

This document, concerning Energy Conservation Program: Review of DOE's Analytic Methods for Setting Energy Conservation Standards is an action issued by the Department of Energy. Though it is not intended or expected, should any discrepancy occur between the document posted here and the document published in the Federal Register, the Federal Register publication controls. This document is being made available through the Internet solely as a means to facilitate the public's access to this document.

**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**10 CFR Parts 430 and 431**

**[EERE-2022-BT-OT-0004]**

**Energy Conservation Program: Review of DOE’s Analytic Methods for Setting Energy Conservation Standards**

**AGENCY:** Office of Critical Minerals and Energy Innovation, Department of Energy.

**ACTION:** Request for information and request for comment.

**SUMMARY:** The U.S. Department of Energy (“DOE” or the “Department”) requests comment regarding the assumptions, models, and methodologies that DOE uses in setting energy conservation standards for covered products and equipment. Relatedly, DOE also requests comments on the report summarizing the work conducted by the National Academies of Sciences, Engineering, and Medicine (“NASEM”) Committee on Review of Methods for Setting Building and Equipment Performance Standards. DOE also welcomes the submission of data, peer-reviewed studies, and other relevant information related to how DOE might implement NASEM report recommendations and to DOE’s analytical methodology for evaluating energy conservation standards in general.

**DATES:** Written comments and information are requested and will be accepted on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at [www.regulations.gov](http://www.regulations.gov). Follow the instructions for submitting comments.

Alternatively, interested persons may submit comments, identified by docket number EERE-2022-BT-OT-0004, by any of the following methods:

- (1) *Email: AMethodreview2022OT0004@ee.doe.gov.* Include the docket number EERE-2022-BT-OT-0004 in the subject line of the message.
- (2) *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop CM-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. If possible, please submit all items on a compact disc (“CD”), in which case it is not necessary to include printed copies.
- (3) *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop CM-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. 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 V of this document (Submission of Comments).

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

The docket webpage can be found at [www.regulations.gov/#!docketDetail;D=EERE-](http://www.regulations.gov/#!docketDetail;D=EERE-)

2022-BT-OT-0004. The docket webpage contains instructions on how to access all documents, including public comments, in the docket. See section V for information on how to submit comments through *www.regulations.gov*. The docket for the related proceeding to consider updates to DOE's Procedures, Interpretations and Policies for Consideration of New or Revised Energy Conservation Standards for Consumer Products is available at *www.regulations.gov/docket/EERE-2025-BT-STD-0001*.

**FOR FURTHER INFORMATION CONTACT:** Appliance Standards Program, U.S. Department of Energy, Office of Critical Minerals and Energy Innovation, CM-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. E-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

Mr. Peter Cochran, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC 20585-0121. Telephone: (202) 586-4798. E-mail: *Peter.Cochran@hq.doe.gov*.

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

## **SUPPLEMENTARY INFORMATION:**

### **Table of Contents**

- I. Background
- II. Authority
  - A. Statutory Requirements
  - B. Evaluation of Statutory Requirements
- III. Recommendations from the NASEM Report and DOE's Solicitation for Comments
  - A. Problem Statement and Market Failure
    - 1. Uncertainty and Variability
  - B. Technology Assessment
  - C. Key Considerations for Economic Justification Pursuant to EPCA
    - 1. Consumer Effects

- 2. Manufacturer Effects
- 3. Life-Cycle Cost and Energy Savings
- 4. Market Effects
- 5. Emissions
- D. Data Collection
- E. Effects on Power Systems
- IV. Summary of Analysis-related Topics Raised in Comments on the Process Rule RFI
- V. Additional Analytic Topics
  - A. Repair and Installation Cost Assumptions
  - B. Modeling Retirement and Replacement
  - C. Analytic Timeline
  - D. Baseline
  - E. Methodological Support of 42 U.S.C. 6295(o) Analysis
- VI. Submission of Comments
- VII. Approval of the Office of the Secretary

## **I. Background**

The Department of Energy (“DOE”) is seeking information and public comment related to the agency’s forthcoming update of the analytic framework used to carry out requirements in the Energy Policy Conservation Act (42 U.S.C. 6291, *et seq.*; “EPCA”). For example, under 42 U.S.C. 6295(o), DOE utilizes this analytic framework to address statutorily required criteria for prescribing new or amended energy conservation standards (“ECS”). DOE is also proposing updates to the Department’s “Procedures, Interpretations, and Policies for Consideration of New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Certain Commercial/Industrial Equipment” at 10 CFR part 430, subpart C, appendix A (“appendix A” or “Process Rule”). This analytic framework request for information (“RFI”) is a separate but related action to address analytic methodology in greater technical detail. More specifically, DOE is issuing this analytic framework RFI to solicit comment on DOE’s analytical methodologies that support execution of the Process Rule.

On December 18, 2017, DOE published in the *Federal Register* an RFI on the Process Rule. 82 FR 59992. In response to that Process Rule RFI, DOE received a variety of comments

regarding, among other things, its analytical methodologies. These comments were addressed in a notice of proposed rulemaking (“NOPR”) regarding that Process Rule that DOE published in the *Federal Register* on February 13, 2019. 84 FR 3910, 3936-3938. The Department decided that conducting an additional peer review of the analytical methods used in its energy conservation standards rulemakings would be beneficial in evaluating these comments and determining what improvements, if any, could be made to its analytical methodologies. *Id.* DOE chose the National Academies of Sciences, Engineering, and Medicine (“NASEM”) to conduct the peer review and entered into a contract with NASEM on July 15, 2019. NASEM completed the peer review and transmitted to DOE its report, “Review of Methods Used by the U.S. Department of Energy in Setting Appliance and Equipment Standards,” (“NASEM Report”) on January 7, 2022.<sup>1</sup>

On April 17, 2025, DOE published in the *Federal Register* an RFI seeking comments and information from interested parties to assist DOE in identifying potential modifications to its Process Rule. 90 FR 16093. In this 2025 Process Rule RFI, DOE noted that it intends to more closely review the assumptions, models, and methodologies used in setting energy conservation standards for consumer products and equipment. Many of these topics were addressed in the report issued by NASEM and have been the subject of comments submitted by stakeholders in recent energy conservation standards rulemakings. DOE stated that the recommendations in the NASEM report, as well as other conceptual considerations, will be considered by DOE in a separate RFI, which will more specifically request stakeholder comments on those topics. In the 2026 Process Rule NOPR, DOE summarizes comments received in response to the RFI for the

---

<sup>1</sup> The NASEM Report is available at [www.nap.edu/catalog/25992/review-of-methods-used-by-the-us-department-of-energy-in-setting-appliance-and-equipment-standards](http://www.nap.edu/catalog/25992/review-of-methods-used-by-the-us-department-of-energy-in-setting-appliance-and-equipment-standards).

2026 Process Rule that relate to analytic methodology.<sup>2</sup> This analytic framework RFI represents the follow-up request for comments that was previously described by DOE and is referenced in the 2026 Process Rule NOPR.

For ease of use, this RFI is organized based on the findings and recommendations contained in the NASEM report and on the topics raised in stakeholder comments that DOE has received related to its analytical methodologies that were submitted as part of its 2025 Process Rule RFI. DOE seeks comment on how to appropriately consider actions that are consistent with the requirements of EPCA and are responsive to the NASEM report recommendations, as well as aligning with Executive Orders 12866, 14154, and 14303, OMB Circular A-4, and related guidance which are discussed in the paragraphs that follow.

There are multiple Executive Orders with which this effort is consistent. On January 20, 2025, the President issued Executive Order 14154, “Unleashing American Energy” (E.O. 14154). 90 FR 8353 (Jan. 29, 2025). The Executive order stated the policy of the United States with regard to energy production and management. Among the stated elements of this policy at sections 2(f)-(h) of E.O. 14154 are to safeguard the American people’s freedom to choose from a variety of goods and appliances, including but not limited to lightbulbs, dishwashers, washing machines, gas stoves, water heaters, toilets, and showerheads, and to promote market competition and innovation within the manufacturing and appliance industries; to ensure that the global effects of a rule, regulation, or action shall, whenever evaluated, be reported separately from its domestic costs and benefits, in order to promote sound regulatory decision making and prioritize the interests of the American people; and to guarantee that all executive departments and agencies provide opportunity for public comment and rigorous, peer-reviewed

---

<sup>2</sup> See [www.regulations.gov/docket/EERE-2025-BT-STD-0001](http://www.regulations.gov/docket/EERE-2025-BT-STD-0001).

scientific analysis.

