficiency products.

In the January 2021 Final Determination, DOE estimated that for all the equipment classes of small electric motors, there is no change in maintenance with efficiency level, and therefore DOE did not include those costs in the LCC savings calculation. In addition, DOE assumed that small electric motors are usually not repaired. Most small motors are mass produced and are not constructed or designed to be repaired because the manufacturing process uses spot welding welds and rivets to fasten or secure the frame and assembled components, not nuts and bolts. (*See* section 8.2.2.3 of the January 2021 Final Determination TSD). DOE has tentatively determined that these

[15] Coughlin, K. and B. Beraki. 2018. Residential Electricity Prices: A Review of Data Sources and Estimation Methods. Lawrence Berkeley National Lab. Berkeley, CA. Report No. LBNL–2001169. *ees.lbl.gov/publications/residential-electricity-prices-review.*

[16] Coughlin, K. and B. Beraki. 2019. Non-residential Electricity Prices: A Review of Data Sources and Estimation Methods. Lawrence Berkeley National Lab. Berkeley, CA. Report No. LBNL–2001203. *ees.lbl.gov/publications/non-residential-electricity-prices.*

[17] U.S. Department of Energy-Energy Information Administration. *Annual Energy Outlook 2020 with Projections to 2050.* Washington, DC. Available at *www.eia.gov/forecasts/aeo/.*

[18] For purposes of its analysis, DOE estimated that any amended standards would apply to small electric motors manufactured 5 years after the date on which the amended standard is published. DOE estimated publication of a final rule in the first half of 2024. Therefore, for purposes of its analysis, DOE used 2029 as the year of compliance.

[19] U.S. Department of Energy-Energy Information Administration, *Annual Energy Outlook 2022 with Projections to 2050,* available at *https://www.eia.gov/outlooks/aeo/* (last accessed October 14, 2022).

[20] In addition, any decrease in electricity costs would further substantiate the determination that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA because it would reduce the calculated operating costs savings and therefore the LCC savings.

conclusions are still valid as the technology options have not changed across ELs. Therefore, DOE did not include those costs in the LCC savings calculation.

DOE seeks comment on its tentative conclusion that there is no changes in maintenance costs by efficiency level and that small electric motors are usually not repaired.

6. Equipment Lifetime

In the April 2022 RFI, DOE requested information on whether the lifetime inputs used in the January 2021 Final Determination were still valid. Additionally, DOE requested data and input on the appropriate equipment lifetimes for small electric motors both in years and in lifetime mechanical hours that DOE should apply in its analysis. 87 FR 23471, 23473

In the January 2021 Final Determination, DOE used two Weibull distributions. One characterizes the motor lifetime in total operating hours (*i.e.,* mechanical lifetime), while the other characterizes the lifetime in years of use in the application (*e.g.,* a pump). DOE estimated motor mechanical lifetimes of 40,000 hours for polyphase motors and 30,000 hours for single phase motors. DOE estimated average application lifetimes to 7.8–9.7 years. (*See* section 8.2.2.4 of the January 2021 Final Determination TSD)

In response to the April 2022 RFI, NEMA commented that in their assessment, the lifetime inputs used in the previous analysis are still valid. (NEMA, No. 8 at p. 4)

As small electric motors have not significantly changed since the January 2021 Final Determination, DOE has tentatively determined that the equipment lifetime has remained largely the same and used the lifetime inputs form the January 2021 Final Determination in this analysis.

DOE seeks comment on its tentative conclusion that lifetimes have remained the same as estimated in the January 2021 Final Determination.

7. Discount Rates

In the calculation of LCC, DOE applies discount rates appropriate to residential, commercial, and industrial consumers to estimate the present value of future operating cost savings. DOE estimated a distribution of discount rates for small electric motors based on the opportunity cost of consumer funds.

DOE applies weighted average discount rates calculated from consumer debt and asset data, rather than marginal or implicit discount rates.[21] The LCC analysis estimates net present value over the lifetime of the product, so the appropriate discount rate will reflect the general opportunity cost of household funds, taking this time scale into account. Given the long time horizon modeled in the LCC analysis, the application of a marginal interest rate associated with an initial source of funds is inaccurate. Regardless of the method of purchase, consumers are expected to continue to rebalance their debt and asset holdings over the LCC analysis period, based on the restrictions consumers face in their debt payment requirements and the relative size of the interest rates available on debts and assets. DOE estimates the aggregate impact of this rebalancing using the historical distribution of debts and assets.

