



DEPARTMENT OF ENERGY

10 CFR Parts 430 and 431

RIN 1904-AE39

Energy Conservation Program for Appliance Standards: Energy Conservation Standards for Residential Furnaces and Commercial Water Heaters

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

ACTION: Notification of final interpretive rule.

SUMMARY: In response to a petition for rulemaking submitted on October 18, 2018 (Gas Industry Petition), the Department of Energy (DOE or the Department) published that petition in the *Federal Register* on November 1, 2018, for public review and input. DOE subsequently published in the *Federal Register* a proposed interpretive rule on July 11, 2019, and a supplemental notice of proposed interpretive rule on September 24, 2020. After carefully considering the public comments on its proposals, DOE has decided to issue a final interpretive rule determining that, in the context of residential furnaces, commercial water heaters, and similarly-situated products/equipment, use of non-condensing technology (and associated venting) constitute a performance-related “feature” under the Energy Policy and Conservation Act (EPCA) that cannot be eliminated through adoption of an energy conservation standard. In light of this final interpretation, published elsewhere in this issue of the *Federal Register*, DOE withdraws its March 12, 2015 proposed rule and September 23, 2016 supplemental proposed rule for energy conservation standards for non-weatherized gas furnace and mobile home gas

furnaces, as well as its May 31, 2016 proposed rule for energy conservation standards for commercial water heating equipment.

DATES: This final interpretive rule is effective **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].**

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

The docket webpage can be found at <http://www.regulations.gov/docket?D=EERE-2018-BT-STD-0018>. The docket webpage contains instructions on how to access all documents, including public comments, in the docket.

For further information on how to review the docket, contact the Appliance and Equipment Standards Program staff at (202) 586-6636 or by email:

ApplianceStandardsQuestions@ee.doe.gov.

FOR FURTHER INFORMATION CONTACT: Ms. Lysia Bowling, Senior Advisor, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, 1000 Independence Avenue, SW., Washington, DC 20585. Telephone: (202) 430-1257. Email:

Lysia.Bowling@ee.doe.gov.

Mr. Eris Stas, U.S. Department of Energy, Office of the General Counsel, 1000 Independence Avenue, SW., Washington, DC 20585. Telephone: (202) 586-5827. Email:

Eric.Stas@hq.doe.gov.

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I. Background

On October 18, 2018, the Department received a petition for rulemaking submitted by the American Public Gas Association (APGA), Spire, Inc., the Natural Gas Supply Association (NGSA), the American Gas Association (AGA), and the National Propane Gas Association

(NPGA), collectively referred to as the “Gas Industry Petitioners,” asking DOE to: (1) issue an interpretive rule stating that DOE’s proposed energy conservation standards for residential furnaces¹ and commercial water heaters² would result in the unavailability of “performance characteristics” within the meaning of the Energy Policy and Conservation Act³ (EPCA; 42 U.S.C. 6291 *et seq.*), as amended (*i.e.*, by setting standards which can only be met by products/equipment using condensing combustion technology and thereby precluding the distribution in commerce of products/equipment using non-condensing combustion technology) and (2) withdraw the proposed energy conservation standards for residential furnaces⁴ and commercial water heaters⁵ based upon such findings. DOE published the petition in the *Federal Register* on November 1, 2018 (83 FR 54883) and requested public comment, with a comment period scheduled to close on January 30, 2019. DOE received two requests from interested parties seeking an extension of the comment period in order to develop additional data relevant to the petition. DOE granted those requests through publication in the *Federal Register* of a notice extending the comment period on the notice of petition for rulemaking until March 1, 2019. 84 FR 449 (Jan. 29, 2019).

The 90-day public comment period, including the 30-day extension to submit comments, invited public input in order to better understand stakeholder perspectives and increase

¹ The Gas Industry Petitioners refer to a notice of proposed rulemaking for residential non-weatherized gas furnaces and mobile home furnaces published in the *Federal Register* on March 12, 2015 (80 FR 13120), as well as a supplemental notice of proposed rulemaking published in the *Federal Register* on September 23, 2016 (81 FR 65720). These DOE proposals may be found in the docket at Docket No. EERE-2014-BT-STD-0031-0032 and Docket No. EERE-2014-BT-STD-0031-0230, respectively.

² The Gas Industry Petitioners refer to a notice of proposed rulemaking for commercial water heating equipment published in the *Federal Register* on May 31, 2016 (81 FR 34440). This DOE proposal may be found in the docket at Docket No. EERE-2014-BT-STD-0042-0018.

³ All references to EPCA in this document refer to the statute as amended through America’s Water Infrastructure Act of 2018, Public Law 115–270 (Oct. 23, 2018).

⁴ Standards for non-weatherized residential furnaces were published in a notice of proposed rulemaking at 80 FR 13120 (March 12, 2015) (Docket No. EERE-2014-BT-STD-0031-0032) and in a supplemental notice of proposed rulemaking at 81 FR 65720 (Sept. 23, 2016) (Docket No. EERE-2014-BT-STD-0031-0230).

⁵ Standards for commercial water heating equipment were published in a notice of proposed rulemaking at 81 FR 34440 (May 31, 2016) (Docket No. EERE-2014-BT-STD-0042).

transparency around a complex issue involving DOE’s legal authority. DOE received comments from a variety of stakeholders, including representatives from gas industry associations, appliance manufacturers, the manufactured housing industry, efficiency advocates, consumer advocates, State organizations and Attorneys General, and individuals (mostly form letter comments). In general, the gas industry associations and the manufactured housing industry supported the petition, and the advocates and State officials opposed it. Furnace and water heater manufacturer reactions to the petition were generally mixed.

After carefully considering the comments on the petition, DOE published a notice of proposed interpretive rule in the *Federal Register* on July 11, 2019, to provide the public additional information about DOE’s tentative interpretation of EPCA’s “features” provision⁶ in the context of condensing vs. non-condensing furnaces and water heaters, as informed by public comments. 84 FR 22011. The proposed interpretive rule tentatively determined that, in the context of residential furnaces, commercial water heaters, and similarly-situated products/equipment, use of non-condensing technology (and associated venting) may constitute a performance-related “feature” under EPCA that cannot be eliminated through adoption of an energy conservation standard. If such interpretation were to be finalized, DOE anticipated that in future rulemakings for affected products/equipment, it would suffice to consider setting product/equipment classes based upon the key distinction of the appliance’s utilization of condensing or non-condensing technology. (The proposed interpretive rule, in which DOE responded to comments on the notice of petition for rulemaking, is discussed in further detail in section II.D of this document.) Once again, DOE received comments from a variety of stakeholders, including representatives from gas industry associations, the housing industry, appliance manufacturers, utilities, environmental and efficiency advocates, consumer advocates,

⁶ See 42 U.S.C. 6295(o)(4); 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa); and as applicable in certain cases through 42 U.S.C. 6316(a).

State organizations and Attorneys General, and individuals. Consistent with the opinions expressed in response to the petition, in general, the gas industry associations, the housing industry, and most manufacturers supported the proposed interpretive rule, and the advocates and State officials opposed it. Specifically, DOE received comments on the proposed interpretive rule from:

Table I.1. Entities Submitting Written Comment on the Proposed Interpretive Rule

Commenter	Affiliation
Advocates Joint Comment <ul style="list-style-type: none"> ▪ Appliance Standards Awareness Project (ASAP) ▪ Alliance to Save Energy (ASE) ▪ American Council for an Energy-Efficient Economy (ACEEE) ▪ Consumer Federation of America (CFA) ▪ National Consumer Law Center (NCLC) 	Energy Efficiency and Consumer Advocates
Air-Conditioning, Heating & Refrigeration Institute (AHRI)	Trade Association
A.O. Smith Corporation (A.O. Smith)	Industry
Attorneys General Joint Comment (AGs Joint Comment) <ul style="list-style-type: none"> ▪ State of New York ▪ State of California ▪ State of Colorado ▪ District of Columbia ▪ State of Illinois ▪ State of Maine ▪ State of Maryland ▪ Commonwealth of Massachusetts ▪ State of Minnesota ▪ State of New Jersey ▪ State of Oregon ▪ State of Vermont ▪ State of Washington ▪ Corporation Counsel of the City of New York 	State/Local Governments
Bradford White Corporation (BWC)	Industry
Burnham Holdings, Inc. (BHI)	Industry
California Energy Commission (CEC)	State Government
California Investor-Owned Utilities (CA IOUs) <ul style="list-style-type: none"> ▪ Pacific Gas and Electric Co. (PG&E) ▪ San Diego Gas and Electric (SDG&E) ▪ Southern California Edison (SCE) 	Utilities
Carrier Corporation (Carrier)	Industry
Ceres BICEP Network (Ceres)	Business Coalition
Consumer Federation of America and National Consumer Law Center (CFA/NCLC)	Consumer Advocates
Crown Boiler Company (Crown Boiler)	Industry
Environmentalists Joint Comment <ul style="list-style-type: none"> ▪ Natural Resources Defense Council (NRDC) ▪ Sierra Club ▪ Earthjustice 	Environmental Advocates

Lennox International, Inc. (Lennox)	Industry
Mortex Products, Inc. (Mortex)	Industry
Natural Resources Defense Council (NRDC)	Environmental Advocate
Nortek Global HVAC (Nortek)	Industry
Petitioners <i>et al.</i> Joint Comment <ul style="list-style-type: none"> ▪ Spire, Inc. ▪ American Public Gas Association (APGA) ▪ American Gas Association (AGA) ▪ National Propane Gas Association (NPGA) ▪ National Gas Supply Association (NGSA) ▪ National Association of Home Builders (NAHB) ▪ Air Conditioning Contractors of America (ACCA) ▪ Plumbing-Heating-Cooling Contractors National Association ▪ National Multifamily Housing Council ▪ National Apartment Association ▪ National Leased Housing Association ▪ Manufactured Housing Association for Regulatory Reform 	Utilities, Trade Associations
U.S. Boiler Company (USB)	Industry
Weil-McLain	Industry
Anonymous	Unaffiliated
Anonymous	Unaffiliated
Sarah G.	Unaffiliated
Kathy McCardwell	Unaffiliated
Elizabeth Reed	Unaffiliated
Suzanne Sorkin	Unaffiliated
Laura Woods	Unaffiliated

In the course of considering the public comments on its proposed interpretation, comments from U.S. Boiler, BHI, and Crown Boiler presented DOE with an alternative approach that did not focus on “non-condensing” technology as the performance-related feature. While the commenters suggesting this alternative were generally supportive of the proposed interpretation, they expressed concern that unless subsequent DOE rulemakings implement the interpretation through product/equipment classes focused on venting compatibility (particularly preservation of Category I venting), many of the same problems identified in the Gas Industry Petition may still arise. In order to gather further information and comment on this specific issue, DOE published a supplemental notice of proposed interpretation in the *Federal Register* on September 24, 2020 (the September 2020 SNOPIR), which proposed alternative approaches to product/equipment class setting in this context. 85 FR 60090. (The supplemental proposed interpretive rule is discussed in further detail in section II.E of this document.)

In response to its supplemental proposed interpretive rule, DOE received comments from:

Table I.2. Entities Submitting Written Comment on the Supplemental Proposed Interpretive Rule

Commenter	Affiliation
Advocates Joint Comment II <ul style="list-style-type: none"> ▪ Appliance Standards Awareness Project (ASAP) ▪ American Council for an Energy-Efficient Economy (ACEEE) ▪ Consumer Federation of America (CFA) ▪ National Consumer Law Center (NCLC) 	Energy Efficiency and Consumer Advocates
Air-Conditioning, Heating & Refrigeration Institute (AHRI)	Trade Association
A.O. Smith Corporation (A.O. Smith)	Industry
Attorneys General Joint Comment (AGs Joint Comment II) <ul style="list-style-type: none"> ▪ State of New York ▪ State of California ▪ State of Colorado ▪ District of Columbia ▪ State of Illinois ▪ State of Maine ▪ State of Maryland ▪ Commonwealth of Massachusetts ▪ State of Minnesota ▪ State of Nevada ▪ State of Oregon ▪ State of Vermont ▪ State of Washington ▪ Corporation Counsel of the City of New York 	State/Local Governments
Bradford White Corporation (BWC)	Industry
California Investor-Owned Utilities (CA IOUs) <ul style="list-style-type: none"> ▪ Pacific Gas and Electric Co. (PG&E) ▪ San Diego Gas and Electric (SDG&E) ▪ Southern California Edison (SCE) 	Utilities
Carrier Corporation (Carrier)	Industry
Crown Boiler Company (Crown Boiler)	Industry
Electrify Now	Energy Efficiency and Environmental Advocates
Lennox International, Inc. (Lennox)	Industry
Mortex Products, Inc. (Mortex)	Industry
Natural Resources Defense Council (NRDC)	Environmental Advocate
Nortek Global HVAC (Nortek)	Industry
Northwest Energy Efficiency Alliance (NEEA)	Energy Efficiency Advocates
Petitioners <i>et al.</i> Joint Comment II <ul style="list-style-type: none"> ▪ Spire, Inc. ▪ Spire Missouri, Inc. ▪ American Public Gas Association (APGA) ▪ American Gas Association (AGA) ▪ National Propane Gas Association (NPGA) ▪ National Gas Supply Association (NGSA) ▪ National Association of Home Builders (NAHB) ▪ Plumbing-Heating-Cooling Contractors National Association 	Utilities, Trade Associations
U.S. Boiler Company (USB)	Industry
Anonymous	Unaffiliated

All comments – on both the proposed interpretive rule and the supplemental proposed interpretive rule -- were carefully and fully considered by DOE. Informed by these comments and reconsideration of the substantial evidence in the relevant rulemaking dockets, the Department is issuing this final interpretive rule to state DOE’s interpretation of EPCA’s “features” provision in the context of condensing vs. non-condensing furnaces, water heaters, and similarly-situated covered products/equipment (and associated venting). The following sections of this final interpretive rule set forth the relevant legal authority, describe the Department’s historical interpretation of EPCA’s “features” provision as applied to condensing vs. non-condensing products/equipment, provide summary of and responses to comments received on both the proposed interpretive rule and supplemental proposed interpretive rule, and recite DOE’s revised interpretation of the relevant statutory provision.

Through this final interpretive rule, DOE is not making any changes to its existing regulations in the Code of Federal Regulations (CFR) or policies regarding individual appliance standards rulemakings, and it cannot and will not take any enforcement action pursuant to its revised interpretation until after the effective date of a final legislative rule, published in the *Federal Register*, amending the applicable product/equipment classes and energy conservation standards, as necessary. Consequently, this final interpretive rule does not change or revise any current policies or legal requirements with respect to residential furnaces, commercial water heaters, or similarly-situated covered products/equipment. Decisions about how this interpretation will apply to existing products/equipment utilizing condensing/non-condensing technologies will be the subject of subsequent actions.

II. Summary Description

A. Relevant Statutory Provisions

In this final interpretive rule, DOE explains its historical interpretation regarding the evaluation of what constitutes a product “feature” which cannot be eliminated under EPCA, specifically in the context of residential furnaces and commercial water heaters. For covered consumer products, the key statutory provision at issue can be found at 42 U.S.C. 6295(o)(4), which provides that the Secretary may not prescribe an amended or new standard under this section if the Secretary finds (and publishes such finding) that interested persons have established by a preponderance of the evidence that the standard is likely to result in the unavailability in the United States in any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the United States at the time of the Secretary’s finding.

Where the Secretary finds such “performance characteristics (including reliability), features, sizes, capacities, and volumes” (collectively referred to hereafter as “features”) to exist, the statute provides a remedy at 42 U.S.C. 6295(q)(1), which states that a rule prescribing an energy conservation standard for a type (or class) of covered products shall specify a level of energy use or efficiency higher or lower than that which applies (or would apply) for such type (or class) for any group of covered products which have the same function or intended use, if the Secretary determines that covered products within such group – (A) consume a different kind of energy from that consumed by other covered products within such group (or class); or (B) have a capacity or other performance-related feature which other products within such type (or class) do not have and such feature justifies a higher or lower standard from that which applies (or will apply) to other products within such type (or class). In making a determination under 42 U.S.C. 6295(q)(1) concerning whether a performance-related feature justifies the establishment of a higher or lower standard, the Secretary shall consider such factors as the utility to the consumer of such a feature, and such other factors as the Secretary deems appropriate.

These provisions also apply to covered non-ASHRAE⁷ commercial and industrial equipment through the crosswalk provision at 42 U.S.C. 6316(a). (Under the statute, “ASHRAE equipment” refers to small commercial package air conditioning and heating equipment, large commercial package air conditioning and heating equipment, very large commercial package air conditioning and heating equipment, packaged terminal air conditioners (PTACs), packaged terminal heat pumps (PTHPs), warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, or unfired hot water storage tanks, which are addressed by ASHRAE in ASHRAE Standard 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*.)

ASHRAE equipment has its own separate statutory scheme under EPCA, with the default situation being that DOE must adopt the level set forth in ASHRAE Standard 90.1 unless the Department has clear and convincing evidence to adopt a more-stringent standard (*see* 42 U.S.C. 6313(a)(6)). Under 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa), there is a similar “features” provision which states, “The Secretary may not prescribe an amended standard under this subparagraph if the Secretary finds (and publishes the finding) that interested persons have established by a preponderance of the evidence that a standard is likely to result in the unavailability in the United States in any product type (or class) of performance characteristics (including reliability, features, sizes, capacities, and volumes) that are substantially the same as those generally available in the United States at the time of the finding of the Secretary.” However, it is noted that this provision contains the specific limitation that it applies to an amended standard prescribed *under this subparagraph* (*i.e.*, when DOE is acting under its authority to set a more-stringent standard). There is no companion “features” provision under 42 U.S.C. 6313(a)(6)(A), which is the provision that would apply when DOE is adopting the levels set by ASHRAE.

⁷ “ASHRAE” refers to the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Congress was clearly aware of the features issue, and it chose to act in the context of DOE standard setting, but not ASHRAE standard setting. There is likewise no companion provision to 42 U.S.C. 6295(q)(1) for ASHRAE equipment.

B. DOE's Historical Interpretation

With this statutory background in mind, in the March 12, 2015 notice of proposed rulemaking (NOPR) for energy conservation standards for residential furnaces, DOE set forth in detail its rationale for why it did not considering the venting of non-condensing furnaces to constitute a product "feature" under 42 U.S.C. 6295(o)(4). 80 FR 13120, 13137-13138.

As discussed previously, when evaluating and establishing energy conservation standards, the statute requires DOE to divide covered products into product classes by the type of energy used, by capacity, or by other performance-related features that justify a different standard. In making a determination regarding whether a performance-related feature justifies a different standard, DOE must consider factors such as the utility to the consumer of the feature and other factors DOE determines are appropriate. (42 U.S.C. 6295(q)) Historically, DOE has viewed utility as an aspect of the product that is accessible to the layperson and is based on user operation, rather than performing a theoretical function. This interpretation has been implemented consistently in DOE's previous rulemakings by determining utility through the value the item brings to the consumer, rather than through analyzing more complicated design features, or costs that anyone, including the consumer, manufacturer, installer, or utility companies may bear. DOE reasoned that this approach is consistent with EPCA's requirement for a separate and extensive analysis of economic justification for the adoption of any new or amended energy conservation standard (*see* 42 U.S.C. 6295(o)(2)(A)–(B) and (3)).

Under EPCA, DOE has typically addressed consumer utility by establishing separate product classes or otherwise taken action when a consumer may value a product feature based on the consumer's everyday needs. For instance, DOE determined that it would be impermissible in light of 42 U.S.C. 6295(o)(4) to include elimination of oven door windows as a technology option to improve the energy efficiency of cooking products.⁸ DOE reached this conclusion based upon how consumers typically use the product: Peering through the oven window to judge if an item is finished cooking, as opposed to checking the timer and/or indicator light or simply opening the oven door (which could waste more energy) to see if the item is finished cooking. DOE has also determined that consumers may value other qualities such as ability to self-clean,⁹ size,¹⁰ and configuration.¹¹ This determination, however, can change depending on technological developments and shifts in consumer behavior/preferences, and it is conceivable that certain products may disappear from the market entirely due to shifting consumer demand. DOE stated that it has determined such value on a case-by-case basis through its own research, as well as public comments received.

DOE offered a cautionary note that disparate products may have very different consumer utilities, thereby making direct comparisons difficult and potentially misleading. For instance, in a 2011 rulemaking, DOE created separate product classes for vented and ventless residential clothes dryers based on DOE's recognition of the "unique utility" that ventless clothes dryers offer to consumers. 76 FR 22454, 22485 (April 21, 2011). This utility could be characterized as the ability to have a clothes dryer in a living area where vents are impossible to install (*e.g.*, an apartment in a high-rise building). As explained in that April 2011 direct final rule technical

⁸ 63 FR 48038, 48041 (Sept. 8, 1998).

⁹ 73 FR 62034, 62048 (Oct. 17, 2008) (separating standard ovens and self-cleaning ovens into different product classes).

¹⁰ 77 FR 32307, 32319 (May 31, 2012) (creating a separate product class for compact front-loading residential clothes washers).

¹¹ 75 FR 59469, 59487 (Sept. 27, 2010) (creating a separate product class for refrigerators with bottom-mounted freezers).

support document, ventless dryers can be installed in locations where venting dryers would be precluded due to venting restrictions.

But in another rulemaking regarding water heaters, DOE found that water heaters that utilize heat pump technology did not need to be put in a separate product class from conventional types of hot water heaters that utilize electric resistance technology, even though water heaters utilizing heat pumps require the additional installation of a condensate drain that a hot water heater utilizing electric resistance technology does not require. 74 FR 65852, 65871 (Dec. 11, 2009). DOE found that regardless of these installation factors, the heat pump water heater and the conventional water heater still had the same utility to the consumer: Providing hot water. *Id.* In both cases, DOE made its finding based on consumer type and utility type, rather than technology utilized that impacts product efficiency.

In its March 2015 energy conservation standards rulemaking proposal for residential furnaces, DOE expressed concern that tying the concept of “feature” to a specific technology would effectively lock-in the currently existing technology as the ceiling for product efficiency and eliminate DOE’s ability to address technological advances that could yield significant consumer benefits in the form of lower energy costs while providing the same functionality for the consumer. DOE stated that it was very concerned that determining features solely on product technology could undermine the Department’s Appliance Standards Program. DOE reasoned that if it is required to maintain separate product classes to preserve less-efficient technologies, future advancements in the energy efficiency of covered products would become largely voluntary, an outcome which seems inimical to Congress’s purposes and goals in enacting EPCA. 80 FR 13120, 13138 (Mar. 12, 2015).

Turning to the product at issue in that 2015 furnaces rulemaking, DOE noted that residential furnaces are currently divided into several product classes. For example, furnaces are separated into product classes based on their fuel source (gas, oil, or electricity), which is required by statute. In the most recent rulemaking for that covered product, DOE analyzed only two product classes for residential furnaces: (1) Non-weatherized gas-fired furnaces (NWGFs) and (2) mobile home gas-fired furnaces (MHGFs). DOE did not additionally separate NWGFs and MHGFs into condensing and noncondensing product classes. *Id.*

In that 2015 furnaces rulemaking, DOE tentatively concluded that the methods by which a furnace is vented did not provide any separate performance-related impacts, and, therefore, that DOE had no statutory basis for defining a separate class based on venting and drainage characteristics. DOE reasoned that NWGF and MHGF venting methods did not provide unique utility to consumers beyond the basic function of providing heat, which all furnaces perform. Using this logic, the possibility that installing a non-condensing furnace may be less costly than a condensing furnace due to the difference in venting methods did not justify separating the two types of NWGFs into different product classes. Unlike the consumers of ventless dryers, which DOE had determined to be a performance-related feature based on the impossibility of venting in certain circumstances (*e.g.*, high-rise apartments), DOE reasoned that consumers of condensing NWGFs are homeowners that may either use their existing venting or have a feasible alternative to obtain heat. In other words, homeowners would still be able to obtain heat regardless of the venting. In contrast, DOE reasoned that a resident of a high-rise apartment or condominium building that is not architecturally designed to accommodate vented clothes dryers would have no option in terms of installing and enjoying the utility of a dryer in their home unless he or she used a ventless dryer. *Id.*

As explained previously, DOE's conclusion in the March 12, 2015 NOPR was that the utility of a furnace involves providing heat to a consumer. DOE reasoned that such utility is provided by any type of furnace, but to the extent that a consumer has a preference for a particular fuel type (*e.g.*, gas), improvements in venting technology may eventually allow a consumer to obtain the efficiency of a condensing furnace using the existing venting in a residence by sharing venting space with water heaters. DOE postulated that this update in technology would significantly reduce the cost burden associated with installing condensing furnaces and reduce potential instances of "orphaned" water heaters, where the furnace and water heater can no longer share the same venting (due to the furnace being a Category IV, condensing product and the water heater being a Category I, noncondensing product). In other words, when mature, this technology could allow consumers to switch from a non-condensing furnace to a condensing furnace in a greater variety of applications, such as urban row houses. For more information, interested parties were asked to consult appendix 8L of the NOPR TSD. *Id.*

C. The Gas Industry Petition

As noted previously, on October 18, 2018, DOE received a petition from the Gas Industry Petitioners asking DOE to: (1) issue an interpretive rule stating that DOE's proposed energy conservation standards for residential furnaces and commercial water heaters would result in the unavailability of "performance characteristics" within the meaning of the Energy Policy and Conservation Act, as amended (*i.e.*, by setting standards which can only be met by products/equipment using condensing combustion technology) and (2) withdraw the proposed energy conservation standards for residential furnaces and commercial water heaters based upon such findings. In their petition, the Gas Industry Petitioners argue that DOE misinterpreted its mandate under section 325(o)(4) of EPCA by failing to consider as a "feature" of the subject residential furnaces and commercial water heating equipment the compatibility of a product/equipment with conventional atmospheric venting systems, the ability to operate without

generating liquid condensate requiring disposal via a plumbing connection, and the ability to operate with other commonly vented appliances. Consequently, the Gas Industry Petitioners assert that DOE's proposals would make unavailable non-condensing products/equipment with such features, which currently exist in the marketplace, in contravention of the statute. The petition makes a number of technical, legal, and economic arguments in favor of its suggested interpretation, and it points to DOE's past precedent related to space constraints and differences in available electrical power supply (and associated installation costs) as supporting its call to find that non-condensing technology amounts to a performance-related "feature." Based upon these arguments, the Gas Industry Petitioners concluded that DOE should issue an interpretive rule treating non-condensing technology as a "feature" under EPCA, withdraw its rulemaking proposals for both residential furnaces and commercial water heaters, and proceed on the basis of this revised interpretation.

D. DOE's Proposed Interpretive Rule

As discussed in section I of this document, DOE published a notice of proposed interpretive rule in the *Federal Register* on July 11, 2019. 84 FR 33011. The substance of that proposed interpretation (summarized in the following paragraphs) was presented in that document. 84 FR 33011, 33020-33021 (July 11, 2019).

In its proposed interpretive rule, the Department noted that in consideration of public comments and other information received on the Gas Industry Petition, DOE proposed to revise its interpretation of EPCA's "features" provision in the context of condensing and non-condensing technology used in furnaces, water heating equipment, and similarly-situated appliances (where permitted by EPCA). Based on those comments and for the reasons set forth fully in that document, DOE proposed to interpret prospectively the statute to provide that adoption of energy conservation standards that would limit the market to natural gas, propane gas and/or oil-fired furnaces, water heaters, or similarly-situated products/equipment (where

permitted by EPCA) that use condensing combustion technology would result in the unavailability of a performance related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)).

As explained in the proposed interpretive rule, the statute accords the Secretary of Energy considerable discretion in terms of determining whether a performance characteristic of a covered product/equipment amounts to a performance-related feature which cannot be eliminated through adoption of an energy conservation standard. DOE stated that it has taken the opportunity presented by the Gas Industry Petition to reconsider its historical interpretation of EPCA's "features" provision in the context of condensing and non-condensing technologies used by certain gas appliances. A number of factors convinced DOE to propose a revision to its interpretation.

First, DOE acknowledged that it has, in the past, taken space constraints and similar limitations into account when setting product classes (*e.g.*, PTACs, ventless clothes dryers). For example, DOE was sensitive to the costs associated with requiring expensive building modifications when it decided to set separate equipment classes for standard size PTACs and non-standard size PTACs. 73 FR 58772, 58782 (Oct. 7, 2008). DOE stated that it expects that similar expenses would occur here, if DOE were to hold to its historical interpretation, at least for some subset of installations. Although limited data were provided to address the actual costs that consumers and commercial customers would face to modify their existing category I venting, there is little doubt that some number of such installations would be quite costly. These more complicated/costly installations are documented as part of DOE's analysis of the venting costs for residential furnaces, which considered potential venting modifications that could be required when replacing an existing category I furnace with a condensing (category IV) furnace (see appendix 8D of the 2016 SNO PR TSD for further details).

Second, DOE stated that it has in the past focused on the consumer's interaction with the product/equipment in deciding whether a performance feature is at issue. In the context of residential furnaces and commercial water heaters, DOE has focused on the primary function of the appliance (*e.g.*, providing heat to a home or potable hot water) in establishing the nexus to the consumer. In the past, DOE opined that consumers were only interested in obtaining heat or hot water from the appliance, so they would not care about the mechanism for generating that end product. However, commenters have made clear that in at least some cases, the physical changes associated with a condensing appliance may change a home's aesthetics (*e.g.*, by adding new venting into the living space or decreasing closet or other storage space), thereby impacting consumer utility even under DOE's prior approach.