On May 23, 2025, the President issued Executive Order 14303, “Restoring Gold Standard Science.” 90 FR 22601 (May 29, 2025). Section 3 of that Executive order instructed the Director of the Office of Science and Technology Policy (“OSTP”) to issue guidance for agencies on implementation of “Gold Standard Science,” meaning science that is reproducible; transparent; communicative of error and uncertainty; collaborative and interdisciplinary; skeptical of findings and assumptions; structured for falsifiability of hypotheses; subject to unbiased peer review; accepting of negative results as positive outcomes; and without conflicts of interest. Further guidance was issued by OSTP on June 23, 2025.<sup>3</sup>

As DOE updates its analytic framework, these efforts will also be consistent with the “Final Information Quality Bulletin for Peer Review” (“the Peer Review Bulletin”) that calls for qualified specialists to peer review influential scientific information disseminated by the Federal government. 70 FR 2664 (Jan. 14, 2005). As defined in the Peer Review Bulletin, “scientific information” means factual inputs, data, models, analyses, technical information, or scientific assessments related to such disciplines as the behavioral and social sciences, public health and medical sciences, life and earth sciences, engineering, or physical sciences. *Id.* at 70 FR 2675. In response to the Peer Review Bulletin, DOE conducted a peer review of the analyses used in a typical energy conservation standards rulemaking: screening and engineering analysis; price markups analysis; life-cycle cost and payback period analyses; consumer sub-group analysis; shipments analysis and national impact analysis; manufacturer impact analysis; utility impact analysis; environmental assessment; employment impact analysis; and the regulatory impact analysis. DOE presented the results of the peer review in a

---

<sup>3</sup> See [www.whitehouse.gov/wp-content/uploads/2025/03/OSTP-Guidance-for-GSS-June-2025.pdf](https://www.whitehouse.gov/wp-content/uploads/2025/03/OSTP-Guidance-for-GSS-June-2025.pdf).

report that was issued in February of 2007.<sup>4</sup>

## **II. Authority**

### *A. Statutory Requirements*

This analytic framework update is consistent with DOE's responsibilities under EPCA in setting ECS. The following section outlines key EPCA requirements in setting ECS and elaborates on economic concepts that correspond to those requirements. This RFI is intended to inform and improve DOE's applied methodologies in meeting the requirements of EPCA at 42 U.S.C. 6295(o)-(q).

DOE may not prescribe a standard: (1) for certain products, if no test procedure has been established for the product, or (2) if DOE determines by rule that the standard is not technologically feasible or economically justified. (42 U.S.C. 6295(o)(3)(A)–(B); 42 U.S.C. 6313(a)(6)(A)-(C); 42 U.S.C. 6316(a)) In determining whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens. (42 U.S.C. 6295(o)(2)(B)(i); 42 U.S.C. 6313(a)(6)(B)(ii); 42 U.S.C. 6316(a)) DOE must make this determination after receiving comments on the proposed standard, and by considering, to the greatest extent practicable, to consider the following seven statutory factors:

- (1) The economic impact of the standard on the manufacturers and consumers;
- (2) The savings in operating costs, throughout the estimated average life of the products (*i.e.*, life-cycle costs), compared with any increase in the price of, or in the initial charges for, or maintenance expenses of, the products which are likely to result from the standard;
- (3) The total projected amount of energy, or as applicable, water, savings likely to result directly from the standard;

---

<sup>4</sup> See <https://www.energy.gov/cmei/articles/building-technologies-office-bto-peer-review-2007>.

(4) Any lessening of the utility or the performance of the products likely to result from the standard;

(5) The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard;

(6) The need for national energy and water conservation; and

(7) Other factors DOE considers relevant.

(42 U.S.C. 6295(o)(2)(B)(i)(I)-(VII); 42 U.S.C. 6313(a)(6)(B)(ii)(I)-(VII); 42 U.S.C. 6316(a))

Furthermore, the new or amended standard must result in a significant conservation of energy (42 U.S.C. 6295(o)(3)(B); 42 U.S.C. 6313(a)(6)(A)-(C); and 42 U.S.C. 6316(a)) and comply with any other applicable statutory provisions.

#### *B. Evaluation of Statutory Requirements*

This analytic framework RFI seeks information, public comment, and/or data on methodological and conceptual tools aimed at a more complete and updated analysis of these statutory factors. The scope of the seven economic justification factors covers a wide array of economic concepts:

1. The economic impact of the standard on the manufacturers and consumers: This factor, which broadly lays out economic impacts to manufacturers and consumers, should be taken into consideration in setting conservation standards regardless of whether those impacts may be readily quantifiable or not. Readily quantifiable effects include potential energy and water savings, assuming that consumers' distribution of consumption of energy and water does not change appreciably over time. Currently, DOE folds some of these impacts into the agency's life-cycle cost and payback period analysis.

Manufacturers' compliance costs are also readily quantifiable using information collected through government data collections, public comment, DOE's tear-downs and other engineering efforts, purchase of proprietary information, and other sources. There are other economic effects that are more difficult to capture on both the consumer and manufacturer sides. Estimating changes in consumers' consumption of substitutes (*e.g.*, used and refurbished appliances) and complimentary goods (*e.g.*, dryers if purchasing washers; detergent choices) as a result of a conservation standard is more difficult. For example, if a clothes washer energy and water conservation standard were to adversely impact cleaning or rinsing performance, consumers that experience any such negative impacts on product performance could potentially alter their usage patterns, for example by using more energy-intensive settings more frequently (*e.g.*, Extra-Hot temperature setting); using more water-intensive cycle options (*e.g.*, Deep Fill option; extra rinse cycles); using non-regulated cycles (*e.g.*, Heavy Duty cycle); or re-washing clothing that has not been cleaned sufficiently. Such changes to consumer usage patterns may counteract the energy and water savings that DOE has estimated would be achieved at the higher efficiency level (*see* 89 FR 19026, 19117 (March 15, 2024)). Similarly, if the same standard also affects how clothing is washed, then consumers may buy more powerful and expensive detergent (complimentary good) in reaction. Alternatively, if a new clothes washer standard materially increases purchase and installation costs for that appliance, consumers may choose not to purchase a clothes dryer when those purchases are very often bundled as complimentary goods. This change could result in losses to society from foregone market exchanges and losses in consumer satisfaction where preferences would typically lean towards a bundled purchase. In addition, new standards

may cause manufacturers to divert resources away from improving features that consumers want. While not exhaustive, the above examples illustrate that quantitative estimates of potential energy and water savings and compliance costs alone may not adequately capture the full range of important effects.

2. The savings in operating costs, throughout the estimated average life of the products (*i.e.*, life-cycle costs), compared with any increase in the price of, or in the initial charges for, or operating and maintaining expenses of, the products which are likely to result from the imposition of the standard: DOE is already explicitly taking this factor into consideration in the agency's life-cycle cost analysis and payback period analysis and recognizes there are elements of consumer behavior and welfare, as well as considerations of the useful life of the appliance, that are not currently captured in this analysis.
3. The total projected amount of energy, or as applicable, water savings likely to result directly from the standard: DOE already explicitly takes this factor into consideration in the agency's life-cycle cost analysis and national impact analysis and recognizes there are elements of consumer behavior and welfare, such as in earlier stated examples, that may affect these estimates but are not currently captured in this analysis.
4. Any lessening of the utility or the performance of the products likely to result from the standard: Consumers value different attributes of products differently. Some may value the energy and/or water efficiency savings more than the cycle time in clothes washers. Others may value cycle time more than the energy and/or water efficiency savings. Others may place value in how effectively any residual detergent is rinsed

from the clothing, or how much moisture is removed from the clothing during the final spin portion of the wash cycle. If changes in energy and/or water conservation standards were to lead to a reduction in certain aspects of cleaning or rinsing performance, then certain consumers may be less satisfied with their clothes washers. Although these types of effects may be more difficult to assess quantitatively than potential energy and/or water savings and compliance costs, they nonetheless should be addressed. On the other hand, consumer purchases often reveal preferences for such functions, and by statute, DOE must consider these changes in utility and performance relative to products in existence at the time a regulation being contemplated.

5. The impact of any lessening of competition, as determined in writing by the Attorney General, that is likely to result from the standard: Lessening of competition is a concern that DOE takes seriously. Increases in market power or significant market consolidation would likely further reduce consumer choices and lead to material increases in the prices of covered products. DOE currently applies a market concentration index (HHI<sup>5</sup>) in evaluating the lessening of market competition. While this index is a helpful indicator, DOE is considering other indicators of lessening competition. Market competition can decline when fewer manufacturers participate in the market or fewer manufacturers choose to produce some product categories. When consumer purchases do not decrease by much as prices rise (in economic terms: demand is relatively inelastic) and competition decreases, manufacturers are able to set prices higher without sharply reducing the number of units sold. For example,

---

<sup>5</sup> The Herindahl-Hirschman Index

consumers often replace large appliances such as water heaters, heat pumps, air conditioners, or refrigerators when they break down, which may result in less price flexibility for the consumer. The result is greater benefits for manufacturers (who sell fewer units at a higher price), reduced benefits for consumers (who buy fewer units at a higher price), and some loss to society (units that could have been produced and sold at lower prices are not produced and benefit no one). To account for the impacts of reduced competition, DOE is considering an analysis that more formally incorporates consumer responsiveness to changes in price (price-elasticity of demand) and the likely price impacts in markets where high consolidation already exists.

6. The need for national energy and water conservation: enhanced energy efficiency, where economically justified, improves the Nation's energy security and strengthens the economy. Reduced electricity demand due to energy conservation standards is also likely to reduce the cost of maintaining the reliability of the electricity system, particularly during peak-load periods. DOE conducts a utility impact analysis to estimate how standards may affect the Nation's needed power generation capacity.
7. Other factors DOE finds relevant: In the past, the Secretary has exercised discretion under factor seven for considerations such as impacts of standards on certain subgroups such as small manufacturers or low-income senior citizens. DOE's comparative analysis can be applied to such distributional outcomes as well, and DOE continues to explore other discretionary considerations. One such consideration may be to explicitly state that the Secretary has determined that any proposed standard for which costs (including consumer welfare losses and losses to society from lost market exchanges) exceed benefits (including energy and operating

cost savings) will presumptively be considered as not economically justified. More generally, the Secretary has sufficient discretion to apply a “walk up approach” under EPCA.

