operation according to sections 7.2.2.4, 7.8 and 9.2 of ASHRAE Standard 103–1993 under the rated input conditions. Conduct the measurement during an additional 30 minutes of steady state operation after completing the steady state combustion efficiency test in paragraph (d)(1)(i) of this section.

(iii) Steam and Hot Water Boilers. Test a steam and hot water boiler as a steam boiler for its combustion efficiency. Optionally, you may also test this boiler as a hot water boiler to obtain a combustion efficiency rating when the boiler is operated as a hot water boiler.

(2) Test measurements for Packaged High Pressure Steam and High Temperature Water Boilers, and Optional Test Procedure for Packaged Low Pressure Boilers. Use the test procedure from Section 5, Efficiency by Heat Loss Method, of ASME PTC 4.1.

(e) *Calculations.* (1) *Calculations for Packaged Low Pressure Steam and Hot Water Boilers.* (i) Combustion Efficiency. Use the calculation procedure for combustion efficiency test specified in section 11.2 of the 1989 Hydronics Institute Testing and Rating Standard for Heating Boilers (except that for gas fuel, do not calculate Item 9 of sec. 11.2.1 which is for oil fuel only). For gas-fired boilers, instead of using section 11.2 of the 1989 HI Standard to calculate the flue loss, you may calculate the flue loss by the procedure specified in Exhibit D of the ANSI Standard Z21.13a–1993.

(ii) Procedure for the Calculation of the Additional Heat Gain and Heat loss, and Adjustment to the Combustion Efficiency, for a Condensing Boiler.

(A) Procedure for the Calculation of the Additional Heat Gain and Heat loss. After following the procedure for the measurement of flue condensate of paragraph (d)(1)(ii) of this section, calculate the latent heat gain from the condensation of the water vapor in the flue gas and heat loss due to the flue condensate down the drain according to section 11.3.7.1 and 11.3.7.2 of ASHRAE Standard 103–1993, with the exception that in the equation for the heat loss due to hot flue condensate flowing down the drain in section 11.3.7.2, replace the indoor temperature of 70°F and the temperature term TOA by the measured room ambient temperature as determined in section 8.4.3 of the 1989 Hydronics Institute Testing and Rating Standard for Heating Boilers.

(B) Adjustment to the Combustion Efficiency for a Condensing Boiler. Adjust the combustion efficiency calculated in paragraph (e)(1)(i) of this section by adding the latent heat gain from the condensation of the water vapor in the flue gas, and by subtracting the heat loss (due to the flue condensate down the drain) as calculated in (e)(1)(ii)(A) of this section, to obtain the combustion efficiency of a condensing boiler.

(2) *Calculations for Packaged High Pressure Steam and High Temperature Water Boilers, and for the Alternative Test Procedure (paragraph (c)(1)(v) of this section) for Packaged Low Pressure Boilers.* Use the Abbreviated Efficiency Test by the heat loss method for gas or oil fuel as specified in section 7.3 and the Test Forms for the Abbreviated Efficiency Test, PTC 4.1–a (Summary Sheet) and PTC 4.1–b (Calculation Sheet), of ASME PTC 4.1 to determine the combustion efficiency, except that you must set the following specific heat loss terms (as listed in section 7.3 of ASME PTC 4.1) to 0: sections 7.3.2.03 (moisture in fuel), 7.3.2.01 (combustible in dry refuse), 7.3.2.10 (radiation to surroundings), 7.3.2.05 through 7.3.2.09 and 7.3.2.11 through 7.3.2.14 (unmeasured losses).

Energy Efficiency Standards

§ 431.371 Energy conservation standards and effective dates.

Each commercial packaged boiler manufactured on or after January 1, 1994 must meet the following energy efficiency standard levels:

(a) For a gas-fired packaged boiler with a capacity of 300,000 Btu per hour or more, the combustion efficiency at the maximum rated capacity must be not less than 80 percent.

(b) For an oil-fired packaged boiler with a capacity of 300,000 Btu per hour or more, the combustion efficiency at the maximum rated capacity must be not less than 83 percent.

[FR Doc. 00–19721 Filed 8–8–00; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

10 CFR Part 431

[Docket No. EE–RM/TP–99–480]

RIN 1904–AA95

Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards for Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

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

ACTION: Proposed rule and public hearing.

SUMMARY: The Energy Policy and Conservation Act, as amended (EPCA), establishes energy efficiency standards and test procedures for certain commercial products, including commercial water heaters, hot water supply boilers and unfired hot water storage tanks. The Department of Energy (we, DOE, or the Department) proposes regulations to implement the standards and test procedures for these commercial water heaters, hot water supply boilers and unfired hot water storage tanks.