To establish residential discount rates for the LCC analysis, DOE identified all relevant household debt or asset classes in order to approximate a consumer's opportunity cost of funds related to appliance energy cost savings. It estimated the average percentage shares of the various types of debt and equity by household income group using data from the Federal Reserve Board's Survey of Consumer Finances [22] (''SCF'') for 1995, 1998, 2001, 2004, 2007, 2010, 2013, 2016, and 2019. Using the SCF and other sources, DOE developed a distribution of rates for each type of debt and asset by income group to represent the rates that may apply in the year in which amended standards would take effect. DOE assigned each sample household a specific discount rate drawn from one of the distribution across all income groups. The average rate across all types of household debt and equity and income groups in 2022, weighted by the shares of each type, is 4.3 percent, which the same as the average residential discount rate used in the January 2021 Final Determination (*See* section 8.2.2 of the January 2021 Final Determination TSD).

To establish commercial and industrial discount rates, DOE estimated the weighted-average cost of capital using data from Damodaran Online.[23] The weighted-average cost of capital is commonly used to estimate the present value of cash flows to be derived from a typical company project or investment. Most companies use both debt and equity capital to fund investments, so their cost of capital is the weighted average of the cost to the firm of equity and debt financing. DOE estimated the cost of equity using the capital asset pricing model, which assumes that the cost of equity for a particular company is proportional to the systematic risk faced by that company. The average commercial and industrial discount rates in 2022 are 6.8 percent and 7.2 percent, respectively. These values compare to the average commercial and industrial discount rates in the January 2021 Final Determination which were estimated to 6.4 percent and 6.9 percent, respectively (*See* section 8.2.2 of the January 2021 Final Determination TSD). Therefore, DOE has tentatively determined that discount rates have not changed significantly from those in the January 2021 Final Determination and these minor changes would have no significant impact on the LCC results. DOE therefore used the discount rates from the January 2021 Final Determination in the analysis for this proposed determination.

DOE seeks comment on its tentative conclusion that discount rates have not changed significantly since in the January 2021 Final Determination.

8. Energy Efficiency Distribution in the No-New-Standards Case

To accurately estimate the share of consumers that would be affected by a potential amended energy conservation standard at a particular efficiency level, DOE's LCC analysis considers the projected distribution (market shares) of equipment efficiencies under the no-new-standards case (*i.e.,* the case without amended or new energy conservation standards).

In its analysis for the January 2021 Final Determination, DOE developed no-new standards case efficiency distributions based on the distributions of then currently available models for which SEM efficiency is included in catalog listings. DOE relied on 2018

[21] The implicit discount rate is inferred from a consumer purchase decision between two otherwise identical goods with different first cost and operating cost. It is the interest rate that equates the increment of first cost to the difference in net present value of lifetime operating cost, incorporating the influence of several factors: transaction costs; risk premiums and response to uncertainty; time preferences; interest rates at which a consumer is able to borrow or lend. The implicit discount rate is not appropriate for the LCC analysis because it reflects a range of factors that influence consumer purchase decisions, rather than the opportunity cost of the funds that are used in purchases.

[22] U.S. Board of Governors of the Federal Reserve System. *Survey of Consumer Finances.* 1995, 1998, 2001, 2004, 2007, 2010, 2013, 2016, and 2019. (Last accessed June 15, 2022). *www.federalreserve.gov/econresdata/scf/scfindex.htm.*

[23] Damodaran, A. *Data Page: Historical Returns on Stocks, Bonds and Bills-United States.* 2021. (Last accessed April 26, 2022.) *pages.stern.nyu.edu/~adamodar/.*

catalog data and analyzed the distribution of SEMs in the manufacturer catalog data for CSCR and polyphase SEMs.[24] DOE projected that these efficiency distributions would remain constant throughout the compliance year. See Table IV–7.

TABLE IV–7—JANUARY 2021 FINAL DETERMINATION NO-NEW-STANDARDS CASE MARKET SHARE FOR SMALL ELECTRIC MOTORS REPRESENTATIVE UNITS BY EFFICIENCY LEVEL IN THE COMPLIANCE YEAR

Rep. unit	Equipment class group	EL 0 (%)	EL 1 (%)	EL 2 (%)	EL 3 (%)	EL 4 (%)	EL 5 (%)
1	Single-phase, CSCR, 4 poles, 0.75 hp	98.0	1.0	0.0	1.0	0.0	0.0
2	Polyphase, 4 poles, 1 hp	95.5	3.75	0.0	0.75	.....	.....
3	Single-phase, CSCR, 4 poles, 1 hp	98.0	1.0	0.0	1.0	0.0	0.0
4	Polyphase 4 poles, 0.5 hp	94.0	6.0	0.0	0.0	.....	.....