### **Energy Conservation and the Energy Paradox**

The potential for appliance and other covered product buyers to voluntarily forego improvements in energy efficiency that seemingly offer savings exceeding their initial costs is one example of what is often termed the “energy efficiency gap” or “energy efficiency paradox.” Economic theory predicts that, holding all else equal, individuals will purchase more expensive energy-efficient appliances and other covered products if they expect future savings on energy expenditures to offset the higher upfront purchase costs.<sup>6</sup> If buyers fully internalize the expected energy savings that result from higher efficiency in their appliances and other covered products purchase decisions, manufacturers will presumably supply any improvements that buyers demand, and appliances and other covered products prices will fully reflect future energy cost savings that consumers would realize from owning – and potentially reselling – more energy-efficient models, if secondary markets exist. In this case, a regulation that induces increased energy efficiency of appliances and other covered products will impose net private costs on appliance and other covered product owners and can only result in social benefits through correcting other market failures (*e.g.*, imperfect information or internalizing other negative spillover effects). If instead, regulations are issued based on the premise that consumers systematically “undervalue” cost savings generated by improvements in energy efficiency

---

<sup>6</sup> These additional up-front costs include more than just the cost of the technology necessary to improve energy economy; because consumers have a scarcity of resources, it also includes the opportunity cost of any other desirable features that consumers give up when they choose the more energy-efficient appliances and other covered products.

when choosing among competing models, then more stringent energy efficiency standards may lead manufacturers to adopt improvements in energy efficiency that buyers would not choose despite the cost savings they offer.

Whether the value of the resulting realized energy savings will improve consumer welfare depends on if and why consumers appear to undervalue future energy expenditures. If the apparent “undervaluation” is due to factors that are missing from the analysis – *e.g.*, tradeoffs with product functions and attributes such as cleaning performance, increased cycle times when in energy saver mode, or changes in the starkness, warmth, or hue of light bulbs – these hidden or missing costs may be offsetting some or all of the value of energy savings and may not result in additional social benefits. The appearance of such a gap, between the level of energy efficiency that would minimize consumers’ overall expenses and what they actually purchase, is typically based on engineering calculations that compare the initial cost of providing higher energy efficiency to the discounted present value of the resulting savings in future energy costs, and such analyses will not typically capture the above variables. If instead undervaluation is due to consumer or manufacturer inattention to future energy costs resulting from a market failure such as an information asymmetry, then the value of energy savings is a social benefit of the regulation. How potential buyers value improvements in the energy efficiency of new appliances and other covered products is, therefore, an important issue when assessing the benefits and costs of government regulation. There is a large body of empirical literature examining this issue, which comes to varying conclusions about the extent that consumers value these future energy expenditures. As noted in the Office of Management and Budget (“OMB”) Circular A-4

(2003),<sup>7</sup> “individual preferences of the affected population should be a guiding principle in the regulatory analysis.” This literature and its implications for DOE’s analysis will be explored further in DOE’s analytic framework update effort. DOE solicits comment on methodological approaches and literature relevant to the Energy Paradox.

### **III. Recommendations from the NASEM Report and DOE’s Solicitation for Comments**

The NASEM peer review committee organized its findings and recommendations across five areas: (1) framework for developing regulations; (2) assessing current models: engineering and technology cost and technology performance; (3) economic analysis of standards; (4) consideration of alternatives to a national standards program; and (5) addressing the needs of a changing world. The committee provided most advice on how to characterize uncertainty in DOE’s analysis and data collections that would improve the quality of analysis.

The section discusses each of the recommendations and how they relate to DOE’s rulemaking process for energy conservation standards. This section also highlights specific NASEM recommendations relevant to comments from stakeholders in response to the Process Rule RFI. DOE is organizing NASEM recommendations by analytic topics and notes that each recommendation may touch on multiple topics.

#### *A. Problem Statement and Market Failure*

The NASEM report includes four recommendations regarding DOE’s justification for energy conservation rules. These recommendations center around making DOE’s EPCA analysis consistent with the requirements under OMB Circular A-4, given statutory requirements. In particular the NASEM recommendations discussed market failures or other motivation for federal intervention.

---

<sup>7</sup> Office of Management and Budget. (2003). Circular A-4: Regulatory Analysis: [https://obamawhitehouse.archives.gov/omb/circulars\\_a004\\_a-4](https://obamawhitehouse.archives.gov/omb/circulars_a004_a-4).

Specifically, the NASEM report recommendations include:

- RECOMMENDATION 2-2: DOE should pay greater attention to the justification for the standards, as required by executive orders and the EPCA requirement that standards be economically justified. DOE should attempt to find significant failures of private markets or irrational behavior by consumers in the no-standards case and should consider such a finding as being necessary to conclude that standards are economically justified.
- RECOMMENDATION 4-13: DOE should place greater emphasis on providing an argument for the plausibility and magnitude of any market failure related to the energy efficiency gap in their analyses. For some commercial goods in particular, there should be a presumption that the market actors behave rationally unless DOE can provide evidence or argument to the contrary.
- RECOMMENDATION 4-14: The committee recommends that DOE give greater attention to a broader set of potential market failures on the supply side, including not just how standards might reduce the number of competing firms, but also how they might impact price discrimination, technological diffusion, and collusion.

DOE solicits further comment on how the agency should use cost-benefit analysis when determining whether Federal energy conservation standards would be economically justified under EPCA.<sup>8</sup> This request applies generally and with respect to identification of market failure or other behaviors that do not allow efficient allocation of resources, as well as the significance of those market failures or other problems.

---

<sup>8</sup> 42 U.S.C. 6295(o)(2)(B). In addition to statutory requirements, significant regulatory actions (including guidance documents) must adhere to E.O. 12866 and Circular A-4 (if found economically significant). The NASEM also recommended that, consistent with the requirements of EPCA, DOE move engineering technical support documents to appendices and reorient the agency's cost-benefit analysis to be more economically focused and consistent with the requirements of E.O. 12866 and Circular A-4 (*see, e.g.*, NASEM recommendation 2-1).

DOE solicits further comment on how the Department can provide statements and evidence on: (1) demonstration of market failure relevant to the covered products; (2) existence of the energy paradox or energy savings gap in the covered residential product markets; and (3) existence of the energy paradox or energy savings gap for commercial and industrial covered products.

#### 1. Uncertainty and Variability

The NASEM recommended that DOE incorporate methods to better reflect underlying uncertainties in the analysis and variability in consumer use patterns and present those more fully. The uncertainties and variabilities identified by NASEM are central to the seven factors that DOE considers for economic justification under EPCA, in particular economic effects on consumers and manufacturers, savings in operating costs, and the total projected amount of energy and water savings. As a result, while this recommendation pertains to DOE's overall analytic structure and approach, it also has downstream effects on the Key Considerations for Economic Justification Pursuant to EPCA discussed in section III.D of this document.

Specifically, the report includes the following recommendation:

- **RECOMMENDATION 4-15:** In order to evaluate the economic costs and benefits of a standard, DOE should present the distribution of costs and benefits estimated in its models when (1) uncertain parameters are represented by probability distributions and (2) parameters that vary across geographic and other relevant dimensions are disaggregated. The uncertainty or variability the parameters represent should be compounded or propagated—properly accounting for any correlations—throughout the calculation. This methodology is necessary for the markup analysis and manufacturer impact analysis (Recommendation 4-2), the shipments analysis (Recommendation 4-4), and all

components of the life-cycle cost analysis (Recommendations 4-5 and 4-7). Where multiple sources of uncertainty must be combined for the final benefits result, as with net benefits depending on both the shipments analysis and the appliance unit cost and performance, the subcomponents should be reported as well (Recommendation 4-5).

DOE presents estimates for benefits and costs of energy conservation standards<sup>9</sup> and recognizes that there is a significant amount of variability in how consumers use their regulated products. Capturing these distinctions clarifies the allocation of costs and benefits for DOE's standards and reflects variability and uncertainties associated with model inputs.

Understanding variability and uncertainties is an important part of properly interpreting the results of DOE's analysis.

On this topic, DOE solicits comment on: (1) which critical inputs DOE should prioritize in incorporating variability; (2) how DOE should propagate probabilistic assessment throughout the agency analysis; (3) how DOE should present results taking into account these variabilities and uncertainties; and (4) how DOE should guard against ill-advised practices in accounting for variability and uncertainty (*e.g.*, use of Monte Carlo simulation using a distribution derived from small sample sizes).

