[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 429

[Docket Number EERE-2011-BT-TP-0042]

Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Test Procedures for Residential and Commercial Water Heaters; Air-Conditioning, Heating, & Refrigeration Institute Petition for Repeal

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

ACTION: Petition for repeal; request for comments.

SUMMARY: The Department of Energy (DOE) received a petition from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), requesting that DOE repeal certain parts of the final rule for test procedures for residential and commercial water heaters published in the Federal Register on July 11, 2014. Specifically, AHRI sought repeal of amendments made to the test procedure final rule that address the rated volume of residential storage water heaters. AHRI stated that these amendments in effect increase the stringency of the applicable minimum standards for residential water heaters in violation of the statute, are unnecessary to develop a uniform energy descriptor, and do not coincide with industry practice. DOE seeks comment on whether to grant the petition and proceed with a rulemaking on this matter.

DATES: Any comments must be received by DOE not later than [**INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER***].

ADDRESSES: Comments must be submitted, identified by docket number EERE-2011-BT-TP-0042, by one of the following methods:

1. Federal eRulemaking Portal: http://www.regulations.gov. Follow the instructions for submitting comments.
2. Email: HeatingProducts-2011-TP-0042@ee.doe.gov. Include either the docket number EERE-2011-BT-TP-0042, and/or ‘‘AHRI Petition’’ in the subject line of the message.
3. Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE–5B, Room 1J–018, 1000 Independence Avenue SW., Washington, DC 20585–0121. Please submit one signed original paper copy.
4. Hand Delivery/Courier: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Room 1J–018, 1000 Independence Avenue SW., Washington, DC 20585–0121.
5. Instructions: All submissions received must include the agency name and docket number for this proceeding. Docket: For access to the docket to read background documents, or comments received, go to the Federal eRulemaking Portal at http://www.regulations.gov. In addition, electronic copies of the Petition are available online at at the following URL address:

http://www.regulations.gov/#!documentDetail;D=EERE-2011-BT-TP-0042-0083

FOR FURTHER INFORMATION CONTACT:

John Cymbalsky, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE–5B, 1000 Independence Avenue, SW., Washington, DC 20585–0121, (202) 287-1692, or e-mail: john.cymbalsky@ee.doe.gov

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SUPPLEMENTARY INFORMATION: The Administrative Procedure Act (APA), 5 U.S.C. 551 et seq., provides among other things that, ‘‘[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.’’ (5 U.S.C. 553(e)). The U.S. Department of Energy (DOE) received a petition from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) dated September 29, 2014, requesting that DOE repeal certain parts of the rule for efficiency test procedures for residential and commercial water heaters published in the Federal Register on July 11, 2014. 79 Fed. Reg. 40542 (July 11, 2014), Docket No. EERE-2011-BT-TP-0042-0082 “the water heater test procedure”, or, in context, “the test procedure”.

Specifically, AHRI sought repeal of amendments made to §§ 429.17 and 428.134 of the test procedure final rule that address the rated volume of residential storage water heaters. AHRI stated that these amendments in effect increase the stringency of the applicable minimum standards for residential water heaters in violation of 42 U.S.C § 6293; are not necessary to satisfy DOE's obligation to develop a uniform efficiency descriptor for residential and commercial water heaters, as required by the American Energy Manufacturing Technical Corrections Act (AEMTCA) of 2012; do not address any efficiency performance issue for water heaters; were not developed to respond to any problem that was identified by commenters during the rulemaking, and do not coincide with industry practice. AHRI believes that the Federal Trade Commission should be involved in the development of an alternative solution, and that one option that should be considered is use of the FTC EnergyGuide label, which will be undergoing significant changes next year to reflect the ratings based on the use of the Universal Efficiency Descriptor test procedure. In promulgating this petition for public comment, DOE seeks views on whether to grant the petition and undertake a rulemaking to consider the proposals contained in the petition. By seeking such comment, DOE takes no position at this time on the merits of the suggested rulemaking.

Issued in Washington, D.C. on October 30, 2014.

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

AHRI PETITION

Before the

United States Department of Energy

Office of Energy Efficiency and Renewable Energy

In the Matter of: Docket No. EERE-2011-BT-TP-0042-0082, RIN: 1904–AC53, Energy Conservation Program for Consumer Products and Certain Commercial and Industrial Equipment: Test Procedures for Residential and Commercial Water Heaters; Final Rule.

10 CFR Part 429

Petition for Reconsideration

The Air-Conditioning, Heating, and Refrigeration Institute (AHRI)[1] respectfully requests that the Department of Energy (DOE) repeal certain parts of the rule for efficiency test procedures for residential and commercial water heaters published in the *Federal Register* on July 11, 2014. 79 Fed. Reg. 40542 (July 11, 2014).