DATES: The Department will accept comments, data, and information regarding the proposed rule until October 23, 2000. Please submit a signed original and ten (10) copies. In addition, we request that you provide an electronic copy (3½″ diskette) of the comments in WordPerfect™ 8.

We will hold a public hearing (workshop) on September 20, 2000, in Washington, DC. Please send requests to speak at the workshop so that we receive them by 4:00 p.m., on September 6, 2000. Send ten (10) copies of your statements for the public workshop so that we receive them by 4:00 p.m., on September 13, 2000. We also request a computer diskette (WordPerfect™ 8) of each statement.

ADDRESSES: Please submit written comments, oral statements, and requests to speak at the workshop to Brenda Edwards-Jones, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, EE–41, Docket No. EE–RM/TP–99–480, 1000 Independence Avenue, SW, Washington, DC 20585. You may send email to: brenda.edwards-jones@ee.doe.gov. The workshop will begin at 9:00 a.m., on September 20, 2000, in Room 1E–245 at the U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue, SW, Washington, DC. You can find more information concerning public participation in this rulemaking proceeding in section IV, ''Public Comment,'' of this notice.

You can read the transcript of the public workshop and public comments received in the Freedom of Information Reading Room (Room No. 1E–190) at the U.S. Department of Energy, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585, between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays.

You can obtain the latest information regarding the public workshop from the Office of Building Research and Standards world wide web site at the

following address: http://www.eren.doe.gov/buildings/codes_standards/

FOR FURTHER INFORMATION CONTACT: Cyrus H. Nasseri, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Mail Station, EE–41, 1000 Independence Avenue, SW., Washington, D.C. 20585, (202) 586–9138, FAX (202) 586–4617, e-mail: Cyrus.Nasseri@ee.doe.gov, or Edward Levy, Esq, U.S. Department of Energy, Office of General Counsel, Mail Station, GC–72, 1000 Independence Avenue, SW., Washington, D.C. 20585, (202) 586–9507, e-mail: Edward.Levy@hq.doe.gov.

SUPPLEMENTARY INFORMATION: The proposed rule incorporates, by reference, certain test procedures contained in an industry standard referenced by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE) Standard 90.1 (ASHRAE or ASHRAE/IES Standard 90.1) for commercial water heaters. The industry standard is American National Standards Institute (ANSI) Standard Z21.10.3–1998, ''Gas Water Heaters Volume III Storage Water Heaters, with Input Ratings above 75,000 Btu per Hour, Circulating and Instantaneous.'' We propose to incorporate by reference the ''Method of Test'' subsections of sections 2.9 and 2.10 and the sections referenced there, including sections 2.1.7 and 2.30.

You can view copies of this standard at the Department of Energy's Freedom of Information Reading Room at the address stated above. You can obtain copies of the ASHRAE and ANSI Standards from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1971 Tullie Circle, NE, Atlanta, GA 30329, http://www.ashrae.org; and Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112, http://global.ihs.com/, respectively.

I. Introduction

A. Authority

Part B of Title III of the Energy Policy and Conservation Act (EPCA) of 1975, Pub. L. 94–163, as amended, by the National Energy Conservation Policy Act of 1978 (NECPA), Pub. L. 95–619, the National Appliance Energy Conservation Act of 1987 (NAECA), Pub. L. 100–12, the National Appliance Energy Conservation Amendments of 1988 (NAECA 1988), Pub. L. 100–357, and the Energy Policy Act of 1992 (EPACT), Pub. L. 102–486, established the ''Energy Conservation Program for Consumer Products other than Automobiles.'' Part 3 of Title IV of NECPA amended EPCA to add ''Energy Efficiency of Industrial Equipment,'' which included commercial water heaters, hot water supply boilers, unfired hot water storage tanks and other types of commercial products.

EPACT also amended EPCA with respect to commercial products. It provided definitions, test procedures, labeling provisions, energy conservation standards, and the authority to require information and reports from manufacturers. See 42 U.S.C. 6311–6316. EPCA authorizes the Secretary of Energy to prescribe test procedures that are reasonably designed to produce results which reflect energy efficiency, energy use and estimated operating costs, and that are not unduly burdensome to conduct. 42 U.S.C. 6314.