### *B. Technology Assessment*

The NASEM report includes two recommendations that touch on DOE's assessment of technology that should inform the estimation of the baseline technology which incorporates technology evolution, adoption of technology as a result of energy conservations standards, and technology taxonomy. This assessment is an important input in DOE's determination as to

---

<sup>9</sup> DOE presents aggregate benefits and costs using social discount rates of 3% and 7% and incorporates low-growth and high-growth scenarios from the Energy Information Administration's (EIA) *Annual Energy Outlook (AEO)*.

whether an energy conservation standard is technologically feasible, as required by 42 U.S.C. 6295(o)(2)(A). Specifically, the NASEM recommendations include:

- RECOMMENDATION 3-1: DOE should consider technologies that are at early, pre-competitive technological readiness levels and have promise for use in consumer products and commercial/industrial equipment as part of product population analyzed, even if it seems plausible that they will be screened out in later stages of the analysis such as in the Screening Analysis made during the Notice of Proposed Rulemaking. DOE should continue to use the tools at its disposal, such as reconsidering a previously excluded technology, to avoid prematurely screening-out innovative technologies.
- RECOMMENDATION 3-2: DOE should adopt a taxonomy for labeling the readiness of technologies, such as technology readiness level or “TRL” as it is widely known.

Chapter 3 of the NASEM Report focuses on DOE’s screening and engineering analyses. During the early phase of the rulemaking process, the Department will typically develop a list of design options for consideration. Initially, the design options will encompass all those technologies considered to be technologically feasible. DOE will then conduct a screening analysis to determine which technology options will be considered as part of the engineering analysis.

The design options that are not eliminated by this screening will then form the basis for DOE’s engineering analysis. The engineering analysis uses these design options to develop cost-efficiency relationships for the product or equipment in question. These cost-efficiency relationships are then used to develop efficiency levels, which serve as the basis for the proposed trial standard levels.

The NASEM report found that “The current screening analysis is conservative and may force the exclusion of some otherwise desirable technology options. The most effective appliance efficiency standards would encourage the development and eventual adoption of innovative technology. Other agencies use alternative methods in their own technology evaluations for identifying a technology’s readiness, such as the technological readiness level (“TRL”) taxonomy developed originally by the National Aeronautics and Space Administration (“NASA”).”<sup>10</sup>

DOE requests comment on how the agency can reflect technology evolution that would have occurred even without energy conservation standards and whether the agency’s modeling of TSLs and ELs reflect technology adoption caused by the energy standards.

DOE requests further comments on alternatives for how DOE might best meet these specific NASEM recommendations.

### *C. Key Considerations for Economic Justification Pursuant to EPCA*

EPCA directs DOE to select the standard that represents the maximum improvement in energy efficiency that is technologically feasible and economically justified. (42 U.S.C. 6295(o)(2)(A); 42 U.S.C. 6316(a)) EPCA also states that “[i]n determining whether a standard is economically justified, the Secretary shall, after receiving views and comments furnished with respect to the proposed standard, determine whether the benefits of the standard exceed its burdens by, to the greatest extent practicable, considering [the seven enumerated factors].” (42 U.S.C. 6295(o)(2)(B)(i))

It is within this statutory context that NASEM provided DOE with the recommendations in the following sections. NASEM specifically notes that “EPCA, as amended, authorizes DOE

---

<sup>10</sup> NASEM Report at p. 4.

to issue standards to “achieve the maximum improvement in energy [or water] efficiency . . . which the Secretary determines is technologically feasible and economically justified,” which involves evaluating “whether the benefits of the standard exceed its burdens.”<sup>11</sup> These recommendations are central to DOE’s assessment of the benefits and burdens of its standards, and, as a result, whether a proposed standard meets the statutory criteria for being economically justified.

### 1. Consumer Effects

The NASEM report explicitly recognizes that when consumers buy covered products, they are buying bundles of attributes including potential energy savings. Energy savings is not the only attribute, and may not even be a determining factor in the selection of a given appliance. To that end, the NASEM recommends that DOE collect data on consumer choice and use a discrete choice model to analyze the potential trade-offs consumers are making when purchasing covered products. These trade-offs will likely affect DOE’s estimates of life-cycle costs and shipments (*i.e.*, aggregate demand), as NASEM recommends modeling differences in purchase behavior between the baseline and different TSLs. Consumer purchasing behavior should include effects on shipment data when it involves direct rebound.

Specifically, the NASEM report recommends:

- RECOMMENDATION 5-1: The RIA [Regulatory Impact Analysis] should be grounded in an appreciation of consumer needs beyond reduced energy costs. The RIA should analyze not only the impact of appliance and equipment standards but also the additional impact of measures within a framework that includes the following:

---

<sup>11</sup> NASEM Report at p. 2.

- The portfolio of voluntary elements of demand-side management; and
  - Impact of standards on the overall power system external and internal to the building and of the natural gas supply and transmission and distribution.
- RECOMMENDATION 4-3: DOE should collect data on consumer choices in appliance markets and estimate a discrete choice model of consumer behavior to quantify the trade-offs that consumers face from changes in appliance performance.
  - RECOMMENDATION 4-5: DOE should make changes to the Technical Support Documents underpinning its rulemakings to clearly communicate the dependence of the life-cycle cost (“LCC”) calculation on shipments assumptions and thereby add clarity on the interpretation of LCC savings. In order to clarify the engineering scope of a standard, apart from consumer demand estimates, the technical support documents should include (1) LCC savings for one consumer choosing between purchasing a baseline product or purchasing a TSL and (2) LCC savings for one consumer that could continue to own a baseline product or replace it with a TSL and (3) life-cycle cost savings for products or equipment that meet a given TSL as compared to the baseline without adjusting for the assumed current and future distribution of sales (shipments).
  - RECOMMENDATION 4-9: For purposes of calculating changes in energy use, DOE should consider direct rebound wherever possible; if DOE believes there to be minimal rebound, they should document the reasons why. However, consumer welfare should be understood to benefit from rebound, rather than be harmed by it, notwithstanding the implied increase in energy use. Approximations of the welfare gain from rebound can be incorporated wherever sufficient information allows.

- RECOMMENDATION 4-4: The committee recommends that DOE propagate the uncertainty in the shipments model’s input parameters and present the full range of shipment estimates.
- RECOMMENDATION 4-7: DOE should improve the accuracy of its estimates of all of the LCC calculation components by (1) taking full advantage of disaggregated data to account for geographical and temporal variability when available, (2) specifying probability distributions instead of one-point estimates and compounding or propagating the uncertainty they represent throughout the calculation, (3) better recording the data collected by RECS to avoid losing information provided by respondents, (4) better documenting the engineering analysis to obtain disaggregated probabilistic information necessary for the LCC, (5) prioritizing the collection of information for parameters likely to have a significant impact such as the lifetime of a product (*i.e.*, durability), and (6) validating the assumptions made in previous analyses with data collection through the engineering analyses, focus groups with manufacturers, retailers, consumers, and other means.

To evaluate the economic impacts of a potential standard on consumers, in particular the potential life-cycle cost savings resulting from reduced energy consumption, DOE uses a model based on data reflecting the historic overall market distributions of product efficiency levels within the evaluated consumer sample. As explained in previous energy conservation standards rulemakings, there is a complex set of factors, with sometimes opposing effects, affecting the markets for the various types of products and equipment for which DOE sets efficiency standards, including whether consumers may consider purchasing alternative products.<sup>12</sup>

---

<sup>12</sup> For example, see discussion in the December 2023 Consumer Furnaces Final Rule, sections IV.F.8 to IV.F.11 (covering various consumer preference options). 88 FR 87502, 87574-87596 (Dec. 18, 2023).

Because of limitations on data, DOE's analysis assumes historic market distributions persist across efficiency levels and products. In other words, unless presented with evidence to the contrary, DOE assumes market share and covered product classes remain at the levels prior to the setting of a new ECS, and that those shares and products remain in place over the 30-year time horizon over which DOE currently analyzes ECS in both the baseline and potential standards cases. In cases where additional consumer preference data are identified (*e.g.*, empirically observed demand elasticity estimates for the covered products), they are utilized to inform the life-cycle costs or to establish bounding scenarios. Where such data do not exist, DOE often assumes an elasticity, typically ranging from 0.5, to 1, to 1.5 to reflect changes in demand due to changes in projected price resulting from a policy change. This approach does not capture other behavioral changes, for example, switching between covered product categories (*e.g.*, consumers who need to replace their refrigerators switching from French door models to side-by-side models or top freezer models, which would be captured with cross-price elasticities). Such changes may substantially affect shipment projections as well as projected energy savings.

Stakeholders have in various rulemakings submitted comments recommending changes to this analytical approach. In the absence of specific information or more detailed and disaggregated data that would support an alternative approach, DOE seeks specific comments and any other relevant information that would inform evaluation of refinements to this portion of the analysis for any or all product classes. For relevant confidential business information ("CBI"), DOE seeks information on collection practices that would be helpful and notes that CBI practices are established and utilized under the Paperwork Reduction Act ("PRA") across the Federal Government and at 10 CFR 1004.11.

By specifying an explicit consumer model that allows trade-offs of covered product attributes and using more disaggregated data, DOE may be able to account for the benefits and costs of energy conservation standards more completely and be able to forecast market reactions more accurately. Recall that the determinants of demand for goods include price of the goods, good attributes, and relevant substitute and complimentary goods. By explicitly modeling trade-offs between product attributes and potential energy savings attributable to different TSLs, DOE would be able to forecast more accurately how consumer demand may change for each TSL where each TSL would encompass different energy savings and product attributes (*e.g.*, decreased cleaning and or rinsing performance for higher energy savings). DOE's current approach is intended to analyze the benefits and costs of changing energy conservation standards by focusing solely on the attribute of energy savings. DOE commits to developing a consumer choice model that allows trade-offs between different attributes and energy savings that are reflected in the distribution of consumer choices by product efficiency level, as such a model would allow examination of effects that are specified in EPCA statutory factors due to changes in energy conservation standards and incorporate changes in demand between different products within a covered product category and any reduction in demand due to price changes. DOE requests comment on best approaches to model any and all effects specified in the statutory factors.