AHRI seeks repeal of the test procedure final rule[2] solely in regards to amendments made to Sections 429.17 and 429.134 that address the rated volume of residential storage water

[1] AHRI is the trade association representing manufacturers of air conditioning, heating, commercial refrigeration, and water heating equipment. AHRI's 320 member companies employ approximately 130,000 men and women in the United States. The total value of member shipments by these companies is over $20 billion annually. AHRI's water heater manufacturer members account for essentially all residential storage water heaters and well over 90% of all residential water heaters sold and installed in the U.S.

[2] The Administrative Procedure Act (APA), 5 U.S.C. §553, requires that "each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule." (5 U.S.C. § 553(e)). This right is necessary to protect interested parties from rulemakings that may be in error, that exceed statutory authority, or are

heaters. The amendment to 429.17 (a)(ii)(C) requires that the rated volume value must be the mean of the storage volumes measured on the units that were tested to establish the model's ratings. The amendment to 429.134 (d)(2) makes the rated volume subject to DOE's enforcement provisions. These amendments in effect increase the stringency of the applicable minimum efficiency standards for residential gas, electric, and oil storage water heaters in violation of 42 U.S.C. § 6293(e). They also were not necessary to satisfy DOE's obligation to develop a uniform efficiency descriptor for residential and commercial water heaters, as required by the American Energy Manufacturing Technical Corrections Act (AEMTCA) of 2012; they do not address any efficiency performance issue for water heaters; and they were not developed to respond to any problem that was identified by commenters during the rulemaking. AHRI and its members have worked diligently over the last fifty years to improve the energy efficiency of HVACR and Water Heating equipment. It is only out of concern for the applicability of increased efficiency standards through the test procedure amendment, and the alteration of industry practice and the scope of DOE's regulatory authority over the past 25 years, that AHRI respectfully seeks repeal of the referenced provisions of the test procedure final rule.

At the December 6, 2013, public hearing for this rulemaking, DOE presented data that showed the average rated storage volume of 19 electric water heaters was 9.4% higher than measured and the average rated storage volume of 44 gas water heaters was 4.8% higher than measured. From the perspective of the rated volume, the measured volume of the electric water heaters averaged about 8.6% less than the rated volume and the measured volume of the gas water heaters averaged about 4.6% less than the rated volume. At that meeting and in the

otherwise invalid. AHRI is not asking DOE to repeal any energy efficiency standard that would fall within 42 U.S.C. § 6295(o)(1), but to correct an error in the final rule addressing the test procedure. 42 U.S.C. §6293(b)(2).

comments we submitted on January 4, 2014, we provided information explaining why this data was neither unusual nor alarming. We noted that the relationship of measured volume and rated volume is addressed by the applicable national, consensus water heater standards. These standards address safety and other aspects of residential water heater models. The system of building code regulations in the U.S., along with other demands of the market, create a situation that makes compliance with these standards mandatory for any residential water heater intended to be sold and installed in the U.S.

The standard for residential electric water heaters, UL 174 requires the following:

33 Water Capacity Test

33.1 The actual water capacity of a water heater shall be no less than 90 percent of the marked rated capacity.

33.2 Unless the actual capacity of a water tank is known, or is obviously 90 percent or more of the rated capacity, the tank capacity is to be measured by any convenient means.

The standard for residential type gas storage water heaters, American National Standard Z21.10.1[3], requires the following:

2.26 Capacities of Storage Vessels

The storage vessel capacity shall be within ± 5.0 percent of the manufacturer's rated capacity.

Method of Test

[3] The preface for ANSIZ21.10.1 states "This publication represents a basic standard for safe operation, substantial and durable construction, and acceptable performance of storage gas water heaters…"

> The storage capacity shall be determined by weighing the system when dry and empty and reweighing it when full or by filling the system with water, the weight of which has been predetermined. The capacity shall then be computed in gallons and compared with the manufacturer's rated capacity.

Accordingly, the data presented by DOE is in conformance with industry practice consistent with the requirements of the applicable national standards. This practice has been in place for at least the past 50 years. If there were a real concern that this typical difference between the measured volume and the rated volume impacted the minimum efficiency standards or consumer information, that concern would have evidenced itself already.

The requirements noted above existed in the applicable water heater standards when the first minimum energy factor (EF) standards for residential water heaters were established by the National Appliance Energy Conservation Act of 1987. We can attest with absolute certainty that those minimum EF standards were developed with full knowledge of the relationship of measured and storage volume for those water heaters. The data from DOE's test, when properly considered in terms of the relationship of how the measured volume compares to the rated volume, reflects what is, and has been, the standard practice for residential storage water heaters for more than 40 years. The measured volume is lower than the rated volume. That relationship has not changed significantly in all those years. The test procedure established in this rulemaking does not change the situation at all. As DOE validated, the measured volumes of storage water heaters are consistently complying with the requirements of the nationally recognized standards.