Third, DOE noted that it has been the Department's policy to remain neutral regarding competing energy sources in the marketplace. As certain commenters have pointed out, and as DOE's own analyses have shown, some enhanced level of fuel switching is likely to accompany standard setting using DOE's prior interpretation. Many consumers who are currently gas customers may show a preference for that fuel type and would be negatively impacted by a standard that requires the purchase of a condensing unit to the extent they feel compelled to change to a different fuel type. DOE explained that it seeks neither to determine winners and losers in the marketplace nor to limit consumer choice.

Finally, DOE stated that it is very concerned about ensuring energy affordability, particularly for persons with low incomes. Although energy efficiency improvements may pay for themselves over time, there is typically a significant increase in upfront costs associated with furnaces and water heaters using condensing technology. For consumers with difficult installation situations (*e.g.*, inner-city row houses), there would be the added cost of potentially extensive venting modifications. In certain cases, commenters have argued that accommodating condensing products may not even be possible. Although DOE continues to believe that costs

are properly addressed in the economic analysis portion of its rulemakings, it stated that it remains cognizant of such issues. DOE stated that it has tentatively concluded that the other reasons discussed immediately above are sufficient in and of themselves to justify the Department's proposed change in interpretation, but it acknowledged these cost impacts in order to be fully transparent in terms of the agency's thinking.

The agency reasoned that creating separate product classes for condensing and non-condensing furnaces, water heaters, and similarly-situated products/equipment (where permitted by EPCA) would prevent many of these potential problems. Although DOE's proposed revised approach may have some impact on overall energy saving potential as a result of establishing separate product/equipment classes, the Department noted that that is not the touchstone of EPCA's "features" provision; through that provision, Congress expressed its will that certain product utilities will take priority over additional energy-saving measures. (For example, DOE did not eliminate the oven window which consumers found useful.) With that said, DOE expressed its belief that any potentially negative programmatic impacts of its revised interpretation are likely to be limited. DOE reasoned that the proposed interpretation would be likely to impact only a limited set of appliances, and DOE noted that market trends have favored the growing reach of condensing furnaces, even as non-condensing alternatives have remained available. DOE stated that it has every reason to believe that such trends will continue.

DOE sought to clarify the limitations of its proposed revised interpretation, based upon the existing statutory provisions. As noted, additional, subsequent DOE action would be required before the interpretation in the proposed interpretive rule could be implemented. The proposed interpretive rule, even once finalized, would not alter the Department's current regulations. DOE anticipates continued engagement and productive involvement of members of the public and the regulated community in subsequent activities that may follow this interpretation.

As discussed in the proposed interpretive rule, DOE decided to grant the Gas Industry Petition to the extent that it proposed to prospectively interpret the statute to provide that adoption of energy conservation standards that would limit the market of natural gas and/or propane gas furnaces, water heaters, or similarly-situated products/equipment (where permitted by EPCA) to appliances that use condensing combustion technology would result in the unavailability of a performance related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)). The proposal clarified that such interpretation would apply to all applicable residential products, non-ASHRAE commercial equipment, and ASHRAE equipment where DOE adopts a level more stringent than the ASHRAE level.

DOE stated in the 2019 proposed interpretive rule that it is denying the Gas Industry Petition as it pertains to those rulemakings where ASHRAE sets standard levels that trigger DOE to consider and adopt those level (unless DOE finds clear and convincing evidence to adopt more-stringent levels), due to lack of authority. DOE also denied the Gas Industry Petition's request for DOE to withdraw the proposed rules for residential furnaces and commercial water heaters as unnecessary. DOE stated that if the interpretive rule were to be finalized, it would anticipate developing supplemental notices of proposed rulemaking (SNOPRs) that would implement the new legal interpretation for those two rulemakings that were the subject of the petition for rulemaking.

E. DOE's Supplemental Proposed Interpretive Rule

As noted in section I of this document, DOE published a notice of supplemental proposed interpretive rule in the *Federal Register* on September 24, 2020. 85 FR 60090. DOE's supplemental proposal was designed to gather further information in response to comments from U.S. Boiler, BHI, and Crown Boiler, suggesting an alternative approach that did not focus on

“non-condensing” technology as the performance-related feature. While the commenters suggesting this alternative were generally supportive of the proposed revised interpretation, they expressed concern that unless subsequent DOE rulemakings implement the interpretation through product/equipment classes focused on venting compatibility (particularly preservation of Category I venting), many of the same problems identified in the Gas Industry Petition may still arise. (USB, No. 78 at pp. 1-2; BHI, No. 83 at pp. 1-2; Crown Boiler, No. 79 at pp. 1-2) In order to gather further information and comment on this issue, DOE proposed alternative approaches to product/equipment class setting in this context, as explained in the September 24, 2020 notice of supplemental proposed interpretation at 85 FR 60090, 60094-60095, and as summarized in the following paragraphs.

In the supplemental proposed interpretive rule, DOE initially responded to these comments from USB, BHI, and Crown Boiler by noting that, while separate from the product/equipment, the venting system is inextricably linked to the design of the appliance. Because the venting system is a separate component from the product, DOE initially sought to focus on non-condensing operation as the performance-related characteristic of the appliance itself. However, after further considering these commenters’ concerns, DOE stated its intention to explore whether interpreting non-condensing operation to be a feature might still result in a reduction of utility for certain consumers, because some non-condensing appliances require connection to venting systems other than Category I and may result in many of the installation issues that DOE seeks to address through this interpretive rulemaking.

As a result, in the supplemental proposed interpretation, DOE further considered what constitutes a “feature” or “performance-related characteristic” under EPCA, and in particular, whether such feature might be based on venting system compatibility of the appliance. Because the most significant concerns regarding venting system compatibility involve use of gas

appliances that are not compatible with Category I venting in place of gas appliances that are compatible with Category I venting, DOE considered whether compatibility with Category I venting should be a protected feature under EPCA. Moreover, DOE also considered whether *any* impact to venting system compatibility resulting from increasing product or equipment efficiency standards would cause the aforementioned issues. For example, it is conceivable that if a more-stringent standard results in an appliance compatible with Category III venting systems being replaced with an appliance that is only compatible with Category IV venting systems, many of the same issues might arise as have been identified for the replacement of appliances compatible with Category I venting systems. Thus, compatibility with venting systems of any type could conceivably be a feature that consumers desire and which DOE must consider when evaluating more-stringent standards. Under such an interpretation, compatibility with each existing venting technology would be a feature under EPCA that could require separate classes based on compatibility with venting systems for each venting category, and uncategorized venting systems could also require separate classes.

DOE noted that the first approach (*i.e.*, considering only Category I venting compatibility as a performance-related feature) has the benefit of potentially simplifying the regulatory scheme in comparison to the latter approach, which could require classification of appliances in each venting category separately. The first approach would result in more streamlined regulations and product/equipment classes for gas appliances, as compared to the latter approach, while resolving the most significant issues involved with venting system compatibility. The latter approach potentially would address more comprehensively possible issues related to the compatibility of an appliance with venting systems, but it would make the regulatory scheme more complex and could result in elevated compliance burdens, as the number of product/equipment classes for vented appliances could increase greatly (*e.g.*, each current class of gas appliance could require further segmentation by each of the four categories of venting and also could need to account for

gas appliances that are compatible with uncategorized venting systems). DOE stated that both approaches would have the benefit of not limiting the Department to consideration of the combustion technology that provides the function of the appliance (*e.g.*, condensing, non-condensing), about which some commenters have expressed concerns. Instead, DOE's focus would be to ensure compatibility with existing venting, thereby allowing DOE to be responsive to potential future technological advances in venting system compatibility.

Based on these considerations, DOE stated that it was considering an alternative interpretation (with two potential variations), in addition to the interpretation proposed in the July 2019 notice of proposed interpretive rule. As discussed previously, the July 2019 notice of proposed interpretive rule proposed that adoption of energy conservation standards that would limit the market to natural gas and/or propane gas furnaces, water heaters, or similarly-situated products/equipment (where permitted by EPCA) that use condensing combustion technology would result in the unavailability of a performance-related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)). In the notice of supplemental proposed interpretation, DOE also proposed an interpretation that an appliance's compatibility with a venting system is a performance-related characteristic of that appliance under EPCA. Specifically, DOE stated that it is also considering an interpretation that, based on current appliance/venting system compatibility limitations, the adoption of energy conservation standards that would limit the market to natural gas and/or propane gas furnaces, water heaters, or similarly-situated products/equipment (where permitted by EPCA) that are incompatible with any existing venting systems available on the market would result in the unavailability of a performance related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)). DOE stated that it considered limiting its proposal to include only that compatibility with Category I venting systems is a feature, as

suggested by the commenters, and seeks comment on doing so. In addition, DOE indicated that it is considering a broader approach taking into consideration all venting categories since concerns similar to those that gave rise to the petition could conceivably occur for appliances that are compatible with venting systems other than Category I. The Department noted that after examining the totality of public comments on this issue and the potential approaches, it will consider adopting either of these alternative or the original proposed approach, as appropriate, in its final interpretation.

The comment period on the September 24, 2020 supplemental proposed interpretive rule was originally scheduled to end on October 26, 2020. However, on September 25, 2020 and October 6, 2020, DOE received two requests for extension of the comment period (from A.O. Smith and Lennox, respectively), asserting that additional time is needed because the supplemental proposed interpretive rule addresses multiple product types and raises complex issues. On September 29, 2020, DOE received a comment from the submitters of the Gas Industry Petition seeking prompt action on their petition. Balancing these competing requests, DOE determined it appropriate to extend the public comment period on the supplemental proposed interpretive rule until November 9, 2020. Notification of the extension of the public comment period was published in the *Federal Register* on October 22, 2020. 85 FR 67312.

III. Response to Comments

DOE received a number of comments with divergent views on the Department's proposed interpretive rule and supplemental proposed interpretive rule related to the Gas Industry Petition, with some supporting the proposal and others in opposition.¹² Comments from gas industry associations, certain trade associations, and some individual manufacturers generally expressed

¹² DOE notes that it received two comments which appear to relate to a separate DOE rulemaking for revisions to the Department's waiver/interim waiver process for test procedures (Docket No. EERE-2019-BT-NOA-0011). Apparently, these comments were either submitted or posted to the wrong docket. DOE has referred these comments to staff of the Appliance Standards Program for placement in the correct docket.

support for the proposed interpretive rule. Comments from environmental and efficiency advocacy organizations, consumer advocacy organizations, other manufacturers, certain States and Attorneys General, and a few members of the public generally opposed it. The following sections of this final interpretive rule summarize the comments received on the proposed interpretive rule and supplemental proposed interpretive rule and provide DOE's responses to those comments. Then, consistent with its statutory authority and after considering the comments received along with all other available information, DOE sets forth its final interpretation. To aid in organizing the comments, this section categorizes public comments on the proposed interpretive rule and supplemental proposed interpretive rule in terms of legal authority, economic issues, analytical matters, and other related issues.

A. Legal Authority

As DOE explained in section II.B of this document, for the purposes of EPCA, DOE has in prior instances considered product/equipment "features" in the context of a consumer's interaction with the appliance in question. With the submission of the Gas Industry Petition, DOE had the opportunity to re-evaluate its prior interpretation and to seek public input to further inform the agency's consideration, particularly in regards to its technical implications, as well as the needs of consumers (including those with low incomes). While DOE continues to embrace the concept of a "feature" being tied to a consumer's interaction with an appliance, the Department has come to see that it has been too narrow in its focus on what constitutes such consumer interaction with residential furnaces, commercial water heaters, and similarly-situated products/equipment that utilize non-condensing technology (and associated Category I venting). For the reasons explained subsequently, in future rulemakings, DOE will carefully examine the range of consumer impacts (based upon the record evidence in a given rulemaking) and may establish separate product/equipment classes for appliances using non-condensing technology (and associated venting), consistent with this final interpretive rule.

DOE is issuing this interpretation as an interpretive rule within the meaning of the Administrative Procedure Act. 5 U.S.C. 551(4); 5 U.S.C. 553(b)(A). In issuing its proposed interpretation, DOE solicited public comment regarding the Department's views on a specific legal question: Whether non-condensing technology (and associated venting) constitutes a performance-related "feature" under 42 U.S.C. 6295(o)(4),¹³ as could support a separate product/equipment class under 42 U.S.C. 6295(q)(1),¹⁴ including the authority that Congress conferred on DOE through those provisions.

1. Legal Authority to Set Separate Product/Equipment Classes Based Upon Condensing and Non-Condensing Technologies

As discussed, the Gas Industry Petition raised the issue of whether non-condensing technology, including associated venting, constitutes a "performance characteristic" or "feature" under 42 U.S.C. 6295(o)(4), and if it is, whether it justifies a separate product/equipment class under 42 U.S.C. 6295(q)(1). Not unlike the submissions on the notice of petition, commenters on the proposed interpretive rule expressed strongly held but conflicting views regarding DOE's legal authority to determine non-condensing technology used in furnaces and water heaters, including the associated venting, to be a "performance characteristic" or "feature" within the meaning of the statute, and whether as a "performance characteristic" or "feature" it would justify a separate product/equipment class and energy conservation standard.

a. Comments Supporting the Proposed Interpretation

¹³ For non-ASHRAE equipment, the "features" provision at 42 U.S.C. 6295(o)(4) is applicable through 42 U.S.C. 6316(a); for ASHRAE equipment where DOE is setting more-stringent standards, the "features" provision at 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) applies.

¹⁴ For non-ASHRAE equipment, the class provision at 42 U.S.C. 6295(q)(1) is applicable through 42 U.S.C. 6316(a).

A number of commenters expressed support for DOE's proposed interpretive rule and recommended that the Department take action to finalize its interpretation along the lines proposed. (Petitioners *et al.* Joint Comment, No. 80 at p.2; Weil-McLain, No. 86 at p. 1; AHRI, No. 91 at p. 1; Carrier, No. 92 at p. 1; BHI, No. 83 at pp. 1-2; USB, No. 78 at p. 1; BWC, No. 77 at pp. 1-2; Nortek, No. 71 at p. 1; Mortex, No. 72 at p. 1) Crown Boiler and USB stated that adoption of an energy conservation standard at levels requiring the use of condensing technology would result in the unavailability of a performance-related feature under EPCA. (Crown Boiler, No. 79 at p. 1; USB, No. 78 at p. 1)

Several commenters argued that DOE's proposed interpretive rule would enhance consumer choice. (Mortex, No. 72 at p. 1; Carrier, No. 92 at p. 1; Nortek, No. 71 at p. 1) Other commenters found that DOE's proposed interpretation offers greater consumer utility, particularly in those applications where venting represents a significant challenge. (AHRI, No. 91 at p. 1) Regarding residential furnaces, AHRI argued that in some applications, conversion to use of venting compatible with condensing systems would create problems that cannot be "simplistically rolled into an economic analysis." More specifically, the trade association argued that a separate product class would assist consumers who require like-for-like replacement of their existing furnace due to size or drainage constraints or water heater co-venting (a point echoed by Nortek, No. 71 at pp. 1-2, and Carrier, No. 92 at p. 1). According to AHRI, "EPCA prohibits eliminating product utility precisely to prevent the disproportionate harm to a subset of unlucky consumers." (AHRI, No. 91 at p. 2) Making the same point, Nortek reasoned that because consumers are already moving in the direction of condensing furnaces, banning non-condensing furnaces is not necessary and would only serve to disproportionately harm those consumers for whom venting changes would be difficult or impossible. (Nortek, No. 71 at pp. 1-2)

Regarding commercial water heaters, AHRI argued that Commercial Buildings Energy Consumption Survey (CBECS) data suggest that over half of commercial buildings were constructed prior to the introduction of condensing venting requirements, which means that many of these commercial buildings face the same venting challenges as some residences. AHRI pointed to examples where mechanical rooms are built into the core of the building (thereby preventing the side-wall venting sometimes required by condensing equipment), so such building owners would be forced to either switch fuels or to use up valuable retail, restaurant, or office space for an enlarged or relocated mechanical room to accommodate new drainage or different venting configurations. Especially since there is already a market trend toward condensing commercial water heaters, AHRI argued that it is neither necessary nor advisable to require condensing equipment in all applications. Instead, the commenter stated that establishment of a separate class for non-condensing equipment would preserve the ability of commercial consumers facing difficult installation situations to make like-for-like replacements and to avert the need to reconstruct a mechanical room, add unsightly piping, or switch to an electric water heater, all without impacting the overall trend toward installation of more-efficient condensing water heaters. (AHRI, No. 91 at p. 3)

Regarding residential and commercial boilers, AHRI noted that DOE's proposed interpretation provides an important safety measure for gas-fired products/equipment that assures safer use and installation. More specifically, AHRI commented that gas-fired boilers are not simply divided into condensing and non-condensing models but are split into four different categories based on venting type (Category I-IV). AHRI stated that Category I venting is at the crux of DOE's proposed interpretation, because that is the type of venting which is difficult to substitute for another type once installed. The commenter added that a minimum energy conservation standard that "pushes the efficiency envelope" may cause nominally non-condensing equipment to become incompatible with Category I venting and could result in the

unsafe installation or use of misapplied equipment. AHRI stressed that safety of venting is unquestionably a performance-related feature. Once again, AHRI stated that the boilers market in new construction is trending toward condensing equipment and venting, so the performance feature of Category I venting is most necessary for the replacement market. The commenter also suggested that further increases in the minimum energy conservation standards for boilers should be examined carefully, because those standards are already near the level where venting challenges similar to those for condensing equipment could arise. (AHRI, No. 91 at pp. 4-5)

Mortex made similar arguments in the context of furnaces, suggesting that DOE's proposed interpretation would promote flexibility and safety by not forcing an upgrade to a condensing furnaces in some applications where non-condensing venting remains the best choice. (Mortex, No. 72 at p. 1)

The Petitioners *et al.* Joint Comment asserted that energy conservation standards that would make atmospherically-vented products unavailable to consumers would do more to promote electrification (*i.e.*, a shift to electric appliances) than to promote the efficiency of gas products, because many consumers would feel that they have no choice but to give up their gas appliances in favor of electric alternatives. These commenters characterized the situation as one where the imposition of a standard that effectively bans atmospherically-vented gas appliances would result not in the sale of an increased number of more efficient gas products, but in the sale of fewer gas products overall. The Gas Industry Petitioners argued that they are not opposed to condensing technology generally or market trends favoring such technology, nor are they seeking to create missed opportunities for consumers, businesses, and governments, as some of their opponents have claimed. Instead, these commenters stated that they are simply making the case that condensing products are not suitable for all installations and that it is the opponents of the petition who are the ones seeking to deny consumers the products which best serve their needs. (Petitioners *et al.* Joint Comment, No. 80 at pp. 3-4)

Regarding the consumer utility of atmospherically-vented appliances, the Petitioners *et al.* Joint Comment stated that for some consumers, the consumer utility provided by the proposed interpretive rule would be the same utility as DOE found with ventless clothes dryers (*i.e.*, the ability to have the product installed at all). The comment argued that for other consumers, the utility may be similar to that found for “space-constrained” appliances (*i.e.*, the ability to have the product fit without the need for building modifications). For yet other consumers, the comment stated that the utility may be preventing the need to scrap another perfectly good appliance (*e.g.*, an orphaned water heater). The Petitioners *et al.* Joint Comment added that other consumers may find utility in an appliance which obviates the need for undesirable building modifications (*e.g.*, sacrifice of an existing interior living space, balcony, or window – concerns which can also arise in the context of new construction¹⁵). These commenters concluded that there is no basis for characterizing these losses of utility as a mere matter of cost, rather than performance-related characteristics under EPCA’s “features” provision. (Petitioners *et al.* Joint Comment, No. 80 at pp. 10-11)

Pointing to EPCA’s statutory standards for direct heating equipment which are differentiated “principally in their manner of installation,” the Petitioners *et al.* Joint Comment argued that “it is absurd to suggest that Congress intended to ensure the continued availability of products with sizes – but not products with venting or other performance characteristics – needed to ‘fit in standard building spaces’ without the need for building modifications.” (Petitioners *et al.* Joint Comment, No. 80 at p. 12) Applying this principle in the present context, the Petitioners *et al.* Joint Comment stated that condensing products are at least typically larger than

¹⁵ The Petitioners *et al.* Joint Comment provided a figure depicting multi-family housing and stated that a building design using atmospherically-vented products eliminates the need for vent-studded columns of vertically-stacked utility spaces along the outside wall of the building, as well as the resulting loss of available window or balcony space.

comparable atmospherically-vented products, and that even small differences can have significant practical impacts, such as cases where a furnace and air handler must fit inside a confined space with required clearance on all sides. (Petitioners *et al.* Joint Comment, No. 80 at p. 13) Along these same lines, BWC opined that because condensing technology generally requires greater surface area, the size of the product/equipment is likely to increase, and this can cause issues related to size and aesthetics within the home or business. The commenter suggested that this could pose real world problems, such as with mechanical rooms that are no longer large enough to house an appliance using condensing technology. BWC added that the issue of aesthetic impacts also extends to commercial applications, not just residential ones, with the commenter arguing that venting running through the finished space of a school, office building, or hospital could likewise be a significant detriment to their usable space. (BWC, No. 77 at pp. 1-2)

Although USB generally agreed with DOE's revised interpretation, the commenter argued that DOE has erred in focusing on "non-condensing" technology as the performance-related feature, suggesting that the agency should instead focus on Category I venting. According to USB, Category II, III, and IV (as well as non-categorized direct vent furnaces and boilers) are currently available using non-condensing technology, but many of the same problems may arise. USB stated that non-condensing Category II, III, and IV appliances generally share the same venting consumer utility issues as condensing appliances and equipment, and that they can theoretically operate at higher efficiencies than Category I. However, the commenter argued that elimination of models using Category I venting (under a standard level that could only be met by products/equipment using Category II, III, or IV venting) would create the same problems which DOE has sought to address through its revised interpretation. USB commented that vent categorization has been recognized for over 20 years by manufacturers, utilities, and code enforcement officials as the best way to determine how to

safely vent appliances. (USB, No. 78 at pp. 1-2) BHI made essentially identical arguments to those raised by USB, and Crown Boiler offered a similar comment that DOE should focus product classes based upon type of venting used, rather than the use of condensing or non-condensing technology. (BHI, No. 83 at pp. 1-2; Crown Boiler, No. 79 at pp. 1-2)

AHRI also made the point that DOE has already established product classes which are differentiated based upon the features of condensing and non-condensing products – specifically in the context of furnace fan standards (*i.e.*, fan efficiency rating (FER); *see* 10 CFR 430.32(y)). The furnace fan product classes are distinguished by: (1) fuel type; (2) whether the furnace is weatherized, and (3) whether its heat exchanger condenses the flue gases to water (*i.e.*, condensing/non-condensing). (AHRI, No. 91 at p. 2; similar point made by Carrier, No. 92 at p. 2 and Nortek, No. 71 at p. 2))

In response, DOE would start by reiterating that it is the Department's position to remain neutral in terms of the available fuel sources. Obviously, whenever the agency takes regulatory action, there is the potential for market shifts based upon consumer reaction, but DOE acts in keeping with the statute, which is at the core of this market neutrality principle. In other words, following the statute where it leads is not only the proper approach from a legal standpoint, but it helps ensure fair and unbiased treatment to all market participants, with impacts deemed as favorable or unfavorable arguably balancing out over time. Thus, in line with this principle, DOE rejects the arguments of certain commenters (*e.g.*, Lennox, No. 87 at p. 1; Ceres, No. 69 at p. 2 (discussed respectively at sections III.A.1.b.v and III.B.1.b of this document)) that the Department is favoring the gas industry through its revised interpretation. DOE is making an informed determination applying the law to the facts presented and in light of the competing, well-argued comments from interested parties.

As stated previously, DOE has decided to revise its prior interpretation of whether non-condensing technology (and associated venting) constitutes a “feature” under EPCA, concluding that products/equipment with such characteristics can be deemed as having a protected feature where supported by available evidence in the context of individual standards rulemakings. The reasons for the Department’s change in position largely arise from a reevaluation of the arguments made in these comments and new information presented by the Petitioners, as well as evidence already contained in existing rulemaking dockets (*e.g.*, residential furnaces, commercial water heaters). As explained in the paragraphs that follow, DOE has come to understand that such models offer distinct consumer utility beyond their primary function of providing warm air or hot water, particularly in difficult installation situations. Their continued availability would also be expected to maintain a robust level of consumer choice. DOE will touch upon each of these topics in turn.

First, DOE has come to see that a consumer’s interaction with a furnace or water heaters can go beyond the appliance’s primary function of providing warm air or water. If the replacement of an appliance necessitates additional piping or venting in the usable space of a home or business, major modifications to a utility room, or encroachment upon an existing window or patio, the consumer will assuredly be aware of such interaction with the appliance. Even in new construction, if a builder has to modify designs to accommodate a condensing furnace, thereby losing usable space, that builder and potential customers will perceive this difference. Thus, a consumer may reasonably prefer to retain this residential or commercial space and pay the costs associated with a less-efficient, non-condensing appliance. DOE similarly acknowledges the difficulties faced by consumers who require like-for-like replacement of their existing furnace due to size or drainage constraints or water heater co-venting. The Department also takes AHRI’s point (focused on commercial water heaters), that based upon CBECS data, over half of commercial buildings were constructed prior to the introduction of

condensing venting requirements, which means that many of these commercial buildings face the same venting challenges as some residences. DOE further takes note of AHRI's examples where mechanical rooms are built into the core of the building (thereby preventing the side-wall venting sometimes required by condensing equipment), so such building owners could be forced to use up valuable retail, restaurant, or office space for an enlarged or relocated mechanical room to accommodate new drainage or different venting configurations.

Although DOE does not have precise numbers in terms of the frequency of these difficult installation situations, commenters have previously provided examples of older, inner-city row houses presenting significant re-venting issues, such as those in Philadelphia, Newark and Baltimore, of which there are many. DOE also has data in its existing rulemaking dockets related to fuel switching that may result from adoption of a standard that can only be met through use of condensing technology; DOE reasons that such estimates could serve as a proxy for those difficult installations, although other explanations are also expected to be included in that total (*e.g.*, decisions made for purely economic reasons). For example, as the CEC pointed out, the September 2016 residential furnaces SNOPR reported that at the proposed level, 7.9 percent of consumers would switch from gas furnaces to heat pumps or electric furnaces under a condensing standard (a number which could reach 16 percent at the max-tech level). 81 FR 65720, 65813 (Sept. 23, 2016). The precise number of difficult installation situations is not required for DOE to reasonably conclude that the magnitude of such occurrences would not be *de minimis*. DOE agrees with AHRI's comment that in some applications, conversion to use of venting compatible with condensing systems would create problems that cannot be "simplistically rolled into an economic analysis" and that "EPCA prohibits eliminating product utility precisely to prevent the disproportionate harm to a subset of unlucky consumers." (AHRI, No. 91 at pp. 1-2)

DOE acknowledges that some portion of difficult installations referenced in the Petitioners *et al.* Joint Comment may involve size constraints, because as the commenters point out, condensing technology generally requires greater surface area, so the size of the product/equipment in some cases could increase. Data referenced by the Petitioners *et al.* Joint comment demonstrate that such constraints could negatively impact a home or business, such as where a mechanical room is no longer large enough to house an appliance using condensing technology, or where the running of venting lines through the finished space of a school, office building, or hospital could detrimentally impact their usable space. In this regard, this situation is analogous to that which DOE faced when setting separate classes and standards for space-constrained air conditioners and heat pumps (*see* 10 CFR 430.32(c)) and standard-size packaged terminal air conditioners and heat pumps (*see* 10 CFR 431.97(c)). A consumer's expectation to be able to obtain a replacement appliance that is compatible with existing venting is to some extent an issue of size as well. "Size" is also one of the bases for making a "features" determination under 42 U.S.C. 6295(o)(4).

As to AHRI's point that the proposed interpretation would further safety in the context of installing gas-fired residential and commercial boilers, DOE presumes that boilers (and other types of products/equipment for which both condensing and non-condensing technologies are available) can be and are being installed safely in the field by contractors and other service professionals. DOE acknowledges the safety concerns that AHRI points out, namely that boilers are generally split into four different categories based on venting type (Category I-IV), and a minimum energy conservation standard that "pushes the efficiency envelope" may cause nominally non-condensing equipment to become incompatible with Category I venting and could result in the unsafe installation or use of misapplied equipment. Deterioration of venting due to corrosive condensate could allow carbon monoxide to enter the inhabited space, thereby presenting a safety risk. However, the Department is aware of no substantial evidence to suggest

that installers are improperly installing condensing appliances and thereby triggering associated safety concerns. However, DOE agrees with AHRI and Mortex that DOE's proposed interpretation might prevent rare cases of contractor error.