DOE is committed to undertaking steps to implement the NAS recommendations on incorporating consumer effects into the agency RIAs. DOE acknowledges that building agency capacity to conduct such analysis will take time and resources. While DOE builds this analytic capacity, DOE seeks comment on how to undertake and present consumer effects analysis in the

near term so that these important effects can be accounted for in the interim (*e.g.* qualitatively), while satisfying the statutory obligation to balance the seven factors.

DOE requests comment on how best to present qualitative effects of its regulations until new processes are in place to provide a more robust quantitative analysis, consistent with the NASEM recommendations and the general purpose of this RFI.<sup>13</sup>

DOE also solicits comment on the types of models the agency should build in response to the NASEM recommendations. A discrete choice model allows for full trade-offs between product attributes. This model would need to interact with DOE's model that represents manufacturer choice to produce products either by assuming that producers minimize total costs to comply with a new standard or assuming that producers maximize total profit when reacting to changes in the minimum energy conservation standard (*e.g.*, there will be a segment of aggregate demand for higher energy conservation than the new minimum energy conservation standard). How should DOE identify the most important product features that should be incorporated into the consumer model? As with any model, all features cannot be incorporated explicitly, and important features should be identified to make the model workable. How should DOE collect data to support a consumer choice model (see more on in section III.D of this document for NASEM recommendations on data collection)?

## 2. Manufacturer Effects

The NASEM report includes recommendations on how DOE should consider manufacturer effects, including:

---

<sup>13</sup> With regard to qualitative effects, Circular A-4 states: "When your analysis is complete, you should present a summary of the benefit and cost estimates for each alternative, including the qualitative and non-monetized factors affected by the rule, so that readers can evaluate them." While the Circular is unambiguous that quantified estimates are preferable to qualitative ones, these qualitative effects should be summarized and presented clearly for both the public and policymakers. The Circular also instructs agencies to differentiate between major and minor qualitative effects, and to provide transparency: "When there are important non-monetary values at stake, you should also identify them in your analysis so policymakers can compare them with the monetary benefits and costs."

- RECOMMENDATION 3-5: DOE should expand the Cost Analysis segment of the Engineering Analysis to include ranges of costs, patterns of consumption, diversity factors, energy peak demand, and variance regarding environmental factors.
- RECOMMENDATION 4-2: To account properly for uncertainty and variability across manufacturers, DOE should report ranges for the input values that feed the GRIM [Government Regulatory Impact Model] model and run GRIM with the lower bound and upper values in the observed ranges. To make the MIA more transparent, DOE should present its estimates of financial parameters and cost of capital from publicly available sources and then report the adjusted values after the responses to interviews have been considered.
- RECOMMENDATION 4-6: DOE should improve the representation of variability and uncertainty on Installed Costs by considering the variation in costs components across states and by leveraging the engineering analysis to obtain a probabilistic characterization of costs components.

The NASEM did not offer advice on the overall structure of the cost model. Instead, the NASEM advice focuses on incorporating variability in costs, consumption, and other inputs to the GRIM and MIA analyses and on better presentation of parameter variability and uncertainty of results, such as including ranges rather than point estimates and better presentation of financial parameters such as cost of capital from publicly available sources (*e.g.*, Federal Reserve Bank of St. Louis). DOE also received comments in response to the Process Rule RFI related to NASEM recommendation 3-5: “DOE should expand the Cost Analysis segment of the Engineering Analysis to include ranges of costs, patterns of consumption, diversity factors,

energy peak demand, and variance regarding environmental factors.” DOE solicits comment on how the agency analysis can incorporate this advice in accounting for variability in inputs, presenting ranges rather than point estimates, and using probabilistic characterization of both inputs and outputs of the analysis. DOE also seeks comment on data collections that DOE may need to undertake to support these advances in the manufacturing analysis. Finally, DOE solicits comments on whether a further wholesale re-examination of modeling cost impacts should be undertaken. In particular, are there methodologies that can be applied in place of or in addition to the GRIM and MIA analyses?

### 3. Life-Cycle Cost and Energy Savings

The NASEM report includes recommendations on how DOE should consider life-cycle cost and energy savings, including:

- RECOMMENDATION 3-3: DOE should characterize the uncertainty on the efficiency rating in its analyses. Rather than providing a “point” estimate of efficiency, DOE should provide a range that reflects the variability in energy consumption under different uses and consumer behavior. This should reflect the need to account for the uncertainty arising from the range of conditions under which a consumer may use a product and then using those use-case ranges to establish sensitivity studies so that efficiency can be communicated as a range rather than a single estimate.
- RECOMMENDATION 4-6: DOE should improve the representation of variability and uncertainty on Installed Costs by considering the variation in costs components across states and by leveraging the engineering analysis to obtain a probabilistic characterization of costs components.

- RECOMMENDATION 4-7: DOE should improve the accuracy of its estimates of all of the LCC calculation components by (1) taking full advantage of disaggregated data to account for geographical and temporal variability when available, (2) specifying probability distributions instead of one-point estimates and compounding or propagating the uncertainty they represent throughout the calculation, (3) better recording the data collected by RECS to avoid losing information provided by respondents, (4) better documenting the engineering analysis to obtain disaggregated probabilistic information necessary for the LCC, (5) prioritizing the collection of information for parameters likely to have a significant impact such as the lifetime of a product (*i.e.*, durability), and (6) validating the assumptions made in previous analyzes with data collection through the engineering analyses, focus groups with manufacturers, retailers, consumers, and other means.

The NASEM's recommendations on life-cycle analysis center on increasing accuracy and the precision of the life-cycle analysis by incorporating disaggregated data as much as possible, as well as better reflecting the underlying probability distribution throughout the analysis.

NASEM found the LCC to overly rely on point estimates and urged better documentation of the analytic steps. Collecting data on product attributes like durability, as well as a range of installation costs, are helpful to more accurate modeling of consumer demand for the products.

DOE requests comments on how to: (1) incorporate disaggregated data that increase the accuracy and precision of the agency estimates, particularly in capturing changes in consumer demand would affect the overall conclusions of the LCC; (2) present the analytic steps of the life-cycle analysis more clearly. DOE further requests insights into how to more clearly present life-cycle analysis steps and results as they correspond to the range of identified TSLs and ELs to

better inform public comment. DOE also requests insights into product attributes that are important to consumer demand that may affect purchasing behavior for each category of relevant goods (*e.g.*, switching from gas water heater to electric water heater and relevant energy consumption rebound). Finally, DOE requests general comments on the Department's LCC approach and whether further revisions to this analysis, such as the addition or substitution of other methodologies or models, might improve estimates.

#### 4. Market Effects

The NASEM report includes recommendations on how to analyze potential price effects attributable to energy conservation standards. The report states that DOE should put more emphasis on analyzing price effects based on observed market-based mark-ups, potential industry consolidation due to competing firms leaving the market and potential for collusion, potential price discrimination between product classes, type and rate of technology diffusion, and other factors that will affect market price for covered products. The NASEM recommendations note that DOE should allow for incorporation of these effects such that the price can increase, stay relatively the same, or even decrease, and not otherwise restrict the model.

Specifically, the report includes:

- RECOMMENDATION 4-1: DOE should put greater weight on *ex post* and market-based evidence of markups to project a more realistic range of likely effects of a standard on prices, including the possibility that prices may fall. This would improve future analyses.
- RECOMMENDATION 4-4: The committee recommends that DOE propagate the uncertainty in the shipments model's input parameters and present the full range of shipment estimates.

- RECOMMENDATION 4-14: The committee recommends that DOE give greater attention to a broader set of potential market failures on the supply side, including not just how standards might reduce the number of competing firms, but also how they might impact price discrimination, technological diffusion, and collusion.

As explained in previous rulemakings,<sup>14</sup> DOE uses the historical Producer Price Index (“PPI”) data from the Bureau of Labor Statistics’ (“BLS”) as a proxy of the historical time series of production cost for a product or equipment that is addressed in the rulemaking and assumes that increases in cost will be fully passed through to consumers. DOE relies on the “learning” or “experience” curves that generally suggest a downward trend in costs. Experience curve analysis implicitly includes factors such as efficiencies in labor, capital investment, automation, materials prices, distribution, and economies of scale at an industry-wide level. In the experience curve method, the real cost of production declines with the cumulative production or “experience” manufacturing a product.

Although there is considerable empirical evidence supporting use of an experience or learning curve (or a generalized price trend) to model price declines over time for various types of products and equipment,<sup>15</sup> DOE has in previous rulemakings received comments from stakeholders questioning the methodology and underlying data. In response to these comments, DOE notes that its utilization of the PPI data stems in large part from the limited data availability on historical manufacturing costs broken down by different components. Still, DOE acknowledges that regressing the dependent variable of price on PPI will reduce or eliminate the

---

<sup>14</sup> See, for example, the Direct Final Rule (DFR) on Energy Conservation Standards for Refrigerators, Refrigerator-Freezers, and Freezers, published in the *Federal Register* on January 17, 2024 (89 FR 3026). Product prices are addressed in section IV.F.2 of the DFR. 89 FR 3026, 3056-3057 (Jan. 17, 2024).