In the April 2022 RFI, DOE requested comments on whether the no-new standards case efficiency distributions used in the January 2021 Final Determination still reflected the current mix of equipment efficiency in the market. DOE also requested data and input on the appropriate efficiency distribution in the no-new standards case for SEMs by equipment class group and horsepower range. DOE requested data that would support changes in efficiency distributions over time in the no-new standards case. 87 FR 23471, 23473

In response to the April 2022 RFI, NEMA commented that the energy efficiency distributions of the previous rule's no-new-standards case appear to remain accurate based on NEMA's available information. (NEMA, No. 8 at p. 2)

As previously noted, DOE collected 2022 catalog data and observed that small electric motors have not significantly changed since the January 2021 Final Determination, DOE has tentatively determined that the efficiency distributions have not changed significantly since the January 2021 Final Determination. Therefore, in this proposed determination, DOE used the same no-new standard case efficiency distributions as in the January 2021 Final Determination.

DOE seeks comment on its tentative conclusion to rely on the same no-new standard case efficiency distributions as in the January 2021 Final Determination.

9. Payback Period Analysis

The payback period is the amount of time it takes the consumer to recover the additional installed cost of more-efficient equipment, compared to baseline equipment, through energy cost savings. Payback periods are expressed in years. Payback periods that exceed the life of the equipment mean that the increased total installed cost is not recovered in reduced operating expenses.

The inputs to the PBP calculation for each efficiency level are the change in total installed cost of the equipment and the change in the first-year annual operating expenditures relative to the baseline. The PBP calculation uses the same inputs as the LCC analysis, except that discount rates are not needed.

V. Analytical Results and Conclusions

The following section addresses the results from DOE's analyses with respect to the considered energy conservation standards for SEMs. It addresses the ELs examined by DOE and the projected impacts of each of these levels. Additional details regarding DOE's analyses are contained in the NOPD TSD supporting this document.

A. Economic Impacts on Individual Consumers

DOE analyzed the cost effectiveness (*i.e.,* the savings in operating costs throughout the estimated average life of SEMs compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the SEM which are likely to result from the imposition of a standard at an EL by considering the LCC and PBP at each EL. DOE also examined the impacts of potential standards on selected consumer subgroups. These analyses are discussed in the following sections.

In general, higher-efficiency products can affect consumers in two ways: (1) purchase price increases and (2) annual operating costs decrease. Inputs used for calculating the LCC and PBP include total installed costs (*i.e.,* product price plus installation costs), and operating costs (*i.e.,* annual energy use, energy prices, energy price trends, repair costs, and maintenance costs). The LCC calculation also uses product lifetime and a discount rate.

The total installed cost is determined by combining the installation cost with the equipment price. As discussed in section IV.E.1 and IV.E.2 of this document, DOE has tentatively determined that the equipment price has not changed significantly since the January 2021 Final Determination. DOE has also tentatively concluded that the conclusions of the January 2021 Final Determination regarding installation costs are still valid and that installation costs would not be impacted with increased efficiency levels. Therefore, the total installed costs are estimated to have remained approximately the same, as compared to January 2021 Final Determination. Accordingly, DOE relied on the 2021 Final Determination analysis for these costs.

The annual operating cost is determined by the energy consumption of SEMs, the electricity prices, and any repair and maintenance costs that would be required. DOE has tentatively determined that the energy consumption (*see* section IV.D of this document), electricity prices (*see* section IV.E.4 of this document), and repair and maintenance costs associated with each efficiency level have not changed significantly from that in January 2021 Final Determination (*see* section IV.E.5 of this document). Therefore, DOE has tentatively determined that the annual operating cost of SEMs has not changed significantly from that estimated in the January 2021 Final Determination. Accordingly, DOE relied on the 2021 Final Determination analysis for these costs.

Further, as discussed in section IV.E.6 and section IV.E.7 of this document, DOE has tentatively concluded that lifetimes of SEM have not changed and discount rates have not changed significantly from that estimated in the January 2021 Final Determination. Therefore, in this proposed

[24] DOE relied on 140 models of CSCR small electric motors and 229 models of polyphase small electric motors identified in the manufacturer catalog data. More details on the distributions of currently available models for which motor catalog list efficiency is available in Section 8.2 of the January 2021 Final Determination TSD.

determination, DOE relied on the lifetime operating costs as estimated in the January 2021 Final Determination.