In response to AHRI, DOE acknowledges that existing furnace fan standards already establish product classes which are differentiated based, in part, upon the use of condensing or non-condensing technology (*i.e.*, fan efficiency rating (FER); *see* 10 CFR 430.32(y)). Specifically, the furnace fan product classes are distinguished by: (1) fuel type; (2) whether the furnace is weatherized, and (3) whether its heat exchanger condenses the flue gases to water (*i.e.*, condensing/non-condensing). There was no objection among public commenters about the inclusion of a condensing/non-condensing criteria in the furnace fans class designations at the time of the furnace fans final rule.¹⁶

As discussed previously, the comments submitted by USB, BHI, and Crown Boiler on the July 2019 proposed interpretive rule, while generally supportive, raised questions as to whether DOE's proposed approach could be successfully implemented as initially drafted. These commenters argued that because DOE's proposed interpretation focused on the distinction between an appliance's use of condensing versus non-condensing technology, the same installation challenges may still arise unless DOE took steps to maintain compatibility with a product's intended venting (particularly Category I venting). DOE was interested in the views of other interested parties on the thoughts expressed by USB, BHI, and Crown Boiler, because the Department does not wish to adopt an interpretation that would not be workable in practice and that would ultimately leave the problem raised in the Gas Industry Petition unresolved. Consequently, DOE proceeded to issue the September 2020 SNOPIR, which is more fully

¹⁶ As DOE explained in the final rule, "DOE did not receive comment or additional information on the proposed product classes, [and] thus, DOE is not making changes to the product classes in this Final Rule." 79 FR 38130, 38150 (July 3, 2014).

discussed in section II.E of this document, in order to receive public input on this topic. In short, in the September 2020 SNOPIR, DOE presented two alternative approaches to implementing its proposed interpretation (*i.e.*, regarding how to set product/equipment classes for the appliances impacted by this interpretation). One alternative was to maintain compatibility with all existing venting types intended for the covered appliance. The other alternative was to ensure compatibility with Category I venting, the type most commonly associated with non-condensing products/equipment. DOE also noted that, depending upon the input received, the Department might also move to adopt the approach originally presented in its July 2019 proposed interpretive rule.

DOE received 18 sets of comments in response to the September 2020 SNOPIR (*see* section I, Table I.2 of this document for a complete list of commenters on the September 2020 SNOPIR). Stakeholders that opposed DOE's July 2019 proposal tended to object to the September 2020 SNOPIR for many of the same reasons recited in their earlier comments, and any such broader, overarching objections are addressed elsewhere in this final interpretive rule. The balance of the arguments raised in comments directly addressed the issues presented in the September 2020 SNOPIR and are set forth in the paragraphs that follow. DOE appreciates the valuable insights provided by all commenters on the matter of venting compatibility initially raised by USB, BHI, and Crown Boiler.

In broad overview of the comments received on the SNOPIR, there was virtually no support for the proposed approach to maintain compatibility with all existing venting types (although one commenter did express some support as a secondary preference). There was limited support for the proposed approach to maintain compatibility with Category I venting, with two commenters favoring that approach and another naming it a secondary preference. DOE's initial proposal to establish product/equipment classes based upon the use of condensing

or non-condensing technology had the broadest support of the three alternatives presented, with five commenters preferring that approach. One group of commenters (which included many of the entities filing the original Gas Industry Petition) did not express a preference for any of the three approaches presented, arguing that a proper course should be determined in the context of individual product/equipment rulemakings. Finally, as noted, there were also ten commenters who opposed DOE's July 2019 proposed interpretive rule, and that opposition extended to the September 2020 SNOPIR as well.

DOE will first address the proposed approach of establishing product/equipment classes so as to maintain appliance compatibility with all existing venting types intended for that appliance.

Crown Boiler and USB explained their rationale for why they do not support a class structure based upon ensuring compatibility with all existing venting categories (*e.g.*, Categories II and III). The commenters stated that Category II venting systems are extremely rare, mostly because of the problems associated with relying on the buoyancy of low-temperature flue gases and/or a draft inducer located at the vent system terminal for proper venting. Crown Boiler and USB added that because there is no upper efficiency limit for Category II venting, any effort to protect a class of Category II vented appliances would create a problem for DOE in determining whether a proposed standard would preclude the use of this vent system. As to Category III venting systems, Crown Boiler and USB questioned the need to explicitly act to preserve this venting option, despite its more widespread use. More specifically, the commenters argued that Category III venting systems can, in some cases, utilize Category IV venting. Also, because most Category III venting is used to vent an appliance through a side wall, Crown Boiler and USB asserted that the most problematic installation situations would not arise. Furthermore, Crown Boiler and USB argued that because Category III vent systems operate with positive

pressure, they are rarely, if ever, used to vent multiple appliances (due to the risk of flue products entering the interior space from the pressurized vent system through an off-cycle appliance), so the issue of “orphaned” appliances should not be applicable to Category III appliances. Crown Boiler and USB acknowledged that their comments about Category III appliances are generalizations and that there may be a few instances where such appliances are difficult or impossible to reuse or replace, but they reasoned that those rare instances would not merit the additional regulatory complexity associated with guaranteeing Category III venting compatibility. (Crown Boiler, No. 103 at pp. 2-3; USB, No. 105 at pp. 1-2)

Crown Boiler and USB further argued that addressing appliances with uncategorized venting would be even more problematic. Examples include direct vent appliances and uncertified gas appliances (such as a boiler designed primarily to use fuel oil which is installed with a gas conversion burner). Crown Boiler and USB argued that because these unusual vent systems are generally replaced along with the appliance, there would be no need to preserve or reuse them, thereby making it preferable to leave them unaddressed in favor of regulatory simplicity. (Crown Boiler, No. 103 at p. 3; USB, No. 105 at p. 2)

For these reasons, Crown Boiler and USB concluded that DOE should not pursue further the proposed approach of establishing product/equipment classes so as to maintain appliance compatibility with all existing venting types intended for that appliance. (DOE notes that other commenters also provided input as to why this alternative approach should be abandoned, but their reasoning likewise extended to DOE’s other alternative proposal to establish product/equipment classes so as to maintain appliance compatibility with Category I venting. Those arguments will be presented following discussion of Crown Boiler’s and USB’s arguments in favor of an approach to maintain Category I venting compatibility.)

Crown Boiler and USB then went on to explain why they support the proposed approach of establishing product/equipment classes to maintain appliance compatibility with Category I venting as the performance-related feature, for the reasons (largely identical) that follow.¹⁷ These commenters stated that this approach would address their previously raised concerns regarding the matter of venting compatibility, while simplifying the interpretive rule by not advancing the more complex option of trying to ensure compatibility with all existing venting category applications. (Crown Boiler, No. 103 at p. 1; USB, No. 105 at p. 1) Crown Boiler reasoned that because American National Standards Institute (ANSI) safety standards provide a test method to ascertain the appropriate type of venting so as to ensure that the appliance in question can be vented safely, the vent category is both an essential design requirement and “an objective performance characteristic of the above appliance and not just of the vent system to which it is connected.” The commenter further noted that the vent category is found on the appliance’s rating plate and in the third-party certification report. (Crown Boiler, No. 103 at p. 2 (emphasis in original))

Crown Boiler and USB added that DOE should define any gas appliance venting performance characteristics in terms of the test procedure in the appropriate ANSI safety standard, rather than the definitions in the National Fuel Gas Code, because the latter source uses vague terms such as “excessive condensate” and vague conditions under which such condensation might occur. Thus, as an example, Crown Boiler and USB recommended defining

¹⁷ As discussed further in section III.A.4 of this document, DOE notes that in seeking clarification on the July 2019 proposed interpretive rule, Weil-McLain also suggested that the Department should make class distinctions based on an appliance’s venting category (as defined in the National Fuel Gas Code NFPA 54), rather than using the terms “condensing” and “non-condensing.” The commenter pointed to what the National Fuel Gas Code refers to as Category I vented appliances, which operate with a non-positive vent static pressure and with a vent temperature which avoids excessive condensate production in the vent. Thus, Weil-McLain suggested that going forward, DOE should tie the performance-related feature to the term “Category I Vented Appliance” in its interpretation. (Weil-McLain, No. 86 at pp. 1-2) However, DOE points out that although Weil-McLain expressed this opinion in response to the July 2019 proposed interpretive rule, the company did not comment on the September 2020 SNOPIR where this matter was discussed in further detail. Consequently, DOE can only presume that Weil-McLain continues to maintain this position.

a Category I class of residential boilers as “those boilers which have been determined to be Category I using the test method in ANSI Z21.13.” (Crown Boiler, No. 103 at p. 3; USB, No. 105 at p. 2)

Other commenters (who also support DOE’s revised interpretation as a general matter) disagreed with Crown Boiler’s and USB’s position, arguing that even an approach limiting venting compatibility to Category I is too complicated and fraught with potential problems. Consequently, the commenters expressed support for DOE to adopt the approach in its original proposal, which would define the performance-related feature (and subsequent class setting) in terms of condensing or non-condensing operation of the subject appliance. This viewpoint was expressed by Nortek, BWC, AHRI, Mortex,¹⁸ and Carrier. (Nortek, No. 107 at p. 1; BWC, No. 108 at p. 2; AHRI, No. 109 at pp. 1, 5; Mortex, No. 111 at p. 2; Carrier, No. 110 at p. 1) The following discussion explains these commenters’ rationale for opposing a venting compatibility-based approach to defining a performance-related feature under EPCA, as well as their rationale for supporting DOE’s original proposal. Commenters who generally oppose DOE’s revised interpretation (*e.g.*, NRDC, A.O. Smith, Lennox, CA IOUs, Advocates Joint Comment II, and NEEA) also provided reasoning as to why it would be inadvisable to adopt the alternative approaches presented in the September 2020 SNOPIR, and these comments are summarized in the paragraphs that follow as well.

One line of argument surrounded the complexity of a regulatory framework based upon venting compatibility. Nortek, AHRI, and Lennox argued that categorization of appliances by venting system is a complex matter, and in application, it can vary for different

¹⁸ If DOE’s original proposed interpretation is not adopted, Mortex then expressed support for either of the two alternative interpretations presented in the September 2020 SNOPIR based on venting compatibility. Mortex stated that any of these approaches would preserve the performance-related features of its mobile home gas furnaces, which are designed for use with Category I venting systems. (Mortex, No. 111 at p. 2)

product/equipment types, as determined according to the applicable ANSI safety standards. According to these three commenters, venting, condensate generation, and efficiency are among several factors that determine how a boiler, water heater, or furnace is designed, safety-certified, and installed. Thus, Nortek, AHRI, and Lennox stated that they do not find venting to be an inherent product feature, but rather an installation requirement that may vary depending upon the design and application of the product. (Nortek, No. 107 at p. 2; AHRI, No. 109 at p. 2; Lennox, No. 114 at p. 5)

Another line of argument involved the potential for appliances to be certified for use with multiple venting categories or ones that do not have a designated venting category. Relatedly, BWC argued that if DOE were to adopt a highly segmented class structure based upon venting compatibility, further complications would be likely to arise in terms of setting efficiency regulations for gas-fired products. For example, the commenter pointed to certain water heaters that are listed with multiple venting categories, which leaves it to a plumbing contractor's discretion to determine the most appropriate venting for a given installation situation. Because more than one efficiency requirement could apply in such cases, BWC stated that the alternative approaches presented in the September 2020 SNOPIR would not be practical, either generally or from a technical perspective. Similarly, BWC added that operational conditions for a type of appliance may affect the selection of venting category, so the installing contractor will need to be aware of and take appropriate action regarding the sizing and selection of proper vent materials. BWC also stated that the alternative approaches presented in the September 2020 SNOPIR failed to address products that do not have a venting category (*i.e.*, non-categorized products), such as ones that are direct vent or installed outdoors. (BWC, No. 108 at p. 1)

A.O. Smith stated that venting category definitions vary by appliance type, and it commented that some models can carry certification with multiple venting categories. A.O.

Smith also stated that the non-condensing characterization is broader than the Category I venting certification. (A.O. Smith, No. 113 at p. 4) The CA IOUs made a similar point about gas appliances capable of being configured to work with more than one category of venting system, and they reasoned that this would make it impossible for compatibility of a product category with a specific venting system to be designated as a protected feature under EPCA. (CA IOUs, No. 117 at p. 5)

Similar to the points raised by Crown Boiler and USB, AHRI also noted that complexities that could arise from seeking to maintain venting compatibility for water heaters using Category II or Category III venting, and similar to BWC, AHRI commented as to the difficulty in classifying water heater models that can have multiple categorizations depending upon design. AHRI added that similar to water heaters, boilers may be subject to more than one venting characterization, depending upon how they are installed in the field. According to the commenter, some non-condensing boilers operate at positive vent pressure, which requires Category III venting. The trade association suggested that these concerns could lead to a regulatory structure that is not easy to understand and implement at the point of manufacture. (AHRI, No. 109 at p. 4) Carrier also stated that some boilers and water heaters can use multiple vent categories, although it noted that this is a small subset of products. (Carrier, No. 110 at p. 2)

For the reasons stated, Nortek and AHRI concluded that dividing product/equipment classes by venting categories would unnecessarily complicate the approach to class setting, and AHRI expressed concern that such an approach could have unintended consequences. (Nortek, No. 107 at p. 2; AHRI, No. 109 at pp. 2, 5) Other commenters also remarked as to the complexity surrounding a regulatory structure based on venting categories. (Carrier, No. 110 at p. 2; Lennox, No. 114 at p. 5) Carrier added that such an approach may not achieve a result different from DOE's original proposal. (Carrier, No. 110 at p. 2) Consequently, Nortek and

AHRI opined that a blanket rule encompassing all gas appliances that turns on venting categories may not capture detailed technical nuances, or it may overly complicate the product classes, thereby resulting in unintended regulatory burden or market impacts. (Nortek, No. 107 at p. 2; AHRI, No. 109 at p. 2) Lennox also argued that such an approach would further segment the already unduly complicated residential furnaces product class structure in DOE's original proposal, thereby compounding the problem, and significantly increase regulatory burden without any apparent benefit to consumers or manufacturers. (Lennox, No. 114 at pp. 1, 5)

BWC advised that if DOE ultimately decides to pursue one of the alternate paths to defining the performance-related feature, as set forth in its September 2020 SNOPIR, the Department should convene a stakeholder meeting to parse out the implementation issues that may arise in the context of different types of products and to discuss how to proceed. (Nortek, No. 108 at p. 2)

A.O. Smith disagreed with the alternate approaches to the feature determination focused on venting compatibility as presented in the September 2020 SNOPIR, because venting is not applied at the point of manufacture, nor is it known what the installation circumstances may be for a given residence or commercial building. The commenter argued that EPCA grants DOE authority to regulate covered products and equipment at the point of manufacture, which does not extend to the point of installation. Thus, A.O. Smith questioned whether DOE has authority to differentiate product/equipment classes based upon categories of venting materials. (A.O. Smith, No. 113 at p. 4)

Another line of arguments suggested that the alternative approaches based upon venting compatibility set forth in the September 2020 SNOPIR may encounter problems with changing building safety codes. NRDC argued that such approaches are not feasible, practical, or

necessary, stating that even current standards are not universally consistent with every type of ventilation system found in every building because of different codes and standards put in place over time. (NRDC, No. 112 at pp. 2-3) To this point, the CA IOUs argued that in many cases, safety codes may have changed by the time a gas-fired appliance needs to be replaced, so the existing venting would need to be changed, regardless of the type of venting with which the appliance may be compatible. (CA IOUs, No. 117 at p. 4)

The Advocates Joint Comment II also argued that DOE's professed intent in the September 2020 SNOPIR about maintaining venting compatibility is not achievable. These commenters stated that there are currently many situations where there are no products on the market compatible with the existing venting system due to current safety requirements. For example, the Advocates Joint Comment II pointed to DOE's own past rulemakings in explaining that the National Fuel Gas Code has lining requirements that effectively require all chimneys to be lined in order to install a new gas furnace or boiler; however, prior to 1995, building codes did not require such lining of chimneys, so homes built before 1995 would need to have their chimneys lined in order to install a new non-condensing furnace that is compatible with Category I venting. Similarly, the Advocates Joint Comment II stated that DOE's past rulemakings have found that with Type B vents, when a new non-condensing furnace or boiler that is compatible with Category I venting replaces an existing natural draft non-condensing product, in almost all cases, the vent connectors need to be replaced or the entire venting system needs to be resized. These commenters noted that DOE has traditionally accounted for such changes in its analysis of installation costs and suggested that that was the correct approach. However, the Advocates Joint Comment II argued that even if venting compatibility were to be considered a performance-related feature, the availability of products compatible with Category I venting would not necessarily ensure compatibility with existing venting systems, for the reasons explained above. (Advocates Joint Comment II, No. 118 at pp. 3-4)

Furthermore, the CA IOUs added that the concept of discrete classes of gas appliances which can be defined by compatibility with specific venting systems does not match what is occurring in the field. The CA IOUs explained that in the commercial sector, there are already venting systems that are compatible with gas-fired appliances designed for Category I-IV venting systems, and there is an ongoing trend to upgrade all commercial venting systems to those that comply with Underwriters Laboratory (UL) 1738, *Special Gas Vents*, for condensing appliances. Accordingly, the CA IOUs opined that as universal venting systems become more widespread, concerns about the compatibility of gas appliances with different venting systems will continue to become less relevant. (CA IOUs, No. 117 at p. 4)

NRDC stated that instead of pursuing the proposed approaches, DOE should consider and evaluate alternative venting technologies to solve difficult installation scenarios, both those on the market and under development. (NRDC, No. 112 at pp. 2-3) NRDC and NEEA criticized the approach in the September 2020 SNOPIR as potentially freezing venting technologies in place and limiting innovation in both venting strategies and equipment design, thereby harming consumers through higher energy costs and reduced product features. (NRDC, No. 112 at p. 3; NEEA, No. 119 at p. 3)

Beyond these technical comments focused on the merits of DOE's alternative proposals tying the performance-related feature to maintaining venting compatibility, the commenters essentially fell into three camps in terms of their recommendations for how DOE should move forward. Several commenters recommended that DOE adopt its original proposal to establish product/equipment classes on the basis of the subject gas appliance's utilization of condensing/non-condensing technology for purposes of 42 U.S.C. 6295(o)(4). This approach was favored by Nortek, BWC, AHRI, Carrier, and Mortex. (Nortek, No. 107 at p. 1; BWC, No.

108 at p. 2; AHRI, No. 109 at pp. 1, 5; Carrier, No. 110 at p. 1; Mortex, No. 111 at p. 2) Another group recommended that DOE abandon not only the approaches presented in the September 2020 SNOPIR, but the approach in the July 2019 proposed interpretive rule as well, largely based upon the legal, technical, and policy arguments raised in their earlier comments. This pathway was favored by NRDC, A.O. Smith, Lennox, the AGs Joint Comment, the CA IOUs, the Advocates Joint Comment II, and NEEA. (NRDC, No. 112 at p. 2; A.O. Smith, No. 113 at p. 2; Lennox, No. 114 at p. 1; AGs Joint Comment II, No. 115 at p. 1; CA IOUs, No. 117 at p. 1; Advocates Joint Comment II, No. 118 at p. 1; NEEA, No. 119 at p. 1) Finally, the organizations submitting the Petitioners *et al.* Joint Comment II argued that the issues of venting compatibility raised in the September 2020 SNOPIR do not need to be addressed at the present time in order to resolve the core issue of applying the “unavailability” provision of EPCA to the specific proposed standards for residential furnaces and commercial water heaters, as requested by the Gas Industry Petition. Instead, these commenters argued that these important issues are more appropriately addressed in the context of the development of new standards for residential furnaces, commercial water heaters, and other gas or propane-fueled products/equipment. (Petitioners *et al.* Joint Comment II, No. 116 at pp. 4, 6) The residual comments of these three groups are summarized in the paragraphs that follow.

Commenters supporting adoption of DOE’s original proposal to establish product/equipment classes on the basis of the subject gas appliance’s utilization of condensing/non-condensing technology made the following additional points. For furnaces currently on the market, Nortek, AHRI, and Carrier stated that they are all already divided into non-condensing/Category I and condensing/Category IV, so there is no substantive distinction between the two. Of the two, these commenters prefer categorization based upon a “condensing/non-condensing” distinction, because furnaces are already divided in that manner for purposes of DOE’s energy conservation standards for furnace fans. (Nortek, No. 107 at pp.

2-3; AHRI, No. 109 at p. 3; Carrier, No. 110 at p. 2) Carrier also stated that it continues to believe that non-condensing operation is the key performance-related feature at issue. (Carrier, No. 110 at p. 2) AHRI opined that a “non-condensing” product class should be sufficient to capture all boilers requiring Category I venting, but it nonetheless encouraged DOE to explicitly incorporate the ability to use existing venting categories associated with atmospheric venting. (AHRI, No. 109 at p. 5)

Nortek and AHRI added that finalizing DOE’s interpretation based upon a “condensing/non-condensing” distinction, as originally proposed, would not preclude the Department from considering and analyzing venting applications when creating product/equipment classes during the course of individual energy conservation standards rulemakings, as necessary. These commenters argued that a thorough, product-specific definition and technology-focused characteristics should be evaluated to create functional product/equipment classes that might vary for different types of appliances. (Nortek, No. 107 at p. 2; AHRI, No. 109 at p. 2) Finally, AHRI stated that tolerances and operational characteristics of the product-specific test procedure must be considered in future rulemakings to ensure that any energy conservation standards are safe, functional, and cost-effective. (AHRI, No. 109 at p. 2)

Mortex cautioned that in moving forward with standard setting for revised energy conservation standards for residential gas furnaces, including mobile home gas furnaces, DOE must take into account the product class structure established for residential furnace fans manufactured on or after July 3, 2019 (codified at 10 CFR 430.32(y)). Mortex argued that pursuant to 42 U.S.C. 6295(m)(4)(B), any revised energy conservation standards for non-condensing, non-weatherized mobile home gas furnaces must not preclude the continued sale of mobile home gas furnaces containing furnace fans that comply with the new furnace fan

standards, because under that provision, EPCA prohibits DOE from subjecting manufacturers to a new standard for a product with respect to which other new standards have been required during the prior 6-year period. The commenter argued that this requirement can only be met by ensuring that any revised energy conservation standards applicable to non-weatherized mobile home gas furnaces permit the continued sale of non-condensing mobile home gas furnaces. (Mortex, No. 111 at p. 2)

Commenters supporting withdrawal of DOE's July 2019 proposed interpretive rule and September 2020 SNOPIR made the following additional points. NRDC opposes and urged DOE to withdraw both the July 2019 proposed interpretive rule and the September 2020 SNOPIR, because the commenter argued that both suffer from technical and legal issues which the Department has failed to address. NRDC and Lennox renewed and reiterated many of the arguments raised in their earlier comments to this docket, because the commenters stated that those same objections apply regardless of whether the performance characteristics at issue involve the use of condensing technologies or venting compatibility. (NRDC, No. 112 at p. 2; Lennox, No. 114 at pp. 7-8) Other commenters did the same, and as mentioned previously, such arguments are addressed elsewhere in this document.

Lennox criticized DOE's September 2020 SNOPIR as being "overtly vague and unsupported," and in particular, the commenter faulted the alternate approach which would consider the creation of separate product classes for any existing venting system available on the market as ambiguous and ill-defined, such that it deprives stakeholders the opportunity to comment. For example, Lennox questioned whether DOE's proposal would include specialty or unique ventilation types. (Lennox, No. 114 at pp. 1, 3, 6) Lennox also faulted DOE's proposals for making what it calls "speculative and unsupported statements," such as the number and cost of problematic installations and DOE's expectation regarding limited negative programmatic

impacts resulting from its proposed interpretation. Accordingly, the commenter argued that DOE's lack of analysis and supporting data once again deny stakeholders the opportunity to comment on the September 2020 SNOPIR. (Lennox, No. 114 at p. 3) Lennox added that the September 2020 SNOPIR offers no meaningful cost analysis or quantification of installation issues, so it argued that DOE has no record basis to move forward with its proposed interpretive rule. (Lennox, No. 114 at p. 4) Similarly, the CA IOUs requested that DOE quantify the potential negative impacts of its proposal in the September 2020 SNOPIR for residential furnaces, commercial water heaters, and other similarly-situated products/equipment. (CA IOUs, No. 117 at p. 4)

In addition, A.O. Smith alleged that DOE is improperly attempting to use venting categorization in the features provision as a proxy for how to consider increased installation cost in its rulemakings. Instead, the commenter argued that such installation cost considerations belong in DOE's economic analysis. (A.O. Smith, No. 113 at p. 3) Furthermore, A.O. Smith argued that DOE's proposed interpretation, if applied to maintain Category I venting, would eliminate more-efficient non-condensing products from the market, which would restrict the opportunity for incremental gains in efficiency for non-condensing appliances through Federal regulation. (A.O. Smith, No. 113 at pp. 4-5)

Commenters supporting finalization of the core "features" determination under EPCA and deferral of implementation issues (*e.g.*, class setting) to individual product/equipment rulemakings made the following additional points. The Petitioners *et al.* Joint Comment II argued that the issues of venting compatibility raised in the September 2020 SNOPIR do not need to be addressed at the present time in order to resolve the core issue of applying the "unavailability" provision of EPCA to the specific proposed standards, as requested by the Gas Industry Petition. Instead, these commenters argued that these important issues are more

appropriately addressed in the context of the development of new standards for residential furnaces, commercial water heaters, and other gas or propane-fueled products/equipment. (Petitioners *et al.* Joint Comment II, No. 116 at pp. 4, 6) The Advocates Joint Comment II also stated that venting considerations for each product potentially covered by DOE's interpretation are different, so such impacts must be considered in the context of individual rulemakings, which can consider the specific circumstances of each product (although the advocates still consider venting to be a matter for DOE's economic analysis). (Advocates Joint Comment II, No. 118 at p. 5)

In conducting inquiries in these individual rulemakings, the Petitioners *et al.* Joint Comment II stated that the Department should consider product class definitions for residential products which reflect venting requirements that are established and codified under national consensus standards, and then DOE should assess the need for separate minimum efficiency standards for these classes. These commenters stated that for the subject residential furnaces and commercial water heaters, these appliances are design-certified for safety based on the venting characteristics. According to these commenters, there are four venting criteria specified in the applicable industry consensus standards for residential furnaces and commercial water heaters, as identified in ANSI Z21.47, *Gas-Fired Central Furnaces*, and ANSI Z21.10.3, *Gas-Fired Water Heaters*, respectively. The Petitioners *et al.* Joint Comment II added that the installation codes for gas furnaces – ANSI Z223.1/NFPA 54, *National Fuel Gas Code*, and the *International Fuel Gas Code* – include requirements for proper installation (*e.g.*, vent sizing, termination, and clearance requirements). The commenters surmised that these product categories would provide an appropriate starting point for DOE's technical and economic analysis to determine whether separate minimum efficiency standards are appropriate for each equipment class. The Petitioners *et al.* Joint Comment II recommended that these issues should be addressed in individual product

rulemakings under DOE's Process Rule¹⁹ and using the most current information available.

(Petitioners *et al.* Joint Comment II, No. 116 at pp. 7-8)

The Petitioners *et al.* Joint Comment II stressed that action on the Gas Industry Petition is a matter of some urgency, because litigation has been filed seeking to compel final action in a number of energy conservation standards rulemaking proceedings, including the proceedings in which proposals were issued that are the subject of the Gas Industry Petition. As a result, the Petitioners *et al.* Joint Comment II argued that DOE should clarify the situation by withdrawing its prior rulemaking proposals for residential furnace and commercial water heater energy conservation standards, because those proposals cannot not be legally finalized as proposed if the Department promulgates a final interpretive rule along the lines of that set forth in the July 2019 proposed interpretive rule. (Petitioners *et al.* Joint Comment II, No. 116 at p. 5)

In light of the above arguments, it has become apparent to DOE that its alternative proposals to establish product/equipment classes based upon maintaining venting compatibility drew little public support, and problems may arise from adopting them as an overarching approach. Support for maintaining compatibility with Category I venting was limited to only Crown Boiler and USB, and no commenter spoke in favor of an approach to maintain compatibility with all existing venting types. However, a broad cross-section of industry stakeholders with considerable technical expertise confirmed their understanding that DOE's original proposal to define the subject performance-related feature as the appliance's condensing or non-condensing operation would represent a workable approach to implementing DOE's revised interpretation.

¹⁹ See 10 CFR part 430, subpart C, appendix A, *Procedures, Interpretations, and Policies for Consideration of New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Certain Commercial/Industrial Equipment*.

Based upon DOE's careful review of the comments received, the Department has decided it is not appropriate to move forward with either of the two alternative approaches based upon venting compatibility presented in the September 2020 SNOPIR, but to instead adopt its original proposal presented in the July 2019 proposed interpretive rule, which focused on an appliance's condensing or non-condensing operation. Comments on the September 2020 SNOPIR have convinced the agency that its alternative proposals would have increased the complexity and regulatory burden of its regulatory framework with little benefit. Because DOE is no longer pursuing these alternative approaches, the Department finds it unnecessary to address all of the technical arguments and other contentions against making maintenance of venting compatibility a touchstone of its "features" determination. DOE is also persuaded by the stakeholder comments that have positively assessed the implementation potential of DOE's revised interpretation along the lines of its original proposal.

DOE agrees with the commenters who suggested that DOE should move to resolve the "core issue" at the heart of the Gas Industry Petition in this final interpretive rule, while reserving appliance-specific implementation issues (including class setting) for review and analysis in the context of individual product rulemakings. DOE has concluded that such an approach would best serve all parties, including manufacturers and consumers. Individual product rulemakings will have the requisite mix of interested stakeholders, technical experts, a comprehensive record with product-specific data (including a review of relevant industry consensus standards), and the full suite of analyses for class and standard setting. In that venue, DOE and interested stakeholders will be better able to address any relevant technical matters or product-specific nuances, including the tolerances and operational characteristics of test procedures mentioned by AHRI, and any lingering concerns related to the issue initially raised by USB, BHI, and Crown Boiler.

Because the approach in DOE's earlier proposals for residential furnaces and commercial water heaters are inconsistent with this final interpretation and, therefore, will require revision, DOE has decided to grant the request in the Petitioners *et al.* Joint Comment II for the withdrawal of those proposals. Published elsewhere in this issue of the *Federal Register*, DOE withdraws its March 12, 2015 proposed rule and September 23, 2016 supplemental proposed rule for energy conservation standards for non-weatherized gas furnace and mobile home gas furnaces, as well as its May 31, 2016 proposed rule for energy conservation standards for commercial water heating equipment. DOE's decision to withdraw its earlier proposals is discussed in further detail in section III.D.3 of this document.