<sup>15</sup> For example, see: Weiss, M., M. Junginger, M. K. Patel, and K. Blok (2010): “*A Review of Experience Curve Analyses for Energy Demand Technologies.*” *Technological Forecasting and Social Change*, 77(3), pp. 411–428 (available at: [doi.org/10.1016/j.techfore.2009.10.009](https://doi.org/10.1016/j.techfore.2009.10.009)) (last accessed October 22, 2025).

substantive robustness and meaning of price forecasts. Further, PPI shifts consumption baskets over time, which is inconsistent with DOE's assumption that the shares of covered products do not change over the 30-year analytic time horizon. In addition, DOE acknowledges the simplified learning curve model employed does not control for autocorrelation while at the same time utilizing time series data. Finally, DOE acknowledges that future price changes can be more robustly modeled, such as through an examination of changes in marginal cost, which is an approach other agencies have applied in forecasting price.<sup>16</sup>

DOE solicits comment on how the agency can model consumer and manufacturer behaviors that result in market reactions to the energy conservation standards. In response to a new standard, manufacturers must comply and may incur additional manufacturing costs. These costs will be passed onto consumers, fully or in part depending on applicable elasticities, and consumers will react by adjusting their purchase in various ways, including by delaying purchases or seeking a similar good in secondary markets if such markets exist. DOE solicits comments on (1) empirical estimates of consumer demand elasticities, manufacturer supply elasticities, (2) how to account for secondary markets, (3) how to conduct price forecasting (rather than exclusively relying on the use of PPI or other indices of inflation); (4) how to account for industry consolidation; and (5) how to account for product differentiation and price discrimination, if relevant. DOE also solicits comment on data requirements and sources for this type of modeling. Finally, DOE solicits comment on whether and which methodological tools and approaches can be employed in addition to or as replacement of existing approaches to model manufacturer and consumer responses to possible ECS.

---

<sup>16</sup> DOE's current approach often assumes full pass through. Depending on industry structure of firms that produce covered products, this assumption may lead to erroneous conclusions about price change and demand change. DOE plans to peer review a more robust model on price forecasting going forward.

## 5. Emissions

Under EPCA, the Secretary exercises his discretion in determining which additional factors should be considered in making a determination regarding economic justification. In DOE's 2026 Process Rule proposal, the Secretary has proposed that DOE will no longer consider environmental emissions as a factor in determining economic justification. The NASEM recommended that DOE monetize all meaningful emission changes that are attributable to energy conservation standards, and at the time of the NASEM recommendations, DOE was estimating such changes as part of the ECS analysis. As DOE is proposing to no longer consider environmental emissions as a factor in determining economic justification, DOE is not specifically seeking information related to this NASEM recommendation.

### *D. Data Collection*

The NASEM report provides advice on future data collections that DOE would need to undertake in order to run more rigorous and disaggregated models of consumers and manufacturers behavior in relation to effects of energy conservation standards. The NASEM recommends collecting ex-post market data on consumer behavior, producer behavior, energy consumption, and environmental impacts that allow variability and probabilistic assessment when appropriate. Also, NASEM recommends that in-situ or real-life energy consumption information may be better than modeled or test data, as consumption behavior may affect overall energy usage, such as through a rebound effect.

Specifically, the NASEM report includes the following:

- RECOMMENDATION 2-3: DOE should commit to collecting data necessary to conduct more rigorous ex post analysis of the effects of standards on consumers, producers, energy consumption, and environmental impacts.

- RECOMMENDATION 3-4: DOE should launch a study to investigate improved methods for data acquisition and analysis for use in setting and revising standards. This study should include an overview of where DOE helps enable collection of these data now and how they can improve that process at minimum impact on manufacturers.
- RECOMMENDATION 4-1: DOE should put greater weight on ex post and market-based evidence of markups to project a more realistic range of likely effects of a standard on prices, including the possibility that prices may fall. This would improve future analyses.
- RECOMMENDATION 4-3: DOE should collect data on consumer choices in appliance markets and estimate a discrete choice model of consumer behavior to quantify the trade-offs that consumers face from changes in appliance performance.
- RECOMMENDATION 4-7: DOE should improve the accuracy of its estimates of all of the LCC calculation components by (1) taking full advantage of disaggregated data to account for geographical and temporal variability when available, (2) specifying probability distributions instead of one-point estimates and compounding or propagating the uncertainty they represent throughout the calculation, (3) better recording the data collected by RECS [the Residential Energy Consumption Survey] to avoid losing information provided by respondents, (4) better documenting the engineering analysis to obtain disaggregated probabilistic information necessary for the LCC, (5) prioritizing the collection of information for parameters likely to have a significant impact such as the lifetime of a product (*i.e.*, durability), and (6) validating the assumptions made in previous analyses with data collection through the engineering analyses, focus groups with manufacturers, retailers, consumers, and other means.

- RECOMMENDATION 4-8: DOE should seek to gather and make use of in situ performance data wherever possible to account for any performance gaps. When estimates of in situ performance data are unavailable, DOE should include a qualitative assessment of the potential for a performance gap. Indicators of performance include maintenance requirements and product lifetime as well as energy and water consumption.
- RECOMMENDATION 4-16: DOE should obtain better data for improving the economic analyses of appliance and equipment performance standards. Empirical data are needed on markups (Recommendation 4-1), consumer choices in appliance markets (Recommendation 4-3), and in situ performance (Recommendation 4-8). Some of this information can come from relatively simple changes to current surveys and studies, including engineering analyses of the Appliance and Equipment Standards Program and the Residential Energy Consumption Survey (Recommendation 4-7).
- RECOMMENDATION 4-17: Ex post analyses can validate assumptions made in prior standards and evaluate the implications of prior forecasts' inaccuracies and mistakes. DOE should use such ex post analyses routinely to improve forward-looking standards iteratively.

Currently, DOE relies on a variety of sources including, but not limited to:

Household surveys:

- US EIA, Residential Energy Consumption Survey (“RECS”)<sup>17</sup>
- US Census, American Housing Survey (“AHS”)<sup>18</sup>
- Federal Reserve, Survey of Consumer Finances (“SCF”)<sup>19</sup>
- US Census, Population data<sup>20</sup>
- Decision Analyst, American Home Comfort Study<sup>21</sup>

Consumer Surveys:

<sup>17</sup> <https://www.eia.gov/consumption/residential/index.php>.

<sup>18</sup> <https://www.census.gov/programs-surveys/ahs.html>.

<sup>19</sup> <https://www.federalreserve.gov/econres/scfindex.htm>.

<sup>20</sup> <https://www.census.gov/topics/population.html>.

<sup>21</sup> <https://www.decisionanalyst.com/syndicated/homecomfort/>.

- Various market research companies<sup>22</sup>
- Various public Lawrence Berkeley National Laboratory (“LBNL”) reports summarizing results of consumer surveys conducted by LBNL<sup>23</sup>

#### Field Metering:

- Pecan Street<sup>24</sup>
- Various public LBNL reports summarizing results of field metering studies conducted by LBNL<sup>25</sup>

#### Review of Permits:

- US Census, Survey of Construction (“SOC”)<sup>26</sup>

#### Company Surveys:

- EEI Typical electricity bill data<sup>27</sup>
- US EIA, Commercial Building Energy Consumption Survey (“CBECS”)<sup>28</sup>

#### Household Energy Supplier Monthly Bills

- US EIA, RECS billing data<sup>29</sup>

#### Weather Data

- NOAA Weather data<sup>30</sup>

#### Manufacturer Interviews Conducted Under Non-disclosure Agreements (“NDA”)

DOE requests comment on these common data sources used in the rulemaking process, including whether they already address any of the NASEM recommendations, and whether any other available data sources would inform DOE’s rulemaking analysis with more detailed or additional data addressing similar topics. DOE solicits further comments on any other specific data elements that DOE should collect that inform promulgation of energy conservation standards.

<sup>22</sup> See e.g., AcuPOLL® Precision Research, Inc. Survey of Consumer Ceiling Fan Usage and Operations. 2014.

<sup>23</sup> See e.g., [https://eta-publications.lbl.gov/sites/default/files/lighting\\_report\\_2022-1220\\_final.pdf](https://eta-publications.lbl.gov/sites/default/files/lighting_report_2022-1220_final.pdf).

<sup>24</sup> <https://www.pecanstreet.org/>.

<sup>25</sup> See e.g., <https://eta-publications.lbl.gov/sites/default/files/lbnl-6868e.pdf>.

<sup>26</sup> <https://www.census.gov/construction/soc/index.html>.

<sup>27</sup> <https://netforum.eei.org/eweb/DynamicPage.aspx?WebCode=SubPubSearch&pager=12&Site=EEIEWEB&EEIEWEBTOKEN=>.

<sup>28</sup> <https://www.eia.gov/consumption/commercial/>.

<sup>29</sup> <https://www.eia.gov/consumption/residential/index.php>.

<sup>30</sup> <https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.ncdc:C00679>.

DOE solicits further comments on appropriate methods that can be used to ensure quality control of the scientific information noted above, including when additional peer review would be necessary.

