[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 430

[Docket Number EERE–2011–BT–STD–0011]

RIN: 1904–AC06

Energy Conservation Program: Energy Conservation Standards for Residential Furnaces and Residential Central Air Conditioners and Heat Pumps

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

ACTION: Notice of effective date and compliance dates for direct final rule.

SUMMARY: The U.S. Department of Energy (DOE) published a direct final rule to establish amended energy conservation standards for residential furnaces and residential central air conditioners and heat pumps in the Federal Register on June 27, 2011. DOE has determined that the adverse comments received in response to the direct final rule do not provide a reasonable basis for withdrawing the direct final rule. Therefore, DOE provides this notice confirming adoption of the energy conservation standards for residential furnaces and residential central air conditioners and heat pumps established in the direct final rule and announcing the effective date of those standards.

DATES: The direct final rule published on June 27, 2011 (76 FR 37408) became effective on October 25, 2011. Compliance with the standards in the direct final rule will be required on May 1, 2013 for non-weatherized furnaces and on January 1, 2015 for weatherized furnaces and central air conditioners and heat pumps.

ADDRESSES: The docket is available for review at www.regulations.gov, including Federal Register notices, framework documents, public meeting attendee lists and transcripts, comments, and other supporting documents/materials. All documents in the docket are listed in the www.regulations.gov index. Not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure. A link to the docket Web page can be found at www.regulations.gov.

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For further information on how to submit or review public comments or view hard copies of the docket, contact Ms. Brenda Edwards at (202) 586-2945 or email: Brenda.Edwards@ee.doe.gov.

SUPPLEMENTARY INFORMATION:

I. Authority and Rulemaking Background

The Energy Policy and Conservation Act of 1975 (EPCA; 42 U.S.C. 6291-6309, as codified), as amended, authorizes DOE to issue a direct final rule (DFR) establishing an energy conservation standard on receipt of a statement submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products, States, and efficiency advocates) as determined by the Secretary of Energy (Secretary). EPCA further requires that a statement contain recommendations with respect to an energy conservation standard that are in accordance with the provisions of 42 U.S.C. 6295(o). A notice of proposed rulemaking (NOPR) that proposes an identical energy conservation standard must be published simultaneously with the final rule, and DOE must provide a public comment period of at least 110 days on the direct final rule. 42 U.S.C. 6295(p)(4). Not later than 120 days after issuance of the direct final rule, if one or more adverse comments or an alternative joint recommendation are received relating to the direct final rule, the Secretary must determine whether the comments or alternative recommendation may provide a reasonable basis for withdrawal under 42 U.S.C. 6295(o) or other applicable law. If the Secretary makes such a determination, DOE must withdraw the direct final rule and

proceed with the simultaneously published NOPR. DOE must publish in the Federal Register the reasons why the direct final rule was withdrawn. Id.

During the rulemaking proceeding to consider amending energy conservation standards for residential furnaces and residential central air conditioners and heat pumps, DOE received the "Agreement on Legislative and Regulatory Strategy for Amending Federal Energy Efficiency Standards, Test Procedures, Metrics and Building Code Provisions for Residential Central Air Conditioners, Heat Pumps, Weatherized and Non-Weatherized Furnaces and Related Matters" (the "Joint Petition" or "Consensus Agreement"), a comment submitted by representatives of the American Heating and Refrigeration Institute (AHRI), American Council for an Energy-Efficient Economy (ACEEE), Alliance to Save Energy (ASE), Natural Resources Defense Council (NRDC), Appliance Standard Awareness Project (ASAP), Northeast Energy Efficiency Partnerships (NEEP), Northwest Power and Conservation Council (NPCC), California Energy Commission (CEC), Bard Manufacturing Company Inc., Carrier Residential and Light Commercial Systems, Goodman Global Inc., Lennox Residential, Mitsubishi Electric & Electronics USA, National Comfort Products, Rheem Manufacturing Company, and Trane Residential (collectively, the "Joint Petitioners"). This collective set of comments[1] recommends specific energy conservation standards for residential furnaces, central air conditioners, and heat pumps that, in the commenters' view, would satisfy the EPCA requirements at 42 U.S.C. 6295(o). Numerous interested parties, including signatories of the Consensus Agreement, as well as other parties, expressed support for DOE adoption of the Consensus Agreement both at a public hearing and in

[1] DOE Docket No. EERE–2011–BT–STD–0011, Comment 16.

written comments on the furnaces and central air conditioners rulemakings.

After careful consideration of the Consensus Agreement, the Secretary determined that it was submitted by interested persons who are fairly representative of relevant points of view on this matter. DOE noted in the direct final rule that Congress provided some guidance within the statute itself by specifying that representatives of manufacturers of covered products, States, and efficiency advocates are relevant parties to any consensus recommendation. (42 U.S.C. 6295(p)(4)(A)) As delineated above, the consensus agreement was signed and submitted by a broad cross-section of the manufacturers who produce the subject products, their trade associations, and environmental, energy efficiency, and consumer advocacy organizations. One State entity was a party to the Consensus Agreement, and no State expressed any opposition to the Consensus Agreement from the time of its submission to DOE through the close of the comment period on the direct final rule. Moreover, DOE stated in the direct final rule that it does not interpret the statute as requiring absolute agreement among all interested parties before DOE may proceed with issuance of a direct final rule. By explicit language of the statute, the Secretary has discretion to determine when a joint recommendation for an energy or water conservation standard has met the requirement for representativeness (i.e., "as determined by the Secretary"). Accordingly, DOE determined that the consensus agreement was made and submitted by interested persons fairly representative of relevant points of view.

Pursuant to 42 U.S.C. 6295(p)(4), the Secretary must also determine whether a jointly submitted recommendation for an energy or water conservation standard is in accordance with 42 U.S.C. 6295(o) or 42 U.S.C. 6313(a)(6)(B), as applicable. As stated in the direct final rule, this determination is exactly the type of analysis DOE conducts whenever it considers potential energy conservation standards pursuant to EPCA. DOE applies the same principles to any consensus recommendations it may receive to satisfy its statutory obligation to ensure that any energy conservation standard that it adopts achieves the maximum improvement in energy efficiency that is technologically feasible and economically justified and will result in significant conservation of energy. Upon review, the Secretary determined that the Consensus Agreement submitted in the instant rulemaking comports with the standard-setting criteria set forth under 42 U.S.C. 6295(o). Accordingly, the Consensus Agreement levels, included as trial standard level (TSL) 4 for both residential furnaces and residential central air conditioners and heat pumps, were adopted as the amended standard levels in the direct final rule.

In sum, as the relevant statutory criteria were satisfied, the Secretary adopted the amended energy conservation standards for residential furnaces and residential central air conditioners and heat pumps set forth in the direct final rule. These standards are set forth in Table I.1 and Table I.2. The standards apply to all products listed in Table I.1 and Table I.2 that are manufactured in, or imported into, the United States on or after May 1, 2013 for non-weatherized gas and oil-fired furnaces and mobile home furnaces and on or after January 1, 2015 for weatherized gas furnaces and central air conditioners and heat pumps. These compliance dates were set forth in the direct final rule published

in the Federal Register on June 27, 2011. 76 FR 37408. For a detailed discussion of DOE's analysis of the benefits and burdens of the amended standards pursuant to the criteria set forth in EPCA, please see the direct final rule. 76 FR 37408 (June 27, 2011).

As required by EPCA, DOE also simultaneously published a NOPR proposing the identical standard levels contained in the direct final rule. As discussed in this section, DOE considered whether any adverse comment received during the 110-day comment period following the direct final rule provided a reasonable basis for withdrawal of the direct final rule and continuation of this rulemaking under the NOPR. As noted in the direct final rule, it is the substance, rather than the quantity, of comments that will ultimately determine whether a direct final rule will be withdrawn. To this end, DOE weighs the substance of any adverse comment(s) received against the anticipated benefits of the Consensus Agreement and the likelihood that further consideration of the comment(s) would change the results of the rulemaking. DOE notes that to the extent an adverse comment had been previously raised and addressed in the rulemaking proceeding, such a submission will not typically provide a basis for withdrawal of a direct final rule.

Table I.1 Amended Energy Conservation Standards for Furnace, Central Air Conditioner, and Heat Pump Energy Efficiency

Residential Furnaces*		
Product Class	**National Standards**	**Northern Region** Standards**
Non-weatherized gas	AFUE = 80%	AFUE = 90%
Mobile home gas	AFUE = 80%	AFUE = 90%
Non-weatherized oil-fired	AFUE = 83%	AFUE = 83%
Weatherized gas	AFUE = 81%	AFUE = 81%
Mobile home oil-fired‡‡	AFUE = 75%	AFUE = 75%
Weatherized oil-fired‡‡	AFUE = 78%	AFUE = 78%
Electric‡‡	AFUE = 78%	AFUE = 78%

Central Air Conditioners and Heat Pumps†			
Product Class	**National Standards**	**Southeastern Region†† Standards**	**Southwestern Region‡ Standards**
Split-system air conditioners	SEER = 13	SEER = 14	SEER = 14 EER = 12.2 (for units with a rated cooling capacity less than 45,000 Btu/h) EER = 11.7 (for units with a rated cooling capacity equal to or greater than 45,000 Btu/h)
Split-system heat pumps	SEER = 14 HSPF = 8.2	SEER = 14 HSPF = 8.2	SEER = 14 HSPF = 8.2
Single-package air conditioners‡‡	SEER = 14	SEER = 14	SEER = 14 EER = 11.0
Single-package heat pumps	SEER = 14 HSPF = 8.0	SEER = 14 HSPF = 8.0	SEER = 14 HSPF = 8.0
Small-duct, high-velocity systems	SEER = 13 HSPF = 7.7	SEER = 13 HSPF = 7.7	SEER = 13 HSPF = 7.7
Space-constrained products – air conditioners‡‡	SEER = 12	SEER = 12	SEER = 12
Space-constrained products – heat pumps‡‡	SEER = 12 HSPF = 7.4	SEER = 12 HSPF = 7.4	SEER = 12 HSPF = 7.4

* AFUE is annual fuel utilization efficiency.

** The Northern region for furnaces contains the following States: Alaska, Colorado, Connecticut, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

† SEER is Seasonal Energy Efficiency Ratio; EER is Energy Efficiency Ratio; HSPF is Heating Seasonal Performance Factor; and Btu/h is British thermal units per hour.