Regarding arguments challenging the technical/legal/policy bases for the September 2020 SNOPIR, DOE found many of these comments to essentially be re-statements of their comments submitted in response to the July 2019 proposed interpretive rule, rather than specifically focused on the particulars of DOE's supplemental proposed interpretation. Accordingly, those concerns are cited and addressed elsewhere in this document.

As to Mortex's concern about the statutory prohibition on applying new standards to a covered product for which other new standards have been required within the prior six-year period (42 U.S.C. 6295(m)(4)(B)), DOE would point out that, given that requirements for furnace fans came into effect on July 3, 2019, and given the anticipated five-year lead time for amended standards for residential furnaces (including mobile home gas furnaces), it is anticipated that more than six years will have passed by the time any new furnaces standards would come into effect.

b. Comments Opposing the Proposed Interpretation

Other commenters strongly opposed and urged withdrawal of DOE's proposed revised interpretation regarding whether non-condensing technology and associated venting constitutes a "feature" under EPCA. (CA IOUs, No. 85 at p. 1; CFA/NCLC, No. 93 at p. 1; AGs Joint Comment, No. 82 at p. 2; NRDC, No. 94 at p. 1; Advocates Joint Comment, No. 95 at p. 1; Environmentalists Joint Comment, No. 90 at p.1; AGs Joint Comment II, No. 115 at p. 2) These commenters raised a number of arguments which are set forth and addressed in the paragraphs that follow.

i. Support for DOE's Prior Interpretation

Several commenters expressed support for DOE's prior position, as presented in past rulemaking documents published in the *Federal Register*, which concluded that non-condensing technology (and associated venting capabilities) do not merit a "feature" designation and the establishment of a separate product class with a different energy conservation standard. (Ceres, No. 69 at p. 3; Lennox, No. 87 at p. 4; A.O. Smith, No. 88 at p. 2; NRDC, No. 94 at pp. 4-5; CA IOUs, No. 85 at p. 3; A.O. Smith, No. 113 at p. 2; Lennox, No. 114 at pp. 6-7; AGs Joint Comment II, No. 115 at p. 2; CA IOUs, No. 117 at p. 1; NEEA, No. 119 at p. 1) In making that point, the AGs Joint Comment argued that DOE's proposed interpretive rule would effectively grandfather inefficient designs. (AGs Joint Comment, No. 82 at p. 3) The AGs Joint Comment pointed to and even quoted from a number of DOE's past rulemakings which articulated the rationale for finding that venting capabilities (and any related costs) are not a performance-related feature under EPCA. Specifically, these commenters cited to language contained in the [March 12,] 2015 NOPR and [September 23,] 2016 SNOPR for residential furnaces, the 2009 final rule for residential water heaters,²⁰ and the 2015 final rule for residential clothes dryers.²¹

²⁰ DOE notes that this final rule was actually published in the *Federal Register* on April 16, 2010.

²¹ DOE notes that this final rule was actually published in the *Federal Register* on April 21, 2011.

In short, the AGs Joint Comment (and other commenters) agreed with DOE's historic view that a furnace's or water heater's manner of venting does not provide consumers unique utility separate and apart from its basic function of providing heat or hot water. (AGs Joint Comment, No. 82 at pp. 3, 8-10; A.O. Smith, No. 88 at pp. 2, 4; NRDC, No. 94 at pp. 4-5; CA IOUs, No. 85 at pp. 2-3; NRDC, No. 112 at p. 2) NRDC added that when DOE acts to reverse a long-held interpretation, as it seeks to do with the proposed interpretation for condensing/non-condensing products/equipment, DOE has the burden of proof to clearly explain and justify its rationale. (NRDC, No. 94 at p. 3)

In response, DOE disagrees with these commenters' view that the Department's revised interpretation is inappropriate or lacking in evidentiary basis, and DOE notes that numerous other commenters on the proposed interpretive rule held a contrary opinion. As explained elsewhere in this document, the Gas Industry Petition gave DOE the opportunity to revisit its prior interpretation, and the information provided in that petition and in subsequent comments thereon caused DOE to reevaluate prior data and, ultimately, its position. These commenters cannot reasonably claim that the rulemaking dockets for residential furnaces, commercial water heaters, and other similarly-situated products/equipment are lacking in data. Because data is always subject to interpretation, it is not reasonable for these commenters to demand that a revised interpretation must rely solely upon new data. Here, the petitioners did present the Department with new arguments, perspectives, and information that were useful to DOE in reexamining its position. More specifically, the petitioners explained how the shift to energy conservation standards set at a condensing level could necessitate significant modifications to both new and existing buildings, such that interior residential or commercial space may need to be sacrificed, additional unattractive venting would need to be added, or desirable window or patio space could be lost. These new arguments demonstrate ongoing impacts that would be noticed and likely perceived negatively by consumers, and this reasoning is in addition to the

other arguments and data previously submitted by the petitioners and considered by DOE during the course of various rulemakings. As noted, DOE also relied upon the significant data already in these rulemaking dockets to assess its prior interpretation as to whether non-condensing technology (and associated venting) constitutes a performance-related “feature” for purposes of EPCA. Based upon the totality of the information, DOE has determined that the change in interpretation reflected in this final interpretive rule is appropriate under the statute.

Regarding the assertion in the AGs Joint Comment that the revised interpretation would grandfather inefficient designs, that same argument could be ventured virtually every time a determination is made under EPCA’s “features” provision. An oven without a window in the door would be more efficient than one that retains that feature.²² However, the statute, by the very nature of its “features” provision, makes clear that efficiency will not be paramount in all situations. In fact, the words of the statute make clear that is the precise purpose of the “features” provision. In that provision, EPCA prohibits the Secretary from prescribing a new or amended standard (*i.e.*, imposing a standard for a product where a standard did not previously exist or increasing the stringency of an existing standard) if doing so is likely to result in the unavailability of a performance characteristic, feature, *etc.* substantially the same as those generally available in the absence of the Secretary prescribing a new or amended standard. *See* 42 U.S.C. 6295(o)(4). Thus, DOE finds this argument in the AGs Joint Comment to be contrary to the statute.

ii. Violations of Legal Standards

²² In its energy conservation standards rulemaking for cooking products that culminated in the September 8, 1998 final rule (63 FR 48038), DOE explained its rationale for initially considering a design option to eliminate oven door windows as a means to improve energy efficiency in the technical support document (TSD) for that rulemaking. (See Volume E, Chapter 1, Engineering Analysis, section 1.4.1, Design Options for Ovens, pp. I-22 to I-23. (Available at: <https://beta.regulations.gov/document/EERE-2006-STD-0048-0027>; (select EE-RM-90-201 COMMENT OOA2-4).

Related to their support of DOE's prior interpretation, a number of commenters challenged DOE's proposed interpretation on a variety of legal grounds. For example, these commenters faulted the Department's proposal as being arbitrary and capricious; contrary to law; and contrary to precedent and factually unsupported. DOE recognizes that such topics are often intertwined. However, given the rather voluminous nature of these submitted arguments, DOE has segmented the discussion into these broad categories for response in the subsections that follow.

Arbitrary & Capricious

A number of commenters characterized DOE's proposed reversal of its prior interpretation and dismissal of its prior concerns as arbitrary and capricious and an abuse of discretion, despite DOE's stated expectation that the programmatic impacts of its revised interpretation are likely to be limited (which was characterized as a claim alleged to be lacking in data and analysis). (AGs Joint Comment, No. 82 at pp. 2, 7-10; CEC, No. 89 at p. 3; AGs Joint Comment II, No. 115 at p. 2; CA IOUs, No. 117 at p. 3) The CEC predicted that without sufficient record evidence to support its decision (*i.e.*, changed interpretation), a court would overturn such agency action as arbitrary and capricious. Overall, the commenter expressed its belief that DOE's proposed interpretation is contrary to the preponderance of evidence in the record, particularly since DOE improperly conflates economic and performance characteristics. Accordingly, the CEC concluded that DOE's historical interpretation on this matter is both consistent with the evidence and reflects congressional intent to improve energy efficiency and protect human health. (CEC, No. 89 at p. 7)

DOE disagrees with these commenters' notion that the Department lacks sufficient evidence to support a revised interpretation, thereby rendering the agency vulnerable to a legal

challenge claiming arbitrary and capricious action. As noted previously, the petitioners presented new information and arguments explaining how the shift to energy conservation standards set at a condensing level could necessitate significant modifications to both new and existing buildings, such that interior residential or commercial space may need to be sacrificed, additional unattractive venting would need to be added, or desirable window or patio space could be lost. These new arguments demonstrate ongoing impacts that would be noticed and likely perceived negatively by consumers, and this reasoning is in addition to the other arguments and data previously submitted by the petitioners and considered by DOE during the course of various rulemakings. In sum, DOE's existing rulemaking dockets are replete with evidence bearing on this matter. DOE appropriately reassessed that information in response to the submitted petition for rulemaking and, based upon the totality of the available information, came to the reasoned conclusion that its revised interpretation better comports with the statute, as explained in this document.

Contrary to Law

Other commenters characterized DOE's proposed interpretation as contrary to law. (Lennox, No. 87 at p. 4; AGs Joint Comment, No. 82 at pp. 2-3; A.O. Smith, No. 88 at p. 2; CEC, No. 89 at p. 3; NRDC, No. 94 at p. 4; A.O. Smith, No. 113 at p. 2; AGs Joint Comment II, No. 115 at p. 1) The AGs Joint Comment asserted that DOE's proposed interpretation is contrary to law under 5 U.S.C. 706(2), and that a plain reading of EPCA and review of public comments make clear that venting technology is not a performance-related feature under the statute. Consequently, these commenters reasoned that DOE cannot create a separate product class for non-condensing products on that basis which would be subject to lower efficiency requirements. (AGs Joint Comment, No. 82 at p. 7; AGs Joint Comment II, No. 115 at p. 2) Lennox added that Congress set initial energy conservation standards for residential furnaces

with product classes based on capacity and fuel source, but it did not segment classes by condensing and non-condensing technology, so the commenter argued that DOE should not do so now. (Lennox, No. 87 at p. 3)

In response, DOE's proposed interpretive rule is in accordance with the pertinent statutory provisions of EPCA. As commenters acknowledged, the statute does not define the terms "feature" or "performance-related feature," so resolution of this ambiguity is left to the agency's discretion as a matter of statutory interpretation. Over the more than 30-year life of the Appliance Standards Program, DOE has made numerous "features" determinations, so the Department has expertise in weighing issues of consumer utility. Size constraints and building modifications to a dwelling or business seem clearly within the bounds of product characteristics that would matter to an average consumer, and have mattered in the past to DOE without objection (*see e.g.*, 76 FR 22454, 22485 (April 21, 2011) (*discussing* ventless and compact clothes dryers); 76 FR 37408, 37446 (June 27, 2011) (*discussing* space-constrained residential central air conditioners and heat pumps)). DOE also rejects Lennox's argument that just because Congress based initial furnace standards on capacity and fuel source that modifications to that existing class structure would be forever off limits. Such argument would render the "features" provisions at 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) superfluous, so DOE declines to adopt Lennox's suggested approach. Although DOE has found the Gas Industry Petition to encompass a number of complex issues, DOE has concluded that its revised interpretation set forth in this final interpretive rule is well grounded in current law.

Lennox opined that DOE would be violating the legal standard pronounced by the Supreme Court that for an agency to change a regulatory interpretation, it must articulate a "rational connection between the facts found and the choices made" (*citing Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (1983)). (Lennox, No. 87 at p. 4)

Similarly, A.O. Smith's comments claim that DOE's proposed interpretation deviates from the Department's past precedent without sufficient justification, administrative record support, or reasoned explanation. The commenter stated that DOE must provide a reasonable basis for its new interpretation, but it concluded that none of the Department's justifications are reasonable. (A.O. Smith, No. 88 at p. 6) First, A.O. Smith challenged the Department's tentative findings in the proposed interpretation related to space constraints, distinguishing DOE's past regulatory actions related to PTACs and ventless clothes dryers. The commenter acknowledged that the statute does expressly recognize "size" as a relevant factor under EPCA's "features" provision (*see* 42 U.S.C. 6295(o)(4); 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa)), but it argued that DOE's proposed interpretation, as it relates to commercial water heaters and similarly situated products, does not turn on size (given the wide availability of water heaters in a wide variety of diameters, heights, and footprints), but rather on condensing technology itself. (A.O. Smith, No. 88 at pp. 6-7) A.O. Smith also distinguished DOE's creation of distinct product classes for vented and ventless clothes dryers, noting that the presence or absence of vents in the residential space was a proxy for moisture removal designs (necessary to prevent mold growth and other health concerns). The commenter argued that without adequate venting or a ventless dryer option, some consumers would be unable to have a dryer at all (*e.g.*, high-rise condo residents), but that situation would not apply to commercial water heaters, because commercial settings can accommodate condensing technology. Furthermore, A.O. Smith argued that DOE has proffered no new facts or changed circumstances to support its new conclusion, but instead, the company asserted that the Department has failed to acknowledge the wide variety of vent and intake air pipes that exist and that may accommodate differing condensing water heater installations, all of which should be properly considered in DOE's economic analyses. (A.O. Smith, No. 88 at pp. 7-8, 10)

In response, DOE has articulated a rational and reasonable basis for its proposed change of interpretation. As mentioned previously, DOE's prior interpretation did not adequately account for the consumer utility of non-condensing appliances (and associated venting) in difficult installation situations. Commenters have also identified benefits related to expanded consumer choice. DOE disputes A.O. Smith's statements that the difficult installation situations examined do not pertain to size constraints, as well as its attempt to imply that alternate venting and piping would offer a panacea for the larger problem identified. Gas industry commenters provided considerable information in these regards to the residential furnaces, commercial water heaters, and other docket, and DOE's own analyses showed that difficult installation situations exist, with many cases reflected in the Department's investigation of fuel switching. The Gas Industry Petition provided occasion for DOE to revisit its prior interpretation, and the agency has concluded that it erred in failing to consider consumer utility more broadly in this context. The Department would argue that there already was and is extensive evidence in the record bearing on this issue as would support DOE's change of course. While DOE outlines the general factual basis and legal principles in this final interpretive rule, the Department will make a more explicit statement of the evidentiary basis for separate product/equipment classes and standards for non-condensing products/equipment in the context of a specific energy conservation standards rulemaking for each appliance impacted by this revised interpretation. Such detailed information resides in those individual rulemaking dockets and cannot be comprehensively addressed here. However, an expanded statement of the basis for regulatory action is appropriate before such rulemakings alter existing regulatory requirements.

According to A.O. Smith, DOE's proposed interpretation conflicts with the Department's statutory obligations pursuant to EPCA and would undermine the Appliance Standards Program. It argued that although EPCA does not define the term "feature," DOE cannot adopt a definition that conflicts with its statutory obligations to improve energy efficiency and the statutorily-

mandated process for setting new and amended standards. A.O. Smith alleged that such reinterpretation would have profound negative consequences for energy efficiency and consumer choice. More specifically, the commenter asserted that it would impose an artificial ceiling on efficiency and create a loophole by locking in an outdated and inefficient technology with no consumer benefit. According to A.O. Smith, the logical consequence of DOE's reinterpretation would be the establishment of separate standards, but because non-condensing commercial water heaters can only be made minimally more efficient than the levels in the current energy conservation standards, the commenter concluded that no further standard would likely be cost-effective, thereby leaving these products "effectively unregulated." The commenter predicted that in its next commercial water heaters rulemaking, DOE would set a condensing standard of no less than 95 percent thermal efficiency, and as a result, manufacturers who are unable to meet the more-stringent standards for condensing commercial water heaters would revert to producing non-condensing models which enjoy a lower standard, all of which would have the effect of increasing condensing appliance costs and shrinking the market for high-efficiency products. (A.O. Smith, No. 88 at pp. 10-11; A.O. Smith, No. 113 at p. 5)

DOE cannot agree with the interpretation of EPCA that A.O. Smith seeks to advance, because it is inconsistent with the legal obligations set forth under the statute's "features" provision. The "features" provision was enacted by Congress to maintain important aspects of appliances' utility to consumers even if some measure of energy savings would be lost. To apply a litmus test of "no lost energy savings" or some vague "fidelity to the statute" standard would render EPCA's "features" provision rarely used, if not impossible to use – the very definition of "superfluous." Whereas A.O. Smith accuses DOE's proposed interpretive rule of undermining the Appliance Standards Program, the commenter's suggested approach would undermine the statute by giving DOE unlimited authority to override one of the checks-and-balances Congress explicitly enacted. A.O. Smith mischaracterizes Congress's judgment to put elimination of

“performance-related features” beyond the Department’s regulatory reach as DOE’s effort to create an artificial ceiling on standards or to create a loophole for inefficient technology. That is simply not the case; rather, DOE is following clear statutory direction to protect consumer utility, even if that means foregoing the potential opportunity for increased energy efficiency, and is applying facts to those words in a specific circumstance. Also, contrary to what A.O. Smith suggests, DOE’s proposal would enhance consumer choice by maintaining a greater variety of appliances on the market. Nothing about creating separate product classes for condensing and non-condensing products in any way requires a consumer to purchase any particular product. As A.O. Smith recognizes, the market today consists of both condensing and non-condensing products, and consumers are perfectly free to make the choice to purchase the more efficient product when doing so fits their needs. This interpretation does nothing to change that purchasing decision.

DOE also takes issue with other of A.O. Smith’s assertions. First, A.O. Smith argues that because non-condensing commercial water heaters are near the limits of their energy efficiency, they would be “effectively unregulated.” This is untrue both factually and in terms of what the statute requires. Non-condensing water heaters would still be subject to standards at the current levels (or higher if a subsequent rulemaking periodically reviewing existing standards determines that further technical improvements can be made to non-condensing technology as would justify an amended standard). In addition, nowhere does the statute require or establish an expectation that there shall be a never-ending cycle of increasingly more-stringent standards. Such a reading of the statute is belied by the fact that the statute expressly provides for notices of determination that standards for a product do *not* need to be amended where such standards would not result in significant energy savings, would not be technologically feasible, and/or would not be cost-effective. (42 U.S.C. 6295(m)(1)(A))

In addition, DOE does not agree with A.O. Smith's prediction that manufacturers who are unable to meet a more-stringent standard for condensing commercial water heaters would revert to producing non-condensing models which are subject to a lower standard, thereby shrinking the market for high-efficiency products. As discussed in greater detail in section III.A.3 of this document, current market trends show consumers moving strongly towards condensing products based upon their substantial demonstrated energy savings. Manufacturers have every incentive to adjust their product lines and processes in response to this market demand, even if the condensing appliances come to have their own higher standard. In the current market, consumers are already choosing to pay a premium for condensing appliances to achieve greater energy savings, and A.O. Smith has offered no rational basis supported by evidence to show this trend would reverse or that other manufacturers would rush to forego prior investment in condensing products to chase a declining market for non-condensing products. For those same reasons, A.O. Smith has failed to provide evidence demonstrating that any price increases for condensing appliances under a separate energy conservation standard would appreciably differ from price increases under a unified energy conservation standard set at a condensing level.

The Environmentalists Joint Comment argued that the Department has failed to demonstrate that a violation of EPCA would occur by adoption of an energy conservation standard that can only be met by use of condensing technology. (Environmentalists Joint Comment, No. 90 at p. 1) Along these lines, the Environmentalists Joint Comment stated that energy conservation standards that can only be met by use of condensing technology would not lead to minimal demand for gas appliances, which they assert is the legal test for DOE to take action under EPCA's "features" provisions at 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II). These commenters asserted that in order for the features provision to come into play, a DOE standard would need to leave the market with no alternative performance characteristics, features, sizes, capacities, or volumes that are "substantially the same" as those

that would be eliminated from the market. They opined that Congress intended DOE to balance the preservation of product utility with the energy-saving objectives of the statute. In explaining their position, the Environmentalists Joint Comment quoted from the legislative history accompanying those statutory provisions: “‘A valid standard may entail some minor loss of characteristics, features, sizes, etc.; for this reason, the Act requires that ‘substantially the same,’ though not necessarily identical, characteristics or features should continue to be available.’ H. Rep. 100-11 at 23 (1987).” “[T]he Senate Energy and Natural Resources Committee explained that, in the context of residential gas furnaces, section 325(o)(4) [42 U.S.C. 6295(o)(4)] would forbid a standard from ‘being set at a level that would increase the price to the point that the product would be noncompetitive and that would result in minimal demand for the product.’ S. Rpt. 100-6 at 8-9 (Jan. 30, 1987), *reprinted in* 1987 U.S.C.C.A.N. 52, 59.” Relying on this language, the Environmentalists Joint Comment concluded that DOE’s proposed interpretation is impermissible because it does not meet this test, arguing not only that the Department has failed to demonstrate that condensing standards for both residential furnaces and commercial water heaters would result in minimal demand for these types of gas appliances, but also that the record in those rulemakings establish that fuel switching would be less than 10 percent.

(Environmentalists Joint Comment, No. 90 at p. 2)

The Petitioners *et al.* Joint Comment sought to refute comments suggesting that EPCA’s “features” provision would only apply if the unavailability of the performance characteristic or feature at issue would completely destroy the market for the covered product/equipment. The Petitioners *et al.* Joint Comment argued that opponents of the Gas Industry Petition have misinterpreted the legislative history and that standards for residential furnaces which result in the unavailability of a performance characteristic would still be precluded under the statute, even if it would not fully eliminate the market for gas furnaces. (Petitioners *et al.* Joint Comment, No. 80 at pp. 18-19) Likewise, the Petitioners *et al.* Joint Comment disputed the arguments of

NRDC and Earthjustice that the placement of parentheses marks in EPCA's two "features" provisions (42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)) indicate a substantive or material difference between those two provisions. These commenters argued that those opponents of the petition – lacking any explicit language or legislative history to show a difference between these two provisions -- rely on improper, extra-statutory qualifications in an attempt to exclude atmospherically vented products from the "features" provisions' applicability. (Petitioners *et al.* Joint Comment, No. 80 at p. 19)

In response, DOE agrees with the Petitioners *et al.* Joint Comment that these commenters have misconstrued the application of EPCA's "features" provision and the relevant legislative history. While DOE agrees that adoption of an energy conservation standard may compel minor changes and modifications to an appliance without triggering the protections of the statute's "features" provisions, it does not seem to be a reasonable reading to bar application of the "features" provision and its protections, except in an extreme case where a regulation would vitiate demand for a gas-fired appliance entirely. Here, the loss of feature would not be minor, because elimination of non-condensing appliances (and the introduction of associated venting requirements) would have the significant negative consequences previously discussed for those consumers facing difficult installation situations, a subgroup which could be upwards of 10 percent of households with gas-fired furnaces (based upon fuel switching data), as one example. (81 FR 65720; Sept. 23, 2016) Furthermore, a Draconian reading requiring the potential elimination of all gas-fired appliances would once again threaten to read the "features" provision out of existence, as a practical matter. This cannot be what Congress intended, so DOE declines to follow this path.

The Environmentalists Joint Comment echoed the rationale in past DOE rulemakings that the consumer utility of a residential furnace is to provide heat to a dwelling and that the

consumer utility of a commercial water heater is to provide hot water, functional outputs which do not change with type of venting. Along these lines, they sought to link the function of these appliances to the statutory definitions of “furnace” at 42 U.S.C. 6291(23) and “storage water heater” at 42 U.S.C. 6311(12)(A). According to the Environmentalists Joint Comment, properly installed condensing gas appliances exhibit the same or substantially the same attributes as non-condensing appliances. (Environmentalists Joint Comment, No. 90 at p. 3) Consequently, the Environmentalists Joint Comment concluded that DOE’s proposed determination failed to demonstrate any performance-related features of non-condensing gas appliances that require protection from standards. (Environmentalists Joint Comment, No. 90 at p. 2)

As discussed in section III.A.1.a of this document, DOE has determined that a consumer’s interaction with and utility from a non-condensing appliance can go beyond such unit’s ability to provide hot air or water, particularly in difficult installation situations where eventual replacement of the appliance would necessitate structural modifications to a dwelling or business (*e.g.*, loss of usable living/retail/storage space, addition of unsightly piping or venting to the finished space, or loss of a window(s)). The Environmentalists Joint Comment seeks to tie the statutory “features” determination to the appliance’s primary function by focusing on the statutory definitions at 42 U.S.C. 6291 and 42 U.S.C. 6311. However, DOE finds that to be an improper reading of statute. The commenters’ theory ignores the fact that pursuant to 42 U.S.C. 6295(q), DOE is bound to focus on the performance-related feature, rather than the overall function of the appliance. For example, DOE has determined an oven window to be a feature, although it does nothing to actually bake the cake placed inside the oven. Similarly, DOE has determined the angle of access of a residential clothes washer to be a feature, although it does nothing to make one’s clothes cleaner. Under the Environmentalists Joint Comment’s theory, such features offering distinct utility to consumers would no longer deserve protection because they are not directly mentioned in a statutory definition. Such reading would render EPCA’s

“features” and class-setting provisions significantly and improperly diminished, because a feature is unlikely to ever be mentioned in such definition. If the performance-related characteristic were so uniform and ubiquitous as to be part of the general product definition, it would arguably come “standard” rather than being a “feature.” Accordingly, DOE declines to adopt this suggested reading of the statute.

Contrary to Precedent & Factually Unsupported

A number of commenters stated that DOE’s proposed interpretation is contrary to DOE precedent and factually unsupported. (Lennox, No. 87 at p. 4; AGs Joint Comment, No. 82 at p. 3; CEC, No. 89 at p. 3) NRDC asserted that DOE’s justification in its proposed interpretive rule is insufficient and not supported by data or research, arguing that neither the Gas Industry Petitioners nor any other commenter provided new arguments, data, or evidence sufficient to justify a reversal of DOE’s existing policy. (NRDC, No. 94 at pp. 3, 5) The AGs Joint Comment characterized DOE’s proposed interpretive rule as a radical departure from DOE’s historical interpretation of EPCA’s “features” provision. They stated that DOE has already specifically addressed and rejected the arguments raised in the Gas Industry Petition in a number of rulemakings, and they added that the Department has failed to identify any valid reasons for its proposed change of position (*e.g.*, dismissing as insufficient DOE’s rationales related to aesthetics, compatibility of co-vented appliances, and economic factors). (AGs Joint Comment, No. 82 at p. 7) The CEC faulted DOE for not offering any new relevant evidence, reasoning, or facts to support its proposed change of interpretation. (CEC, No. 89 at p. 5) Lennox added that DOE’s proposal is not factually supported and relies on speculation, particularly with regards to the Department’s tentative conclusions that new venting may change a home’s aesthetics or that some consumers may have a preference for gas heating. The commenter similarly faulted DOE’s cost analysis as lacking in data and speculative, even as it attacked costs as an

inappropriate consideration for product class setting. (Lennox, No. 87 at p. 4; Lennox, No. 114 at p. 3)

As stated previously, DOE disagrees with these commenters' view that the Department's revised interpretation is inappropriate because it diverges from past precedent or that it is lacking in evidentiary basis. The Gas Industry Petition gave DOE the opportunity to revisit its prior interpretation, and the information provided in that petition and in subsequent comments thereon caused DOE to reevaluate prior data and, ultimately, its position. These commenters cannot reasonably claim that the rulemaking dockets for residential furnaces, commercial water heaters, and other similarly-situated products/equipment are lacking in data. Here, however, the petitioners presented the Department with new arguments, perspectives, and information that were useful to DOE in reexamining its position. However, DOE also relied upon the significant data already in these rulemaking dockets to assess its prior interpretation as to whether non-condensing technology (and associated venting) constitutes a performance-related "feature" for purposes of EPCA. Based upon the totality of the information, DOE has determined that the change in interpretation reflected in this final interpretive rule is appropriate under the statute.

The CA IOUs commented that product classification and performance standards should never be inoperative or superfluous, but argued that that is precisely what DOE's proposed classifications for residential furnaces and commercial water heaters would do, because a performance standard with separate levels for both condensing and non-condensing products would represent no new standards or savings, but would instead simply codify the *status quo*. (CA IOUs, No. 85 at p. 5) Reciting the statutory objectives of EPCA, the CA IOUs stated that DOE's performance standards should promote innovation and embrace new technologies and opportunities as they become cost-effective for consumers. In order to ensure that DOE does not set a precedent here regarding "features" that weakens the Department's ability to set effective

efficiency standards, the CA IOUs urged DOE to clearly distinguish between differences that are aspects of inherent technical product design and differences that materially impact the way users interact with the products. To this end, the commenters urged DOE to establish a consistent definition of “performance-related feature” to guide future inquiries as to whether a given aspect of a product is a performance-related feature under EPCA. The CA IOUs supported DOE’s prior interpretation that such feature would be “accessible to the layperson and is based on user operation,” and they further argued that the agency should limit itself to consideration of product classes currently available on the market, based upon input from industry and other stakeholders. These commenters stated that DOE should not establish new product classes based upon its own original interpretations or a determination that certain product classes should theoretically exist. (CA IOUs, No. 85 at p. 3)

In response, DOE agrees with the CA IOUs that statutory provisions should never be made inoperative or superfluous, yet that is precisely the action the CA IOUs would ask the agency to take vis-à-vis EPCA’s “features” provision. Where DOE has determined the existence of a performance-related feature under EPCA, setting a separate product/equipment class and standard to protect such feature is precisely what the statute envisions. Such action is only “codifying the *status quo*” in the sense that it is protecting the feature from elimination as the statute directs. As noted elsewhere in this document, although EPCA seeks to promote energy savings, energy efficiency, and related product innovation, Congress also made a decision to protect important “features” by enacting the “features” provision, even at the expense of potential energy savings.