*E. Effects on Power Systems*

The NASEM provided recommendations on how energy conservation standard analysis should take into account effect on power systems and emissions thereof. As noted previously, in the 2026 Process Rule proposal, the Secretary has exercised his discretion under EPCA to discontinue analyzing emissions impacts as part of his economic justification determination. Regarding the upstream impact to power generation, the NASEM report recommended the following:

- RECOMMENDATION 3-6: DOE should consider Demand Response readiness as a factor in cost-efficiency calculations. This necessitates the inclusion of power system benefits not currently considered.
- RECOMMENDATION 4-10: DOE should credit as economically valuable those features and innovations that save consumers money and enable appliances to contribute to grid efficiency and reliability.
- RECOMMENDATION 4-11: To estimate changes in emissions during the compliance year, DOE should estimate for each state, the changes in the hourly load curve that would result from the adoption of an energy efficiency standard during a full year. Using these estimates, the National Energy Modeling System can incorporate different assumptions about decarbonization of the U.S. electricity system such as the natural gas prices and the penetration of renewable energy and energy storage and estimate a range of emissions changes for each relevant region and time.

DOE is committed to reflecting ongoing changes in the electricity generation system and implications to energy conservation standard analysis, and welcomes comment on how best to do so.

#### **IV. Summary of Analysis-related Topics Raised in Comments on the Process Rule RFI**

As mentioned previously, in response to the 2025 Process Rule RFI, DOE received several comments on topics related to analytic methodologies used by DOE to consider and set standards. These topics also relate to some of the NASEM recommendations, as discussed in section II of this document. The list of commenters on the 2025 Process Rule RFI is summarized in Table 1. In the 2026 Process Rule NOPR also recently published in the *Federal Register*, DOE summarizes comments on analytic methodologies it has received. The NOPR also indicated that DOE would consider analytic comments as part of a separate process. Relevant comments from the 2025 Process Rule RFI are acknowledged below, though discussed in more detail in the Process Rule NOPR.

**Table 1. Commenters with Written Submissions Related to Analytical Methodologies in Response to the April 2025 Process Rule RFI**

Commenter(s)	Abbreviation	Comment No. in the Docket*	Commenter Type
AHRI, AMCA, AHAM, CTA, HPBA, HARDI, NAM, NAMA, NAFEM, NEMA, PHCC, PMI, PTI <sup>31</sup>	Joint Commenters	24	Trade Associations
Air Conditioning Contractors of America	ACCA	38	Trade Association
Air-Conditioning, Heating, and Refrigeration Institute	AHRI	28	Trade Association
ASHRAE	ASHRAE	12	Trade Association
Manufactured Housing Institute	MHI	21	Trade Association
National Association of Home Builders	NAHB	19	Trade Association
National Electrical Manufacturers Association	NEMA	23	Trade Association
National Multifamily Housing Council and National Apartment Association	NMHC and NAA	29	Trade Association
North American Association of Food Equipment Manufacturers	NAFEM	13	Trade Association
Pool & Hot Tub Alliance	PHTA	27	Trade Association
Bradford White Corporation	BWC	34	Manufacturer
Burnham Holdings, LLC	BHI	16	Manufacturer
Lennox International Inc.	Lennox	26	Manufacturer
Rinnai America Corporation	Rinnai	11	Manufacturer
WM Technologies LLC	WM Technologies	14	Manufacturer
Zero Zone, Inc.	Zero Zone	15	Manufacturer
Appliance Standards Awareness Project, American Council for an Energy-Efficient Economy, Consumer Federation of America, National Consumer Law Center	Joint Advocates	31	Environmental and Energy-Efficiency Advocates
Ceres, Inc.	Ceres	22	Environmental and Energy-Efficiency Advocates
Northwest Energy Efficiency Alliance	NEEA	36	Environmental and Energy-Efficiency Advocates
ONE Gas, Inc.	ONE Gas	37	Utility
American Gas Association, American Public Gas Association, National Propane Gas Association	Joint Gas Associations	25	Utility Associations
American Public Power Association	APPA	20	Utility Association
Edison Electric Institute	EEI	35	Utility Association
National Rural Electric Cooperative Association	NRECA	17	Utility Association
Hawaii State Energy Office; Washington State Department of Commerce	State Agencies	33	State Agencies
Heidi King Consulting	Heidi King Consulting	30	Consultant
Mark Strauch	Strauch	18	Individual

\* EERE-2025-BT-STD-0001

<sup>31</sup> The Air-Conditioning, Heating, and Refrigeration Institute (“AHRI”); Air Movement and Control Association (“AMCA”) International; Association of Home Appliance Manufacturers (“AHAM”); Consumer Technology

DOE received several comments pertaining to the analysis conducted in support of the development of energy conservation standards, including comments on the methodology and development of input values related to the general approach,<sup>32</sup> as well as comments pertaining to specific analyses, including: (1) the engineering analysis;<sup>33</sup> (2) the markups analysis;<sup>34</sup> (3) the energy use and life-cycle cost analysis;<sup>35</sup> (4) the environmental analysis<sup>36</sup> and full-fuel-cycle energy metrics;<sup>37</sup> (5) the monetization of emissions analysis;<sup>38</sup> (6) the utility impact analysis;<sup>39</sup> and (7) the manufacturer impact analysis.<sup>40</sup> Some comments on the general approach overlap with recommendations in chapters 2 through 4 of the NASEM report. Some comments on the engineering analysis overlap with recommendations in chapter 3 of the NASEM report. Some comments on the markups analysis, energy use and life-cycle cost analysis, the environmental analysis, the monetization of emissions analysis, the utility impact analysis, and the manufacturer impact analysis overlap with recommendations in chapter 4 of the NASEM report.

---

Association (“CTA”); Hearth, Patio & Barbecue Association (“HPBA”); Heating, Air-Conditioning, Refrigeration Distributors International (“HARDI”); National Association of Manufacturers (“NAM”); National Automatic Merchandising Association (“NAMA”); North American Association of Food Equipment Manufacturers (“NAFEM”); National Electrical Manufacturers Association (“NEMA”); Plumbing-Heating-Cooling Contractors Association (“PHCC”); Plumbing Manufacturers International (“PMI”); and Power Tool Institute (“PTI”).

<sup>32</sup> (BHI, No. 16 at pp. 5-6; BWC, No. 34 at p. 5; Joint Commenters, No. 24 at pp. 3-4; AHRI, No. 28 at pp. 2, 7-8, 11-12; Joint Gas Associations, No. 25 at pp. 23-24, 37-38; APPA, No. 20 at p. 1; Joint Advocates, No. 31 at pp. 2-3; EEI, No. 35 at p. 2; State Agencies, No. 33 at p. 2; Heidi King Consulting, No. 30 at pp. 1-3; Lennox, No. 26 at pp. 6-7).

<sup>33</sup> (Joint Gas Associations, No. 25 at p. 22; Strauch, No. 18 at p. 1; NAFEM, No. 13 at p. 8).

<sup>34</sup> (Joint Gas Associations, No. 25 at p. 22; Lennox, No. 26 at p. 7).

<sup>35</sup> (ACCA, No. 38 at p. 2; AHRI, No. 28 at pp. 4, 7; EEI, No. 35 at p. 2; Joint Gas Associations, No. 25 at pp. 22-24; Joint Advocates, No. 31 at p. 3; Lennox, No. 26 at p. 7; NAHB, No. 19 at p. 4; NMHC and NAA, No. 29 at pp. 2-5; ONE Gas, No. 37 at pp. 2-3; ONE Gas, No. 37 at pp. 2-3; Rinnai, No. 11 at pp. 3, 6-8).

<sup>36</sup> (APPA, No. 20 at p. 5; Ceres, No. 22 at p. 5; NEEA, No. 36 at p. 3; EEI, No. 35 at p. 5).

<sup>37</sup> (Joint Gas Associations, No. 25 at pp. 18-19; ONE Gas, No. 37 at pp. 4-5; Rinnai, No. 11 at pp. 3, 7-8).

<sup>38</sup> (AHRI, No. 28 at p. 10; BWC, No. 34 at p. 5; Ceres, No. 22 at p. 4; State Agencies, No. 33 at p. 2; Strauch, No. 18 at p. 2; NAHB, No. 19 at p. 5; NAFEM, No. 13 at p. 7; Zero Zone, No. 15 at p. 5).

<sup>39</sup> (ONE Gas, No. 37 at p. 4).

<sup>40</sup> (ACCA, No. 38 at p. 2; NAFEM, No. 13 at pp. 2-3; Rinnai, No. 11 at pp. 3, 6).

DOE further received additional comments specific to the following topics: (1) the approach to evaluate hard-to-quantify effects<sup>41</sup> and evaluate market failures;<sup>42</sup> (2) the cumulative regulatory burden analysis;<sup>43</sup> (3) considerations of any potential supply chain constraints;<sup>44</sup> (4) fuel neutrality and analysis of fuel switching;<sup>45</sup> and (5) the need for retrospective review and validation of existing standards prior to initiating new rulemakings.<sup>46</sup> Some of these comments overlap with recommendations in chapters 2 through 4 of the NASEM report. For example, market failures and retrospective analyses are discussed in more than one chapter of the NASEM report.