†† The Southeastern region for central air conditioners and heat pumps contains the following States: Alabama, , Arkansas, Delaware, Florida, Georgia, Hawaii, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia, and the District of Columbia.
‡ The Southwestern region for central air conditioners and heat pumps contains the States of Arizona, California, Nevada, and New Mexico.
‡‡ DOE is not amending energy conservation standards for these product classes in this rule.

Table I.2 Amended Energy Conservation Standards for Furnace, Central Air Conditioner, and Heat Pump Standby Mode and Off Mode*

Residential Furnaces**	
Product Class	**Standby Mode and Off Mode Standard Levels**
Non-weatherized gas	$P_{W,SB}$ = 10 watts $P_{W,OFF}$ = 10 watts
Mobile home gas	$P_{W,SB}$ = 10 watts $P_{W,OFF}$ = 10 watts
Non-weatherized oil-fired	$P_{W,SB}$ = 11 watts $P_{W,OFF}$ = 11 watts
Mobile home oil-fired	$P_{W,SB}$ = 11 watts $P_{W,OFF}$ = 11 watts
Electric	$P_{W,SB}$ = 10 watts $P_{W,OFF}$ = 10 watts
Central Air Conditioners and Heat Pumps††	
Product Class	**Off Mode Standard Levels**††
Split-system air conditioners	$P_{W,OFF}$ = 30 watts
Split-system heat pumps	$P_{W,OFF}$ = 33 watts
Single-package air conditioners	$P_{W,OFF}$ = 30 watts
Single-package heat pumps	$P_{W,OFF}$ = 33watts
Small-duct, high-velocity systems	$P_{W,OFF}$ = 30 watts
Space-constrained air conditioners	$P_{W,OFF}$ = 30 watts
Space-constrained heat pumps	$P_{W,OFF}$ = 33 watts

*$P_{W,SB}$ is standby mode electrical power consumption, and $P_{W,OFF}$ is off mode electrical power consumption. For furnaces, DOE is proposing to change the nomenclature for the standby mode and off mode power consumption metrics for furnaces from those in the furnace and boiler test procedure final rule published on October 20, 2010. 75 FR 64621. DOE is renaming the P_{SB} and P_{OFF} metrics as $P_{W,SB}$ and $P_{W,OFF}$, respectively. However, the substance of these metrics remains unchanged.
** Standby mode and off mode energy consumption for weatherized gas and oil-fired furnaces is regulated as a part of single-package air conditioners and heat pumps.
† $P_{W,OFF}$ is off mode electrical power consumption for central air conditioners and heat pumps.
†† DOE is not adopting a separate standby mode standard level for central air conditioners and heat pumps, because standby mode power consumption for these products is already regulated by SEER and HSPF.

II. Comments Concerning Withdrawal of the Direct Final Rule

A. General Comments

1. Joint Petition

A number of commenters stated that DOE did not consider the views of all relevant parties, including appliance installers and energy suppliers. Some commenters also stated that DOE did not explain its process for determining whether the Joint Petition was submitted by relevant parties, including a determination of which parties are "not" relevant.

Specifically, UGI Distributors stated that there was not sufficient participation by interested persons. (UGI, No. 22 at p. 10) The American Public Gas Association (APGA) contended that the Consensus Agreement was not based on the most relevant sectors of the industry. (APGA, No. 24 at pp. 12-13) Metropolitan Utilities District of Omaha Nebraska (MUD) stated that the Consensus Agreement failed to represent consumer interests, because the Joint Petitioners (who submitted the Consensus Agreement) were comprised primarily of appliance manufacturers and various energy conservation groups, not individuals who deal with installation and inspection of these appliances on a daily basis. (MUD, No. 29 at p. 1) AGL Resources (AGL) commented that the petition did not

include all relevant parties as required by the legislation granting authority for DFRs, and it recommended DOE should withdraw the DFR in favor of the NOPR process. Specifically, AGL cited appliance installers and energy suppliers as not being involved, noting that appliance installers could have provided more complete information regarding installation costs and that energy suppliers could have provided important information on consumer impacts. (AGL, No. 31 at p. 3) Heating, Air-conditioning and Refrigeration Distributors International (HARDI) stated that the Consensus Agreement excludes the input of U.S. small business owners, who represent two-thirds of the heating, ventilation, and air-conditioning (HVAC) supply chain and 32,264 HVAC contracting and distribution companies and branches nationwide. (HARDI, No. 39 at p. 1) The Air Conditioning Contractors of America (ACCA) stated that the Consensus Agreement represents the view of a minority of stakeholders, is an unsuitable use of the direct final rule process, and directly and adversely impacts several stakeholders not included in the Consensus Agreement. (ACCA, No. 50 at p. 2)

Conversely, the Joint Comment from ASAP, NRDC, ACEEE, ASE, NPCC, NEEP, the Consumer Federation of America (CFA), and EarthJustice (Joint Comment) supported DOE's determination of what constitutes an agreement that is submitted jointly by interested persons that are fairly representative of relevant points of view. (Joint Comment, No. 47 at p. 2) These stakeholders contend that DOE has properly exercised its authority to issue a direct final rule under 42 U.S.C. 6295(p)(4)(A).

As explained above in section I, EPCA authorizes DOE to issue a direct final rule establishing an energy conservation standard on receipt of a statement that, in relevant part, is submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products, States, and efficiency advocates) as determined by the Secretary. While providing some guidance by specifying that representatives of manufacturers of covered products, States, and efficiency advocates are relevant parties to any consensus recommendation, EPCA affords DOE significant discretion in determining whether this requirement has been met. (42 U.S.C. 6295(p)(4)(A)) DOE notes that EPCA does not require that "all" relevant parties be parties to any Consensus Agreement, nor does it allow a small number of interested parties to exercise a veto power over the DFR process. EPCA also does not require DOE to specify parties that it determines are "not relevant" to any Consensus Agreement.

In the direct final rule, DOE explained how the Consensus Agreement met the requirement that it be submitted jointly by interested persons that are fairly representative of relevant points of view. DOE noted that the Consensus Agreement was signed and submitted by a broad cross-section of the manufacturers who produce the subject products, their trade associations, and environmental and energy efficiency organizations. DOE further noted that one State entity was a party to the Consensus Agreement, and no State expressed any opposition to it. States also did not file any adverse comments during the comment period for the direct final rule.

Moreover, DOE stated in the direct final rule that it does not interpret the statute as requiring absolute agreement among all interested parties before DOE may proceed with issuance of a direct final rule. By explicit language of the statute, the Secretary has considerable discretion to determine when a joint recommendation for an energy or water conservation standard has met the requirement for representativeness (i.e., "as determined by the Secretary"). DOE acknowledges that appliance installers and energy suppliers may also be relevant parties within the meaning of 42 U.S.C. 6295(p)(4), but does not believe that the existence of other potentially relevant parties indicates that the Consensus Agreement was not submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products, States, and efficiency advocates).

For the reasons stated above, DOE affirms its conclusion in the direct final rule that the Joint Petition satisfies the requirement of 42 U.S.C. 6295(p)(4) that it be a statement submitted jointly by interested persons that are fairly representative of relevant points of view (including representatives of manufacturers of covered products, States, and efficiency advocates) as determined by the Secretary.

2. Comments on Withdrawal of the Direct Final Rule

As explained more fully below, DOE has determined that none of the comments requesting withdrawal, taken as a whole or individually, may provide a reasonable basis for the Secretary to withdraw the direct final rule. In setting efficiency standards such as those for furnaces, DOE uses a publicly-available, forward-looking model to evaluate the

economic impact of several technically feasible energy efficiency levels pursuant to the criteria specified in 42 USC 6295(o). DOE runs its analysis starting at the most efficient technologically feasible level through progressively lower efficiency levels until its finds the most efficient trial standard level (TSL) that is economically justified. DOE has made its model and the data used in its model public on its website.

The American Gas Association (AGA) [2] and APGA submitted comments arguing that DOE used inappropriate data for several parameters in its life-cycle cost (LCC) model for furnaces, including future natural gas prices, the lifetime of non-weatherized gas furnaces, installation costs, and future consumer costs for furnaces. DOE explains below why, contrary to these comments, it used appropriate data for each such parameter.

However, even if the commenters were correct with respect to all the data issues they raised, that would still not result in an efficiency standard for furnaces that is different than the one in the DFR. In response to the comments from AGA and APGA, DOE re-ran its model using the data and assumptions provided by those organizations in their comments. DOE's analytical results, which it has made public on its website, showed that the standard set for furnaces in the DFR (TSL 4) still has a positive average LCC savings, even using all the commenters' data and assumptions. Because the commenters' objections, even if they were all correct, a scenario DOE does not believe

[2] Philadelphia Gas Works, Nicor, Piedmont, Consolidated Edison of New York, NW Natural Gas Company, Atmos Energy and Alabama Gas submitted comments expressing general support for the comments by the American Gas Association (AGA). (Philadelphia Gas Works, No. 23 at pp. 1-2; Nicor, No. 32 at p.1; Piedmont, No. 32 at p.1; Consolidated Edison of New York, No. 32 at p.1; NW Natural Gas Company, No. 32 at p.1; Atmos Energy, No. 32 at p.1; Alabama Gas, No. 32 at p.1)

likely, would not have resulted in a change to the efficiency standard for furnaces, they could not possibly provide a reasonable basis for withdrawing the rule.

In their comments, AGA and APGA assert that, taken together, their data assumptions cause the standard for furnaces in the DFR to have an average LCC savings that is slightly negative in the northern region of the United States. However, they have not provided sufficient information to allow DOE to replicate their results. As indicated above, DOE has made its spreadsheet model publicly available on its website and no commenter – including AGA and APGA – has questioned the methodology underlying the spreadsheet model (as opposed to the data used in the model). Therefore, notwithstanding the results assertedly reached by AGA and APGA using DOE's model, DOE has concluded that its model (which remains unchallenged in terms of its methodology) supports the efficiency standard in the DFR, even using the data and assumptions provided by the adverse commenters.

Further, as explained in the DFR (76 FR 37524), the consensus agreement represents the effort of diverse stakeholders representing widely varied interested parties to negotiate their differences, reach common ground, and expedite the rulemaking process. Those efforts, and the benefits they entail, were properly considered by the Secretary under 42 U.S.C. 6295(o)(2)(B)(i)(VII). DOE has encouraged stakeholders in all areas to work together to propose consensus agreements that can lead to DFRs where appropriate. Here, the benefits of the consensus agreement, reflected in the DFR, include additional energy savings resulting from accelerated compliance dates for covered

products, as well as an increased likelihood for regulatory compliance and a decreased risk of litigation. The Secretary is cognizant of those benefits in analyzing the adverse comments, and in determining whether any of those comments may provide a reasonable basis for withdrawal of the DFR under 42 U.S.C. 6295(o).