Regarding the CA IOUs’ suggestion that DOE develop a definition for “performance-related feature,” DOE has concluded that it would not be feasible to do so. Given the multitude of covered products and equipment for which DOE is responsible, the Department has found the

concept of “feature” to be very case-specific. No single definition could effectively capture the potential for features across such a broad array of consumer products and commercial equipment. That is why when assessing “features,” DOE developed the concept of consumer utility and how the consumer interacts with the product/equipment. DOE continues to apply that approach here in the context of non-condensing appliances (and associated venting), having determined that in cases of difficult installation requiring reconfiguration and/or loss of usable living space of a home or retail space of a business, the consumer would become very conscious of and appreciate the ability to purchase appliances with non-condensing operation. This determination is akin to DOE’s prior determinations with regard to finding as features windows in oven doors and top-loading access to clothes washers. DOE has found that expanded choice would be important to such consumers, and accordingly, the Department has determined this to be a “feature” under the statute which may not be eliminated.

A.O. Smith opined that condensing water heaters could replace non-condensing ones in every commercial setting (*i.e.*, technically feasible); however, A.O. Smith does admit that “there are certain circumstances where installing a condensing model may be cost-prohibitive due to significant installation costs.” Rather than making an overly broad features determination, the commenter suggested that such costs should be addressed by “examining subgroups of installations in DOE’s economic models” and that DOE might “decline to set a standard for a particular subclass [of consumers], where supported by the facts and economic analysis.” (A.O. Smith, No. 88 at p. 3; A.O. Smith, No. 113 at p. 3)

Although DOE appreciates A.O. Smith’s acknowledgment of the difficult installation situations at issue, the commenter offered no data to support its assertion that it would be technically feasible to substitute a condensing commercial water heater in all commercial applications, nor would that conclusion, if found to be true, necessarily resolve other concerns

raised in the Gas Industry Petition about undesired modifications to the residential or commercial space. Moreover, the Department does not find the commenter's suggested solution to be a workable one. As those familiar with the Appliance Standards Program are aware, DOE has authority to set energy conservation standards for covered products and equipment which must be met by manufacturers before an appliance may be distributed in commerce. The Department does not regulate product use, absent specific congressional direction (*e.g.*, grid-enabled water heaters). Thus, while DOE may have the ability to analyze impacts of standards on subclasses of consumers, and may use disproportionate impacts on a subclass of individuals as a basis for determining a standard is not economically justified, DOE has no authority to set standards by subclasses of consumers. Moreover, A.O. Smith's suggestion is a false choice because DOE has no ability to ensure that products of a certain standard level are purchased by only those consumers in an intended subgroup.

The CEC stated that DOE discussed its analysis of venting costs for residential furnaces, but it ignored the significant data provided by energy efficiency advocates and others supporting DOE's prior interpretation related to features. Specifically, the CEC pointed to what it described as multiple data points demonstrating that only 1% to 5% of homes would present difficult or costly installation issues. Consequently, the CEC concluded that DOE has insufficient information to outweigh the data provided by proponents of DOE's historical interpretation. (CEC, No. 89 at p. 3)

Once again, the Petitioners *et al.* Joint Comment sought to respond to certain criticisms of opponents of the proposed interpretation. In this area, the Petitioners *et al.* Joint Comment argued that opponents of the petition seek to dismiss the substantial difference in performance characteristics offered by atmospherically vented products by making the assertion that such differences amount to nothing more than installation characteristics, a distinction which the joint

comment stated is without basis. Instead, the Petitioners *et al.* Joint Comment charged that it is the opponents of the petition who are ignoring the data, adding that a study commissioned by opponents of the petition repeatedly acknowledged that installation of condensing appliances frequently presents non-economic problems for purchasers, although the report seeks to characterize them as only aesthetic concerns. Instead, the Petitioners *et al.* Joint Comment countered that a condensing standard would leave many consumers facing the need to sacrifice interior living space, a balcony, or a window simply to replace an existing gas appliance. The Petitioners *et al.* Joint Comment also faulted opponents' study for only classifying a building modification as "significant" if it more than doubles the total system cost of a retrofit, an unreasonable approach which masks the extent of the disruptive impacts which the Gas Industry Petition seeks to prevent. (Petitioners *et al.* Joint Comment, No. 80 at pp. 20-21)

The Petitioners *et al.* Joint Comment challenged DOE's prior rationale (to which other commenters continue to adhere) suggesting that it is possible to install condensing systems in virtually all cases, arguing that such assertions may only be true in a significant number of cases from a technical or theoretical standpoint. However, these commenters stressed that in many cases (as discussed in the petitioners' own competing experts study), such installations may not be possible from a practical perspective, raising the example where the owner of a condominium unit could not install a condensing unit without violating applicable restrictive covenants or compromising a common venting system serving other units. In other cases, the Petitioners *et al.* Joint Comment stated that a condensing standard would leave consumers with no practical gas appliance replacement option without having to accept substantial and often undesirable building modifications. According to the Petitioners *et al.* Joint Comment, this is the same logic and meaning of "impossibility" that DOE used in its final rule for ventless clothes dryers, so they argued that the Department should make clear a similar understanding in the context of condensing technology. (Petitioners *et al.* Joint Comment, No. 80 at pp. 21-23)

According to the Petitioners *et al.* Joint Comment, nearly half of all residential furnaces in the northern part of the country are located in finished basements; over ten percent nationwide are in apartments; many more are in townhomes, and all such installations are ones where replacement of atmospherically vented products would routinely require significant building modifications. (Petitioners *et al.* Joint Comment, No. 80 at p. 23) The Petitioners *et al.* Joint Comment reasoned that EPCA’s “features” provisions were intended, among other things, to preserve availability of product characteristics which consumers need in order to be able to use those products without having to make significant building modifications. These commenters argued that when Congress acted through the “features” provisions to protect “sizes,” as exemplified by statutory standards set for different type of installation of direct heating equipment, it sought to ensure that products fit within “standard building spaces” (*quoting* H.R. Rep. No. 100-11 at p. 23 (1987)). According to the Petitioners *et al.* Joint Comment, changes to existing venting to replace an atmospherically vented furnace with a condensing one would require much more significant building modifications than most other appliances, so they stated that there is no reason to believe that Congress intended to spare purchasers from the lesser types of modifications but not the greater. Based upon this overall statutory logic, the Petitioners *et al.* Joint Comment concluded that there is no basis to conclude that Congress, through inadvertent drafting or otherwise, intended to reach a contrary result. The Petitioners *et al.* Joint Comment strongly stated that arguments to the contrary are based upon abstract qualifications that are without statutory basis, have not been consistently applied, and serve only to confound an otherwise straight-forward issue of statutory interpretation. (Petitioners *et al.* Joint Comment, No. 80 at p. 24)

In response, DOE notes that the CEC points to 1% to 5% of dwellings facing difficult furnace installation situations. However, DOE differs with the commenter in terms of its

assessment of the magnitude and importance of such impacts. While the CEC may regard such percentages to be *de minimis*, DOE would point out that housing units that could be potentially impacted may number in the millions.²³ Thus, DOE has found the potential for a significant loss of consumer utility were non-condensing appliances (and associated venting) to be eliminated. The parties submitting the Petitioners *et al.* Joint Comment also provided their own study, and the dockets for the residential furnaces, commercial water heaters, and other rulemakings with similarly-situated products/equipment contain a large amount of relevant data. DOE also acknowledges the arguments made by the Petitioners *et al.* Joint Comment in the preceding three paragraphs. In short, DOE reviewed all of the arguments and available information. That the agency adopted the recommendations of one set of proponents on this issue does not mean that the Department failed to consider the viewpoints and data presented in opposition to that view. Rather, in response to the petition re-raising the issue, the Department reviewed all the available data it had previously considered, assessed the new data submitted with the petition, read carefully the arguments made by all parties, and made a decision. Consequently, DOE has concluded that it has more than adequate evidentiary basis to support its changed understanding as to the consumer utility of non-condensing appliances (and associated venting).

iii. Aesthetics

A number of commenters objected to DOE's recitation of aesthetic impacts as a factor that impacts consumer utility and that supports its proposed interpretive rule. (AGs Joint Comment, No. 82 at p. 10; A.O. Smith, No. 88 at p. 9; CEC, No. 89 at p. 4; Environmentalists Joint Comment, No. 90 at p. 4; NRDC, No. 94 at pp. 7-8; Advocates Joint Comment, No. 95 at pp. 3-5) Several commenters suggested that such aesthetic concerns are theoretical, anecdotal,

²³ According to the U.S. Census Bureau, housing units in the U.S. as of July 1, 2018 numbered 138,537,078. (Available at: <https://www.census.gov/quickfacts/fact/table/US/VET605218>) (Last accessed May 6, 2020).

and unsubstantiated. (CEC, No. 89 at p. 4; A.O. Smith, No. 88 at p. 9; Environmentalists Joint Comment, No. 90 at p. 4; NRDC, No. 94 at p. 7) For example, A.O. Smith argued that there is no evidence in the record to suggest that condensing water heaters are less aesthetically pleasing or that consumers would value such consideration over the energy and cost savings associated with more-efficient products/equipment, so the commenter concluded that DOE lacks the rational basis and supporting data for such a change. (A.O. Smith, No. 88 at p. 9)

One argument presented was that Congress did not intend aesthetics to be a consideration under EPCA's "features" provision. The CEC argued that aesthetics are beyond DOE's statutory authority, which refers to "performance," "performance characteristics," or "performance-related features." According to the commenter, there is no evidence that Congress deemed subjective aesthetic concerns to be relevant to product utility or that limited, vague, and unsubstantiated anecdotal evidence and theoretical concerns should be allowed to overcome DOE's well-documented evidence in the record supporting its longstanding interpretation of performance characteristics. (CEC, No. 89 at p. 4) Furthermore, the Environmentalists Joint Comment asserted that such limited aesthetic concerns would not have the broad adverse impacts on consumer utility that Congress envisioned and intended to address by drafting the "features" provisions at 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II). (Environmentalists Joint Comment, No. 90 at p. 4)

Other commenters stated that aesthetics are a highly subjective matter and, therefore, ill-suited to serve as the basis for regulatory decision making. (CEC, No. 89 at p. 4; AGs Joint Comment, No. 82 at p. 10; A.O. Smith, No. 88 at p. 9; NRDC, No. 94 at p. 8) NRDC argued that many modern appliances can and do impact how a building looks, although that does not mean they have different performance-related features. To proceed otherwise, the commenter reasoned, would cause the Appliance Standards Program to implode under a proliferation of

“features” and separate classes. NRDC suggested that changes in aesthetics are sometimes a necessary trade-off for the benefits of new technology, as reflected in DOE’s historical approach which limited the focus to the appliance’s primary function when considering “utility to the consumer,” thereby providing an appropriate bound. (NRDC, No. 94 at pp. 7-8) A.O. Smith made a similar point, arguing that DOE’s proposed aesthetic considerations are well beyond past precedent, which focused on the consumer’s interaction with the appliance, and the commenter expressed the view that basing a decision on an expansive view of consumer utility related to aesthetics would have no bounds. (A.O. Smith, No. 88 at p. 9)

The CEC expressed concern that relying on subjective aesthetic concerns would weaken DOE’s ability to improve energy efficiency through standards that are technologically feasible and economically justified. (CEC, No. 89 at p. 4) The AGs Joint Comment argued that DOE’s consideration of aesthetics as a matter of consumer utility threatens to undermine the statutory goal of maximizing energy efficiency by creating the potential for unlimited product classes subject to lower efficiency limits in violation of EPCA. These commenters charged that DOE’s proposed interpretation would effectively prioritize consumer aesthetics and the gas industry’s financial interests in selling more gas over Congress’s desire for national energy savings. (AGs Joint Comment, No. 82 at p. 10)

Finally, some commenters urged DOE to consider the potential for use of alternative technologies or other types of products to resolve aesthetic concerns, rather than resorting to creation of separate product/equipment classes under EPCA’s “features” provision. The Advocates Joint Comment argued that DOE’s concerns expressed in the proposed interpretation about space constraints of installing a condensing appliance (*e.g.*, by adding new venting into the living space or decreasing closet or other storage space and other limitations related to installation), aesthetics, and consumer preference for gas heating are all, at their core, economic

rationales. These commenters argued that solutions exist for difficult venting situations, and that DOE has accounted for them in past rulemaking documents in the course of analyzing potential standards levels. The Advocates Joint Comment further argued that homeowners could avoid unwanted aesthetic impacts by purchasing a different (although perhaps more expensive) type of venting, using new common venting technology (*e.g.*, FasNSeal 80/90), or switching to an electric product (*e.g.*, ones using heat pump technology) which does not raise aesthetic concerns. (The commenters added that unbounded consideration of aesthetics could render standard-setting all but impossible.) (Advocates Joint Comment, No. 95 at pp. 3-4) The Environmentalists Joint Comment raised similar points. (Environmentalists Joint Comment, No. 90 at p. 4)

In response, DOE would start by clarifying that in using the term “aesthetics” in the proposed interpretive rule, it did not intend to imply that purely subjective considerations (*e.g.*, even the slightest change in color or shape) would justify the establishment of separate product/equipment classes. The creation of a proliferation of classes is neither desired nor expected. Instead, DOE used the term in the context of describing physical modifications to a dwelling or business that would result to a substantial degree from prescription by a standard and that physical modification would be appreciably noticed by the consumer and impact the use of living or commercial space. For example, the Petitioners *et al.* Joint Comment provided evidence that a performance standard that can only be met by a condensing appliance could require, particularly in older row-houses, the sacrifice of a window or balcony space. The Petitioners *et al.* Joint Comment provided evidence that these design implications can arise in both replacement applications as well as new construction design. (Petitioners *et al.* Joint Comment, No. 80 at pp. 10-11) That comment also pointed to a June 2015 experts study by Shorey Consulting, Inc. (included as part of the AHRI comment to the residential furnaces docket at Docket No. EERE-2014-BT-STD-0031-0159) which provided further evidence that there are applications where it is not possible to install a condensing furnace due to existing

building constraints and code limitations. Only after reviewing the Gas Industry Petition and related comments did DOE come to fully appreciate the extent of these consumer impacts and how they can transcend cost. Consequently, a reconsideration of the available evidence caused DOE to act to change its long-standing interpretation.

Contrary to the views expressed in the CEC's and environmentalists' comments, Congress included the "features" provision in EPCA to protect consumer utility, even at the expense of some measure of energy savings. To the extent that "aesthetics" equate to a substantial degree in significant alteration of a dwelling's or business's structure and that physical modification would be appreciably noticed by the consumer and impact the use of living or commercial space, DOE's review of the available evidence and information has led it to conclude that a standard level requiring such changes could eliminate a "feature" under EPCA. Based upon that understanding, DOE has determined that non-condensing technology (and associated venting) are one such feature, and by keeping the focus on what the agency determines to be significant potential building modifications, it would expect to keep such "aesthetic" considerations within appropriate bounds. DOE also reasons that this final interpretation will have the added benefit of promoting consumer choice, rather than requiring fuel switching or extensive retrofits to resolve difficult installation situations.

iv. Delay

The AGs Joint Comment²⁴ argued that DOE's proposed interpretive rule would unlawfully delay the adoption of efficiency standards required by EPCA, as well as delay the

²⁴ The AGs Joint Comment renewed all of the objections raised in their March 1, 2019 comments on the Gas Industry Petition. DOE notes that these comments were fully addressed in the proposed interpretive rule published in the *Federal Register* on July 11, 2019. 84 FR 33011. DOE commends the reader to consult that document for further details on both those comments and the Department's responses.

benefits of such mandatory energy conservation standards. (AGs Joint Comment, No. 82 at pp. 2-3; AGs Joint Comment II, No. 115 at p. 2) A.O. Smith similarly asserted that DOE's proposed interpretation would result in delay in setting standards (including for products subject to statutory deadlines). (A.O. Smith, No. 88 at p. 12) More specifically, the AGs Joint Comment argued that DOE action on the Gas Industry Petition impermissibly delays DOE's publication of final rules as required under 42 U.S.C. 6295(m)(3)(A) and 42 U.S.C. 6313(a)(6)(C)(iii)(I). The AGs commented that DOE's statutory deadlines for promulgating final residential furnace and commercial water heater standards expired in March 2017 and May 2018, respectively. According to the AGs Joint Comment, DOE's proposed interpretive rule impermissibly compounds that delay, and since those dates have already passed and the comment periods for those rulemakings have already closed, these commenters opined that DOE should have rejected the Gas Industry Petition as duplicative or untimely. The AGs Joint Comment stated that DOE cannot further delay its statutory obligations by revisiting previously rejected arguments, issuing arbitrary and capricious interpretive rulings, and engaging in supplemental rulemaking to implement an unfounded interpretation of EPCA. (AGs Joint Comment, No. 82 at pp. 5-7)

The Petitioners *et al.* Joint Comment offered several responses to the arguments of opponents of the Gas Industry Petition. On this particular point, these commenters argued that neither DOE's proceedings for residential furnaces and commercial water heaters, nor the issues presented therein, can be lawfully concluded without consideration of and response to the considerable adverse comment raised in those rulemakings. The Petitioners *et al.* Joint Comment also made the point that DOE's obligation to comply with statutory deadlines does not obviate its responsibility to consider comments and to make sure that any new standards are lawful on the merits. (Petitioners *et al.* Joint Comment, No. 80 at p. 18)

In response, DOE recognizes the statutory deadlines associated with residential furnaces, commercial water heaters, and other energy conservation standards rulemakings. Given the complex issues at play, as evidenced by the public comments in this proceeding, DOE is working diligently to bring those rulemakings to a conclusion. However, DOE agrees with the Petitioners *et al.* Joint Comment that the agency also has a legal obligation to address public comments filed in those rulemakings, as well as to consider the petition for rulemaking properly filed under 5 U.S.C. 553(e). DOE is not at liberty to pick and choose among these legal obligations. (DOE addresses elsewhere in this document the allegations in the AGs Joint Comment that the Department’s proposed interpretive rule is arbitrary and capricious and based upon an improper reading of EPCA.)

v. Regulatory Burdens/Litigation/Uncertainty/Preemption

Some commenters argued that DOE’s proposed interpretation would increase regulatory burdens on manufacturers. (Lennox, No. 87 at p. 1; A.O. Smith, No. 88 at pp. 11-12) Along these lines, Lennox argued that creation of separate product classes for condensing and non-condensing products would increase the regulatory burden for manufacturers, distributors, contractors, and their customers, all to appease a narrow group of gas industry interests. (Lennox, No. 87 at p. 1; Lennox, No. 114 at p. 1, 4, 7) Doing so, Lennox asserted, would add yet another rulemaking process, and it suggested that the timing of condensing and non-condensing product rulemakings could become “split into untenably mis-aligned rulemaking cycles.” The commenter argued that furnace regulation is already overly complicated, with separate metrics for annual fuel utilization efficiency (AFUE), standby mode and off mode power, and furnace fan efficiency. Lennox argued that the additional regulatory costs associated with a condensing/non-condensing class split would ultimately be pushed through the supply chain to the consumer, and that such action would also increase consumers’ confusion as they

seek to purchase an appropriate furnace product. (Lennox, No. 87 at p. 3; Lennox, No. 114 at pp. 6-7) Similarly, A.O. Smith stated that manufacturers will bear the burden of complying with multiple standards for a single covered product, thereby increasing compliance costs and regulatory burden on the industry. (A.O. Smith, No. 88 at p. 11)

A few commenters predicted that adoption of DOE's proposed interpretation would have additional negative consequences. For example, Lennox argued that DOE's proposed interpretive rule, if finalized, would trigger additional litigation, thereby creating more uncertainty for industry. (Lennox, No. 87 at p. 2; Lennox, No. 114 at p. 7) A.O. Smith also asserted that DOE's proposed interpretation would result in regulatory uncertainty for manufacturers. (A.O. Smith, No. 88 at p. 12) The CA IOUs also expressed concern about the potential for DOE's proposed interpretations to create market uncertainty for the subject appliances. (CA IOUs, No. 117 at p. 3)

A.O. Smith speculated that the proposed interpretation would result in DOE's failure to adopt energy conservation standards that appropriately reflect the maximum improvement in energy efficiency called for under the statute, and that in turn would jeopardize the preemptive effect of those standards by encouraging States to seek waivers of preemption under 42 U.S.C. 6297(d). The commenter expressed concern that manufacturers could face a burdensome and costly patchwork of State regulations, if such petitions were to be granted. (A.O. Smith, No. 88 at p. 13) In contrast, the AGs Joint Comment also expressed concern about the potential preemptive effects under 42 U.S.C. 6297, if DOE does not fulfill its statutory duty when developing and adopting energy conservation standards, particularly as regards States' renewable energy and climate policy goals. (AGs Joint Comment, No. 82 at p. 13)

After considering these comments, DOE would point out that any regulatory proceeding entails the potential for litigation and, therefore, some degree of regulatory uncertainty. If the potential for litigation (and related uncertainty) were to be a basis for DOE to not undertake regulatory action (including relevant statutory interpretations), it could completely stall the Department's rulemaking process, because cross-cutting stakeholder interests render most agency actions subject to potential legal challenge. On the other hand, failure to take regulatory action for fear of litigation would itself lead to litigation for not having completed legally required regulatory actions. At bottom, the potential for litigation is inherently part of the regulatory process.

Lennox mischaracterizes DOE's interpretive rulemaking as an effort to "appease" members of the gas industry. The agency is obligated to consider the merits of petitions for rulemaking properly brought before it under the statute and to take appropriate action. Further, the issues addressed in this petition for rulemaking have been presented in numerous regulatory actions DOE has conducted and continues to conduct. DOE suspects that if Lennox were to submit its own petition for rulemaking, it would view the matter very differently, and that the company would expect DOE to give the substance of its petition due consideration under the statute. The Department has acted responsibly to present the issue for public comment and to consider that comment in determining how to proceed.

DOE likewise finds Lennox's and A.O. Smith's claims of regulatory burden to be overstated. To start, this final interpretive rule does nothing to change the current regulatory landscape, even though subsequent rulemakings may establish separate product/equipment classes and energy conservation standards for non-condensing technology (and associated venting) in appropriate cases. Appliance manufacturers routinely encounter multiple performance, capacity and other technical distinctions between appliance models that could

impact energy efficiency, thereby justifying different classes and standards. For example, there are currently 7 product classes for consumer furnaces (*see* 10 CFR 430.32(e)), 21 equipment classes for commercial water heaters (*see* 10 CFR 431.110), and 36 product classes for consumer water heaters (*see* 10 CFR 430.32(d)). Accounting for a limited number of additional product/equipment classes associated with condensing and non-condensing technology represents a reasonable regulatory burden. The statute does not foreclose *all* regulatory burden, but instead it requires the agency to properly analyze whether a given test procedure or energy conservation standards would be *unduly* burdensome. DOE further notes that neither AHRI nor any of the other manufacturer commenters cited regulatory burden as a significant concern in response to the proposed interpretive rule.

In response to Lennox's specific concern about regulatory burdens associated with split rulemaking cycles for the same product type, DOE notes that in its energy conservation standards rulemakings, the Department typically addresses product types in a holistic fashion for a given covered product. Having splintered rulemakings which deal with only certain product classes would likewise increase burdens on the agency, so DOE agrees that such scenarios should be avoided to the maximum extent possible. Lennox has not explained in any detail why it believes that DOE's proposed interpretation would lead to misaligned rulemaking cycles, so DOE does not find this to be a reason to alter its proposed interpretation. DOE would add here that if the Department decides to grant AHRI's October 2018 AFUE2 petition, that could potentially consolidate furnace and furnace fans rulemakings, thereby reducing regulatory burdens and the "overcomplicated" regulatory structure for these products mentioned by Lennox (*see* section III.D.1 of this document for further discussion).

Finally, DOE does not agree with A.O. Smith's speculation that adoption of the Department's proposed interpretation would impact the normal preemptive effects of the statute

or lead to favorable consideration of a significant number of petitions for waiver of preemption under 42 U.S.C. 6297(d), potentially resulting in a patchwork of State regulations. Similarly, DOE does not agree with the AGs Joint Comment's objections to the preemptive effects of subsequent final rules adopted pursuant to a final interpretive rule. DOE will conduct future energy conservation standards rulemakings in conformity with this final interpretation and all other statutory requirements, and as such, standards resulting from those rulemakings will be entitled to their full preemptive effect under the law. EPCA does permit States to seek a waiver of Federal preemption under 42 U.S.C. 6297(d), but to obtain such a waiver, a State must show by a preponderance of the evidence that a separate State regulation is needed to meet unusual and compelling State or local energy and water interests (which must be substantially different in nature or magnitude than those prevailing in the United States generally). (42 U.S.C. 6297(d)(1)) Moreover, the statute explicitly provides that DOE may not prescribe a waiver of preemption if the Secretary finds (and publishes such finding) that interested parties have established by a preponderance of the evidence, that the State regulation is likely to result in the unavailability in the State of any covered product type (or class) of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the State at the time of the Secretary's finding. (42 U.S.C. 6297(d)(4)) While DOE is not prejudging the outcome of a request not yet before it, because this final interpretive rule is in essence a "features" determination under the statute, it is difficult to see how such waivers of preemption to which A.O. Smith alludes could be granted, so the threat of a related patchwork of State regulations seems remote, at best.

vi. Other Negative Effects of a Change in Interpretation

Several commenters raised concerns about deleterious effects that they envision would arise from DOE's proposed interpretation. For example, Ceres stated that reversing DOE's long-

held position now would “create confusion to the furnace and water heater markets, increase energy use and decrease efficiency, negate significant financial savings opportunities for consumers, and slow the transition to a more energy efficient future.” (Ceres, No. 69 at p. 3) A.O. Smith objected to and urged rejection of DOE’s proposed interpretation as contrary to sound public policy, arguing that taking a contrary position would deter innovation, limit choice in the marketplace, and deprive consumers of the benefits of reduced energy consumption and lower utility bills. (A.O. Smith, No. 88 at p. 2; A.O. Smith, No. 113 at p. 2) In comments on the September 2020 SNOPIR, the CA IOUs argued that if DOE continues to advance its current approach, it would lock in inefficient technologies that waste energy, increase consumer costs, and inhibit energy efficiency innovation. (CA IOUs, No. 117 at p. 2)

NRDC’s comments²⁵ faulted DOE’s proposed revised interpretation as unnecessary and damaging to the effectiveness of the Appliance Standards Program, arguing that it would set the stage for weaker standards that would harm consumers; similar comments were made by the CA IOUs and the Advocates Joint Comment II. (NRDC, No. 94 at p. 4; CA IOUs, No. 117 at p. 3; Advocates Joint Comment II, No. 118 at pp. 1, 2) Along these lines, the CEC argued that because the proposed interpretive rule would put a cap on energy efficiency, it would lock in additional energy costs that would disproportionately affect low-income populations. The CEC argued that these outcomes would be inconsistent with DOE’s statutory mandate and the purposes of the Energy Conservation Program. (CEC, No. 89 at pp. 1-2) The AGs Joint Comment added that DOE’s proposed interpretation would also undermine State and local energy policy and conservation goals. (AGs Joint Comment, No. 82 at pp. 2-3) In commenting on the September 24, 2020 supplemental proposed interpretive rule, Lee Hannah suggested

²⁵ NRDC renewed all of the objections raised in its March 1, 2019 comments on the Notice of the Gas Industry Petition, as well as all of the objections raised by the joint NRDC and Earthjustice comments filed on that same date. DOE notes that these comments were fully addressed in the proposed interpretive rule published in the *Federal Register* on July 11, 2019. 84 FR 33011. DOE commends the reader to consult that document for further details on both those comments and the Department’s responses.

generally that DOE's energy conservation standards activities have not done enough to promote energy and economic savings. (Lee Hannah, No. 99 at p. 1)

Commenters such as A.O. Smith and the Advocates Joint Comment sought to refute DOE's suggestion that its proposed interpretation would only have a limited impact and its focus on a subset of consumers (*i.e.*, low-income residential consumers), instead arguing that it would have broad and lasting effect. (A.O. Smith, No. 88 at p. 12; Advocates Joint Comment, No. 95 at p. 6) A.O. Smith emphasized that the proposal was not limited to just residential furnaces and commercial water heaters but was instead deemed applicable to "similarly situated products/equipment." (A.O. Smith, No. 88 at p. 12) The Advocates Joint Comment II argued that DOE has not clearly defined the products to which the interpretive rule would apply, specifically faulting the language about "similarly-situated products/equipment" in DOE's proposals. The Advocates Joint Comment II stated that DOE's proposed interpretations have not explained whether such interpretations would apply to both residential and commercial gas furnaces and gas water heaters, or whether the interpretation would apply to both weatherized and non-weatherized furnaces. Therefore, these commenters claimed that it is not possible to fully evaluate the potential impacts of DOE's proposal. (Advocates Joint Comment II, No. 118 at p. 2) However, these same commenters correctly pointed out that condensing technology is available for (and thereby suggesting that DOE's interpretation would be potentially applicable to) eight categories of products/equipment regulated by DOE: residential furnaces, commercial furnaces, residential boilers, commercial boilers, residential water heaters, commercial water heaters, direct heating equipment, and unit heaters. (Advocates Joint Comment, No. 95 at p. 6)

The Advocates Joint Comment went on to analyze what they perceived to be the potential impacts of DOE's proposed interpretation and stressed that the number of impacted products is

not as important as the total potential energy savings at issue, citing the evidence of DOE's own analyses which have shown, even when accounting for market trends, that energy conservation standards set at condensing levels could save about 13 quads of energy over a 30-year analysis period and lower utility bills by more than \$100 billion over the same period. (Advocates Joint Comment, No. 95 at p. 6) The Advocates Joint Comment and A.O. Smith argued that DOE's proposed interpretive rule would improperly eliminate DOE's ability to even consider future standards based upon condensing technology that would have the potential for very large energy and cost savings, thereby allowing non-condensing products/equipment to remain on the market in perpetuity. (Advocates Joint Comment, No. 95 at p. 6; A.O. Smith, No. 88 at p. 12) The Advocates Joint Comment II argued that the factors discussed in DOE's proposed interpretations appear to relate specifically to residential furnaces, and these commenters alleged that the Department has not even attempted to provide a rationale for its proposed interpretation with respect to other products, in particular commercial equipment. The Advocates Joint Comment II contended that DOE's arguments about changes to a home's aesthetics, a preference for gas appliances, and concerns about energy affordability are "irrelevant for any commercial equipment." (Advocates Joint Comment II, No. 118 at pp. 2-3)

DOE must act within its statutory authority (as discussed in further detail in section II.A of this document), and DOE recognizes that Congress was mindful of achieving energy conservation while also protecting consumer utility when enacting EPCA, as evidenced by the statute's "features" provisions. Congress is the ultimate arbiter of sound public policy, and through EPCA's "features" provision, it made clear that the goal of energy savings should not trump all competing concerns. If the statute which Congress has drafted takes some potential actions off the table, DOE must operate within the parameters that Congress established, even if significant additional energy and cost savings, as suggested by the Advocates Joint Comment, could arise from ignoring those parameters. For the reasons articulated in this document, DOE's

final interpretive rule has determined non-condensing technology (and associated venting) to be a “feature” under the statute which cannot be eliminated through adoption of energy conservation standards. Even so, DOE has concluded that such action would not have any major detrimental effect on the Appliance Standards Program, stakeholders, or the public. With that said, DOE does not agree with the litany of negative consequences about which these commenters speculate.