## **V. Additional Analytic Topics**

In addition to the NASEM report and comments received in the April 2025 Process Rule RFI, DOE has also received comments during previous energy conservation standards rulemakings regarding specific aspects of its analysis. In this section, DOE has identified specific analytic issues on which DOE has previously received such comments and on which the Department is interested in seeking additional information that may inform future revisions or refinements to those analytical methods. These specific topics are addressed in the following paragraphs.

### *A. Repair and Installation Cost Assumptions*

As part of its analysis of the potential economic effects of an efficiency standard, DOE considers installation, repair, and maintenance costs where appropriate. Repair costs are associated with repairing or replacing product components that have failed in an appliance;

---

<sup>41</sup> (Heidi King Consulting, No. 30 at p. 5; Lennox, No. 26 at p. 5; NEMA, No. 23 at p. 6-7; NRECA, No. 17 at p. 2).

<sup>42</sup> (Joint Gas Associations, No. 25 at pp. 21, 22; Heidi King Consulting, No. 30 at p. 3; Rinnai, No. 11 at p. 9).

<sup>43</sup> (AHRI, No. 28 at p. 4; Lennox, No. 26 at p. 6; PHTA, No. 27 at pp. 1-2).

<sup>44</sup> (APPA, No. 20 at pp. 2-3; EEL, No. 35 at pp. 2-3).

<sup>45</sup> (Joint Gas Associations, No. 25 at pp. 11-15, 17; Rinnai, No. 11 at pp. 9, 12).

<sup>46</sup> (ACCA, No. 38 at p. 2; Joint Gas Associations, No. 25 at pp. 26-28; NAHB, No. 19 at p. 4; Rinnai, No. 11 at p. 10).

maintenance costs are associated with maintaining the operation of the product.<sup>47</sup> Typically, small incremental increases in product efficiency entail no, or only minor, changes in repair and maintenance costs compared to baseline efficiency products. In the absence of specific evidence indicating otherwise, DOE typically conducts its analysis under the assumption that repair and maintenance costs will not vary by efficiency level and, thus, have no direct impact on the economic basis for a standard. DOE also endeavors to estimate installation costs and has received comment in the past that space and retrofit considerations are not always captured or fully captured. However, for some products, sufficient data and information exist to support specific installation, repair, and/or maintenance costs for higher-efficiency products. In those cases, the differential costs are incorporated into the analysis. To ensure this approach remains valid, DOE is interested in receiving any comments or information that may suggest consideration of an alternative approach, taking into consideration that this may vary significantly by the type of product or equipment being evaluated.

#### *B. Modeling Retirement and Replacement*

As part of its analysis of the impact on consumer life-cycle costs and product shipments following the implementation of a new or amended efficiency standard, DOE models product lifetime using a survival function, typically based on a Weibull distribution. The survival function is calibrated using available data on average product or equipment lifetime from survey data, manufacturer product literature, confidential manufacturer interviews, and other studies in the literature. DOE also may conduct sensitivity analyses with varying survival functions when available information indicates substantial uncertainty in typical product or equipment lifetimes.

---

<sup>47</sup> This effect is not consumers repairing older covered products in lieu of replacing them with products that meet the minimum energy conservation standards.

DOE often also analyzes the potential impact of consumers choosing to repair their product or equipment at the end of life instead of purchasing a new product or equipment as a result of a higher minimum energy standard level. This extended repair option may be chosen by a fraction of consumers, which will delay the purchase of a new product or equipment, thereby reducing short-term shipments and reducing potential energy savings from a new or amended efficiency standard. Over time, this effect disappears as consumers eventually replace their product or equipment.

DOE has received comments on this methodology in previous rulemakings and is interested in receiving any additional data or information that may inform revisions or refinements to this approach, taking into consideration that this may vary significantly by the type of product or equipment being evaluated. DOE is also interested in comments regarding the assumptions regarding recurring shipments for covered products as they are repeated across the 30-year time horizon.

### *C. Analytic Timeline*

DOE has historically used 30 years as the agency's primary analytic time horizon. This choice reflects the agency's goal of comparing benefits and costs of different agency actions on the same basis across time. As a sensitivity, DOE has also used 9-year analysis timeframe that reflects the agency rulemaking cycle (*i.e.*, the 6-year review cycle plus the 3-year lead time provision under EPCA). One major deficiency of these two timelines is the lack of covered product-specific information, such as useful life or design cycle. Conducting analysis over specific covered product lifetime horizons may increase accuracy and the transparency of the analysis. DOE seeks comment the agency's choice of analytic timeline for analysis, including

whether as a routine application, the 30-year time horizon should be replaced or paired with product-life-specific time horizons.

#### *D. Baseline*

Typically, DOE's energy efficiency standards are set such that significant portion of the market is already meeting or exceeding the standards (*e.g.*, 30%), such that the real effect of DOE's standards is to increase the speed of adoption of energy-efficient appliances. As a result, the rate of technological advance assumed in the baseline is material to the quantification of benefits and costs. For example, a baseline that assumes market evolution toward greater energy or water efficiency even in the absence of a new standard would result in benefits attributed to the standard tending to decline over time as the hypothetical market in the baseline "catches up" with the efficiency levels required by the standard. DOE seeks comment on whether its current approach adequately models the adoption of more efficient technologies over time in the absence of a Federal standard.

#### Request for Comments

DOE is requesting comments on actions DOE should take in response to any of the recommendations in NASEM Report, as well as any of the additional analysis topics described in this RFI. DOE also specifically requests comments on the following topics as key factors to improving the effectiveness and confidence in analytic methodology for appliance and equipment performance standards.

- Specific refinements to analytic inputs that provide meaningful improvements to DOE analysis while avoiding data requests that present undue burden on manufacturers and other industry stakeholders, and also protect consumer privacy;
- Making data used for analysis transparent and accessible. When balancing the protection

of proprietary information held by manufacturers and other industry stakeholders, best practices are used to ensure replicability of analysis;

- How to prioritize various updates and additions to DOE's analysis efforts, including increased use of retrospective analysis.

In alignment with Executive Order 14154 and given requirements under EPCA, DOE requests that commenters give particular consideration to how DOE can most effectively implement the subsections (f) through (h) of Section 2 of E.O. 14154, which relate most directly to DOE's analysis methodologies for appliance and equipment performance standards:

- To safeguard the American people's freedom to choose from a variety of goods and appliances, including but not limited to lightbulbs, dishwashers, washing machines, gas stoves, water heaters, toilets, and shower heads, and to promote market competition and innovation within the manufacturing and appliance industries;

- To ensure that the global effects of a rule, regulation, or action shall, whenever evaluated, be reported separately from its domestic costs and benefits, in order to promote sound regulatory decision making and prioritize the interests of the American people; [and]

- To guarantee that all executive departments and agencies (agencies) provide opportunity for public comment and rigorous, peer-reviewed scientific analysis.

In alignment with Executive Order 14303, DOE requests that commenters give particular consideration to providing data, analysis, and suggestions for updating analytic methodologies that are consistent with the definition of "Gold Standard Science" included in Section 3 of the Order: reproducible; transparent; communicative of error and uncertainty; collaborative and interdisciplinary; skeptical of findings and assumptions; structured for falsifiability of hypotheses; subject to unbiased peer review; accepting of negative results as positive outcomes;

and without conflicts of interest. More detail about each of these characteristics is available in the guidance issued by OSTP on June 23, 2025.<sup>48</sup>

DOE will review comments from this RFI, as well as the Process Rule RFI, alongside the NASEM recommendations. With this information, DOE will begin developing analytical methods and processes that are transparent, accessible, objective, credible, and prevent suboptimal outcomes for industry and consumers.

#### *E. Methodological Support of 42 U.S.C. 6295(o) Analysis*

DOE is interested in comments about methodological approaches and associated data that have not been specifically mentioned that would be beneficial for consideration in addressing the NASEM recommendations and in support of analysis to meeting the requirements of EPCA set forth at 42 U.S.C. 6295(o).

## **VI. Submission of Comments**

DOE invites all interested parties to submit in writing by the date specified in the **DATES** section of this document, comments and information on matters addressed in this document. After the close of the comment period, DOE will review the public comments received and consider next steps.

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

---

<sup>48</sup> [www.whitehouse.gov/wp-content/uploads/2025/03/OSTP-Guidance-for-GSS-June-2025.pdf](http://www.whitehouse.gov/wp-content/uploads/2025/03/OSTP-Guidance-for-GSS-June-2025.pdf).

due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. If this instruction is followed, 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 comments 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 telefacsimiles (“faxes”) will be accepted.

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

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

*Confidential Business Information.* Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email 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).

DOE considers public participation to be a very important part of the process for developing energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE.

## **VII. Approval of the Office of the Secretary**

The Secretary of Energy has approved publication of this request for information and request for comment.

### **Signing Authority**

This document of the Department of Energy was signed on June 30, 2026, by Audrey Robertson, Assistant Secretary (EERE) for Critical Minerals and Energy Innovation, U.S. Department of Energy, pursuant to delegated authority from the Secretary of 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 **June 30, 2026**

**AUDREY**  
**ROBERTSON**

Digitally signed by  
AUDREY ROBERTSON  
Date: 2026.06.30  
15:22:53 -04'00'

---

Audrey Robertson  
Assistant Secretary (EERE)  
for Critical Minerals and Energy Innovation  
U.S. Department of Energy