Because DOE is relying on the total installed costs and lifetime operating costs as estimated in the January 2021 Final Determination, DOE has tentatively determined that the LCC savings for each efficiency level of SEMs remain the same as the estimates in January 2021 Final Determination.

In addition, as previously stated, DOE has estimated that the total installed costs and operating costs have not changed significantly and DOE is relying on the values estimated in the January 2021 Final Determination. Therefore, DOE has tentatively determined that the PBP for each efficiency level of SEM is the same as the PBP results from the January 2021 Final Determination.

Table V–1 through Table V–4 present the average LCC and PBP results for the ELs considered from section 8.4 of the January 2021 Final Determination TSD, for each representative unit, which DOE has tentatively concluded remain valid.[25]

TABLE V–1—JANUARY 2021 FINAL DETERMINATION AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR REPRESENTATIVE UNIT 1

[Single-phase, CSCR, 4 pole, 0.75 hp]

Efficiency Level	Average LCC savings* (2019$)	Simple payback period (years)
EL 1	−6.4	6.8
EL 2	−16.2	7.3
EL 3	−51.4	12.0
EL 4	−59.9	9.6
EL 5	−855.0	67.9

* The savings represent the average LCC for affected consumers.

TABLE V–2—JANUARY 2021 FINAL DETERMINATION AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR REPRESENTATIVE UNIT 2

[Polyphase, 4 pole, 1 hp]

Efficiency level	LCC savings (2019$)	Simple payback period (years)
EL 1	−48.1	16.9
EL 2	−92.3	19.5
EL 3	−878.7	94.5

TABLE V–3—JANUARY 2021 FINAL DETERMINATION AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR REPRESENTATIVE UNIT 3

[Single-phase, CSCR, 4 pole, 1 hp]

Efficiency level	Average LCC savings* (2019$)	Simple payback period (years)
EL 1	−6.0	6.0
EL 2	−16.2	6.6
EL 3	−54.3	10.7
EL 4	−61.8	8.6
EL 5	−942.1	59.2

* The savings represent the average LCC for affected consumers.

TABLE V–4—JANUARY 2021 FINAL DETERMINATION AVERAGE LCC AND PBP RESULTS BY EFFICIENCY LEVEL FOR REPRESENTATIVE UNIT 4

[Polyphase, 4 pole, 0.5 hp]

Efficiency level	LCC savings (2019$)	Simple payback period (years)
EL 1	−40.5	18.0
EL 2	−77.9	20.8
EL 3	−721.4	99.6

[25] As noted previously, the analysis focuses on two representative units identified in the engineering analysis. In addition, for each equipment class group, the January 2021 Final determination also analyzed an additional representative unit to include consumers of integral single-phase CSCR small electric motors and fractional polyphase small electric motor. *See* Section 7.1 of the January 2021 Final Determination TSD.

B. National Impact Analysis

As discussed in section V.C.2 of this document, DOE has determined that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA when determining whether to amend its standards for a given covered product or equipment. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(C)) See also section IV.E of this document (discussing in greater detail DOE's analysis of the available data in reaching this determination). Consequently, DOE did not conduct a national impact analysis and did not further consider the net present value of the total costs and benefits experienced by consumers.

1. Significance of Energy Savings

As explained in section III.D.2 of this document, DOE did not separately evaluate the national energy savings of the under the considered amended standards because it has tentatively determined that the potential standards would not be cost-effective as defined in EPCA.[26] (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A); 42 U.S.C. 6295(n)(2))

2. Net Present Value of Consumer Costs and Benefits

As previously noted, DOE did not conduct a national impact analysis and did not further consider the net present value of the total costs and benefits experienced by consumers.

C. Proposed Determination

As required by EPCA, this NOPD analyzes whether amended standards for SEMs would result in significant conservation of energy, be technologically feasible, and be cost effective. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) The criteria considered under 42 U.S.C. 6295(m)(1)(A) and the additional analysis are discussed below. Because an analysis of potential cost effectiveness and energy savings first require an evaluation of the relevant technology, DOE first discusses the technological feasibility of amended standards. DOE then addresses the cost effectiveness and energy savings associated with potential amended standards.

1. Technological Feasibility

EPCA mandates that DOE consider whether amended energy conservation standards for SEMs would be technologically feasible. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(B)) DOE has tentatively determined that there are technology options that would improve the efficiency of SEMs. These technology options are being used in commercially available SEMs and therefore are technologically feasible. (*See* section IV.A.2 for further information.) Hence, DOE has tentatively determined that amended energy conservation standards for SEMs are technologically feasible.