As discussed in section III.A.3 of this document, market trends are moving increasingly in the direction of condensing technology, despite the fact that non-condensing appliances remain available on the market. With the potential for substantial savings on utility bills, consumers have been availing themselves of more-efficient options when doing so makes sense for them, and DOE has every reason to believe that such trends will continue. However, for difficult installation situations, consumers can make the choice for a like-for-like replacement using non-condensing technology. Since the same issues would arise for the similarly-situated appliance recited by the Advocates Joint Comment, it only makes sense for the Department to also address them at this time. Although DOE arguably could have been more explicit in reciting the types of covered products and equipment subject to its interpretation, the Department notes that submitters of the Advocates Joint Comment and others did not have difficulty in practice in homing in on the impacted appliances in framing their arguments. Furthermore, DOE finds that its interpretation (as explained more fully in the balance of this document) adequately provides a rationale for applying its interpretation to both covered consumer products and commercial equipment, although the specifics of the impacts justifying the interpretation may vary depending upon the appliance in question. Contrary to A.O. Smith, DOE views this final interpretation as maintaining consumer choice, rather than diminishing it. DOE fully expects market trends towards higher-efficiency products will continue as consumers are able to take full advantage of the range of choices available to them.

DOE does not agree with Ceres's contention that DOE's revised interpretation would create confusion in the marketplace, given that the DOE's statement is clear and that this is a mature market with sophisticated and knowledgeable actors. Furthermore, since non-condensing and condensing appliances are currently sold side-by-side on the existing market, DOE fails to see how such confusion would arise, presuming that it does not already exist. Likewise, DOE does not find credible A.O. Smith's conjecture that DOE's revised interpretation would decrease innovation. Manufacturers have every incentive to continue to innovate in this competitive market, especially given the market trend toward purchase of more-efficient appliances. Finally, DOE would note that, as always, State and local governments are welcome to pursue their own initiatives that fill any regulatory and policy space that is not preempted by Federal law.

1. Legal Authority to Set "Small" Furnace Product Classes

Some commenters continued to advocate for the approach proposed in DOE's September 2016 SNO PR for residential furnaces as a preferable way to resolve the concerns raised in the proposed interpretive rule (*i.e.*, by setting a differentiated standard based on capacity). Lennox argued that DOE should not move forward on its current path, but instead, the commenter stated that the Department should achieve its energy conservation goals through more tailored, alternative regulatory approaches, such as capacity-based standards to preserve non-condensing furnaces for smaller residential furnaces. (Lennox, No. 87 at pp. 1, 3, 6-7; Lennox, No. 114 at pp. 2-3, 5) Lennox recommended that DOE adopt the approach previously supported by industry to preserve non-condensing furnaces below certain kBtu/h thresholds, which would address smaller applications, including mobile homes, impacting middle- and low-income consumers. (However, the commenter clarified that the level of 55 kBtu/h specified in the September 23, 2016 SNO PR would need to be raised so as to be sufficient to preserve non-condensing furnaces

in mobile home applications and other difficult installation situations.) (Lennox, No. 87 at p. 6) The CA IOUs also urged DOE to finalize the September 2016 SNO PR for residential furnaces. (CA IOUs, No. 117 at p. 2) According to the CFA/NCLC, if DOE were to adopt a two-tiered standard of 80 percent AFUE for smaller furnaces (used in smaller dwellings and warmer climates) and 92 percent AFUE for larger furnaces (used in colder climates), 89 percent of low-income consumers would benefit. Conversely, CFA/NCLC stated that millions of low-income households would face significantly higher energy bills for the useful life of the furnace if DOE were to move forward with its proposed revised interpretation. (CFA/NCLC, No. 93 at p. 2)

The AGs Joint Comment stated that DOE's recent concerns about costs are unwarranted, and in the context of the residential furnaces rulemaking, these commenters appeared to support DOE's prior efforts to establish a separate, small furnace product class and mentioned AHRI's past statement that that would be a "reasonable solution." (AGs Joint Comment, No. 82 at pp. 10-11) Electrify Now also supported that prior rulemaking approach for the subject residential furnaces, as previously proposed by DOE. (Electrify Now, No. 106 at p. 1)

In response, DOE acknowledges that it has authority to create product classes for consumer products based upon capacity under 42 U.S.C. 6295(q)(1)(B), and this authority extends to non-ASHRAE commercial equipment through application of 42 U.S.C. 6316(a). DOE further recognizes that it previously proposed capacity-based standards in the September 2016 furnaces SNO PR, an approach which garnered some measure of public support. However, that proposal was opposed by the gas industry, because those commenters argued that it failed to fully and adequately resolve the problems that they had identified. After careful consideration of the Gas Industry Petition and comments thereon, DOE has come to the conclusion that a capacity-based approach is not the proper tool to address the issues raised in the petition because they would not provide a comprehensive solution in all instances where consumer utility may be

impacted due to difficult installation situations. The following explains how the Department's understanding has evolved in this area.

In essence, the problem identified in the Gas Industry Petition is not one of capacity. Difficult installation situations with the potential to impact consumer utility are not cleanly separated by capacity, so seeking to advance a proposed solution based upon capacity as the distinguishing factor would be at best an indirect and imperfect way to address the problem. In that sense, the gas industry's continued opposition would be expected and understandable. Furthermore, DOE does not believe that commenters currently expressing support would likely remain in agreement were the Department to move forward with a capacity-based approach. Illustrative of this point, Lennox's comment supported DOE's previously proposed capacity-based approach for residential furnaces but also suggested that the capacity threshold of 55 kBtu/h proposed in the September 2016 SNO PR would need to be raised, an opinion expressed by other industry commenters on that SNO PR. 81 FR 65720, 65754 (Sept. 23, 2016). In contrast, environmental and advocacy groups likewise supported the capacity-based approach but pushed for a *lower* threshold. *Id.* DOE would also note that these commenters supporting a capacity-based approach would simply be recreating the same protections for non-condensing appliances at the lower end of the capacity range to which they so strenuously objected for the reasons stated in response to the proposed interpretation (*e.g.*, locking in less-efficient technology, depriving savings to renters). Moreover, DOE's prior capacity-based proposal assumed (without explicitly stating) that small capacity furnaces would be non-condensing and large capacity furnaces would be condensing. As such, the capacity-based proposal these comments support made in the past the very distinction these same commenters so vehemently oppose now. Consequently, DOE no longer views a capacity-based approach to standards for the products/equipment at issue in this proceeding to be a viable alternative to the "features" determination being made in this final interpretive rule.

2. Market Trends

A number of commenters speculated as to the effect that DOE's revised interpretive rule would have on the market for residential furnaces, commercial water heaters, and similarly situated equipment. One group of commenters predicted that DOE's proposed interpretive rule would lead to significant market-related impacts with negative consequences. For example, Lennox alleged that DOE's proposed interpretation would disrupt market trends towards more-efficient condensing furnaces by creating a separate product class for non-condensing furnaces. (Lennox, No. 87 at p. 3; Lennox, No. 114 at pp. 4, 5) A.O. Smith challenged the proposed interpretation's suggestion that it would adhere to the principle of market neutrality vis-à-vis competing energy sources, arguing that by insulating non-condensing water heaters from more-stringent standards, the Department is picking winners and losers in the water heaters market at the expense of consumer benefits and savings from higher-efficiency appliances. (A.O. Smith, No. 88 at p. 9) Ceres likewise argued that by encouraging a market for non-condensing equipment, DOE's proposed interpretive rule would waste energy and resources, a result which Ceres characterized as inefficient and costly. (Ceres, No. 69 at p. 2) Lennox and A.O. Smith characterized the Gas Industry Petition (and any separate product/equipment classes arising therefrom) as a mechanism that would disrupt the market for more-efficient condensing furnaces, drive up the cost of condensing products, and potentially push many consumers out of the market for more-efficient products. (Lennox, No. 87 at p. 2; A.O. Smith, No. 88 at p. 11; Lennox, No. 114 at pp. 4, 5) More specifically, Lennox reasoned that if condensing furnaces were placed in a separate product class, "EPCA would almost certainly mandate maximizing condensing furnace energy conservation standards to even higher levels, thereby pricing many consumers out of a more energy efficient furnace." (Lennox, No. 87 at p. 3; Lennox, No. 114 at p. 5)

Other commenters opined that DOE's proposed interpretive rule would have negligible impacts upon existing market trends for the appliances at issue. For example, AHRI pointed out that the market is already trending towards condensing furnaces in applications where such venting/installation constraints do not exist. According to AHRI, even with non-condensing furnaces on the market right now, this trend toward condensing furnaces currently exists, and there is no reason to think that establishment of a separate product class would hinder the existing movement of this well-functioning market. (AHRI, No. 91 at p. 2; similar points were made by Nortek, No. 71 at pp. 1-2, and Mortex, No. 72 at p. 1) Likewise, especially since there is already a market trend toward condensing commercial water heaters, AHRI argued that it is neither necessary nor advisable to require condensing equipment in all applications. Instead, the commenter stated that establishment of a separate product class for non-condensing equipment would preserve the ability of commercial consumers facing difficult installation situations to make like-for-like replacements and to avoid the need to reconstruct a mechanical room, add unsightly piping, or switch to an electric water heater, all without impacting the overall trend toward installation of more-efficient condensing water heaters. (AHRI, No. 91 at p. 3)

Similarly, Carrier and Nortek reasoned that because consumers are already moving in the direction of condensing furnaces, regulatory intervention banning non-condensing furnaces is not necessary and would only serve to disproportionately harm those consumers for whom venting changes would be difficult or impossible. (Carrier, No. 92 at p. 1; Nortek, No. 71 at pp. 1-2)

BWC sought to allay DOE's concerns about the potential for locking in a less-efficient technology which could act as a ceiling on product efficiency. In BWC's experience, especially in commercial applications, it stated that the market will choose higher-efficiency products/equipment where it makes sense (*i.e.*, taking into account not only economics but other factors, such as change in utility, loss of usable space, *etc.*). (BWC, No. 77 at p. 2) Carrier largely echoed these comments that creation of separate product classes for condensing and non-

condensing equipment would not hinder the market trend toward condensing products, arguing that consumers and residential new construction home builders continue to move in the direction of condensing technology, despite the availability of non-condensing appliances in the current market. (Carrier, No. 92 at p. 1)

As a third perspective, the Petitioners *et al.* Joint Comment asserted that energy conservation standards that would make atmospherically vented products unavailable to consumers would alter the market by promoting electrification (*i.e.*, a shift to electric appliances), rather than by promoting the efficiency of gas products, because it would force many consumers to feel that they have no choice but to give up their gas appliances in favor of electric alternatives. These commenters characterized the situation as one where the imposition of a standard that effectively bans atmospherically vented gas appliances would result not in the sale of an increased number of more efficient gas products, but in the sale of fewer gas products overall. The Gas Industry Petitioners argued that they are not opposed to condensing technology generally or market trends favoring such technology. Instead, these commenters stated that they are simply making the case that condensing products are not suitable for all installations and that it is the opponents of the petition who are the ones seeking to deny consumers the products which best serve their needs. (Petitioners *et al.* Joint Comment, No. 80 at pp. 3-4)

In response, DOE would first note that EPCA directs DOE to consider the potential unavailability of a “performance characteristic” or “feature” as a matter separate and apart from economic impacts or market trends. Stated simply, EPCA’s “features” provisions make clear that while improved energy efficiency may be the overarching goal, it is not the only decisional factor in standard-setting. It is often the case that elimination of a feature would allow for a more energy-efficient product (*e.g.*, an oven window), but in drafting the statute, Congress made clear its intention to preserve consumer utility, which in some cases may necessitate the sacrifice

of potential additional energy savings. Through this final interpretation, DOE has determined that in certain cases, non-condensing technology (and associated venting) is one such feature. A.O. Smith mischaracterizes this decision as abandonment of the principle of market neutrality, when in fact it simply reflects implementation of the statutory provisions enacted by Congress.

Setting these matters aside, DOE still does not find the market trend impact envisioned by Lennox, Ceres, and A.O. Smith to be credible, but instead, the Department agrees with the assessment of AHRI, BWC, Nortek, Mortex, and Carrier as to the likely market impacts of DOE's proposed interpretive rule. While Lennox, Ceres, and A.O. Smith posit what they think might happen in the market, AHRI, BWC, Nortek, Mortex, and Carrier are pointing out what is actually happening in the market. That is, non-condensing and condensing products are competing in the market currently under DOE's existing regulations, yet the market trend towards condensing products/equipment exists nonetheless. As establishment of separate product/equipment classes for non-condensing appliances would in general reflect the *status quo*, DOE fails to see how the deleterious market trends of which Lennox, Ceres, and A.O. Smith complain would manifest, given that they have not arisen already. Instead, as AHRI, BWC, Nortek, Mortex, and Carrier suggest, consumers (both residential and commercial) make decisions based upon their own weighing of economics and other relevant factors (*e.g.*, space constraints, loss of utility). Thus, the trend toward higher-efficiency condensing appliances (even where non-condensing ones are available) suggests that the markets are working efficiently, and DOE can discern no reason why that current market trends towards condensing appliances would not continue, regardless of DOE's final interpretation. Thus, DOE expects further energy savings gains over time as the market share of condensing appliance continues to increase.

Although Lennox and A.O. Smith speculate as to the outcomes of the ongoing DOE residential furnaces rulemaking under the Department's proposed interpretation, such outcomes cannot be predicted now; the outcomes can be properly determined only after completion of the full suite of the agency's rulemaking analyses, as applied in each individual rulemaking. However, even in the abstract, DOE does not agree with the logic of Lennox and A.O. Smith. Specifically, Lennox alleges that if DOE were to establish separate product/equipment classes for condensing and non-condensing appliances, the levels for condensing models would be higher than they otherwise might be if there were to be single product/equipment class. However, amended energy conservation standards would ultimately be set at a level that results in significant conservation of energy, is technologically feasible, and is economically justified. Any determination of those future standards would be based on sound economic and technical analyses.

3. Requests for Clarification

Among the commenters supporting DOE's proposed interpretive rule, a few requested clarification (sometimes with recommendations) on specific points. For example, Weil-McLain argued that DOE would be more technically accurate to make class distinctions based on the appliance's venting category (as defined in the National Fuel Gas Code NFPA 54), rather than using the terms "condensing" and "non-condensing." The commenter pointed to what the National Fuel Gas Code refers to as Category I vented appliances, which operate with a non-positive vent static pressure and with a vent temperature which avoids excessive condensate production in the vent. Weil-McLain argued that such venting is the type used by non-condensing appliances. Thus, Weil-McLain suggested that going forward, DOE should use the term "Category I Vented Appliance" in its interpretation. (Weil-McLain, No. 86 at pp. 1-2)

In response, DOE notes that this comment is similar to ones by USB, BHI, and Crown Boiler, which prompted the Department to issue its September 2020 SNOPIR to consider two alternative approaches that would have defined a performance-related feature for the subject gas appliances based upon venting compatibility (*see* section II.E of this document for further details). However, after reviewing public comments in response to its supplemental proposal, DOE ultimately decided not to adopt those alternative proposals and to instead proceed with its original proposal to define the performance-related feature as the subject appliances' condensing or non-condensing operation, for the reasons explained in section III.A.1.a of this document. Consequently, DOE declines to adopt the clarification suggested by Weil-McLain for the reasons previously discussed.

The Petitioners *et al.* Joint Comment requested that DOE clarify the language used in its proposed interpretation by concluding that standards limiting the market to products that use condensing combustion technology “would result in the unavailability of a performance characteristic or feature,” language which they argued would more closely track that of the statute. The Petitioners *et al.* Joint Comment also asked DOE to clarify the proposed interpretation's parenthetical “(where permitted by EPCA)” and its reference to 42 U.S.C. 6316(a) to make clear that it relates to the situations to which the “features” provisions apply under the statute, rather than being a “features” provision itself. (Petitioners *et al.* Joint Comment, No. 80 at p. 7)

In response, although DOE does not perceive the language in question to be unclear, the Department is restating its position so as to dispel any confusion. Through this final interpretation, DOE has concluded that a careful examination of anticipated consumer impacts and a preponderance of the record evidence show that a standard limiting the market to products/equipment that use condensing combustion technology (and associated venting) would

impermissibly result in the unavailability in the United States of a performance characteristic or feature under EPCA. In future rulemakings to consider energy conservation standards regarding products/equipment for which this determination is relevant, DOE will consider establishing separate product/equipment classes for condensing and non-condensing product types and may set different standards for such classes.

Regarding the language in the proposed interpretive rule about “(where permitted by EPCA),” DOE was referring to the situation where DOE is triggered by ASHRAE action in amending ASHRAE Standard 90.1 and where DOE does not have clear and convincing evidence to adopt standard levels more stringent than those set by ASHRAE. Regarding DOE’s reference to 42 U.S.C. 6316(a), the Petitioners *et al.* Joint Comment is correct that that is not a “features” provision itself, but it is instead the statutory crosswalk provision which makes the “features” provision at 42 U.S.C. 6295(o)(4) applicable to covered non-ASHRAE equipment.

BWC expressed concern about how ASHRAE equipment would be affected by DOE’s proposed interpretation impacting EPCA’s “features” provision. Specifically, BWC stated that DOE has not addressed the situations where DOE does not act to adopt a level more stringent than the level adopted by ASHRAE or where DOE cannot adopt the ASHRAE level (*e.g.*, if such standards were differentiated based on new construction versus replacement installations; or if the levels were set based on the system’s efficiency, rather than a single product within the system). In those cases, BWC recommended adopting a similar interpretation of the “features” provision as if the product were not covered by ASHRAE. (BWC, No. 77 at p. 1) Similarly, AHRI requested further clarification on how DOE’s proposed interpretive rule applies to commercial equipment, particularly ASHRAE equipment rulemakings conducted pursuant to EPCA’s 6-year-lookback review requirements that are not prompted by amendments to ASHRAE Standards 90.1. (AHRI, No. 91 at pp. 3-4) For water heaters, AHRI agreed with DOE

that its condensing/non-condensing interpretation would not apply in situations where the Department, after being triggered by ASHRAE action amending ASHRAE Standard 90.1, adopts the same standard level set by ASHRAE. (AHRI, No. 109 at p. 3)

EPCA includes a “features” provision applicable to ASHRAE equipment at 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa), but that provision applies only to instances where DOE is adopting more-stringent standards either under the statute’s trigger provision or 6-year-lookback provision. In those cases where DOE adopts the ASHRAE Standard 90.1 levels under 42 U.S.C. 6313(a)(6)(A)(ii)(I), there is no applicable “features” provision, so DOE’s authority limits it to adopting the levels and classes set by ASHRAE.

B. Comments Regarding Economics-Related Issues

A number of commenters disagreed with DOE’s proposed interpretive rule, because they argued that it improperly injects economic considerations into the concept of consumer utility used in the “features” determination. These commenters, such as A.O. Smith, argued instead that installation and other costs are to be considered as part of the economic analysis required by the statute. (A.O. Smith, No. 88 at p. 4) In responses to the September 2020 SNOPIR, NRDC and A.O. Smith added that any issues related to venting are likewise an issue of cost, not a performance-related feature, and any costs associated with upgrading venting can and should be addressed when DOE analyzes installation costs in its economic analysis. (NRDC, No. 112 at pp. 2-3; A.O. Smith, No. 113 at p. 3) The CA IOUs stated that DOE should not inappropriately conflate rulemaking analyses (*e.g.*, economic justification analyses) with a petition to create a new class of products, arguing that such approach would undermine the rulemaking process and inappropriately define economic impacts or incremental costs as performance-related features. (CA IOUs, No. 85 at pp. 3-4) However, while maintaining the position that economic considerations are inappropriate in a “features” determination, such commenters also sought to

refute, *arguendo*, DOE's economic concerns and to show that even under the agency's proposed approach, declaring non-condensing technology (and associated venting) to be a "feature" is neither necessary nor justified. The following discussion first summarizes and addresses the relevant statutory arguments, followed by the specific economic arguments, along with DOE's responses.

1. Consumer Impacts

a. Legal Arguments

Several commenters objected to DOE's proposed interpretation, arguing that the Department violated the statute by improperly considering economic factors in making its "features" determination. For example, A.O. Smith argued that DOE's "unprecedented" interpretation that would tie the concept of a "feature" to condensing technology largely turns on installation costs. (A.O. Smith, No. 88 at p. 6) Lennox (and other commenters) stated that DOE's cost analysis is unsupported and inconsistent with EPCA's statutory mandate, because the "features" provision at 42 U.S.C. 6295(o)(4) focuses on unavailability and does not mention costs as an appropriate consideration. (Lennox, No. 87 at pp. 5-6; CEC, No. 89 at p. 3; Advocates Joint Comment, No. 95 at pp. 1-3; Lennox, No. 114 at p. 4) The CEC made a similar comment and also pointed out that costs are likewise not relevant under 42 U.S.C. 6295(q)(1) (the product class provision). (CEC, No. 89 at p. 3) The AGs Joint Comment (and other commenters) stated that under 42 U.S.C. 6295(o)(2)(B), the statute directs DOE to consider costs as part of its analysis of economic justification. (AGs Joint Comment, No. 82 at pp. 10-12; A.O. Smith, No. 88 at p. 12; CEC, No. 89 at p. 3; Environmentalists Joint Comment, No. 90 at p. 3; Advocates Joint Comment, No. 95 at p. 3)

A.O. Smith also asserted that consideration of costs under the statute's "features" provision would predetermine the outcome of economic justification without performing that full analysis as required by the statute. (A.O. Smith, No. 88 at p. 12) A similar argument was made in the Advocates Joint Comment II. (Advocates Joint Comment II, No. 118 at pp. 1, 2, 5) The Environmentalists Joint Comment reasoned that if installed cost concerns could block consideration of a standard level, it would result in an "end-run" around the other statutory factors which DOE must consider in assessing economic justification. (Environmentalists Joint Comment, No. 90 at p. 3) The Advocates Joint Comment added that delineating product classes based upon cost considerations would subvert the statute's central purpose of energy conservation. (Advocates Joint Comment, No. 95 at pp. 1-2)

Commenters identified specific, economics-related concerns raised in the proposed interpretive rule which they believe should only be considered in DOE's economic analyses. For example, the Environmentalists Joint Comment argued that low-income consumers' ability to absorb the first-cost impacts of installing a condensing gas appliance should properly be addressed in the economic justification of a standards rulemaking. (Environmentalists Joint Comment, No. 90 at p. 5) The Advocates Joint Comment argued that affordability and other cost impacts should also be addressed as part of the economic analysis, rather than by establishing unjustified product classes which would preclude such analysis. Furthermore, the Advocates Joint Comment stated that topics such as housing affordability, higher up-front costs crowding out consumer spending on other necessities, and long payback periods that do little to ameliorate short-term up-front costs are economic matters relevant to whether a potential standard level is appropriate, after conducting the requisite economic and financial analysis called for under the statute; they argued that DOE has not shown that the difference between condensing and non-condensing products is more than a matter of cost. (Advocates Joint Comment, No. 95 at pp. 1-3)

The Advocates Joint Comment asserted that since each of DOE's attempted rationales for characterizing non-condensing products as a "performance-related feature" (*i.e.*, space constraints (and other limitations related to installation), aesthetics, and consumer preference for gas heating) are fundamentally cost considerations, the Department has failed to provide justification for establishing separate product classes along those lines. (Advocates Joint Comment, No. 95 at pp. 1-2, 3-5) Similarly, the CEC stated that three out of four of DOE's justifications in its proposed interpretation rely on economic considerations and are, therefore, inappropriate for purposes of setting product classes. (CEC, No. 89 at p. 3) The Advocates Joint Comment expressed the view that DOE is seeking to solve "hypothesized" harmful economic impacts by establishing product classes, but that the statute allows for the mitigation of any such harms by setting an appropriate standard level or leaving the existing standard unchanged. (Advocates Joint Comment, No. 95 at p. 3) According to the Advocates Joint Comment, cost impacts, including those with respect to low-income consumers, are a central concern for DOE's standard level selection process, and the Department routinely performs consumer subgroup analyses, which examine impacts on subsets of consumers such as those with low incomes. (Advocates Joint Comment, No. 95 at pp. 1-2)

In contrast, several commenters supported DOE's tentative decision to interpret the use of non-condensing technology (and associated venting) to be a "feature" under the statute based upon the findings related to consumer utility. The Petitioners *et al.* Joint Comment responded to other commenters' suggestions that the difference in characteristics between condensing products and atmospherically vented product being simply a matter of cost as factually incorrect; instead, these commenters stated that an energy conservation standard set at a condensing level would leave consumers with no residential gas furnaces capable of operating with existing atmospheric venting systems, with other commonly-vented appliances, or without a condensate

disposal system. The Petitioners *et al.* Joint Comment argued that critics of DOE's proposed interpretive rule mischaracterize these material differences which have significant utility to consumers, separate and apart from the substantial costs that a ban of such systems would generate. (Petitioners *et al.* Joint Comment, No. 80 at p. 10)

DOE agrees with commenters that costs are to be properly addressed in a rulemaking's economic analysis, and it said as much in the proposed interpretive rule. 84 FR 33011, 33020 (July 11, 2019). On this topic, the Department clearly stated, "DOE has tentatively concluded that the other [*i.e.*, non-economic] reasons discussed immediately above are sufficient in and of themselves to justify the Department's proposed change in interpretation, but it acknowledges these cost impacts to be fully transparent in terms of the agency's thinking." *Id.* (DOE does not concur with certain commenters' attempts to classify all of the agency's stated reasons as economic, thereby better suiting their own arguments.) Even though economics is not an appropriate consideration in making a "features" determination under the statute, there is no question that economic effects will need to be considered in whatever decision is made with regard to establishing or revising standards. Discussing the potential economic effects of a decision is not equivalent to making them the basis for the "features" decision itself. This is no different than stakeholder comments on the proposed interpretation which raised the economic implications of an affirmative "features" determination and its impact on the energy conservation standards which could subsequently be set for products/equipment where both condensing and non-condensing models exist. Those economic concerns are similarly unsuitable for consideration in making a "features" determination under the statute. Accordingly, DOE would reiterate that it based neither its proposed interpretive rule nor this final interpretive rule upon economic considerations.