B. Comments on Standards for Residential Furnaces

1. The Direct Final Rule Would Cause Certain Gas Furnaces in the Northern Region to Become Unavailable in Violation of the Act

The American Gas Association (AGA) stated that: (1) establishing a minimum efficiency standard of 90-percent AFUE for the northern region would prevent the installation in that region of a Category I[3] gas furnace; (2) the regional standard, therefore, would necessarily result in the unavailability in the northern region of a covered product type with the performance characteristics of a non-positive vent static pressure, non-condensing (i.e., Category I) gas furnace; (3) the Act prohibits DOE from prescribing a standard that is likely to result in the unavailability in the U.S. 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. (AGA, No. 27 at p. 5)

AGA further noted that: (1) in light of the requirements of the gas codes, a Category I non-positive vent, non-condensing gas furnace cannot be replaced with a

[3] A Category I vented appliance is an appliance that operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent. (National Fuel Gas Code, NFPA54/ANSI Z223.1, American Gas Association, 2006)

Category IV positive vent, condensing gas furnace without addressing the venting and condensate disposal issues; (2) accordingly, the performance features of a Category I gas furnace (including its ability to be vented through a chimney, common vented with other gas appliances, and common vented in multi-unit, multistory housing, as well as its ability to vent without having to address disposal of flue gas condensate) provide tangible and cost-saving benefits to consumers justifying separate minimum efficiency standards for Category I and Category IV gas furnaces. (AGA, No. 27 at p. 6) AGL made comments similar to those of AGA. (AGL, No. 31 at p. 6)

AGA contends that DOE should withdraw the direct final rule and proceed with the notice of proposed rulemaking in this proceeding to consider establishing separate standards for Category I and Category IV gas furnaces based on their different venting and condensing characteristics. (AGA, No. 27 at p. 6)

Conversely, AHRI stated that the furnace design dictates what types of venting systems are acceptable, not the converse, and any suggestion that a similar natural draft furnace must be provided to replace an old natural draft furnace in order to maintain a unique utility of the furnace reverses the relationship between the furnace and the vent system. AHRI also stated that the function of any furnace is to provide heat for residences, and DOE is required to address the utility or unique features of appliances and equipment only. AHRI noted that a new gas furnace using a different type of venting system can be installed as a replacement without changing the occupants' comfort level or the heating ability of the furnace, and that the venting system concerns are simply a

matter of cost and the existence of an appropriate pathway for the venting system, which are issues that have been analyzed by DOE and others in the past. (AHRI, No. 46 at pp. 3-4)

In response to these comments, DOE notes that, in evaluating and establishing energy conservation standards, EPCA directs DOE to divide covered products into classes based on differences including the type of energy used, capacity, or other performance-related feature that justifies a different standard for products having such feature. (42 U.S.C. 6295(q)) In deciding whether a feature justifies a different standard, DOE must consider factors such as the utility of the feature to users. Id. In evaluating AGA's suggestion to consider separate product classes for furnaces using Category I and Category IV venting, DOE considered the utility to consumers of being able to use one venting type versus the other. DOE believes that the utility derived by consumers from furnaces is in the form of the space heating function that the furnace performs. DOE notes that a furnace requiring Category I venting and a furnace requiring Category IV venting are both capable of providing the same heating function to the consumer, and, thus, provide virtually the same utility with respect to that primary function. AGA contends that the ability to vent a furnace with Category I venting provides furnace consumers with a special utility, due to the cost-saving benefits as compared to having to retrofit a venting system to accommodate a Category IV furnace. DOE does not agree with the characterization of reduced costs associated with Category I venting in certain installations as a special utility, but rather, it is an economic impact on consumers that must be considered in the rulemaking's cost-benefit analysis. Accordingly, DOE did not

establish separate product classes for furnaces utilizing Category I and Category IV venting systems, but instead considered the additional costs of Category IV venting in its analyses performed for the DFR.

2. Causing the Unavailability of Category I Gas Furnaces in the Northern Region May Have Serious Adverse Consequences for Consumers and the Environment

AGA stated that: (1) causing the unavailability of Category I gas furnaces in the northern region has the potential to increase health and safety risks due to improper venting; (2) customers faced with having to replace an existing Category I non-condensing gas furnace with a Category IV condensing gas furnace may choose to repair the existing furnace to avoid expensive venting and condensate disposal modifications associated with the new furnace; (3) delayed replacement of equipment past their useful life has the potential to increase energy consumption and environmental impacts. (AGA, No. 27 at p. 6) AGL, CenterPoint Energy, Metropolitan Utilities District (MUD), National Fuel Gas Distribution Corporation (NFGD), and Questar Gas made comments similar to those of AGA. (AGL, No. 31 at p. 5; CenterPoint Energy, No. 33 at p. 2; MUD, No. 29 at p. 1; NFGD, No. 28 at p. 1; Questar Gas, No. 48 at p. 1)

On the other hand, AHRI stated that the concerns about safety when establishing a standard at 90-percent annual fuel utilization efficiency (AFUE) are no different that those already present in situations where consumers do not repair faulty equipment or perform unsafe home repairs. (AHRI, No. 46 at p. 4) National Grid stated that the

proposed standards would help their customers achieve their heating needs while using less energy and saving money. (National Grid, No. 30 at p. 1)

In response, proper venting of a condensing furnace, which is guided by the National Fuel Gas Code and, in many cases, by local building codes, is designed to alleviate health and safety risks. DOE notes that contractors currently have a legal responsibility to perform repairs according to the requirements of applicable codes. Problems associated with contractors not following proper procedures could occur in the case of replacing a gas furnace with a non-condensing furnace as well.

Failure of the heat exchanger or combustion system is the event that is most likely to create a need for replacement. DOE believes that consumers faced with a furnace replacement situation would be unlikely to opt for repair because of the high cost of replacing these components, along with the possibility that further expensive repairs might be needed in the near future. Therefore, DOE believes that delayed replacement, and the associated environmental impacts, is unlikely.

AGA stated that customers that replace a Category I gas furnace with a Category IV gas furnace may orphan a common-vented gas water heater. It could lead to improperly vented water heaters, which may pose serious health and safety risks. (AGA, No. 27 at p. 7) AGL, CenterPoint Energy and MUD made comments similar to those of AGA. (AGL, No. 31 at pp. 6-7; CenterPoint Energy, No. 33 at p. 5; MUD, No. 29 at p. 1)

AHRI stated that: (1) in the past ten years, nearly 10 million condensing furnaces have been sold in the U.S., of which about 7.5 million units were replacement installations; (2) some of those must have resulted in "orphaned" gas water heaters; (3) there is no evidence from the field over that time that consumers are incurring a higher safety risk because they chose to not address the water heater's venting system when the new condensing furnace was installed. (AHRI, No. 46 at p. 4)

In response, proper venting of an orphaned water heater would alleviate the risks mentioned by the commenters. DOE again notes that proper venting of an orphaned water heater is guided by the National Fuel Gas Code and, in many cases, by local building codes. The same points made above about contractors apply in this case as well. DOE also notes that the above comment by AHRI suggests that serious health and safety risks are unlikely and that the service industry already has in place procedures for identifying and rendering unsafe equipment inoperable (red tag) to safeguard the consumer. In addition, DOE believes that through training and experience installing condensing furnaces, installers will become increasingly aware and skilled in the treatment of orphaned water heaters.

AGA argued that the unavailability of Category I, non-condensing gas furnaces could lead customers to make less-efficient appliance choices. Specifically, AGA stated that fuel switching or different initial fuel choice could occur where customers select: (1) electric furnaces instead of gas furnaces; (2) electric heat pumps instead of gas furnaces,

especially where central air conditioning is already installed; (3) electric water heaters instead of gas water heaters; or (4) electric heat pumps and electric water heaters instead of gas furnaces and gas water heaters. AGA stated that by installing electric appliances rather than natural gas appliances, consumers are likely to pay more in annual operating costs while contributing to increased total energy consumption and environmental emissions when measured on a source or full-fuel-cycle basis. (AGA, No. 27 at p. 7)

For the direct final rule, DOE did not explicitly quantify the potential for fuel switching from gas furnaces to electric heating equipment, based upon the following reasoning. DOE reviewed the 2005 Residential Energy Consumption Survey (RECS)[4] to assess the type of space-heating system utilized by consumers as a function of house heating load. Gas furnaces are primarily utilized in households with high heating loads, while electric space heating systems are almost exclusively used in households with low heating loads. Generally, this is because the operating costs of electric space heating systems are relatively high due to the price of electricity, so using an electric system in a cold climate is significantly more expensive than using a gas furnace. Based on the above finding, DOE inferred that few consumers in the northern region would be likely to switch to electric space heating systems as a result of the amended standard for gas furnaces.

In addition, replacing a gas furnace with electric space heating incurs substantial costs, because of the complexity involved in modifying the installation. As described in

[4] U.S. Department of Energy - Energy Information Administration, Residential Energy Consumption Survey: 2005 Public Use Data Files, 2008. <http://www.eia.doe.gov/emeu/recs/recspubuse05/pubuse05.html>

appendix 9-B of the DFR technical support document (TSD),[5] for a household with a gas furnace to switch to electric space heating, a separate circuit up to 120-amps would be needed, depending on the house heating design requirements. The cost to install such a circuit would vary from approximately $293 to $608, and some installations would require a new panel board to serve this higher amp circuit, at a cost estimated at $985 to $2,625.[6] Given the initial costs involved in replacing a gas furnace with electric space heating, combined with the much higher operating costs of an electric heating system, DOE believes that the approach used for the DFR is reasonable.

With regard to initial fuel choice in new homes, DOE found fuel switching not to apply because the amended standard would not significantly change the situation currently faced by builders. On average, there is no total installed price differential between an 80-percent AFUE gas furnace and a 90-percent AFUE gas furnace, so DOE reasoned that builders are unlikely to alter their current behavior on the basis of amended energy conservation standards.