2. Cost Effectiveness

EPCA requires DOE to consider whether energy conservation standards for SEMs would be cost effective through an evaluation of the savings in operating costs throughout the estimated average life of the covered equipment compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered equipment which is likely to result from the imposition of an amended standard. (42 U.S.C. 6295(m)(1)(A), 42 U.S.C. 6295(n)(2)(C), and 42 U.S.C. 6295(o)(2)(B)(i)(II)) DOE conducted an LCC analysis in the January 2021 Final Determination to estimate the net costs/benefits to users from increased efficiency in the considered equipment. (*See* results in Table V–1 through Table V–4 of this document) As described previously, DOE has determined that the results of the LCC analysis in the January 2021 Final Determination are still valid.

For CSCR SEMS, DOE first considered the most efficient level, EL 5 for (max tech), which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 5 for CSCR SEMs is not cost effective.

DOE then considered the next most efficient level, EL 4, which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 4 is not cost effective.

DOE then considered the next most efficient level, EL 3, which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 3 is not cost effective.

DOE then considered the next most efficient level, EL 2 which would result in negative LCC savings results DOE found in the January 2021 Final Determination. On the basis of negative LCC savings, DOE has tentatively determined that EL 2 is not cost effective.

DOE then considered the next most efficient level, EL 1, which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 1 is not cost effective.

For polyphase SEMs, DOE first considered the most efficient level, EL 3 for (max tech), which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 3 for polyphase SEMs is not cost effective.

DOE then considered the next most efficient level, EL 2, which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 2 is not cost effective.

DOE then considered the next most efficient level, EL 1, which would result in negative LCC savings. On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, DOE has tentatively determined that EL 1 is not cost effective.

On the basis of negative LCC savings results DOE found in the January 2021 Final Determination, which DOE has concluded are still valid, DOE has determined that amended standards would not satisfy the cost-effectiveness criterion as required by EPCA when determining whether to amend its standards for SEMs. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)(C)) *See* also section IV.E of this document (discussing in greater detail DOE's analysis of the available data in reaching this determination). Consequently, DOE did not conduct a national impact analysis and did not

[26] The March 2010 Final Rule estimated the national energy savings achieved by the current energy conservation standards to be 2.20 quads of primary energy savings (*i.e.,* 0.29 quad at TSL 4b for polyphase SEMs and 1.91 quad at TSL 7 for single phase SEMs). The March 2010 Final Rule also estimated that the TSL resulting in the maximum national energy savings would provide a total of 2.70 quads of primary energy savings (*i.e.,* 0.37 quad at TSL 7 for polyphase SEMs and 2.33 quad at TSL 8 for single phase SEMs). 75 FR 10874, 10916 (March 9, 2010). The March 2010 Final Rule also estimated that the TSL directly above the current energy conservation standards would be 2.67 quads of primary energy savings (*i.e.,* 0.34 quad at TSL 5 for polyphase SEMs and 2.33 quad at TSL 8 for single phase SEMs). Although DOE did not separately evaluate the potential energy savings under the considered amended standards, this previous analysis which also relied on the technology options described in section IV.A.2 of this document, indicates an lower limit of approximatively 0.47 quads of primary energy (2.67 − 2.20 = 0.47) and an upper limit of approximatively 0.5 quad of primary energy savings (2.70 − 2.20 = 0.50)

further consider the net present value of the total costs and benefits experienced by consumers.

3. Significant Conservation of Energy

EPCA also mandates that DOE consider whether amended energy conservation standards for SEMs would result in significant conservation of energy. (42 U.S.C. 6316(a); 42 U.S.C. 6295(m)(1)(A) and 42 U.S.C. 6295(n)(2)) As provided in the prior section, DOE has tentatively determined that amended standards at the evaluated ELs would not be cost effective. Consequently, because DOE's analysis indicates that the three mandatory prerequisites that need to be satisfied to permit DOE to move forward with a determination to amend its current standards cannot be met, DOE did not separately determine whether the potential energy savings would be significant for purposes of the statutory test that applies. See 42 U.S.C. 6295(n)(2) (requiring that amended standards must result in significant conservation energy, be technologically feasible, and be cost-effective as provided in 42 U.S.C. 6295(o)(2)(B)(i)(II)).[27] See also section V.B.1 of this document.

4. Summary

In this proposed determination, based on the consideration of cost effectiveness and the initial determination that amended standards would not be cost effective, DOE has tentatively determined that energy conservation standards for SEMs do not need to be amended. DOE will consider all comments received on this proposed determination in issuing any final determination.