Manufacturers are not overstating the rated volume so that the minimum energy factor requirement for that model would be lower.

In this rulemaking, DOE clearly knew that the measured volume of residential electric water heaters was somewhere around 9% less than the rated volume and the measured volume of residential gas water heaters was somewhere around 4.5% less than the rated volume. These results reflect the respective requirements for electric and gas water heaters specified in the national consensus standards cited above. Recognizing that in an enforcement situation manufacturers still need some margin to address test variability, the requirement of 429.17(a)(ii)(C) will have the effect of lowering the rated volume of every electric storage water heater by 10% and lowering the rated volume of every gas and oil storage water heater by 5%. Manufacturers cannot feasibly redesign their products to make the measured volume match the current rated volume values. Any such redesign is precluded by the efficiency standards which already require several inches of insulation around the tank. A larger tank with the same amount of insulation will produce models that are either too wide to fit through standard doorways or too tall to fit into existing installation spaces. Furthermore, the cost to spend the time and money to redesign and test models just for a cosmetic change is prohibitive.

The impact and change to the efficiency standards for existing products is illustrated in the table below, which shows: 1) the rated volume sizes that make up a manufacturer's line of residential water heaters; 2) the new rated volume that will be required to comply with 429.17(a)(ii)(C); 3) the current minimum EF requirement for each of these sizes using the respective rated volume values; and 4) the revised minimum EF requirement going into effect on

April 16, 2015, for each of these sizes using the respective rated volume values. The bolded values show the higher minimum standards that result from the amendments addressing the rated volume. (Note, recognizing DOE's certification and enforcement provisions, the "New DOE" rated volumes are rounded to whole integer values.)

Gas Storage Water Heaters

Rated Volume (G)		Current Federal Minimum EF ≥ .67 -.0019V		Revised Federal Minimum EF ≥ .675 -.0015V	
Current	New DOE	Current	New DOE	Current	New DOE
30	28	.61	**.62**	.63	.63
40	38	.59	**.60**	.62	.62
50	47	.58	.58	.60	.60
>55	>55	EF ≥ .67 -.0019V		EF ≥ .8012 -.00078V	
65	62	.55	.55	.75	.75
75	71	.53	.53	.74	**.75**

Electric Storage Water Heaters

Rated Volume (G)		Current Federal Minimum EF ≥ .97 -.00132V		Revised Federal Minimum EF ≥ .96 -.0003V	
Current	New DOE	Current	New DOE	Current	New DOE
30	27	.93	.93	.95	.95
40	36	.92	.92	.95	.95
50	45	.90	**.91**	.95	.95
>55	>55	.97 -.00132V		2.057 -. 00113V	
65	58	.88	**.89**	1.98	**1.99**
80	72	.86	**.88**	1.97	**1.98**
100	90	.84	**.85**	1.94	**1.96**
119	107	.81	**.83**	1.92	**1.94**

Oil Storage Water Heaters

Rated Volume (G)	Current Federal Minimum EF ≥ .97 -.00132V	Revised Federal Minimum EF ≥ .96 -.0003V

Current	New DOE	Current	New DOE	Current	New DOE
30	28	.53	**.54**	.62	**.63**
50	47	.50	.50	.59	.59

The tables above clearly illustrate that implementation of the new 429.17 (a)(ii)(C) amendment increases the current and upcoming revised federal minimum efficiency requirements for several sizes of residential storage water heaters. Furthermore, this change, if applied to the current standards, makes the subset of models in these sizes that are rated at the current minimum EF, now non-compliant with the federal standard.

The July 11, 2014, final rule established a uniform efficiency descriptor and associated test procedure for water heaters. Although the storage volume must be measured for purposes of the test, the value of the rated volume has no bearing on the calculations that determine the efficiency using this test procedure. The applicable provisions of AEMTCA make no mention of regulating the rated volume nor were any comments submitted during the rulemaking process raising this as an issue requiring DOE action. These amendments attached to the UED test procedure rule are unrelated and unnecessary issues that were generated by DOE without any external request or justification. In the final rule notice DOE plainly states its purpose for these amendments: "DOE seeks to eliminate any potential incentives for manufacturers to continue the current practice of exaggerating the storage volume of water heaters currently on the market by inflating the rated volume as compared to the actual measured volume." If, in fact, the rated volume of storage water heaters was an issue, it would be a consumer disclosure or labeling issue, and the appropriate action would be proposal of a consumer protection or product advertising rule by a Federal agency responsible for such matters. It is inappropriate and outside the scope of DOE's statutory authority in a regulation covering water heater efficiency test

procedures. Furthermore, casting a practice that has been in place for more than 50 years, and codified in the related water heater national standards as an "exaggeration of storage volume" and judging manufacturers as "inflating the rated volume" indicate a bias on DOE's part that is unwarranted and unrelated to DOE's role of developing test procedures and efficiency standards.