AGA stated that: (1) replacing a non-condensing gas furnace with a condensing gas furnace may be infeasible for some homes where side-wall venting is not an option (e.g., in row houses, historic homes, or multi-story housing complexes), may be cost-prohibitive in other homes, may lead to orphaned water heaters, and, in all cases, would increase installation costs and require trained installers to ensure proper venting of all

[5] See: http://www1.eere.energy.gov/buildings/appliance_standards/residential/residential_furnaces_central_ac_hp_direct_final_rule_tsd.html

[6] Costs estimated using 2010 RS Means Residential Cost Data. (RS Means Company Inc., RS Means Residential Cost Data. 29th Annual Edition ed. 2010: Kingston, MA)

combustion appliances.; (2) DOE's analysis in this proceeding significantly underestimates the costs associated with installation of condensing gas furnaces that consumers would actually incur, both as a result of underestimating specific cost items and of failing to include specific cost items. (AGA, No. 27 at p. 7) MUD made a similar comment. (MUD, No. 29 at pp. 1-2) Questar Gas also stated that with many older homes and multi-family units, the venting modifications and condensate disposal requirements would be cost-prohibitive and, in some cases, impossible. (Questar Gas, No. 48 at p. 1)

DOE acknowledges that there may be increased technical complexity associated with replacing a non-condensing gas furnace with a condensing gas furnace, but DOE disagrees with AGA's contention that replacing a non-condensing gas furnace with a condensing gas furnace may be infeasible for some homes where side-wall venting is not an option. Many condensing furnaces are vented using vertical vents, which provides an additional option to address cases where side-wall access in not available. Moreover, AGA has not demonstrated that trained installers are unavailable in the marketplace to handle installations under the amended standards at the time of compliance. Condensing furnaces have been available for more than 20 years, and in the north condensing furnaces represent 68 percent of the market. The large scale of installations demonstrates the availability of trained installers to handle installations under the amended standards.

Regarding AGA's second point, DOE believes that it has included all relevant cost items. As further described below in section II.B.7, DOE's estimates of specific cost items are similar to those provided by AGA in several instances. Where they are lower,

DOE believes that the available evidence (discussed below) supports the costs used by DOE.

3. DOE's Regional Standard Harms Consumers

AGA stated that: (1) DOE's analysis shows that the 90-percent AFUE standard for the northern region would impose a net cost on 10 percent of consumers, have no impact on 71.4 percent of consumers, and have a net benefit for 18.6 percent of consumers; (2) the fact that a significant percentage of customers will experience a net cost reflects the substantial costs associated with replacing a Category I non-condensing gas furnace with a Category IV condensing gas furnace; (3) DOE has failed to explain why the fact that some consumers will see a net benefit justifies imposing net costs on other consumers. (AGA, No. 27 at p. 10)

In selecting the standards in the DFR, DOE needed to determine whether the benefits of the standard exceed its burdens to the greatest extent practicable, in light of the seven statutory factors provided by EPCA. (42 U.S.C. 6295(o)(2)(B)(i)) Impacts on consumers are one of those factors. Under the amended standard for non-weatherized gas furnaces, nearly twice as many consumers would have a net benefit as would have a net cost. Further, the standard would provide average LCC savings of $155 and a median payback period of 10.1 years. DOE believes that on balance, the consumer impacts of the amended energy conservation standard qualify as positive impacts within the context DOE has used in past standards rulemakings.

4. DOE's Analysis of Natural Gas Prices Is Inadequate

AGA and AGL stated that the direct final rule did not consider the impact that the regional standard would have on natural gas prices. (AGA, No. 27 at p. 11; AGL, No. 31 at 5) DOE did consider the impact of the chosen standards on natural gas prices, as described in section IV.G.6 of the DFR. As described in chapter 14 of the DFR TSD, the projected impact on natural gas prices is very small (0.14 to 0.21 percent). Because the impact is so small, DOE did not use a separate price forecast for the selected TSL.

AGA stated that: (1) DOE has not used the most recent version of the Energy Information Administration's (EIA) Annual Energy Outlook (i.e., AEO 2011) in support of the direct rule; (2) DOE has not explained why it could not have revised its analysis based on the most recent data; (3) EIA's AEO 2011 forecast of residential natural gas prices through 2030 is substantially reduced from the 2010 forecast; (4) EIA's price forecast has been trending downward over the last several years; (5) DOE's use of the AEO 2010 Reference Case in analyzing life-cycle-cost savings of gas furnaces overstates potential cost savings. (AGA, No. 27 at p. 11) APGA and MUD also objected to DOE's use of the AEO 2010 rather than the AEO 2011 projections. (APGA, No 24 at p. 2; MUD, No. 29 at p. 2)

In contrast, the joint comment from ASAP, NRDC, ACEEE, CFA, ASE, NPCC, NEEP, and EJ (Joint Comment) stated that the furnace standards are cost-effective, even if AEO 2011 price trends are used in the LCC analysis. The Joint Comment noted that additional analysis published by DOE in response to a request from American Public Gas Association (APGA) showed average positive LCC savings for both replacement and new

construction installations even if lower natural gas prices are used in the analysis. (Joint Comment, No. 47 at p. 4-5)

In response, DOE notes that the Department uses the latest available version of AEO that is possible under its rulemaking schedule. The AEO 2011 was not available at the time the original DFR analysis was conducted. However, in response to comments on the DFR, DOE evaluated the impact of using the AEO 2011 price forecast on the LCC results. In this case, the average LCC benefit decreases from $155 (using the AEO 2010 forecast) to $127.

AGA contends that: (1) DOE should use a marginal price analysis when evaluating the impact of natural gas prices on the life-cycle-cost savings associated with conservation standards; (2) a marginal price analysis reflects the incremental or decremental gas costs most closely associated with changes in the amount of gas consumed when comparing appliances of different efficiencies; (3) DOE uses marginal residential and commercial electricity prices in its life-cycle-cost analysis; (4) technical analysis by the Gas Technology Institute (GTI) includes a marginal price analysis for the 90-percent AFUE regional standard, by using citygate prices[7] as a proxy for marginal price and reducing the residential gas price to reflect a removal of a portion of fixed costs. AGA stated that: (1) the results of GTI's analysis show that the life-cycle-cost savings of replacing a non-condensing gas furnace with a condensing gas furnace are

[7] The "city gate" is generally the point where natural gas is transferred from an interstate or intrastate pipeline to a local natural gas utility. The "city gate price" is the sales price of the natural gas at this point; the price reflects the wholesale/wellhead price, as well as the cost of transporting the natural gas by pipeline to the citygate.

negative in the northern region using citygate prices as a proxy for marginal price, based on AEO 2011 forecasts of natural gas prices; (2) under the alternative method of removing fixed costs as a proxy for marginal prices, the analysis similarly shows that the life-cycle-cost savings of installations of 90-percent AFUE condensing gas furnaces in the replacement market in the northern region are negative or only barely positive. (AGA, No. 27 at p. 13)

In contrast, the Joint Comment stated that DOE's approach for developing natural gas prices, which incorporates regional and seasonal variations, is appropriate and that the prices DOE derived reflect the prices faced by furnace users. (Joint Comment, No. 47 at p. 4-5)

In response, DOE believes that average natural gas prices are suitable for evaluating the impacts of furnace standards. DOE also used average natural gas prices in the 2010 final rule for energy conservation standards for residential water heaters, direct heating equipment, and pool heaters. 75 FR 20112, 20158 (April 16, 2010). Although marginal energy prices are in theory preferable when evaluating the life-cycle-cost savings associated with standards, past analysis found that marginal natural gas prices were only 4.4 percent lower than average prices in the winter, when furnaces are used.[8] At the time of the DFR analyses, DOE was unable to obtain marginal gas prices for the following reasons. The RECS 2005 billing data that allow estimation of marginal prices were not available at that time due to EIA's concerns over maintaining confidentiality of

[8] Chaitkin, S., J. McMahon, C. Dunham-Whitehead, R. van Buskirk and J. Lutz. 2000. Estimating Marginal Residential Energy Prices in the Analysis of Proposed Appliance Energy Efficiency Standards. Conference Paper, Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings.

the survey respondents. In the alternative, DOE investigated development of marginal prices from gas utility tariffs, but found that, in general, gas tariffs include provisions for modifying consumer prices on a monthly basis to account for changes in commodity price. Therefore, the tariffs themselves do not provide sufficient information to determine the consumer price.

In response to comments on the DFR, DOE estimated marginal natural gas prices using newly-available RECS 2005 billing data. Using this data in DOE's model, the average LCC benefits decrease from $155 (using average energy prices) to $128 (using marginal energy prices).

5. DOE Has Not Justified Its Use of Experience Curve Price Effects

AGA stated that: (1) DOE's use of experience curves to support the direct final rule is premature; and (2) DOE has not yet issued a final rule or policy regarding the use of experience curve or learning curve analyses or responded to the comments submitted in that proceeding. (AGA, No. 27 at p. 14)

To clarify, on February 22, 2011, DOE published a Notice of Data Availability (NODA, 76 FR 9696) in the Federal Register stating that DOE may consider changes to how it addresses equipment price trends, as part of DOE's ongoing efforts to keep improving its regulatory analyses. DOE responded to comments on the NODA and outlined its refined policy regarding the use of experience curves in the direct final rule in this proceeding and several other rulemakings mentioned below. In the DFR, DOE

presented a range of estimates for product price trends, including trends derived using the experience curve approach.

AGA and APGA stated that DOE's experience curve analysis in the direct final rule is unexplained and unjustified. (AGA, No. 27 at p. 14; APGA, No. 24 at p. 3) AGA stated that DOE has not adequately shown that, based on historical price data, the price trend for Category IV condensing gas furnaces would continue to trend downward over time at the rate that DOE has assumed. Nor is there any justification, according to those commenters, as to why such curves should be so much greater for gas equipment than for electric equipment. (AGA, No. 27 at pp. 14-15) Laclede Gas also stated that the experience rates used by DOE were overstated. (Laclede Gas, No. 27 at pp. 2-3)

On the other hand, the Joint Comment supported DOE's use of learning rates in the analysis. (Joint Comment, No. 47 at p. 3) It stated that the incorporation of learning rates in this rulemaking is consistent with recent DOE final rules on refrigerators, clothes dryers, and room air conditioners, where DOE also applied learning rates. 76 FR 57516, 57548-50 (Sept. 15, 2011); 76 FR 52852-52854 (Aug. 24, 2011).