VI. Procedural Issues and Regulatory Review

A. Review Under Executive Orders 12866 and 13563

Executive Order (''E.O.'')1 2866, ''Regulatory Planning and Review,'' as supplemented and reaffirmed by E.O. 13563, ''Improving Regulation and Regulatory Review, 76 FR 3821 (Jan. 21, 2011), requires agencies, to the extent permitted by law, to (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public. DOE emphasizes as well that E.O. 13563 requires agencies to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. In its guidance, the Office of Information and Regulatory Affairs (''OIRA'') in the Office of Management and Budget (''OMB'') has emphasized that such techniques may include identifying changing future compliance costs that might result from technological innovation or anticipated behavioral changes. For the reasons stated in the preamble, this proposed regulatory action is consistent with these principles.

Section 6(a) of E.O. 12866 also requires agencies to submit ''significant regulatory actions'' to OIRA for review. OIRA has determined that this proposed regulatory action does not constitute a ''significant regulatory action'' under section 3(f) of E.O. 12866. Accordingly, this action was not submitted to OIRA for review under E.O. 12866.

B. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires preparation of an initial regulatory flexibility analysis (''IRFA'') for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by E.O. 13272, ''Proper Consideration of Small Entities in Agency Rulemaking,'' 67 FR 53461 (Aug. 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's website (*www.energy.gov/gc/office-general-counsel*).

DOE reviewed this proposed determination under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003. Because DOE is proposing not to amend standards for SEMs, if adopted, the determination would not amend any energy conservation standards. On the basis of the foregoing, DOE certifies that the proposed determination, if adopted, would have no significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared an IRFA for this proposed determination. DOE will transmit this certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act

This proposed determination, which proposes to determine that amended energy conservation standards for SEMs are unneeded under the applicable statutory criteria, would impose no new informational or recordkeeping requirements. Accordingly, OMB clearance is not required under the Paperwork Reduction Act. (44 U.S.C. 3501 *et seq.*)

D. Review Under the National Environmental Policy Act of 1969

DOE is analyzing this proposed action in accordance with the National Environmental Policy Act of 1969 (''NEPA'') and DOE's NEPA implementing regulations (10 CFR part 1021). DOE's regulations include a categorical exclusion for actions which are interpretations or rulings with respect to existing regulations. 10 CFR part 1021, subpart D, appendix A4. DOE anticipates that this action qualifies for categorical exclusion A4 because it is an interpretation or ruling in regards to an existing regulation and otherwise meets the requirements for application of a categorical exclusion. See 10 CFR 1021.410. DOE will complete its NEPA review before issuing the final action.

E. Review Under Executive Order 13132

E.O. 13132, ''Federalism,'' 64 FR 43255 (Aug. 10, 1999), imposes certain requirements on Federal agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. The Executive Order requires agencies to

[27] Under 42 U.S.C. 6295(o)(2)(B)(i)(II), DOE must consider whether ''the savings in operating costs throughout the estimated average life of the covered product in the type (or class) compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the covered products which are likely to result from the imposition of the standard.''

examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed determination and has tentatively determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the equipment that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (See 42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) Therefore, no further action is required by E.O. 13132.

F. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of E.O. 12988, ''Civil Justice Reform,'' imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity, (2) write regulations to minimize litigation, (3) provide a clear legal standard for affected conduct rather than a general standard, and (4) promote simplification and burden reduction. 61 FR 4729 (Feb. 7, 1996). Regarding the review required by section 3(a), section 3(b) of E.O. 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any, (2) clearly specifies any effect on existing Federal law or regulation, (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction, (4) specifies the retroactive effect, if any, (5) adequately defines key terms, and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in section 3(a) and section 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, this proposed determination meets the relevant standards of E.O. 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (''UMRA'') requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law 104–4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed ''significant intergovernmental mandate,'' and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect them. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820. DOE's policy statement is also available at *www.energy.gov/sites/prod/files/gcprod/documents/umra_97.pdf.*

DOE examined this proposed determination according to UMRA and its statement of policy and determined that the proposed determination does not contain a Federal intergovernmental mandate, nor is it expected to require expenditures of $100 million or more in any one year by State, local, and Tribal governments, in the aggregate, or by the private sector. As a result, the analytical requirements of UMRA do not apply.