In the final rule notice, DOE stated that the efficiency of a water heater is related to the rated storage volume. Thus, it is within DOE's authority to regulate. That statement is incorrect and cannot be used to attempt to justify this action as within DOE's authority. It has long been recognized that the rated storage volume has no direct effect on how efficiently a given model of water heater operates and that the volume of the storage tank cannot be used as the metric to represent the water heater's hot water delivery capability. Since the very first federal efficiency test procedures for residential water heaters developed in the late 1970s, the measure of a storage water heater's efficiency has been energy factor (EF). The measure of the storage water heater's performance, generally referred to as capacity, is the first hour rating (FHR). The first hour rating of a storage water heater is a combination of the volume of water in the storage tank, the input rate of the model, and how efficiently energy is transferred to the water in the tank. When the first hour rating test is conducted on a unit, the actual volume of the tank, not the rated volume, contributes to the final measured result. As a an example, when properly sized the hot water needs of a particular household may be met by a gas model that has a rated volume of 40 or 50 gallons or an electric model that has a rated volume of 50 or 65 gallons or a gas instantaneous (tankless) model, which has no storage volume. Additionally the residential water heater sizing specifications in the national model plumbing codes use the FHR, not the rated volume, as the basis for selecting the properly sized storage water heater for a given installation. This

information illustrates why the first hour rating is the appropriate metric to represent a storage water heater's ability to deliver hot water and how it has been used in the field for many years. The EF and FHR have been and continue to be the two certified values for storage water heaters measured by the test procedure. There have not been any issues in the field related to the relationship between the rated and measured volume.

It is correct that the rated storage volume is used in the equations that establish the specific EF minimum requirement for a given size storage water heater. However, that is the minimum efficiency standard that a residential storage water heater model must meet. It is not the efficiency of the water heater model. As illustrated by our most critical point, DOE has appeared to have missed that distinction. If every storage water heater model currently on the market today were to have its rated volume lowered to comply with the amendments in this final rule, there would be no change to the efficiency of any one of those models. Likewise, there would be no energy savings achieved by those new rated volume values.

As we have illustrated, the value of the rated volume does influence the minimum EF standard. A higher rated volume does result in a lower EF requirement. The theoretical possibility that a rated volume would be overstated to get a lower minimum EF requirement has existed since the first NAECA standards went into effect in 1990. In our comments, we explained how this possibility has never occurred. DOE acknowledged this in the final rule notice. An examination of the influence of federal efficiency standards on rated volume shows an effect opposite to the concern of "higher" rated volume values. The following table shows the typical rated volumes for a manufacturer's standard product line of gas and electric water heaters

in 1990 and today. In a number of cases, the rated volumes have decreased. This is a direct consequence of adding more insulation to a model whose outside diameter cannot change for practical installation concerns. The remaining option is to make the diameter of the storage water tank smaller. Since the measured volume is smaller, compliance with the applicable standard requires the rated volume to be lowered. There are no rated volumes that increased.

Gas Rated Volume		Electric Rated Volume	
1990	2014	1990	2014
30	30	30	27/30 **
40	40	40	38/40
50	50	52	47/50
	65*	66	65
75	75	82	80
		100***	100
		120	119

*This model size did not exist in 1990. It is a downsized version of the historical 75 gallon model.
**The listing of two sizes indicates that both sizes are in the product line.
***Only some manufacturers offer this model size.

Even though the other standards requirements and market influences, which made the possibility of overstated rated volumes unrealistic, have remained the same for 40 years, DOE attempts to justify this punitive measure because of a desire to rule out this possibility in the future. That reasoning ignores the fact that the "future" minimum efficiency standards that go into effect on April 16, 2015, are an overwhelmingly compelling incentive to not "inflate" the rated volume of a residential storage water heater above 55 gallons. The minimum efficiency requirements for models above 55 gallons are significantly more stringent than those for models less than 55 gallons. Furthermore, for electric storage water heaters 55 gallons or smaller the revised minimum EF standard is the same; i.e .95, for all rated volume sizes.

Recognizing the significance of this change and the process by which it was effected, we request immediate action to repeal the amendments involving the certification and enforcement of rated volume values. AHRI will work with DOE to develop an alternative solution to the concern that an overstated rated volume, outside the requirements of the national consensus water heater standards could lower the minimum EF requirement for a particular model of storage water heater. As we have noted, this is fundamentally a consumer disclosure or labeling issue. Accordingly we believe that the Federal Trade Commission should be involved in the development of an alternative solution and that one option that should be considered is use of the FTC EnergyGuide label, which will be undergoing significant changes next year to reflect the ratings based on the use of the Universal Efficiency Descriptor test procedure.

Respectively Submitted,

Frank A. Stanonik

Chief Technical Advisor

Dated: September 29, 2014

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