In response, DOE's derivation of price trends for central air conditioners, heat pumps, and furnaces is described in detail in appendix 8-J of the DFR TSD. The essential justification for using the experience curve approach is that it yields a statistically robust method for analyzing the long-term declining real price trend, based on Producer Price Indexes (PPI), observed for central air conditioners and furnaces. There exists an

extensive economic literature on learning and experience curves, based on robust observations spanning many decades.[9] The concept was pioneered for the manufacturing sector, and it has since been applied to a diverse set of products and services.[10] Learning and experience curves are now regularly incorporated into economic modeling, including in the National Energy Modeling System (NEMS). Broader discussion of the reasons why DOE believes use of the experience curve approach is reasonable is provided in the final rule for refrigerators, refrigerator-freezers, and freezers. 76 FR 57516, 57548-50 (Sept. 15, 2011).

DOE did not have historical price data specific to condensing gas furnaces. However, the growing share of condensing furnaces over the past two decades (from approximately 23 percent in 1990 to approximately 50 percent in 2010)[11] is reflected in the PPI series that DOE used to derive an experience rate for furnaces.

For warm-air furnaces, the medium estimated learning rate (defined as the fractional reduction in price expected from each doubling of cumulative production) is 30.6 percent. For unitary air conditioners, the medium estimated learning rate is 18.1 percent. The higher rate for furnaces results from the steeper decline in the inflation-adjusted historic price index for warm air furnaces.[12]

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[9] A draft paper, "Using the Experience Curve Approach for Appliance Price Forecasting," posted on the DOE web site at http://www.eere.energy.gov/buildings/appliance_standards, summarizes the data and literature currently available to DOE that is relevant to price forecasts for selected appliances and equipment.

[10] Weiss, M., Junginger, M., Patel, M.K., Blok, K., 2010a. "A review of experience curve analyses for energy demand technologies." Technological Forecasting and Social Change 77, 411-428.

[11] Gas Appliance Manufacturers Association (GAMA). Historical Shipment Data (1987-2003), provided to DOE April 10, 2005. AHRI. Historical Shipment Data (2004-2009), provided to DOE June 20, 2010.

[12] See appendix 8-J of the DFR TSD.

In response to comments on the DFR, DOE evaluated the impact of not using the learning rate on the LCC results. Using this input in DOE's model, the average LCC benefits decrease from $155 (using medium estimated learning rates) to $148 (not using the learning rates).

6. DOE's Estimate of Expected Furnace Lifetime Is Unsupported

AGA stated that: (1) DOE's estimate of a 23.68 year lifetime for a gas furnace is contradicted by other DOE and manufacturer estimates; (2) in its latest DOE Multi-Year Program Plan, updated in October 2010, DOE estimated that the lifetime of a non-weatherized gas furnaces is 16 years; (3) according to GTI's recent technical analysis, the 16-year useful life estimate is consistent with other manufacturer estimates of useful life; (4) GTI's analysis shows that using a 16-year useful life estimate substantially reduces the life-cycle-cost savings for the 90-percent AFUE gas furnace in the northern region. (AGA, No. 27 at pp. 15-16) Laclede Gas Company made a similar comment. (Laclede, No. 27 at p. 4)

The Joint Comment stated that the fixed 16-year lifetime was unreasonable for non-weatherized gas furnaces. It noted that DOE used a distribution of lifetimes to reflect expected failure rates in the field and that DOE derived the average lifetime of 23.7 years for non-weatherized gas furnaces from a combination of sources. (Joint Comment, No. 47 at p. 4-5)

In response, the value in DOE's 2010 Multi-Year Program Plan[13] was an estimate from the published literature, rather than the result of empirical analysis. DOE's DFR methodology utilized a more rigorous product lifetime analysis, including historical data on appliance shipments, total appliance stock, and the fraction of surviving appliances to estimate the mean life and mortality shape factor using the best-fitting Weibull survival function.[14] Changing the average lifetime to 16 years results in projected shipments that are approximately 30 percent to 40 percent greater than the forecast in the DFR. In this case, the NIA model's 'backcast' diverges significantly from historical shipments. That is, a 16-year average lifetime is inconsistent with historical data on furnace shipments. Consequently, DOE has confirmed that the DFR's estimated average lifetime of 23.7 years for non-weatherized gas furnaces remains the best estimate of that value. However, in response to comments on the DFR, DOE evaluated the impact of using the average fixed 16-year lifetime on the LCC results. Using that input in DOE's model, the average LCC benefits decrease from $155 (using DOE's lifetime methodology) to $72 (using a 16-year lifetime).

7. <u>DOE Has Not Justified Its Assumptions Regarding Installation Costs</u>

AGA stated that: (1) DOE has not adequately supported the specific installation cost adders and distribution of occurrences that it has used; (2) DOE's analysis significantly underestimates the costs associated with installation of condensing gas

[13] U.S. Department of Energy Efficiency and Renewable Energy Building Technologies Program. Multi-Year Program Plan, Building Regulatory Programs: 2010-2015 (Oct. 2010). (http://apps1.eere.energy.gov/buildings/publications/pdfs/corporate/regulatory_programs_mypp.pdf)
[14] DOE's lifetime methodology is described in: Lutz, J. A. Hopkins, V. Letschert, V. Franco, and A. Sturges. "Using national survey data to estimate lifetimes of residential appliances" published in HVAC&R Research (Volume 17, Issue 5, 2011). (URL: http://www.tandfonline.com/doi/abs/10.1080/10789669.2011.558166)

furnaces that consumers would actually incur, both as a result of underestimating specific cost items and failing to include specific cost items; (3) AGA submitted data in this proceeding showing that the cost for installation of condensing furnaces in commonly-vented systems in total would range from $1,500 to $2,200 (in 2005$) based on a survey of its members. AGA recommended that DOE apply a probability distribution for each installation cost adder and include that variation as an independent variable in the calculation. (AGA, No. 27 at p. 16) ACCA also stated that the standard mandating condensing furnaces in the northern region is based on incomplete or inaccurate assumptions on the costs for retrofitting homes. (ACCA, No. 27 at p. 4) The UGI Distribution Companies commented that DOE's installation cost estimates for accommodating high-efficiency gas furnace and orphaned gas water heater venting issues seem unrealistically low, particularly for row homes, multi-family dwellings, and older urban structures with high masonry chimneys. (UGI Distribution Companies, No. 22 at p. 4)

In contrast, the Joint Comment stated that DOE had considered the comments from interested parties and conducted a thorough analysis of installation costs for both replacement and new construction installations. (Joint Comment, No. 47 at p. 2)

In response to AGA's first point, the sources and methods used to derive the specific installation cost adders and distribution of occurrences are described in detail in appendix 8-B of the DFR TSD. DOE believes that it has included all relevant cost items.

The range of $1,500 to $2,200 mentioned by AGA (in $2005; equivalent to $1,648 to $2,417 in 2009$) refers to the added cost for installation of condensing furnaces in common vented systems.[15] As shown in Table II.1, the range of many of DOE's specific costs are similar to the ranges given in AGA's survey. For the relining of an existing chimney or resizing of a vent to accommodate the remaining appliance, DOE believes that AGA's relining costs are more typical for long vertical vent lengths (households with two floors or more), whereas the costs used by DOE represent a wide range of installations. In terms of installing a drain pan for condensate, DOE's estimate is based on the material cost of the drain pan from two retail websites.[16] Despite these differences, DOE's total estimated average cost ($1,596) is close to the lower end of AGA's estimate. (DOE applied the structural modifications and the relining costs in Table II.1 to all commonly-vented systems that require venting modifications to satisfy the safety requirements. DOE estimated that such modifications are required for about 36 percent of all commonly-vented systems.) In summary, DOE concludes that its analysis of installation costs included all relevant items and used an appropriate range of costs for each item. In response to comments on the DFR, DOE evaluated the impact of using AGA's installation costs. Using these inputs in DOE's model, the average LCC benefits increase from $155 (using DOE's installation cost estimates) to $168 (using AGA's installation cost estimates). The main reason why the LCC benefits based on AGA's assumptions increase is that under DOE's estimates, performance of structural modifications is applied to all installations and has higher cost, whereas AGA's

[15] AGA Comment Letter to DOE on NOPR Furnace Rulemaking and TSD (Nov. 10, 2010). (Docket Number: EE-2009-BT-STD-0022)
[16] Alpine Home Air (URL: http://www.alpinehomeair.com/viewproduct.cfm?productID=453056758); Comfort Gurus (URL: http://www.comfortgurus.com/product_info.php/products_id/5368)

assumptions regarding relining chimney/resizing vents and condensate installation issues are applied to only a fraction of installations.

Table II.1 Installation Costs for Condensing Furnaces in Commonly-Vented Systems

Additional Venting System/Installation Requirements	AGA Cost Range (Average) (2009$)*	DOE Cost Range for Northern Region (Average) (2009$)
Perform structural modifications (including boring holes in interior walls, floors, exterior walls for vents and new vent termination kit)	$330 - $494 ($412)	$131 - $1887 ($518)
Reline existing chimney or resize vent to accommodate the remaining appliance (code requirement for proper vent sizing)	$659 - $1098 ($879)	$95 - $1404 ($548)
Install drain pan for condensate from condensing furnace (code requirement to avoid structural damage)	$165 - $275 ($220)	$45 - $45 ($45)
Install freeze protection for condensate line to ensure reliability of disposal (for installation outside of conditioned space)	$220 - $220 ($220)	$101 - $272 ($184)
Install condensate drain, pump, acid neutralizer, etc.	$275 - $330 ($302)	$216 - $455 ($300)

* Cost adjusted using CPI from 2005$ to 2009$.

AHRI pointed out that the 1994 Gas Research Institute (GRI) Gas Furnace Survey[17] found that as more condensing furnaces were sold in a specific area, the cost of installation became lower, suggesting that this could occur in the case of the standard for the northern region (AHRI, No. 46 at p. 4). DOE agrees that the trend mentioned by

[17] Jakob, F. E., J. J. Crisafulli, J. R. Menkedick, R. D. Fischer, D. B. Philips, R. L. Osbone, J. C. Cross, G. R. Whitacre, J. G. Murray, W. J. Sheppard, D. W. DeWirth, and W. H. Thrasher, *Assessment of Technology for Improving the Efficiency of Residential Gas Furnaces and Boilers, Volume I and II - Appendices*, September, 1994. Gas Research Institute. AGA Laboratories, Chicago, IL. Report No. GRI-94/0175.