H. Review Under the Treasury and General Government Appropriations Act, 1999

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105–277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This proposed determination would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

Pursuant to E.O. 12630, ''Governmental Actions and Interference with Constitutionally Protected Property Rights,'' 53 FR 8859 (Mar. 15, 1988), DOE has determined that this proposed determination would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

J. Review Under the Treasury and General Government Appropriations Act, 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for Federal agencies to review most disseminations of information to the public under information quality guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). Pursuant to OMB Memorandum M–19–15, Improving Implementation of the Information Quality Act (April 24, 2019), DOE published updated guidelines which are available at *www.energy.gov/sites/prod/files/2019/12/f70/DOE%20Final%20Updated%20IQA%20Guidelines%20Dec%202019.pdf.* DOE has reviewed this NOPD under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

E.O. 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use,'' 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to the Office of Information and Regulatory Affairs (''OIRA'') at OMB, a Statement of Energy Effects for any proposed significant energy action. A ''significant energy action'' is defined as any action by an agency that promulgates or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under Executive Order 12866, or any successor Executive order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed

statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

This proposed determination, which does not propose to amend energy conservation standards for SEMs, is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as such by the Administrator at OIRA. Accordingly, DOE has not prepared a Statement of Energy Effects.

L. Review Under the Information Quality Bulletin for Peer Review

On December 16, 2004, OMB, in consultation with the Office of Science and Technology Policy (''OSTP''), issued its Final Information Quality Bulletin for Peer Review (''the Bulletin''). 70 FR 2664 (Jan. 14, 2005). The Bulletin establishes that certain scientific information shall be peer reviewed by qualified specialists before it is disseminated by the Federal Government, including influential scientific information related to agency regulatory actions. The purpose of the bulletin is to enhance the quality and credibility of the Government's scientific information. Under the Bulletin, the energy conservation standards rulemaking analyses are ''influential scientific information,'' which the Bulletin defines as ''scientific information the agency reasonably can determine will have, or does have, a clear and substantial impact on important public policies or private sector decisions.'' *Id.* at 70 FR 2667.

In response to OMB's Bulletin, DOE conducted formal peer reviews of the energy conservation standards development process and the analyses that are typically used and has prepared Peer Review report pertaining to the energy conservation standards rulemaking analyses.[28] Generation of this report involved a rigorous, formal, and documented evaluation using objective criteria and qualified and independent reviewers to make a judgment as to the technical/scientific/business merit, the actual or anticipated results, and the productivity and management effectiveness of programs and/or projects. Because available data, models, and technological understanding have changed since 2007, DOE has engaged with the National Academy of Sciences to review DOE's analytical methodologies to ascertain whether modifications are needed to improve the Department's analyses. DOE is in the process of evaluating the resulting report.[29]

VII. Public Participation

A. Participation in the Webinar

The time and date of the webinar are listed in the **DATES** section at the beginning of this document. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's website: *www1.eere.energy.gov/buildings/appliance_standards/standards.aspx?productid=3.* Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Prepared General Statements for Distribution

Any person who has an interest in the topics addressed in this NOPD, or who is representative of a group or class of persons that has an interest in these issues, may request an opportunity to make an oral presentation at the webinar. Such persons may submit requests to speak to *ApplianceStandardsQuestions@ee.doe.gov.* Persons who wish to speak should include with their request a computer file in WordPerfect, Microsoft Word, PDF, or text (ASCII) file format that briefly describes the nature of their interest in this proposed determination and the topics they wish to discuss. Such persons should also provide a daytime telephone number where they can be reached.

Persons requesting to speak should briefly describe the nature of their interest in this proposed determination and provide a telephone number for contact. DOE requests persons selected to make an oral presentation to submit an advance copy of their statements at least two weeks before the webinar. At its discretion, DOE may permit persons who cannot supply an advance copy of their statement to participate, if those persons have made advance alternative arrangements with the Building Technologies Office. As necessary, requests to give an oral presentation should ask for such alternative arrangements.

C. Conduct of the Webinar

DOE will designate a DOE official to preside at the webinar/public meeting and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the webinar/public meeting. There shall not be discussion of proprietary information, costs or prices, market share, or other commercial matters regulated by U.S. anti-trust laws. After the webinar/public meeting and until the end of the comment period, interested parties may submit further comments on the proceedings and any aspect of the proposed determination.

The webinar/public meeting will be conducted in an informal, conference style. DOE will present a general overview of the topics addressed in this document, allow time for prepared general statements by participants, and encourage all interested parties to share their views on issues affecting this proposed determination. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the discussion of specific topics. DOE will permit, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this proposed determination. The official conducting the webinar/public meeting will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules or modification of the above procedures that may be needed for the proper conduct of the public meeting.

A transcript of the webinar/public meeting will be included in the docket, which can be viewed as described in the *Docket* section at the beginning of this NOPD. In addition, any person may buy a copy of the transcript from the transcribing reporter.