DOE notes that many of the environmental and efficiency advocacy groups raised no similar objections to DOE's September 2016 furnaces SNOPR, in which the agency proposed to set a separate product class and energy conservation standard at a non-condensing level for furnaces with a capacity less than 55 kBtu/h.²⁶ Essentially, this would have created a non-condensing standard to address, in large part, the economic concerns of many low-income consumers. 81 FR 65720, 65795, 65852 (Sept. 23, 2016). Arguably, this product class distinction was not required to protect the capacity from elimination, pursuant to 42 U.S.C. 6295(o)(4). Since the effect would have been comparable, it is difficult to reconcile these groups' differing positions regarding the propriety of taking economic considerations into account.

b. Factual Arguments

While maintaining their legal arguments in opposition, a number of commenters also directly challenged what they characterized as economic aspects of the proposed interpretive rule (*i.e.*, installation costs, changes impacting aesthetics, fuel switching, and energy affordability). For example, the AGs Joint Comment argued that while DOE's proposed interpretive rule expressly endorsed the approach that economic considerations should be addressed as part of a rulemaking's economic justification analyses, the agency nevertheless used and gave undue weight to economic considerations in its "features" analysis. Furthermore, the AGs Joint Comment emphasized that DOE's own rulemaking record found the Gas Industry Petitioners' claims regarding increased consumer costs and challenging installation scenarios to be

²⁶ See *e.g.* the joint comment of the Appliance Standards Awareness Project, the Alliance to Save Energy, the Natural Resources Defense Council, the Northeast Energy Efficiency Partnerships, and Northwest Energy Efficiency Alliance. (EERE-2014-BT-STD-0031-0285) In relevant part, the joint comment states at page 3, "The DOE proposal is based on a breakpoint of 55,000 Btu/hour and not the 50,000 Btu/hour we had recommended in our NOPR comments. While we can live with 55,000 for now, we recommend that prior to the next rulemaking that DOE conduct additional analysis on the heating loads of homes in the south and in new construction so that the next rulemaking can consider whether 55,000 Btu/hour remains a reasonable breakpoint, or whether another value is more appropriate."

overstated, and they further argued that the Gas Industry Petitioners had proffered no new evidence to support their claims, including ones about excessive installation costs and consumer preference for gas as a fuel type. (AGs Joint Comment, No 82 at pp. 10-12; similar comment from NRDC, No. 94 at pp. 6-7) The CA IOUs and NRDC stated that DOE has already shown the technological feasibility and economic justification for condensing furnaces and water heaters through analyses supporting the relevant rulemakings and that such findings should not be allowed to be undermined in a separate action to assess new product classifications. (CA IOUs, No. 85 at pp. 3-4; NRDC, No. 94 at pp. 2, 6-7) The Joint Advocates Comment added that solutions exist for difficult venting situations (a point echoed by Electrify Now), and that DOE has accounted for them in past rulemaking documents analyzing potential standards levels. (Advocates Joint Comment, No. 95 at pp. 3-5; Electrify Now, No. 106 at p. 1) Lennox commented that DOE has not explained when cost issues may become so extreme as to render certain furnace installations impossible or impracticable, and it argued that the lack of data in this regard causes the proposed interpretation to fail the preponderance of the evidence standard for designating a product “feature.” (Lennox, No. 87 at p. 6)

Lennox alleged that DOE has failed to consider various studies, analysis, and other work to address the extent of, and solutions to, difficult installation issues (*e.g.*, a May 2019 study conducted by Oak Ridge National Laboratory (ORNL) and UT-Battelle, a document prepared by Pacific Gas and Electric (PGE)/NEEA). (Lennox, No. 114 at p. 4) Along a similar vein, the Advocates Joint Comment II recited numerous technological solutions which they suggest are available to address installation barriers related to venting systems for gas-fired products, such as DuraVent’s FasNSeal product. These commenters also claim that additional venting solutions are under development, such as the ORNL EntrainVent and DuraVent’s vent retrofit design, although they acknowledge that neither of these products is commercially available today. (Advocates Joint Comment II, No. 118 at pp. 4-5) NEEA also cited DuraVent products as a potential solution to the problems DOE seeks to address. (NEEA, No. 119 at pp. 2-3)

The CA IOUs stated that DOE's proposal put the U.S. "out-of-sync" with other jurisdictions, such as Canada, which regulate the energy efficiency of similar products. These commenters pointed out that Canada has regulations in place resulting in 98 percent of its annual furnace shipments being condensing models (in 2017), and of these, 85 percent had an AFUE rating of at least 95 percent. According to the CA IOUs, Canada expanded on these regulations in 2019 to require all residential housing units (with a few relatively narrow exceptions) sold in Canada with input rates less than or equal to 65.92 kilowatts (or 225,000 Btu/h) that use single-phase electricity to achieve an AFUE of 95 percent. The CA IOUs added that the European Union's Ecodesign minimums for gas instantaneous and gas storage water heaters with higher draw patters (XL, XXL, and above) also require condensing technology levels of performance. (CA IOUs, No. 117 at pp. 2, 3-4) Lennox also commented as to DOE's failure to address the widespread installation of condensing furnaces in Canada. (Lennox, No. 114 at p. 4)

Commenters opposing DOE's proposed interpretation sought to highlight data suggesting that cost impacts associated with installation of condensing appliances, in most cases, would not have an excessively negative impact on consumers. For example, the AGs Joint Comment stated that recent market research (submitted to the present rulemaking docket) contradicts petitioners' claims regarding the impracticality or impossibility of condensing appliance retrofit installations. According to the AGs Joint Comment, a report by 2050 Partners, Inc. was based upon in-depth interviews with installers, distributors, and subject matter experts from around the U.S. in both residential and commercial settings, and it found that less than 5 percent of retrofit installations required significant modifications (*i.e.*, building or site modifications where installation costs would be more than double the total system cost of a typical retrofit). According to the AGs Joint Comment, that report indicates that condensing equipment can typically be incorporated with only minor changes into venting and plumbing infrastructure, and that condensate

management, orphaned water heaters, and chimney relining were not identified as significant concerns, and that even in difficult cases, technical solutions were always available. The AGs Joint Comment also cited the earlier comment of Mitsubishi Electric on the petition, which stated that the percentage of homes with challenging retrofit situations is probably less than 1 percent of the total housing stock. (AGs Joint Comment, No. 82 at pp. 10-12) In its comments on the September 2020, NEEA pointed to the same study and made similar arguments. (NEEA, No. 119 at p. 2)

Along similar lines, the CA IOUs argued that their research has shown that installing a condensate drain is not a barrier to installation of condensing appliances. These commenters added that they only found approximately five percent of retrofit installations (going from atmospheric combustion natural gas appliances to condensing equivalents) to be “challenging,” and even these always had technical solutions that allowed installation of the condensing appliance. The CA IOUs concluded that these technical solutions have associated costs, but cost is not a product feature. (CA IOUs, No. 117 at pp. 2-3)

The AGs Joint Comment also challenged DOE’s concern expressed in the proposed interpretation that energy conservation standards set at a condensing level could price some low-income consumers out of the manufactured housing market or create other financial hardship, such that these concerns could sufficiently raise non-condensing appliances (and associated venting) in the consciousness of the consumer so as to be deemed a “feature” under EPCA. These commenters argued that DOE’s rulemaking record shows that the costs for condensing and non-condensing mobile home furnaces are comparable due to lower installation costs for condensing furnaces in most of those installations, so these commenters reasoned that a condensing furnace standard would not have any effect on the affordability of single-section mobile homes. (AGs Joint Comment, No. 82 at p. 12)

The CEC stated that monthly savings from more-stringent standards would benefit low-income consumers more than the average consumer because, the commenter argued, they spend more than twice as much (as a percentage of income) on energy than median income consumers. The CEC did not directly respond to the first-cost concerns raised in DOE's proposed interpretation, but instead quoted from an ACEEE paper which linked high energy costs to the cycle of poverty. The commenter added that at least in California, a substantial number of low-income consumers are tenants, so they have no control over the appliance choice, but they pay the utility bills, a situation which runs counter to DOE's energy affordability concerns. (CEC, No. 89 at pp. 6-7)

Other commenters also raised the same issue about split incentives between landlords and renters. The CFA/NCLC argued that it is owners, rather than renters, who purchase central heating furnaces, and that most owners (particularly those who rent apartments to lower-income tenants) will choose less expensive, less efficient non-condensing furnaces that will result in tenants paying significantly more to heat their homes. According to these commenters, depending upon the non-condensing and condensing units under consideration, low-income tenants would pay at least 10 percent more and as much as 20 percent more for their heat. (CFA/NCLC, No. 93 at p. 2) The CFA/NCLC argued that DOE's proposed interpretation would harm many more low-income and moderate-income households than it would help, particularly since these households are disproportionately renters (not homeowners) and, therefore, must pay the associated energy bills. (CFA/NCLC, No. 93 at pp. 1-2) These commenters offered the following evidence to support their position. Citing U.S. Census Bureau data from 2017 through the second quarter of 2019, the CFA/NCLC stated that 78 percent of households with income greater than the median family income were homeowners, as compared to 50 percent homeownership for households below the median family income. Because the poverty line is

significantly below the median and because homeownership rates decline as income declines, these commenting organizations reasoned that such low-income households would have homeownership rates well below 50 percent. The CFA/NCLC added that homeownership rates are significantly lower for non-white families, in large part because they are also lower-income families; in the past two years, the commenters noted that homeownership rates for “Black alone” households were approximately 42 percent, and approximately 47 percent for “Hispanic (of any race)” households. (CFA/NCLC, No. 93 at p. 2)

CFA/NCLC challenged DOE’s reasoning that an energy conservation standard that would require a condensing furnace would lead to higher rents to cover the landlord/owner’s first cost of the more expensive appliance, arguing that it is both unsubstantiated and unlikely to occur. According to these commenters, the incremental cost (including equipment and installation) for a condensing furnace (beyond the cost of a non-condensing furnace) is likely to be in the range of several hundred dollars, but given a useful furnace lifetime of over 20 years, they estimate that a landlord would only need to raise rent by \$3 per month to recoup these incremental costs over that period. The commenters noted that in an earlier filing with DOE, NCLC submitted an affidavit from a non-profit housing developer who stated that: (1) the incremental costs of a more-efficient furnace are so small compared to the owner’s overall operating costs so as to not be directly and immediately reflected in rent, and (2) rents are generally set in accordance with governing regulations (in rent-regulated, low-income housing) or by external market conditions (for unregulated properties). Accordingly, CFA/NCLC concluded that small changes in the cost of one appliance would not lead to a rent increase. (CFA/NCLC, No. 93 at p. 3)

CFA/NCLC acknowledged that there are many low-income homeowners who directly bear the cost of a replacement furnace, but they did not address the issue of first-cost for these

homeowners, instead focusing on the fact that such increased costs would be paid back in terms of lower energy operating costs over the more than 20-year lifetime of the furnace (citing section 8.2.2.5 of the technical support document for DOE's residential furnaces rulemaking (August 30, 2016)). These commenters added that low-income homeowners frequently face termination of utility services due to non-payment, a risk that could increase with inefficient, non-condensing furnaces. (CFA/NCLC, No. 93 at p. 3)

CFA/NCLC and Electrify Now faulted DOE's proposed interpretation for focusing on unquantified burdens that might fall on a very small percentage of residential households that would be required to install condensing furnaces, while ignoring the vast majority of households that would benefit – as clearly demonstrated under the Department's own earlier analysis – from adoption of a condensing furnace standard. (CFA/NCLC, No. 93 at p. 4; Electrify Now, No. 106 at p. 2) According to CFA/NCLC, the upshot of DOE's proposed interpretation would be that the agency would fail to carry out congressional intent, saddle consumers with potentially billions of dollars of excess energy costs, and impede efforts to help consumers use less energy. (CFA/NCLC, No. 93 at p. 4)

Lennox argued that DOE did not provide any support to show that failure to separate condensing and non-condensing product/equipment classes would lead to “widespread, long-term homelessness,” further arguing that furnace costs are a comparatively small fraction of overall housing costs. The commenter countered that a more factual analysis would show that overly-stringent efficiency standards would price some consumers out of a new furnace and would cause them to either continue to repair older, less-efficient units or purchase other, less-efficient heating options (*e.g.*, kerosene heaters, electric space heaters, using a stove or oven). Lennox stated that the lack of data and support deprives commenters of the ability to fully comment on DOE's proposal. (Lennox, No. 87 at p. 5)

Contrary to the concerns about energy affordability raised in DOE's proposed interpretive rule, certain commenters stated that such approach would harm the very groups most affected by high energy bills by allowing less-efficient equipment to remain on the market and locking in higher energy costs. NRDC pointed to research showing that space heating represents the largest energy expense for the average U.S. home at 45 percent of energy bills, and it similarly stated that about 50 percent of U.S. commercial building floor space gets hot water from gas-fired or propane-fired equipment. (NRDC, No. 94 at p. 2) NRDC agreed with DOE that energy affordability is a critical issue, stating that nearly one-third of U.S. households face challenges (often because their energy bills are unaffordable) and that energy burden is significantly higher for low-income households (3.5% for median income households but 7.2% for low-income households). The organization added that low-income households, renters, African-American households, and Latino households all have a higher than average energy burden (*i.e.*, paying more for utilities per square foot than the average household), which indicates that their homes are less efficient. NRDC stated that heating and cooling are the largest contributors to household energy use and that inefficient heating systems are one of the biggest drivers of household energy burden. The commenter argued that improving the efficiency of heating appliances offers a great opportunity to reduce energy burdens, but that DOE's proposed interpretation would move things in the wrong direction. Under DOE's proposed interpretation, NRDC argued, energy burdens would be perpetuated because lower-income customers and landlords may be inclined to purchase lower-first-cost appliances, even if those products have net higher operational costs over the product's lifetime. Citing an ACEEE study, NRDC made the case that strong energy efficiency standards help transform the market by making high-efficiency products readily available to all customers, with products becoming less expensive over time as installation costs drop and as manufacturers innovate. NRDC concluded that cost-effective

condensing products have the potential to lower both energy bills and energy burden. (NRDC, No. 94 at pp. 9-10)

Furthermore, the Advocates Joint Comment argued that the proposed interpretation's recitation of harmful economic effects, at least in the case of mobile home furnaces, is specious. These commenters cited DOE's 2016 furnaces SNOPR (81 FR 65720 (Sept. 23, 2016)), which proposed a 92-percent AFUE standard for mobile home furnaces and was estimated to increase installed costs by \$152. Using this example, the Advocates Joint Comment disputed DOE's claim that the resulting increased cost in a mobile home resulting from the required installation of a condensing furnace could price some consumers out of the housing market. These commenters countered that this cost differential would amount to less than a dollar a month on the monthly mortgage payment and that mortgage lending decisions do not turn on such small margins. The Advocates Joint Comment argued that a condensing furnace could actually make a home more affordable for such consumers by lowering energy bills, thereby freeing up money for other necessities such as food and medicine (seeking to refute DOE's argument on this point). The commenters also used this example to challenge DOE's concerns about energy savings being spread out over long payback periods, again citing the 2016 furnaces SNOPR for the proposition that under a 92-percent AFUE standard, a mobile home furnace with a 21.5 year lifetime would have a payback period of just 1.7 years. (Advocates Joint Comment, No. 95 at p. 3)

Regarding energy affordability, the Advocates Joint Comment argued that rental housing markets have been thoroughly studied in the economic literature, and on the topic of whether increased appliance costs are passed on to consumers in the form of higher rent, it quoted Dr. Larry Dale, an economist for DOE who stated the following at an April 13, 2015 public meeting: "The implications from these findings are: tenants benefit from lower energy bills; rent increases

may not, and I would say almost certainly do not, cover the higher equipment costs. So overall, tenants (meaning largely low-income households in this case, or rather the other way around, low-income households that are largely tenants) are probably better off than suggested by our LCC [life-cycle cost] analysis.”²⁷ The Advocates Joint Comment concluded that the best way for DOE to make decisions about future standards is to fully evaluate the costs and benefits of such potential standards, including through a consumer subgroup analysis which accounts for effects on renters, as opposed to setting separate product classes for condensing and non-condensing appliances, where such costs and benefits would not even get considered. (Advocates Joint Comment, No. 95 at pp. 5-6)

According to the NRDC, if implemented, the revised interpretation would have an extremely detrimental impact on the potential for natural gas savings from future appliance energy conservation standards, thereby resulting in higher energy bills for customers using gas appliances, especially low-income households. (NRDC, No. 94 at p. 1) Focusing on commercial consumers, Ceres raised similar concerns that if DOE were to establish separate product/equipment classes for residential furnaces and commercial water heaters based upon the use of condensing vs. non-condensing technology, such action would increase costs for ordinary businesses and their customers, who own and operate such appliances. (Ceres, No. 69 at p. 1) Ceres argued that granting the Gas Industry Petition would essentially result in a subsidy to those special interest groups, rather than benefit the American people or economy. (Ceres, No. 69 at p. 2) To overcome these concerns, NRDC reasoned that there are solutions to the problems which the proposed interpretive rule seeks to address, none of which would require reinterpretation of EPCA’s “features” provision. More specifically, NRDC stated that if a consumer decides that the installation cost and/or aesthetic implications of a condensing appliance are too high, one

²⁷ U.S. Department of Energy Public Meeting Transcript on the Energy Conservation Standards for Residential Furnaces (April 13, 2015), p. 12, lines 3-10 (Available at: <https://www.regulations.gov/document?D=EERE-2014-BT-STD-0031-0050>).

could switch from a gas-fired appliance to an electric one; a similar comment was made by the Advocates Joint Comment II. (NRDC, No. 94 at pp. 6-7; Advocates Joint Comment II, No. 118 at pp. 4-5)

Other commenters acknowledged and agreed with the Department's separate discussion of likely consumer cost impacts (particularly for low-income consumers) that would be associated with energy conservation standards set at a level which can only be met through the use of condensing technology. For example, Weil-McLain expressed appreciation for DOE's acknowledgment of the cost impact that requiring a condensing appliance would have on low-income segments of the population, and it argued that the same concerns exist in the commercial market, because small businesses could face increased costs and job losses if they could no longer purchase Category I Vented Appliances. (Weil-McLain, No. 86 at p. 2) Carrier also cited continued affordability for low-income consumers as an important issue. (Carrier, No. 92 at p. 1)

The Petitioners *et al.* Joint Comment argued that suggestions that favorable action on the petition would harm the economic interests of consumers, especially low-income consumers, are based upon the flawed premise that a condensing standard for residential furnaces would give low-income renters the benefits of lower utility bills because a condensing furnace would then be installed in such cases. However, the Petitioners *et al.* Joint Comment suggested that existing multi-family properties, which provide much of the country's affordable housing stock, face some of the most serious technical impediments to installation of condensing gas furnaces. Consequently, the Petitioners *et al.* Joint Comment argued that a condensing furnaces standard would, in fact, force many property owners to switch to alternatives such as electric resistance heating as their only practical option, which could actually burden low-income renters with substantially higher utility bills. (Petitioners *et al.* Joint Comment, No. 80 at p. 4)

In response, DOE reiterates that, despite discussing potential ancillary economic effects, the Department based its “features” determination in the proposed interpretive rule upon non-economic grounds. Because DOE did not rely on economic factors in reaching its decision, commenters’ allegations that the agency gave undue weight to economic considerations are incorrect. Similarly, arguments as to the economic justification of proposed standards for residential furnaces, commercial water heaters, or other similarly situated products are not relevant to DOE’s “features” determination under EPCA. As discussed elsewhere in this document, DOE reexamined new and existing information (including the substantial evidence contained in existing rulemaking dockets) in light of the arguments raised in the Gas Industry Petition, and the agency determined that a revised interpretation would better comport with the requirements of the statute. DOE has come to see that in the substantial number of difficult installation situations, the practical differences between condensing and non-condensing appliance operation would be a distinction that many consumers may recognize and value, such that maintaining a non-condensing option would constitute an important consumer utility. DOE’s decision to find non-condensing technology (and associated venting) to be a “feature” under EPCA preserves this consumer utility and consumer choice.

DOE acknowledges that the economic impacts of its energy conservation standards rulemakings are both complex and of great importance. That is why the Department conducts a comprehensive economic analysis as part of those rulemakings, including consumer and manufacturer subgroup analyses, as appropriate. However, as the commenters stress, these economic considerations are beyond the scope of the “features” determination at issue in this final interpretive rule.

In response to the CA IOUs' and Lennox's comments about Canadian and European experiences with condensing furnaces and water heaters, DOE does not find them directly opposite to the present case. First, such nations are situated significantly northward of large portion of the United States, so consequently, their climatic profile is different than that of the U.S., and that would be expected to impact their determinations of economic justification for standard-setting purposes. More importantly, however, it must be recognized that these foreign nations operate under an entirely different legal and regulatory structure, and consequently, they are not subject to and have no duty to follow the statutory requirements of EPCA, including the "features" provision.

2. Fuel Switching

Commenters on DOE's proposed interpretive rule expressed conflicting views on the topic of fuel switching. The Petitioners *et al.* Joint Comment urged DOE to reconsider its analysis concerning the significance of fuel switching in the context of efficiency regulation. These commenters argued that fuel switching could occur because of the unavailability of important product characteristics, such as instances where it would be impractical to install condensing products or where such products could not be installed without the need for undesirable building modifications that consumers would be unwilling to accept. They added that driving gas products out of the market is not a legitimate regulatory objective under a statute designed to promote the efficiency of regulated products. Thus, the Petitioners *et al.* Joint Comment reasoned that in conducting its standards rulemakings, DOE must justify its standards on the basis of the economics of required efficiency improvements (*i.e.*, by accounting for those cases where poor economic outcomes drive consumers to alternative products), rather than by excluding such outcomes from the analysis and substituting more favorable economic outcomes based upon assumed product substitution. They asserted that using the logic of DOE's historic

approach to economic analyses, standards could be determined to be economically justified on the grounds that they are so economically unjustified that consumers would no longer purchase the regulated products at all. These commenters argued that DOE's life-cycle cost analysis and payback analysis must reflect these real economic costs, rather than simply reducing the number of products sold.²⁸ (Petitioners *et al.* Joint Comment, No. 80 at pp. 13-15)

The CEC challenged DOE's statement that through its proposed interpretation it was seeking neither to determine winners and losers nor to limit consumer choice. The commenter pointed to DOE's September 2016 residential furnaces SNOPR, in which the Department determined that fewer than 8 percent of consumers would switch from gas furnaces to heat pumps or electric furnaces, and which did not find any consumers compelled to switch (although some might do so for a variety of reasons, including economic savings) (*citing* 81 FR 65720, 65813 (Sept. 23, 2016)). The CEC argued that by following its statutory mandate, DOE would be ensuring that consumers can make free and informed decisions about the cost of products they are purchasing. The CEC added that DOE did not offer any facts, data, or reasoning to suggest that a significant subset of consumers would resist switching to a more-efficient product because of fuel type or why such concerns would outweigh the energy consumption data or the risk of undermining the entire appliance efficiency program. The commenter concluded that these are economic concerns more properly addressed by the stringency of standards, rather than the creation of new product classes. (CEC, No. 89 at p. 5)

Regarding fuel switching, the Environmentalists Joint Comment stated that such concerns are unsupported. These commenters argued that EPCA poses no barriers to adoption of an energy conservation standard based upon fuel switching, recognizing that appliances using

²⁸ The Petitioners *et al.* Joint Comment argued that while the adverse impact of a standard on product sales should be ignored for purposes of the payback period and LCC analyses, it should not be ignored for purposes of other analyses, such as the manufacturer impact analysis, utility impact analysis, and national energy savings analysis.

different fuel types compete against each other in the marketplace. The Environmentalists Joint Comment pointed out that in 1987, Congress amended EPCA (at 42 U.S.C. 6295(f)(1)(B)(iii)) to require that DOE prescribe energy conservation standards for small gas furnaces at a level “which the Secretary determines is not likely to result in a significant shift from gas heating to electric resistance heating with respect to either residential construction or furnace replacement.”²⁹ In light of that provision, these commenters argued that Congress could have easily extended this consideration to subsequent rulemakings to amend the standards for residential furnaces and commercial water heaters, but it did not. The Environmentalists Joint Comment stated that if fuel switching concerns were to be addressed by the statute’s “features” provisions, such outcome would render the statutory language regarding fuel switching limitations for small furnaces superfluous. (Environmentalists Joint Comment, No. 90 at pp. 4-5)

The Advocates Joint Comment largely dismissed any concerns about fuel switching and sought to offer alternative solutions that would not require the establishment of separate product classes under EPCA’s “features” provision. These commenters argued that consumers with a preference for gas heat would still have that option, albeit with higher installation costs, and that DOE can account for any such subset of consumer behavior through its modeling of fuel switching. (Advocates Joint Comment, No. 95 at pp. 3-5)

In response, DOE acknowledges that fuel switching is a more nuanced matter when viewed beyond a purely economic lens. As an economic matter, a fuel-switching analysis shows how many consumers could change from one type of appliance to another as a result of amended energy conservation standards, occurrences that would have repercussions for downstream analyses related to costs and benefits. As commenters point out, there is considerable evidence

²⁹ The Environmentalists Joint Comment pointed to legislative history in H. Rpt. 100-11 at 35 and in S. Rpt. 100-6 at 6, 1987 U.S.C.C.A.N. at 56, which suggest that Congress’s concerns were about switching to electric resistance heating, not heat pumps.

of the potential for fuel switching in the residential furnaces, commercial water heaters, and other relevant rulemaking dockets. As the CEC noted, DOE's September 2016 residential furnaces SNOPR found that up to 8 percent of consumers would switch from gas furnaces to heat pumps or electric furnaces under that proposal. However, DOE had not previously focused on the motivation behind such consumer fuel switching. In past rulemakings, DOE viewed fuel switching as just an economic decision, devoid of any consumer utility impacts. However, as more fully explained in section III.A.1.a of this document, after careful review of the Gas Industry Petition and public comments, DOE has come to see that a non-condensing gas appliance (and related venting) offers the ability for consumers with difficult installation situations to make like-for-like appliance replacements without the need for major modifications to their dwelling or commercial business. Such modifications could potentially result in the loss of patio or storage space, the installation of unsightly piping, or the loss of windows. These are interactions with the appliance which the consumer would notice, concerns beyond the appliance's primary function of providing warm air (for furnaces) or hot water (for water heaters). Under DOE's revised interpretation, these utilities are to be regarded as performance-related characteristics to be protected under EPCA's "features" provision, rather than simply an economic matter to be resolved through higher standards and unwelcome fuel switching, as the Advocates Joint Comment and CEC recommend. The Gas Industry Petitioners have provided information related to such installations in the context of various appliance rulemakings, in addition to the current docket. Additional benefits of DOE's revised interpretation include expanded consumer choice, in terms of both product selection and fuel type.

In light of this final interpretive rule, DOE reasons that the Petitioners *et al.* Joint Comment's primary concerns vis-à-vis fuel switching have been addressed. However, these commenters' more technical arguments about the fuel switching analysis embedded within DOE's analytical methodology are more properly a matter to be addressed after the conclusion of

the ongoing peer review of DOE's analytical processes being conducted by the National Academies of Sciences, Engineering, and Medicine (see more detailed discussion at section III.C of this document).

While DOE appreciates the Environmentalists Joint Comment's argument about the statutory directive to prevent a significant shift from gas heating to electric resistance heating when prescribing energy conservation standards for "small" gas furnaces under 42 U.S.C. 6295(f)(1)(B)(iii), the Department finds the commenters' legal theory to be a bit off point. First, DOE's goal is not to prevent fuel switching, but rather to prevent the loss of consumer utility. Having an appliance that fits in a limited/confined space is something very useful to the average consumer, and the statute expressly lists sizes as one of the protected aspects under 42 U.S.C. 6295(o)(4). Furthermore, DOE would argue in the alternative that the "small" furnaces provision to which the commenters point does not address the matter of fuel switching generally, but instead it articulates a particular concern to not encourage a shift to a certain type of electric appliance – *i.e.*, electric resistance heating. Notably, the statute does not mention heat pumps, another electric heating option. Thus, DOE concludes that the Environmentalists Joint Comment paints with too broad a brush in making its argument to prohibit consideration of fuel switching effects.

3. Other Economic Issues

Commenters also raised a few additional economic matters that did not fit squarely within any of the previous categories. The CA IOUs recommended that DOE should perform a cost-benefit analysis on the proposed new product class(es) that would arise from its proposed interpretation, as well as evaluating the potential costs to all consumers, manufacturers, and the environment resulting from such a change. The commenters argued that even if economic

impacts were an appropriate rationale for a new product class, DOE's analysis of such impacts is incomplete. (CA IOUs, No. 85 at p. 5) The CA IOUs' analysis suggests that the potential impact of the new product classifications could be both significant and widespread, with the impacts related to residential furnaces alone potentially resulting in \$1.8 billion/year in lost utility bill savings by 2050 and a 78 percent reduction in energy savings compared to the SNOPR published in 2016. Given the tremendous negative impacts for consumers, manufacturers, and the environment that are likely to result from DOE's proposed interpretation, the CA IOUs urged the Department not to move forward without weighing these impacts against the economic impacts used to justify the new product/equipment classes. (CA IOUs, No. 85 at p. 6)

A.O. Smith asserted that DOE's proposed interpretation would increase business uncertainty and impose unnecessary burdens upon manufacturers who would need to align their stock keeping units (SKUs) and divert resources that would otherwise be invested in more innovative technologies. A.O. Smith further alleged that DOE's proposed interpretation would favor low-cost and subsidized imported products, thereby creating an "un-level" playing field for domestic manufacturers. (A.O. Smith, No. 88 at p. 6)

In response, DOE has explained at length elsewhere in this document that a "feature" determination pursuant to EPCA does not turn on economic impacts, whatever the outcome of that decision. Although DOE explored some of these impacts in its proposed interpretive rule to examine the Gas Industry Petition in the broader context, the agency has not relied upon those economic impacts as the basis for either its proposal or this final interpretive rule determining non-condensing technology (and associated venting) to be a "feature" within the meaning of the statute. Consequently, the Department has concluded that it is not necessary to conduct the type of cost-benefit analysis suggested by the CA IOUs, because ultimately, it would not change the results of DOE's "features" determination.

As to A.O. Smith's unsubstantiated arguments about business uncertainty and burden associated with the proposed interpretive rule, DOE finds such arguments to be without merit. DOE has been clear in both its earlier proposal and in this final interpretive rule regarding its revised interpretation. Furthermore, if the potential for litigation (and related uncertainty) were to be a basis for DOE to withhold regulatory action (including relevant statutory interpretations), it could completely ossify the administrative law process, because cross-cutting stakeholder interests render most agency actions subject to potential legal challenge. DOE finds A.O. Smith's statements about burden and resource diversion to be without merit, given that the revised interpretation would essentially maintain the *status quo*. If A.O. Smith is operating effectively in the current market where both condensing and non-condensing appliances are available, it is difficult to see how its operational landscape would shift as a result of DOE's interpretation. Similarly, A.O. Smith's arguments about favoring low-cost/subsidized imported products and creating an un-level playing field for domestic manufacturers fail for the same reason. Because DOE's final interpretation does not alter the current standard levels or market, the Department is satisfied that the field remains appropriately level and fair for all market participants.