AHRI could occur and potentially result in lower installation costs than those estimated for the DFR.

AGA stated that: (1) the 2007 Furnace Rule[18] relied on data from a 1994 GRI furnace survey to determine the percentage of homes in which gas appliances were commonly-vented; (2) DOE changed the data set in the direct final rule proceeding, relying instead on an older 1991 GRI water heater survey;[19] (3) DOE has not explained the basis for the change in the data set. (AGA, No. 27 at p. 16)

In response, to determine the fraction of installations with common venting, DOE used both the 1994 GRI furnace survey and a 1991 GRI water heater survey. DOE used the 1990 survey to develop regional fractions of the common venting installations, primarily because it is a larger survey (32,000 data points) compared to the 1994 survey (1,300 data points). On average, both surveys produce similar results: the 1990 survey showed 57 percent of households with a gas water heater had common venting, while the 1994 GRI study showed 52 percent of gas furnaces had common venting. Combining these fractions with the RECS 2005 household sample resulted in a nationwide estimate that 50 percent of gas furnaces are commonly vented with gas water heaters. For the northern region this fraction is 57 percent.

[18] U.S. Department of Energy - Energy Efficiency & Renewable Energy, *Technical Support Document: Energy Efficiency Standards for Consumer Products: Residential Furnaces and Boilers*, 2007. Washington, DC.

[19] D.D. Paul et al., *Assessment of Technology for Improving the Efficiency of Residential Gas Water Heaters,* December, 1991. Battelle. Columbus. Report No. GRI-91/0298.

AGA stated that according to GTI, DOE appears to have used a national average figure of the percent of housing stock that would require the chimney to be relined when installing a condensing gas furnace as opposed to a northern regional fraction, potentially understating installation costs associated with chimney relining that would support a regional standard. (AGA, No. 27 at p. 17) DOE used the 1994 GRI furnace survey data to derive the fraction of households with chimney venting for the northern region. This survey showed that 72 percent of the northern installations utilize chimney venting (see TSD, appendix 8-B for details).

8. DOE Failed To Conduct an Adequate Analysis of Fuel-Switching Between Natural Gas and Electric Appliances

AGA stated that: (1) DOE's analysis of the potential for fuel switching is cursory and ignores the problems consumers face when having to install a condensing gas furnace; (2) DOE's analysis fails to consider the wide range of options consumers actually face in making appliance choices; (3) consumers are sensitive to the relative differences in the total upfront cost of purchasing the appliance and having it installed, and often undervalue the differences in annual operating costs; (4) even assuming that switching from a gas furnace to an electric furnace will require additional installation costs for electrical circuitry, consumers will be encouraged to fuel switch where the total equipment and installation costs of a 90-percent AFUE condensing gas furnace exceed the total equipment and installation costs of a comparable electric furnace. (AGA, No. 27 at pp. 18-20) Concerns that the condensing furnace standard could lead consumers to switch to electric heating were also raised by AGL, APGA, CenterPoint Energy, the UGI

Distribution Companies, City Utilities of Springfield, Laclede Gas Company, and Questar Gas. (AGL, No. 27 at pp. 7-8; APGA, No. 24 at p. 8; CenterPoint Energy, No. 33 at p. 3; UGI Distribution Companies, No. 22 at p. 4; City Utilities of Springfield, No. 26 at p. 1; Laclede, No. 44 at p. 3; Questar Gas, No. 48 at p. 1)

DOE agrees that consumers are sensitive to the relative differences in the total upfront cost of purchasing the appliance and having it installed, and often undervalue the differences in annual operating costs. However, AGA's contention that consumers will be encouraged to fuel switch where the total installed costs of a 90-percent AFUE condensing gas furnace exceed the total equipment and installation costs of a comparable electric furnace seems to take the extreme (and unsubstantiated) view that consumers place little value on differences in operating costs at all. Further, the difference in annual operating costs between a condensing gas furnace and an electric furnace in the northern region are very large. A household using 40 MMBtu/year of natural gas, which is the estimated average for a condensing furnace in the northern region, would incur annual costs of $400 to $600, while an electric furnace satisfying the same heating load would incur costs ranging from $800 to $1,700. Even in parts of the northern region where the heating load is half of the above average, the operating cost differential is still significant.

Given the initial costs involved in replacing a gas furnace with electric space heating, combined with the much higher operating costs of an electric heating system, DOE believes that the approach used for the DFR is reasonable.

AGA stated that: (1) DOE acknowledges but fails to address the possibility that requiring the replacement of a non-condensing gas furnace with a 90-percent AFUE condensing gas furnace will lead to an orphaned water heater, thereby encouraging consumers to replace the gas water heater with an electric resistance water heater; (2) consumers will be encouraged to switch to an electric water heater where the costs of addressing the venting issues associated with an orphaned gas water heater exceed the total equipment and installation costs of an electric water heater. (AGA, No. 27 at p. 19)

DOE believes that consumers are unlikely to engage in large-scale switching from a gas-fired water heater to an electric water heater. If the gas water heater is near the end of its useful lifetime, the consumer may elect to purchase a new power vent gas water heater rather than incur the expense of re-lining. Some consumers could elect to replace the gas water heater with an electric water heater to avoid the cost of relining, but estimates of electric water heater installation cost plus electrical service installation plus the extra energy cost indicate that the total is higher than the cost of relining, so this possibility is unlikely.[20]

9. DOE Has Not Considered the Costs of Enforcement

AGA stated that: (1) the technical support documents in this proceeding do not contain any analysis of the impacts of enforcement costs on consumers, manufacturers, or other market participants, including other entities that may additionally be required to enforce the regional standard, such as equipment distributor or installers; and (2) without

[20] See Appendix C of the final rule TSD for the 2007 furnace and boiler rulemaking. http://www1.eere.energy.gov/buildings/appliance_standards/residential/fb_tsd_0907.html.

an assessment of enforcement costs, the economic justification of the standards in this proceeding is incomplete. (AGA, No. 27 at p. 21) Concerns that DOE did not consider enforcement costs were also expressed by ACCA, AGL, HARDI, Laclede Gas Company, and NPGA. (ACCA, No. 50 at p. 5; AGL, No. 31 at p. 4; HARDI, No. 39 at p. 2; Laclede, No. 44 at p. 12; NPGA, No. 49 at p. 3)

In contrast, AHRI stated that: (1) DOE should act quickly to open a rulemaking on regional standards enforcement; and (2) the fact that DOE has not yet considered standards enforcement is not a defect in the final rule. (AHRI, No. 46 at p. 5) The Joint Comment stated that the enforcement plan proceeding, required after adoption of a regional standard, would be an appropriate time for consideration of a DOE Office of Hearings and Appeals (OHA) waiver process designed to address any special hardship situations. (Joint Comment, No. 47 at p. 4-5)

In response, DOE does not believe that the cost of enforcement of regional standards impacts the life-cycle cost, payback period, or other factors considered in the establishment of energy conservation standards differently than the costs of enforcement of national energy conservation standards. Rather, enforcement costs will depend on the specific enforcement framework mechanism that is put in place. EPCA requires DOE to "initiate" an enforcement rulemaking not later than 90 days <u>after</u> the issuance of a final rule establishing regional standards and to complete the rulemaking not later than 15 months following the issuance of the rule. (42 U.S.C. 6295(o)(6)(G)(ii)). Clearly, the express provisions of the statute contemplate the rulemaking on enforcement of regional standards commencing after the energy conservation standards rulemaking has been

completed. Having the standards in place is a necessary precursor to evaluating potential enforcement efforts. DOE plans to incorporate all feedback from this standards rulemaking process into the enforcement rulemaking, and will assess the impact of that enforcement regime in the context of the enforcement rulemaking.

10. Impact on Low-Income Consumers

UGI and CenterPoint Energy stated that the standard for the northern region could harm low-income consumers due to the higher first cost of installing a condensing furnace. (CenterPoint Energy, No. 33 at p. 6; UGI, No. 22 at p. 4)

On the other hand, CFA and NCLC highlighted the benefits that higher furnace standards would bring to low-income households, who are predominately renters. They stated that heating bills place a large burden on moderate-income and low-income families, and the standard would reduce their energy bills and reduce the demand for natural gas, thereby moderating future price increases for consumers. (CFA and NCLC, No. 36 at p. 2)

DOE's consumer subgroup analysis (described in chapter 11 of the DFR TSD) estimated that low-income households show somewhat higher LCC savings from more-efficient furnaces than the general population. Regarding the first cost, DOE agrees that because many low-income consumers are renters, the cost of replacing a furnace would be incurred by the landlord and would likely be passed on to the consumer gradually in

the form of increased rent. DOE believes that these factors moderate the impacts of amended standards on low-income consumers.

11. Sensitivity Analysis of the Standard for Residential Gas Furnaces in the Northern Region

DOE believes that the analysis documented in the DFR and the accompanying TSD provides sufficient justification for its determination that TSL 4 achieves the maximum improvement in energy efficiency that is technologically feasible and economically justified and will result in significant conservation of energy. DOE further notes that it did not receive comments critical of the models it used in its analysis. However, because some of the commenters devoted considerable effort to developing recommendations for alternatives to some of the inputs that DOE used in its DFR analysis, DOE conducted a new analysis to assess the impact on consumers from using the recommended alternatives. The assumptions that DOE used in this sensitivity analysis were the same as the assertions made by AGA in its comment as follows: (1) a furnace lifetime of 16 years for all households; (2) no decline in furnace prices based on experience curve analysis; (3) the ranges for the added cost for installing condensing furnaces in commonly-vented systems recommended by AGA (see Table II.1); (4) a natural gas price forecast based on the AEO 2011 Reference case; and (5) use of marginal natural gas prices (based on analysis of RECS 2005 billing data).[21] These assumptions

[21] Documentation of the sensitivity analysis may be found at DOE's Residential Furnaces and Boilers Web site - APGA Life-Cycle Cost Scenarios at: http://www1.eere.energy.gov/buildings/appliance_standards/residential/residential_furnaces_cac_hp_direct_final_rule.html.

reflect key comments made by AGA (described above) and a request made by APGA. (APGA, No. 20 at pp. 1-2)

Under the sensitivity analysis, the average LCC savings for consumers in the Northern region are $44. This value is less than the average cited in the DFR ($155), but is still positive. Regardless, this lower, but still positive, LCC savings value is sufficient to demonstrate economic justification of TSL 4 under the criteria in 42 U.S.C. 6295(o). Thus, even under the assumptions favored by AGA and APGA, even if they were all correct, a scenario DOE does not believe likely, the amended standard still have a positive impact on consumers in the northern region.