[28] ''Energy Conservation Standards Rulemaking Peer Review Report.'' 2007. Available at *energy.gov/eere/buildings/downloads/energy-conservation-standards-rulemaking-peer-review-report-0* (last accessed 10/10/2022).

[29] The report is available at *www.nationalacademies.org/our-work/review-of-methods-for-setting-building-and-equipment-performance-standards.*

D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed determination no later than the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments, data, and 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* web page 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.

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 postal mail. Comments and documents submitted via email, hand delivery/courier, or postal 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 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 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 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 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. 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).

E. Issues on Which DOE Seeks Comment

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

1. DOE requests comment on its tentative conclusion that there have been no significant technical advancements since the last rulemaking, and that the technology options developed for the January 2021 Final Determination are still applicable.

2. DOE requests comments on its tentative conclusion that the results of the engineering analysis from the January 2021 Final Determination continue to appropriately apply because: (1) there are no significant technical advancements in induction motor technology that could lead to more efficient or lower cost motor designs since that time, and (2) increases in costs and MSPs only further substantiate that higher efficiencies continue to be cost-ineffective.

3. DOE requests comments on its tentative conclusion that the revised market shares by distribution channel and revised markups and sales taxes would still result in SEM consumer costs and LCC savings that are comparable to the estimates developed for the January 2021 Final Determination.

4. DOE requests comments on its tentative conclusion that the average energy use results for small electric motors are the same as the estimates developed for the January 2021 Final Determination.

5. DOE seeks comment on its tentative conclusion that there are no changes in installation costs by efficiency level.

6. DOE seeks comment on its tentative conclusion that there is no changes in maintenance costs by efficiency level and that small electric motors are usually not repaired.

7. DOE seeks comment on its tentative conclusion that lifetimes have remained the same as estimated in the January 2021 Final Determination.

8. DOE seeks comment on its tentative conclusion that discount rates have not changed significantly since in the January 2021 Final Determination.

9. DOE seeks comment on its tentative conclusion to rely on the same no-new standard case efficiency distributions as in the January 2021 Final Determination.

VIII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notification of proposed determination and request for comment.

Signing Authority

This document of the Department of Energy was signed on January 30, 2023, by Francisco Alejandro Moreno, Acting Assistant Secretary for Energy Efficiency and Renewable Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE **Federal Register** Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the **Federal Register**.

Signed in Washington, DC, on January 30, 2023.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

[FR Doc. 2023–02199 Filed 2–3–23; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2023–0158; Project Identifier MCAI–2022–01148–T]

RIN 2120–AA64

Airworthiness Directives; Airbus SAS Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all Airbus SAS Model A300 series airplanes. This proposed AD was prompted by a determination that new or more restrictive airworthiness limitations are necessary. This proposed AD would require revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive airworthiness limitations, as specified in a European Union Aviation Safety Agency (EASA) AD, which is proposed for incorporation by reference (IBR). The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by March 23, 2023.

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

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

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2023–0158; 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 NPRM, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For material that is proposed for IBR in this NPRM, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; telephone +49 221 8999 000; email *ADs@easa.europa.eu;* website *easa.europa.eu.* You may find this material on the EASA website at *ad.easa.europa.eu.* It is also available at *regulations.gov* under Docket No. FAA–2023–0158.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195.

FOR FURTHER INFORMATION CONTACT: Dan Rodina, Aerospace Engineer, Large Aircraft Section, International Validation Branch, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 206–231–3225; email *dan.rodina@faa.gov.*

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under **ADDRESSES**. Include ''Docket No. FAA–2023–0158; Project Identifier MCAI–2022–01148–T'' at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to *regulations.gov,* including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as ''PROPIN.'' The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Dan Rodina, Aerospace Engineer, Large Aircraft Section, International Validation Branch, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 206–231–3225; email *dan.rodina@faa.gov.* Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

EASA, which is the Technical Agent for the Member States of the European Union, has issued EASA AD 2022–0171, dated August 19, 2022 (EASA AD 2022–0171) (also referred to as the MCAI), to correct an unsafe condition for all Airbus A300B1, A300B2–1A, A300B2–1C, A300B2K–3C, A300B2–202, A300B2–203, A300B2–320, A300B4–2C, A300B4–102, A300B4–103, A300B4–120, A300B4–203, A300B4–220, A300C4–203, and A300F4–203 airplanes. Model A300B1, A300B2–202, A300B2–320, A300B4–102, A300B4–120, A300B4–220, A300C4–203, and A300F4–203 airplanes are not certificated by the FAA and are not