C. Analytical Issues

In seeking to justify the need for a determination that non-condensing technology (and associated venting) are a performance-related feature, the Petitioners *et al.* Joint Comment raised what it perceived to be flaws in the analytical methodology underlying DOE rulemakings. First, the Petitioners *et al.* Joint Comment urged DOE to reconsider its analysis concerning the significance of fuel switching in the context of efficiency regulation. These commenters argued that fuel switching could occur because of the unavailability of important product characteristics,

such as instances where it would be impractical to install condensing products or where such products could not be installed without the need for undesirable building modifications that consumers would be unwilling to accept. They added that driving gas products out of the market is not a legitimate regulatory objective under a statute designed to promote the efficiency of regulated products. Thus, the Petitioners *et al.* Joint Comment reasoned that in conducting its standards rulemakings, DOE must justify its standards on the basis of the economics of required efficiency improvements (*i.e.*, by accounting for those cases where poor economic outcomes drive consumers to alternative products), rather than by excluding such outcomes from the analysis and substituting more favorable economic outcomes based upon assumed product substitution. They asserted that using the logic of DOE's historic approach to economic analyses, standards could be determined to be economically justified on the ground that they are so economically unjustified that consumers would no longer purchase the regulated products at all. These commenters argued that DOE's life-cycle cost analysis and payback analysis must reflect these real economic costs, rather than simply reducing the number of products sold.³⁰ (Petitioners *et al.* Joint Comment, No. 80 at pp. 13-15)

Second, the Petitioners *et al.* Joint Comment urged DOE to acknowledge that there is a systemic error in its base-case efficiency assignment (due to the random nature of that assignment) which these commenters argue invalidates the entire economic analysis underlying the agency's pending proposals. Their argument was that, even if the overall number of efficiency investments is correct, DOE's analysis is based upon the wrong efficiency investments because it uses a random selection of investments rather than a selection reflecting outcomes that those purchasers would decline to make in the absence of regulatory compulsion. According to these commenters, this defect in DOE's economic analysis provides a separate and independent

³⁰ The Petitioners *et al.* Joint Comment argued that while the adverse impact of a standard on product sales should be ignored for purposes of the payback period and LCC analyses, it should not be ignored for purposes of other analyses, such as the manufacturer impact analysis, utility impact analysis, and national energy savings analysis.

basis for DOE to withdraw its pending proposed rules for residential furnaces and commercial water heaters. (Petitioners *et al.* Joint Comment, No. 80 at pp. 15-16) Lennox made a similar argument about what it described as the “random nature” of DOE’s consumer analysis, which it argues fundamentally (and incorrectly) assumes that consumers act irrationally. (Lennox, No. 114 at p. 4)

In further critique of DOE’s analytical methodology, the Petitioners *et al.* Joint Comment argued that because DOE’s analysis is based on the wrong installations, it does not provide a valid assessment of a rule’s impacts, and it produces a systematic overstatement of regulatory benefits and understatement of costs. These commenters asserted that this problem with DOE’s modeling approach fatally undermines a rulemaking’s economic analysis, so they argued that there is no reasonable basis to conclude that standards based on that analysis are economically justified. For this reason alone, the Petitioners *et al.* Joint Comment concluded that withdrawal of the Department’s pending proposals is warranted. (Petitioners *et al.* Joint Comment, No. 80 at p. 17)

In response, DOE notes that National Academies of Sciences, Engineering, and Medicine (collectively, “the NAS”) are currently conducting a peer review of the analytical methods employed by DOE in setting energy conservation standards regulations for the energy performance of consumer products and commercial equipment. *See* <https://www.nationalacademies.org/our-work/review-of-methods-for-setting-building-and-equipment-performance-standards>. At the time of the drafting of this final interpretive rule, the NAS committee responsible for this task has held public meetings on November 19-20, 2019, on March 2-3, 2020, and on May 5, 2020, to discuss various aspects related to DOE’s analytical methodology when developing standards for those consumer products and industrial equipment that DOE regulates. DOE understands that at least some of the authors of the Petitioners *et al.*

Joint Comment have participated in the NAS proceeding, raising issues regarding DOE's analytical methodologies similar to those submitted in the comments on DOE's proposed interpretation. At the conclusion of the study, the NAS will issue a consensus report with findings and recommendations on how DOE can improve its regulatory analyses to align with best practices for cost-benefit analysis. Once completed, DOE will review the NAS report and modify or adjust its own analytical methods consistent with those recommendations and DOE's statutory obligations. Until DOE has had the opportunity to assess the conclusions of these independent experts, the Department has concluded that it would be premature to make changes to its current analytical methodology. Although DOE has ultimately decided to withdraw its pending rulemaking proposal for residential non-weatherized gas furnaces, residential mobile home gas furnaces, and commercial water heating equipment (for the reasons explained in section III.D.3 of this document), the Department makes clear that it is not doing so on the basis of the analytical arguments raised by the Gas Industry Petitioners and discussed in this section. Thus, DOE's decision to grant the withdrawal request should not be viewed as in any way prejudging or preempting the outcomes of the NAS peer review process.

D. Other Issues

Finally, commenters on DOE's proposed interpretive rule raised a handful of other issues which did not fall neatly within the other sections of this comment summary, so they are addressed here in the balance of this comment discussion.

1. AFUE2

Regarding residential furnaces, AHRI stated that one reason it supports DOE's proposed interpretation is that it would help facilitate adoption of a unified energy efficiency metric for those products. (AHRI, No. 91 at pp. 1-2; similar comment by Nortek, No. 71 at pp. 1-2; Nortek,

No. 107 at p. 3) More specifically, AHRI explained that in October 2018, it submitted a petition for rulemaking to DOE seeking to establish a combined energy efficiency metric (referred to as “AFUE2”) for residential furnaces (currently rated using annual fuel utilization efficiency (AFUE)), furnace fans (currently rated using fan efficiency ratio (FER)), and standby mode/off mode energy consumption (currently rated in watts). AHRI suggested that furnace product classes split into condensing and non-condensing product classes (similar to what is currently done for furnace fans) would facilitate this transition by ensuring that the new, combined AFUE2 metric does not violate EPCA’s “anti-backsliding” provision at 42 U.S.C. 6295(o)(1).³¹ (AHRI, No. 91 at pp. 2-3) In response to the September 2020 SNOPIR, AHRI stated that if DOE decides not to adopt condensing/non-condensing product classes or its recommended AFUE2 approach for residential furnaces, then the trade association expressed support for the Department to pursue more tailored approaches such as capacity-based standards for smaller residential furnaces, which could also preserve non-condensing products for many difficult replacement installations. (AHRI, No. 109 at p. 3)

A number of other commenters also expressed support for AHRI’s AFUE2 petition for rulemaking. (Nortek, No. 71 at pp. 2-3; Mortex, No. 72 at p. 1; Carrier, No. 92 at p. 2; Nortek, No. 107 at p. 3) Nortek suggested that there are synergies and burden reduction that would be associated with granting AHRI’s AFUE2 petition. Nortek reasoned that efforts to come up with a unified test procedure would be greatly simplified if the furnace and furnace fan product classes were aligned to differentiate condensing and non-condensing products. (Nortek, No. 71 at pp. 2-3; Nortek, No. 107 at p. 3) Mortex added that an AFUE2 metric would make it easier for consumers to use one number to compare different furnace models (similar point made by Nortek), and to this end, Mortex recommended using the same product classes set forth for

³¹ 42 U.S.C. 6295(o)(1) provides: “The Secretary [of Energy] may not prescribe any amended standard which increases the maximum allowable energy use, or, in the case of showerheads, faucets, water closets, or urinals, water use, or decreases the minimum required energy efficiency, of a covered product.”

furnace fans when developing the unified AFUE2 metric and associated energy conservation standards. (Mortex, No. 72 at p. 1; Nortek, No. 107 at p. 3) Carrier also suggested that a consolidated AFUE2 metric would reduce both the number of required rulemakings and unnecessary burdens/costs for manufacturers. (Carrier, No. 92 at p. 2) Several commenters on the September 2020 SNOPIR reiterated these arguments in support of transition to an AFUE2 metric. (Nortek, No. 107 at p. 3; AHRI, No. 109 at p. 3; Carrier, No. 110 at p. 2)

In response, DOE notes that the Department is currently considering the merits of AHRI's AFUE2 petition for rulemaking, including the reasoning recited in these comments, in a separate proceeding. DOE acknowledges that an interpretation finding non-condensing technology (and associated venting) to be a "feature" could potentially facilitate implementation of an AFUE2 metric, if the agency decides to grant the AHRI petition. However, such considerations pertaining to that distinct regulatory matter did not factor into the Department's decision-making process underpinning this final interpretive rule. Instead, this final interpretive rule is grounded in the law and facts particular to the matter raised in the Gas Industry Petition and discussed in this document.

2. Environmental and Climate Policy Issues

The AGs Joint Comment faulted DOE's proposed interpretive rule for its potential to create missed opportunities for consumers, businesses, and governments to conserve energy and to reduce economic and environmental costs of energy production and use (similar comment made by Electrify Now). These commenters argued that DOE's actions on the Gas Industry Petition have delayed promulgation of energy conservation standards, which in turn has hampered State and municipal energy efficiency, clean energy, and climate goals. Finally, the AGs Joint Comment cited the International Energy Agency (IEA) Energy Efficiency 2018

market report which highlights the potential for energy efficiency savings to help achieve global energy sustainability; these commenters stated that according to the IEA report, increased energy efficiency could account for half of the reductions in carbon dioxide emissions needed to attain a sustainable development scenario in 2040, and U.S. leadership would help drive deployment of more-efficient appliances and equipment worldwide. (AGs Joint Comment, No. 82 at p. 13; Electrify Now, No. 106 at p. 2) The CEC argued that the proposed interpretive rule would weaken human health and environmental health through increased avoidable air pollution. (CEC, No. 89 at pp. 1-2) Along these same lines, an anonymous commenter (and a number of other individuals) expressed opposition to DOE's proposed interpretation and urged its withdrawal, alleging that it would weaken energy conservation standards and harm public health by increasing the amount of greenhouse gas emissions. (Anonymous, No. 68 at p. 1; Sorkin, No. 73 at p. 1; Reed, No. 74; Woods, No. 76 at p. 1; Anonymous, No. 98 at p. 1; A.O. Smith, No. 113 at p. 5)

In response, DOE agrees that there may be costs and benefits resulting from energy conservation standards beyond those to be considered by Department when setting energy conservation standards under the Energy Policy and Conservation Act. Those impacts are not relevant to the current determination. Rather, the Department is constrained to act within its statutory authority -- both in terms of standard setting and when making "features" determinations -- and the provisions of EPCA make clear that while important, energy and cost savings are not the only relevant statutory considerations. As a prime example, EPCA's "features" provisions demonstrate that Congress intended certain aspects of covered products/equipment with consumer utility to be preserved, even if that means forgoing the energy savings or other benefits that might result from their elimination. (42 U.S.C. 6295(o)(4); 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa); and as applicable in certain cases through 42 U.S.C. 6316(a)). Under its revised interpretation, DOE has determined non-condensing technology (and

associated venting) to be a “feature” within the meaning of the statute, as would justify a separate product/equipment class and energy conservation standard in appropriate cases. Such decision, where justified under the statute, does not turn on other externalities that may exist in the context of energy conservation standards.

3. Other Requested Relief

Beyond finalizing the interpretive rule along the lines proposed, the Petitioners *et al.* Joint Comment urged DOE to take further action, including issuing written findings consistent with its revised interpretation in the context of its pending residential furnaces and commercial water heaters rulemakings pursuant to EPCA’s “features” provisions at 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa), respectively. These commenters also urged DOE to withdraw the pending proposed rules in those same rulemakings based upon those written findings. According to the Petitioners *et al.* Joint Comment, such actions are justified by the evidence, warranted by DOE’s proposed interpretive rule, and sufficient to establish that adoption of the pending proposals would be contrary to law.³² (Petitioners *et al.* Joint Comment, No. 80 at p. 4)

The Petitioners *et al.* Joint Comment stated that if DOE adopts its interpretive rule as proposed, then the proposals in the residential furnaces and commercial water heaters rulemakings are legally defective and cannot be adopted as proposed, so they reasoned that withdrawal is appropriate and that it would show the public DOE is making constructive progress on these rulemakings. These commenters suggested that the withdrawal document

³² The Gas Industry Petitioners again raised the issue of withdrawal of the rulemaking proposals for the subject residential furnaces and commercial water heating equipment in the September 29, 2020 letter urging prompt action on the petition. (Docket No. EERE-2018-BT-STD-0018-0101) In reiterating the arguments raised in its earlier public comments, the Gas Industry Petitioners noted that because these appliances are now the subject of litigation, it would be beneficial to clarify the administrative record for these rulemakings so as to be consistent with DOE’s final interpretation.

could also serve as a vehicle to give the public notice that new proposals will be required and to request comment informing the development of those proposals. The Petitioners *et al.* Joint Comment also argued that withdrawal of the pending proposals is warranted to correct the public record, because both were subject to substantial adverse comment to which DOE has never responded. These commenters also argued that transparency dictates that, if the Department's interpretation has changed, DOE should not leave these documents as the latest statement of its views until such time as new proposals can be crafted. The Petitioners *et al.* Joint Comment reasoned that failure to act quickly would "undermine the significance of DOE's response to the Petition," and it urged DOE to move forward in the manner it suggests, even if that were to accelerate the timing of potential litigation. (Petitioners *et al.* Joint Comment, No. 80 at pp. 5-6)

The Petitioners *et al.* Joint Comment also urged DOE to formally renounce its prior asserted legal basis for its historic position that type of venting is not a "feature," a position which rendered a ban of atmospherically vented gas products permissible. According to these commenters, DOE's previous interpretation that there is no difference in consumer utility between atmospherically vented products and condensing products was factually unsupported, despite the fact that DOE had acknowledged such differences. The Petitioners *et al.* Joint Comment asserted that the applicability of the statute's "features" provision was clear and that DOE ignored this fact and "simply read unqualified statutory language to include qualifications of DOE's own creation." The comment stated that DOE's previous analysis was too narrow in focus and that questions as to whether "a consumer's interaction with and perception of a furnace or water heater may go beyond its primary function" are legally irrelevant. (Petitioners *et al.* Joint Comment, No. 80 at pp. 8-9)

After careful consideration, DOE has decided to address these supplemental actions requested by the Petitioners *et al.* Joint Comment as follows. The Department is quite certain

that stakeholders and the interested public will become aware very rapidly of this final interpretive rule once it is published in the *Federal Register*, thereby making arguments about the need for greater transparency specious. After reading this final interpretive rule, its meaning should be clear, so “renunciation” of DOE’s past position is not necessary to, in effect, deliver the final interpretation’s message a second time. It should also be readily apparent that the pending rulemakings for residential furnaces, commercial water heaters, and any other similarly-situated products/equipment will require further rulemaking action to ensure that they are consistent with this revised interpretation. DOE has plainly stated as much in both its proposed interpretive rule, as well as this document. For these reasons, DOE had previously tentatively determined that withdrawal of its existing rulemaking proposals for residential non-weatherized gas furnaces, residential mobile home gas furnaces, and commercial water heating equipment would be unnecessary. However, given DOE’s own statements as to the need for further rulemaking, DOE has reconsidered this matter raised by commenters and has decided to withdraw these rulemaking proposals, as requested by the Petitioners *et al.* Joint Comment. As they currently stand, the existing proposals are inconsistent with this final interpretation and, accordingly, cannot be adopted without modification, so DOE has determined that their withdrawal may have some additional benefit in terms of promoting clarity and eliminating any potential for confusion. As noted previously in the preamble of this final interpretive rule, elsewhere in this issue of the *Federal Register*, DOE withdraws its March 12, 2015 proposed rule and September 23, 2016 supplemental proposed rule for energy conservation standards for non-weatherized gas furnace and mobile home gas furnaces, as well as its May 31, 2016 proposed rule for energy conservation standards for commercial water heating equipment.

4. Final Agency Action

A.O. Smith asserted that DOE is seeking to shield its features provision determination from judicial review by claiming that it does not constitute “agency action.” Instead, A.O. Smith commented that the determination, once finalized, would be subject to review under the Administrative Procedure Act. The commenter argued that rather than being merely interpretive, the interpretation would have a definitive and direct effect by requiring/binding the Department to maintain non-condensing products/equipment in the marketplace, despite the fact that further implementing rulemaking may be necessary. According to A.O. Smith, a final interpretation would constitute final agency action because it would: (1) consummate DOE’s features determination with respect to condensing technology and (2) affect legal rights and obligations. The commenter argued that such results are final and not subject to further DOE discretion, and consequently, the company reasoned that the final interpretation would have a direct and certain substantive effect by ensuring that manufacturers would continue to be able to produce and distribute in commerce non-condensing products/equipment, independent of the outcomes of the related energy conservation standards rulemakings. (A.O. Smith, No. 88 at pp. 13-15)

DOE disputes A.O. Smith’s allegation that the Department is attempting to shield its final interpretive rule from judicial review. Moreover, while DOE acknowledges that the courts ultimately determine what constitutes a final agency action, A.O. Smith’s attempt to characterize DOE’s final interpretive rule as “final agency action” under the APA is based upon a flawed reading of the statute and relevant legal precedent. This final interpretive rule is a type of rule or regulation within the meaning of 5 U.S.C. 551(4).³³ It is well established under the APA that agencies have the authority to issue interpretive rules, and that these rules are a valuable tool for an agency to use to advise the public prospectively and in a clear and transparent manner of the

³³ Under 5 U.S.C. 551(4), “rule” means the whole or part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy or describing the organization, procedure, or practice requirements of an agency and includes the approval or prescription for the future of rates, wages, corporate or financial structures or reorganizations thereof, prices, facilities, appliances, services or allowances therefor or of valuations, costs, or accounting, or practices bearing on any of the foregoing.

agency's construction of a statute it administers. *Shalala v. Guernsey Memorial Hospital*, 514 U.S. 87, 99 (1995); compare *Chrysler Corp. v. Brown*, 441 U.S. 281, 302–303 (1979) (whereas “legislative rules” have the “force and effect of the law”). An interpretive rule does not have substantive force and effect on its own. It is not until the agency takes an action in which the interpretation is applied and becomes enforceable that the interpretation can have an effect and, even then, only through that subsequent action. *Cf. Bennett v. Spear*, 520 U.S. 154, 177-78, 117 S. Ct. 1154, 137 L. Ed. 2d 281 (1997); *Am. Tort Reform Ass'n v. Occupational Safety & Health Admin.*, 738 F.3d 387, 395 (D.C. Cir. 2013) (interpretive rules or statements of policy generally do not qualify as final agency action because they are not finally determinative of the issues or rights to which they are addressed); *see also Am. Mining Cong. v. Mine Safety & Health Admin.*, 995 F.2d 1106, 1112 (D.C. Cir. 1993) (holding that whether a rule is interpretive turns on whether it has independent “legal effect”); *Sec. Indus. & Fin. Mkts. Ass'n v. United States CFTC*, 67 F. Supp. 3d 373, 416, 425 (D.D.C. 2014). This rule does not determine rights or obligations, or produce “legal consequences,” *see Bennett v. Spear*, 520 U.S. at 177-78, or carry the force and effect of law, *see Ass'n of Flight Attendants-CWA, AFL-CIO v. Huerta*, 785 F.3d 710, 713 (D.C. Cir. 2015). This particular interpretive rule will have no direct impact on regulated parties.

Moreover, through this final interpretive rule, DOE is not making any changes to its existing regulations in the Code of Federal Regulations or policies regarding individual appliance standards rulemakings, and it cannot and will not take any enforcement action pursuant to its revised interpretation until after the effective date of a legislative final rule, published in the *Federal Register*, amending the applicable product/equipment classes and energy conservation standards, as necessary.

In this final interpretation, DOE sets forth its understanding of EPCA's “features” provisions as it relates to condensing and non-condensing technology (and associated venting), but this understanding must then be applied to the facts and data underlying any given

rulemaking. Given the potential for technological advances, the outcome of a future rulemaking cannot be adjudged with certainty until such time as a standards rulemaking is commenced. Thus, until such interpretation is implemented through a final rule for energy conservation standards, no party can validly claim any demonstrable and definite harm. At the present time, current product/equipment classes and standard levels remain unchanged by the final interpretive rule. The market *status quo* is left unaltered by the final interpretive rule, and there is no change in the products/equipment that can be sold in the marketplace as a result.

IV. DOE's Final Interpretation

In consideration of public comments and other information received on the proposed interpretive rule, DOE is revising its interpretation of EPCA's "features" provision in the context of condensing and non-condensing technology (and associated venting) used in furnaces, water heating equipment, and similarly-situated appliances (where permitted by EPCA). Based on those comments, DOE interprets the statute to preclude the adoption of energy conservation standards that would limit the market to natural gas, propane gas, and/or oil-fired furnaces, water heaters, or similarly-situated covered products/equipment (where permitted by EPCA) that use condensing combustion technology, as that would result in the unavailability of a performance related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)). Stated differently, DOE has determined that non-condensing technology (and associated venting) constitutes a performance-related "feature" for such appliances covered under EPCA.

The statute accords the Secretary of Energy considerable discretion in terms of determining whether a performance characteristic of a covered product/equipment amounts to a performance-related feature which cannot be eliminated through adoption of an energy conservation standard. DOE has taken the opportunity presented by the Gas Industry Petition to

reconsider its historical interpretation of EPCA's "features" provision in the context of condensing and non-condensing technologies used by certain gas appliances. A number of factors have convinced DOE to revise its interpretation, as explained in the reasons that follow.

First, DOE acknowledges that it has, in the past, taken space constraints and similar limitations into account when setting product classes (*e.g.*, PTACs, ventless clothes dryers). For example, DOE was sensitive to the need for extensive building modifications when it decided to set separate equipment classes for standard size PTACs and non-standard size PTACs. 73 FR 58772 (Oct. 7, 2008). DOE expects that a small but substantial number of installations would require similar building modifications here, if DOE were to hold to its historical interpretation. For example, these more complicated installations are documented as part of DOE's analysis of the venting costs for residential furnaces, which considered potential venting modifications that could be required when replacing an existing category I furnace with a condensing (category IV) furnace (see appendix 8D of the 2016 SNO PR TSD for further details). In certain situations, commenters have made the case that accommodating condensing products may not even be possible.

Second, DOE has focused on the consumer's interaction with the product/equipment in deciding whether a performance feature is at issue. In the context of residential furnaces and commercial water heaters, DOE had previously tied consumer utility to the primary function of the appliance (*e.g.*, providing heat to a home or potable hot water) in establishing the nexus to the consumer. In the past, DOE opined that consumers were interested only in obtaining heat or hot water from the appliance, such that they would not care about the mechanism for generating that output. However, commenters have made clear that in at least some cases, a condensing appliance may necessitate significant and unwelcome physical modifications to a home or business (*e.g.*, by adding new venting into the living/commercial space or decreasing closet or other storage/retail space), thereby impacting consumer utility even under DOE's prior approach.

Thus, DOE is not changing the test for consumer utility (*i.e.*, a consumer's interaction with the subject product/equipment), but it is refining how that test is to be applied in the context of condensing and non-condensing appliances (and associated venting), after further consideration of the facts regarding consumer preferences that relate to application of the test.

Third, DOE notes that it has been its policy to remain neutral regarding competing energy sources in the marketplace. As certain commenters have pointed out and as DOE's own analyses have shown, some enhanced level of fuel switching would be likely to accompany standard setting using DOE's prior interpretation. Given that DOE's revised interpretation essentially would support maintaining the market *status quo*, the interpretation would support and be consistent with maintaining a broader range of consumer choice across fuel types.

Creating separate product classes for condensing and non-condensing furnaces, water heaters, and similarly-situated products/equipment (where permitted by EPCA) would prevent many of these potential problems. Although an approach consistent with DOE's interpretation may have some impact on overall energy saving potential as a result of establishing separate product/equipment classes, that is not the touchstone of EPCA's "features" provision. Through that provision, Congress expressed its will that certain product utilities will take precedence over additional energy savings measures. DOE has applied this provision on several occasions without major controversy. (For example, DOE did not eliminate the oven window, which consumers found useful, despite the potential for further energy savings that elimination of the window would have created.) That said, DOE believes that any potentially negative programmatic impacts of future actions consistent with its revised interpretation are likely to be limited. This interpretation is likely to be relevant to only a subset of appliances, and DOE notes that market trends have favored the growing reach of condensing furnaces, even as non-condensing alternatives have remained available. DOE has every reason to believe that such trends will continue.

DOE would clarify the limitations of its revised interpretation, based upon the existing statutory provisions. As discussed previously, DOE can adopt this interpretation for all relevant consumer products, all non-ASHRAE commercial and industrial equipment, and ASHRAE equipment in those instances where DOE has clear and convincing evidence to adopt levels higher than the levels in ASHRAE Standard 90.1. However, additional rulemaking action by the Department will be required consistent with the interpretation contained in this final interpretive rule. More specifically, DOE is reserving appliance-specific implementation issues (including class setting, associated venting, *etc.*) for review and analysis in the context of individual product rulemakings. DOE has concluded that such an approach would best serve all parties, including manufacturers and consumers. Individual product rulemakings will have the requisite mix of interested stakeholders, technical experts, a comprehensive record with product-specific data (including a review of relevant industry consensus standards), and the full suite of analyses for class and standard setting. In that venue, DOE and interested stakeholders will be better able to address any relevant technical matters or product-specific nuances. Consequently, DOE anticipates continued engagement and productive involvement by members of the public and the regulated community in subsequent activities that may follow this revised interpretation.

V. Conclusion

In summary, DOE has granted the Gas Industry Petition to the extent that DOE interprets the statute to preclude the adoption of energy conservation standards that would limit the market of natural gas, propane gas and/or oil-fired furnaces, water heaters, or similarly-situated covered products/equipment (where permitted by EPCA) to appliances that use condensing combustion technology, as that would result in the unavailability of a performance related feature within the meaning of 42 U.S.C. 6295(o)(4) and 42 U.S.C. 6313(a)(6)(B)(iii)(II)(aa) (and as applicable in certain cases through 42 U.S.C. 6316(a)). Stated differently, DOE has determined that non-condensing technology (and associated venting) constitutes a performance-related “feature” for

such appliances covered under EPCA. Such interpretation would extend to all relevant/applicable cases involving consumer products, non-ASHRAE commercial equipment, and ASHRAE equipment where DOE adopts a level more stringent than the ASHRAE level. Through this final interpretive rule, DOE states its understanding of the proper interpretation of the statutory text in light of the language and purposes of EPCA, so as to be consistent with Congress's direction. Upon further consideration and after careful review of the information presented with and in response to the Gas Industry Petition, DOE has concluded that this revised interpretation offers the best reading of EPCA's "features" provision.

DOE has denied the Gas Industry Petition as it pertains to those rulemakings where ASHRAE sets standard levels that trigger DOE to consider and adopt those level (unless DOE finds clear and convincing evidence to adopt more-stringent levels), due to lack of authority. (See section II.D. of this document.)

DOE has granted the Gas Industry Petition's request for DOE to withdraw the existing proposed rules for residential furnaces and commercial water heaters. The existing proposals are inconsistent with this final interpretation and, accordingly, should not be adopted. Consequently, DOE has determined that their withdrawal may have some additional benefit in terms of promoting clarity and eliminating any potential for confusion. DOE anticipates developing new notices of proposed rulemaking for the subject residential furnaces and commercial water heaters that would be consistent with this revised legal interpretation. As noted previously in the preamble of this final interpretive rule, elsewhere in this issue of the *Federal Register*, DOE withdraws its March 12, 2015 proposed rule and September 23, 2016 supplemental proposed rule for energy conservation standards for non-weatherized gas furnace and mobile home gas furnaces, as well as its May 31, 2016 proposed rule for energy conservation standards for commercial water heating equipment.

DOE wishes to make clear that an interpretive rule is a type of rule or regulation within the meaning of those terms in the Administrative Procedure Act, 5 U.S.C. 551(4). It is well established under the APA that agencies have the authority to issue interpretive rules, and that these rules are a valuable tool for an agency to use to advise the public prospectively and in a clear and transparent manner of the agency's construction of a statute it administers. As explained above, DOE's legal interpretations do not themselves constitute final agency action, and DOE does not believe that this rule reflects final agency action.

Implementation of this interpretation in the context of energy conservation standards for particular covered products or equipment, and any changes to existing policies that may be appropriate in light of this interpretation, will be the subject of subsequent actions. As appropriate, the public will be notified and have an opportunity to comment on any such proposals implementing the interpretation. Furthermore, the many substantive comments received, including comments that led to revisions of DOE's interpretation of the "features" provision," as reflected in this final interpretive rule, indicate that the public had a meaningful opportunity to comment on DOE's general interpretation. As DOE has indicated, there will be additional processes after this interpretation has been issued but before any rulemaking decisions are implemented that would have impacts on regulated parties or any other stakeholders.

Review Under Executive Order 12866. This final interpretive rule was determined by the Office of Management and Budget (OMB) Office of Information and Regulatory Affairs (OIRA) to be a "significant regulatory action" under section 3(f) of Executive Order 12866, "Regulatory Planning and Review." 58 FR 51735 (Oct. 4, 1993). Accordingly, this final interpretive rule was subject to review under the Executive Order by OIRA.

VI. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this notice of final interpretive rule.

Signing Authority

This document of the Department of Energy was signed on December 23, 2020, by Daniel R Simmons, Assistant Secretary for Energy Efficiency and Renewable 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, D.C. on December 28, 2020.

Treena V. Garrett
Federal Register Liaison Officer,
U.S. Department of Energy