C. Comments on Standards for Residential Central Air Conditioners and Heat Pumps

The People's Republic of China (China) commented that the EER standards should be cancelled and that DOE should only adopt the SEER as the air conditioner's energy efficiency evaluation ratio. China noted that SEER reflects an air conditioner's efficiency over a whole season and in varying conditions, while EER only reflects performance under specific conditions and, therefore, cannot reflect the energy efficiency over an entire season. (China, No. 8 at p. 3) For this reason, China suggested that DOE only use SEER as the regulating metric. (China, No. 8 at p. 3)

As noted in the direct final rule, DOE believes that it has the authority to set dual metrics when considering a consensus agreement, and consequently, DOE analyzed setting an EER standard in the Hot-Dry region. 76 FR 37408, 37423 (June 27, 2011).

DOE agrees with China that SEER is more representative of seasonal performance, but DOE also believes that there is merit to having an EER standard, because the conditions at which EER is measured are common for the Hot-Dry region. By using both SEER and EER as metrics, DOE will have standards for both seasonal efficiency and peak efficiency, which it believes will lead to additional energy savings in the Hot-Dry region. Therefore, DOE will not withdraw the EER standard levels from the Hot-Dry region.

China further commented that differences between DOE and international standards for definitions and test methods for off mode, as well the classification of air conditioners, will lead to increased costs for manufacturers, and suggested that DOE should harmonize its regulations with international standards. Specifically, China referenced International Standards IEC 62301,[22] ISO 5151 and ISO 13253[23]. (China, No. 8 at p.3)

IEC Standard 62301 is a test method for measuring standby mode and off mode energy consumption of household appliances. As discussed in detail in the April 1, 2011 central air conditioner and heat pump test procedure SNOPR (76 FR 18105, 18108), DOE believes that the IEC 62301 definitions and test method are too broad to be applicable to residential central air conditioners and heat pumps. In response to China's concern about how DOE classifies air conditioners as compared to ISO 5151 and ISO 13253, DOE notes its definitions of residential "central air conditioner" and "heat pump"

[22] The comment from China references "IEC 60321." However, DOE believes this was an error and that the comment was intended to reference IEC 62301, Household Electrical Appliances – Measurement of Standby Power.
[23] ISO 5151: Non-ducted air conditioners and heat pumps – testing and rating for performance, and ISO 13253: Ducted air-conditioners and air to air heat pumps – Testing and rating for performance.

are determined by EPCA. (42 U.S.C. 6291(21) and 42 U.S.C. 6291(24)) DOE determines the product classes for central air conditioners and heat pumps subject to the criteria in 42 U.S.C. 6295(q) and cannot alter these criteria to align its definitions with international standards.

D. Comments on Standby Mode and Off Mode Standard Levels

1. Standby Mode and Off Mode Levels for Residential Furnaces

In response to the standby mode and off mode energy conservation standards promulgated for residential furnaces, DOE received several comments.

AHRI supported the standby mode and off mode standards for residential furnaces. (AHRI, No. 46 at p. 5) AHRI, EarthJustice, and ACEEE commented there is consensus agreement for the standby mode and off mode standards for furnaces promulgated in the DFR. (AHRI and EarthJustice, No. 52 at p. 1; ACEEE, No. 53 at p. 1)

Conversely, Horizon Plastics stated that the standby mode and off mode energy consumption requirements for residential furnaces are too high and will not drive any meaningful energy conservation. (Horizon Plastics, No. 15 at p.1) Further, Horizon Plastics referenced Lawrence Berkeley National Laboratory (LBNL) test data on 16 residential furnaces that showed standby mode and off mode energy consumption values ranging from 0 to 9.8 watts (W) as evidence that lower levels are readily achievable. (Horizon Plastics, No. 15 at p.1) Horizon Plastics also described an innovation developed by their company that requires only an additional capacitor, relay, and proprietary code to

reduce standby mode and off mode power to 0 W, while adding minimal cost to the furnace. Given that their new technology would significantly reduce standby mode and off mode power consumption, Horizon Plastics asserted that the standby mode and off mode requirements for furnaces should be removed from the subject standard and moved to a separate rulemaking. (Horizon Plastics, No. 15 at pp.2-3)

DOE agrees with Horizon Plastics that many furnace models already available on the market are capable of meeting the standby mode and off mode standards promulgated in the DFR. In preparation for the DFR, DOE tested a number of furnaces, many of which met the standby mode and off mode requirements in the DFR. However, DOE found that products with lower standby mode and off mode power consumption typically have less sophisticated designs and controls and are often less efficient when operating in active mode. Removing certain components, such as an electronically-commutated motor or sophisticated control systems (if equipped) will allow a furnace to achieve lower standby mode and off mode energy consumption, but it may also increase active mode energy consumption and reduce consumer utility (in the form of reduced comfort if certain controls are eliminated), which is contrary to the purpose of the DFR. In its analysis of standby mode and off mode levels, DOE did not consider levels that would limit manufacturer design choices when trying to achieve greater efficiency in the active mode, or that would reduce consumer utility. DOE started at the baseline (i.e., the highest standby mode and off mode energy consuming) level, and implemented design options of which DOE was aware at the time of the analysis that would not impact the

ability of the furnace to achieve greater active mode efficiency and would not reduce consumer utility.

Regarding the new design presented by Horizon Plastics, DOE is encouraged by innovations that reduce standby mode and off mode energy consumption to 0 W, and hopes that the minimum standards for standby mode and off mode consumption promulgated by the DFR spur further innovation in reducing standby mode and off mode consumption. However, DOE notes that it generally does not consider proprietary designs in its analysis, as it may unfairly skew the market to give one company an advantage over competitors. For this reason, DOE believes that although the technology presented by Horizon Plastics may be a viable technology, it cannot be considered in DOE's rulemaking analysis, and does not provide a reasonable basis for withdrawal of the standby mode and off mode standards for residential furnaces.

2. Off Mode Levels for Central Air Conditioners and Heat Pumps

On August 24, 2011, AHRI, EarthJustice, and ACEEE submitted letters to DOE urging DOE to sever the central air conditioner and heat pumps off mode standards from the DFR for several reasons. (AHRI and EarthJustice, No. 52 at pp. 1-4; ACEEE, No. 53 at p. 1) Specifically, the commenters asserted that the test procedure had not yet been finalized, which was in violation of EPCA section 325(gg)(3), and consequently, DOE had not done the necessary background work for inclusion of these standards in the direct final rule. (AHRI and EarthJustice, No. 52 at pp. 2-3) AHRI and EarthJustice also commented that EPCA section 336(b)(3) provides DOE with the authority to partially

withdraw a direct final rule and referenced several direct final rules from other Federal agencies that were partially withdrawn. (AHRI and EarthJustice, No. 52 at pp. 3, 5-10) In a supporting comment, ACEEE noted that off mode standards were not included in the Consensus Agreement which was submitted to DOE, and that while consensus among stakeholders had subsequently been reached for the furnace standby mode and off mode standards, no similar agreement had been reached on the central air conditioner and heat pump off mode standards. Consequently, ACEEE recommended that the off mode standards for central air conditioners and heat pumps be severed from the DFR and withdrawn pending further rulemaking. (ACEEE, No. 53 at p.1) Similarly, ACCA argued that this direct final rule is an unsuitable use of the direct final rule process, because it includes standby mode and off mode standards which were not part of the submitted Consensus Agreement. (ACCA, No. 50 at p. 2)

AHRI submitted a supplemental comment, which reiterated their concerns about the lack of a finalized test procedure for central air conditioners and heat pumps address standby mode and off mode energy consumption, and it also wrote that the off mode standards levels were too stringent and would eliminate the majority of products on the market by effectively outlawing crankcase heaters. Crankcase heaters are used to prevent lubrication oil from mixing with liquid refrigerant and are responsible for the bulk of an air conditioner or heat pumps off mode power consumption. AHRI believes that without crankcase heaters, the reliability of units will be decreased because this mixing will result in compressors seizing due to a lack of lubrication, and noted that according to EPCA,

DOE cannot prescribe standards which would decrease the utility or performance of a product (42 U.S.C. 6295(o)(2)(B)(i)(IV)). (AHRI, No. 46 at pp. 5-7)

DOE published a supplementary notice of proposed rulemaking (SNOPR) for the residential central air conditioner and heat pump test procedure in the Federal Register on October 24, 2011. 76 FR 65616. DOE believes that AHRI's concerns regarding off mode would be addressed by adoption after public comment of the SNOPR. Regarding AHRI's comments about crankcase heaters, DOE believes that its proposed test procedure (as detailed in the October 2011 SNOPR) and energy conservation standards will not disallow the use of crankcase heaters. DOE notes that there is potential confusion because a 40-watt crankcase heater is commonly used in the industry, and the standard is lower than 40 watts. However, because the proposed method for calculating off mode energy consumption in DOE's test procedure is an average of the off mode energy consumption at multiple operating conditions, it is possible for a unit with a 40-watt crankcase heater to achieve a rating lower than 40 watts if the crankcase heater is controlled such that it is not always on when the unit is in off mode. Testing conducted by DOE for this SNOPR indicated that there are products with controlled crankcase heaters, which can already meet the proposed standard levels. 76 FR 65616, 65620 (Oct. 24, 2011). Therefore, DOE believes that the off-mode testing procedures proposed in the SNOPR would, if adopted in final, alleviate AHRI's concerns about product reliability stemming from not being able to find a crankcase heater that allows manufacturers to meet the standard. Further, DOE notes that the issues brought up by AHRI pertain specifically to the test method rather than to the standard levels promulgated in the direct

final rule. As a result, these issues are better suited to be addressed in the test procedure rulemaking, and DOE is, in fact, doing so. DOE encourages AHRI, EarthJustice and ACEEE to submit written comments on the October 2011 SNOPR so that DOE can consider any additional issues with the off mode test procedure and resolve them as a part of that rulemaking process. As a result, DOE is confirming the off mode standard levels for central air conditioners and heat pumps that were originally promulgated in the direct final rule.

E. Other Comments

1. Adverse Impacts on States

AGL stated that by adopting the standards set forth in the DFR, States and local jurisdictions would be preempted from adopting more-stringent restrictions on less-efficient technology, thereby penalizing progressive local jurisdictions and discouraging them from being proactive and innovative. AGL further stated that the minimum efficiency for electric furnaces will preempt States/localities from restricting less-efficient technologies, specifically electric furnaces. (AGL, No. 31 at p. 10) Although DOE agrees that Federal energy efficiency standards preempt State regulations under 42 U.S.C. 6297, DOE does not believe that the requirements in the DFR will penalize States and local authorities. This situation is typical of all EPCA rulemakings calling upon DOE to consider amended energy conservation standards, not only for residential furnaces, central air conditioners, and heat pumps. However, DOE would remind interested parties that it is authorized to grant waivers from preemption for particular State laws or regulations, if such action is warranted in accordance with the procedures

and provisions set forth in section 327(d) of EPCA. (42 U.S.C. 6297(d)) Therefore, DOE does not consider the inability of States to adopt regulations for the products subject to this rulemaking to be a significant adverse impact that would necessitate withdrawal of the direct final rule.

APGA stated that the adverse safety impacts from requiring condensing furnaces place a burden on local governments, because there may be additional costs imposed upon the cities (e.g., for training of staff in codes and enforcements and the costs of additional inspections) to address the potential serious harm presented by improper venting. APGA contends that this represents an unfunded mandate that will have an impact on the cities/communities served by its members. (APGA, No. 24 at p. 9) In response, DOE notes that enforcement of building codes currently falls to local authorities, which is unchanged by the DFR. Further, DOE notes that a significant portion of furnace installations in the northern region are already condensing furnaces, and as such, local inspectors should already be well trained in the venting code requirements for those products and should not require additional training from local jurisdictions as a result of the DFR. As a result, the 90-percent AFUE minimum standard in the northern region promulgated by the DFR would not add any additional burden on local authorities, beyond what is already required in terms of enforcing building codes.

2. Evaluation of Adverse Comments

AGL asserted that DOE has stated that "adverse" impacts will be weighed against benefits of the DFR in its evaluation of whether to withdraw the DFR, and it believes

that DOE does not have the statutory authority to weigh "adverse" impacts against the benefit of minimum efficiencies because the statutory language does not grant this power. AGL contends that the statute requires DOE to weigh adverse comments independent of other outcomes anticipated from the rule. AGL also argued that adverse comments may present issues previously unaddressed by DOE. AGL believes that weighing new issues against DOE's current analysis would be inappropriate, because the issues may not have been examined by the DOE. AGL stated that DOE must evaluate the "adverse" nature of all comments raised outside of the current analysis, except where the comments conflict with the current analysis as published by DOE. (AGL, No. 31 at p. 3)

In reviewing the statute, DOE notes that EPCA directs the Secretary to withdraw the direct final rule if one or more adverse public comments is received and, based on the rulemaking record, the Secretary determines that such adverse public comments provide a reasonable basis for withdrawing the direct final rule. (42 U.S.C. 6295(p)(4)(C)) DOE believes, therefore, that EPCA provides DOE the discretion to weigh the significance and credibility of the adverse comments received. When evaluating adverse comments, DOE weighed the significance of each comment individually and all comments cumulatively to determine whether they provided a reasonable basis for withdrawal of the final rule. DOE considered each adverse comment based on its merits and the background data and information that supported that comment. DOE notes that this weighting is done separately from the weighting of the benefits and burdens imposed by minimum efficiency standards, which weight the adverse impacts (i.e., burdens) of standards

against the benefits to consumers in determining which standard level is justified, as directed by EPCA (42 U.S.C. 6295(o)(2)(B)(i)) .

3. Time Allowed for Public Input

MUD commented that the rulemaking process was conducted too quickly to allow for input from the general public and the jurisdictions responsible for furnace installation. (MUD, No. 29 at p. 1)

In response, DOE notes that the Consensus Agreement was submitted to DOE on January 15, 2010. DOE subsequently posted the document on its website[24] and requested comment on the agreement in its March 2010 rulemaking analysis plan for residential furnaces[25] and in its March 2010 preliminary analysis for central air conditioners and heat pumps (75 FR 14368). After considering comments received in response to the rulemaking analysis plan for furnaces and preliminary analysis for central air conditioners and heat pumps, DOE performed an in depth analysis of the Consensus Agreement efficiency levels and other efficiency levels, and ultimately proposed the levels contained in the agreement as Federal energy conservation standard levels in the DFR. Then, as directed by EPCA, DOE accepted comments for 110 days. (42 U.S.C. 6295(p)(4)(B)) DOE notes that in the typical standards rulemaking procedure, the statute requires and DOE provides a 60-day comment period. Thus, the 110-day comment

[24] For more information see:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/furnaces_framework_jointstakeholdercomments.pdf

[25] The rulemaking analysis plan was published on DOE's website and announced through the publication of a notice of public meeting in the Federal Register. 75 FR 12144 (March 15, 2010).
For more information see:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/furnaces_framework_rap.pdf

period was longer than usual for a similar rulemaking. Moreover, at the time of the close of the 110-day DFR comment period, the Consensus Agreement had been publicly available on DOE's website for more than one and a half years, and DOE has formally requested comments on the agreement in three separate rulemaking notices. Therefore, DOE believes that there has been ample opportunity for input from the general public and other interested parties on the Consensus Agreement and does not agree with MUD's assertion that it was implemented too quickly to allow for input from the general public or other interested parties.

In addition, the National Propane Gas Association (NPGA) and APGA requested that DOE extend the comment period on the DFR. NPGA cited delayed access to the technical support document, difficulties obtaining the software used to run the LCC analysis and lack of an enforcement plan as reasons that DOE should extend the comment period. (NPGA, No. 6 at pp. 1-2; APGA, No. 24, pp. 14-15).

DOE notes that EPCA provides that not later than 120 days after issuance of the DFR, DOE must publish a determination in the Federal Register whether the rule should take effect or be withdrawn based upon significant adverse comment. (42 U.S.C. 6295(p)(4)(C)) Given the statutory limitation on the time period provided in EPCA, DOE could not extend the comment period to allow interested parties additional time without jeopardizing its ability to meet the requirements of EPCA. As such, DOE was not able to extend the comment period on the DFR.

III. Department of Justice Analysis of Competitive Impacts

EPCA directs DOE to consider any lessening of competition that is likely to result from new or amended standards. It also directs the Attorney General of the United States (Attorney General) to determine the impact, if any, of any lessening of competition likely to result from a proposed standard and to transmit such determination to the Secretary within 60 days of the publication of a proposed rule, together with an analysis of the nature and extent of the impact. (42 U.S.C. 6295(o)(2)(B)(i)(V) and (B)(ii)) DOE published a NOPR containing energy conservation standards identical to those set forth the direct final rule and transmitted a copy of the direct final rule and the accompanying TSD to the Attorney General, requesting that the U.S. Department of Justice (DOJ) provide its determination on this issue. DOE has published DOJ's comments at the end of this notice.

DOJ reviewed the amended standards in the direct final rule and the final TSD provided by DOE. As a result of its analysis, DOJ concluded that the amended standards issued in the direct final rule are unlikely to have a significant adverse impact on competition. DOJ further noted that the amended standards established in the direct final rule were the same as recommended standards submitted in the Consensus Agreement, which was signed by a broad cross-section of industry participants.

IV. National Environmental Policy Act

Pursuant to the National Environmental Policy Act and the requirements of 42 U.S.C. 6295(o)(2)(B)(i)(VI), DOE prepared an environmental assessment (EA) of the impacts of the standards for residential furnaces, central air conditioners, and heat pumps in the direct final rule, which was included as chapter 15 of the direct final rule TSD. DOE found that the environmental effects associated with the standards for furnaces and central air conditioners and heat pumps were not significant. Therefore, after consideration of the comments received on the direct final rule, DOE issued a Finding of No Significant Impact (FONSI) pursuant to NEPA, the regulations of the Council on Environmental Quality (40 CFR parts 1500–1508), and DOE's regulations for compliance with NEPA (10 CFR part 1021). The FONSI is available in the docket for this rulemaking at www.regulations.gov.

V. Conclusion

In summary, based on the discussion above, DOE has determined that the comments received in response to the direct final rule for amended energy conservation standards for residential furnaces, central air conditioners, and heat pumps do not provide a reasonable basis for withdrawal of the direct final rule. As a result, the amended energy conservation standards set forth in the direct final rule become effective on October 25, 2011. Compliance with these standards is required on May 1, 2013 for non-weatherized gas and oil-fired furnaces and mobile home gas furnaces and on January 1, 2015 for weatherized gas furnaces and central air conditioners and heat pumps.

Issued in Washington, DC, on October 24, 2011.

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

U.S. DEPARTMENT OF JUSTICE
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August 25, 2011

Mr. Eric Fygi
Deputy General Counsel
Department of Energy
Washington, DC 20585

Dear Deputy General Counsel Fygi:

I am responding to your June 27, 2011 letter seeking the views of the Attorney General about the potential impact on competition of proposed energy conservation standards for residential furnaces, central air conditioners, and heat pumps. Your request was submitted under Section 325(o)(2)(B)(i)(V) of the Energy Policy and Conservation Act, as amended (ECPA), 42 U.S.C. 6295(o)(2)(B)(i)(5) and 42 U.S.C. 6316(a), which requires the Attorney General to make a determination of the impact of any lessening of competition that is likely to result from the imposition of proposed energy conservation standards. The Attorney General's responsibility for responding to requests from other departments about the effect of a program on competition has been delegated to the Assistant Attorney General for the Antitrust Division in 28 CFR § 0.40(g).

In conducting its analysis the Antitrust Division examines whether a proposed standard may lessen competition, for example, by substantially limiting consumer choice, by placing certain manufacturers at an unjustified competitive disadvantage, or by inducing avoidable inefficiencies in production or distribution of particular products. A lessening of competition could result in higher prices to consumers, and perhaps thwart the intent of the revised standards by inducing substitution to less efficient products.

We have reviewed the proposed standards contained in the Direct Final Rule (76 Fed. Reg. 37408, June 27, 2011). We have also reviewed supplementary information submitted to the Attorney General by the Department of Energy. Based on this review, our conclusion is that the proposed energy conservation standards for residential furnaces, residential central air conditioners and heat pumps are unlikely to have a significant adverse impact on competition. In reaching our conclusion, we note that these proposed energy standards were adopted from a Consensus Agreement signed by a broad cross-section of industry participants.

Sincerely,

Sharis A. Pozen