With respect to some commercial products for which EPCA prescribes energy conservation standards, including commercial water heaters, hot water supply boilers, and unfired hot water storage tanks, ''the test procedures shall be those generally accepted industry testing procedures or rating procedures developed or recognized by the American Society of Heating, Refrigerating and Air Conditioning Engineers, as referenced in ASHRAE/IES Standard 90.1 and in effect on June 30, 1992.'' 42 U.S.C. 6314(a)(4)(A). Further, if such an industry testing or rating procedure gets amended, DOE must revise its test procedure to be consistent with the amendment, unless the Secretary determines, based on clear and convincing evidence, that to do so would not meet certain general requirements spelled out in the statute for test procedures. 42 U.S.C. 6314(a)(4)(B). Before prescribing any test procedures for commercial products, the Secretary must publish them in the **Federal Register** and afford interested persons at least 45 days to present data, views and arguments. 42 U.S.C. 6314(b). Effective 360 days after a test procedure rule applicable to a covered commercial product, such as a commercial water heater, hot water supply boiler, or unfired hot water storage tank, is prescribed, no manufacturer, distributor, retailer or private labeler may make any representation in writing or in broadcast advertisement respecting the energy consumption or cost of energy consumed by such a product, unless it has been tested in accordance with the prescribed procedure and such representation fairly discloses the results of the testing. 42 U.S.C. 6314(d). Finally, EPACT extends certain powers, originally granted to the Secretary under NAECA, to require manufacturers of products covered by this proposed rule to submit information and reports for a variety of purposes, including insuring

compliance with requirements. See 42 U.S.C. 6316(a).

B. Background

1. General

The Department of Energy has an energy conservation program for consumer products, and a few commercial products, conducted under Part B of Title III of EPCA, 42 U.S.C. 6291–6309. Under EPCA, this program essentially consists of four parts: test procedures, Federal energy conservation standards, labeling, and certification and enforcement procedures. The Federal Trade Commission (FTC) is responsible for labeling, and we implement the remainder of the program as codified in Title 10 of the Code of Federal Regulations, Part 430—Energy Conservation Program for Consumer Products.

Since 10 CFR Part 430 covers consumer products, which differ from commercial and industrial products, we created a new Part 431 (10 CFR Part 431) in the Code of Federal Regulations, entitled ''Energy Conservation Program for Certain Commercial and Industrial Equipment,'' to implement our program for most commercial and industrial products covered under EPCA. These will include commercial heating, air conditioning and water heating products. This new program will consist of: test procedures, Federal energy conservation standards, labeling, and certification and enforcement procedures. EPCA directs us, rather than the FTC, to administer the statute's efficiency labeling provisions for commercial products.

On April 14 and 15, 1998, we convened a public workshop to solicit views and information from interested parties that would aid in the development of rules for commercial heating, air conditioning and water heating products. We requested comment on a number of specific issues, including issues related to test procedures, as described below. Statements during the public workshop and written comments that were received afterwards helped refine the issues and provided useful information contributing to their resolution. We convened a second public workshop on October 18, 1998, to obtain comments on the issues as they had been refined, and on approaches presented by the National Institute of Standards and Technology (NIST) for resolving them. We received additional comments at the October 1998 workshop.

2. Issues Concerning Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

During the April 1998 workshop, we sought comments on the following issues regarding commercial water heaters, hot water supply boilers, and unfired hot water storage tanks:

(1) Which of the recognized test procedures should we prescribe for testing commercial water heaters?

(2) What clarifications are needed concerning EPCA's coverage of commercial water heating products?

(3) What should be the nature and content of our test procedure for unfired hot water storage tanks?

Attendees at the April 1998 workshop provided comments and input on these issues. Section II, Discussion, will cover them in more detail.

After the April 1998 workshop, we worked towards addressing the identified issues. A set of recommendations resulted from that work, and NIST developed a summary report of the recommendations. The summary report formed the basis for discussions during the October 1998 workshop, which enabled us to elicit further views and information from interested parties. The summary report included draft rule language for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks. The additional comments received at the October 1998 workshop will be discussed below.

C. The Proposed Rule

Today's proposed rule incorporates (1) energy efficiency test procedures for commercial hot water heaters, including hot water supply boilers, and unfired hot water storage tanks, (2) definitions that clarify EPCA's coverage of these products, and (3) energy conservation standards prescribed by EPCA. In preparing these proposals, we have considered both oral and written comments, and have incorporated recommendations where appropriate. Section II, Discussion, contains the reasons for incorporating or not incorporating any significant recommendations.

II. Discussion

A. General

This section discusses the issues identified for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks. Subsection II–B addresses the definitions and scope of coverage for commercial water heaters and hot water supply boilers, subsection II–C addresses ''Commercial Water Heaters—Test Procedures for the Measurement of Energy Efficiency,'' and subsection II–D addresses the efficiency requirements and test procedures for commercial unfired hot water storage tanks.

B. Commercial Water Heaters and Hot Water Supply Boilers—Definitions and Coverage

1. Instantaneous Water Heaters

The EPCA definitions for commercial and consumer water heaters neither explicitly address nor exclude instantaneous water heaters that are designed to raise the water temperature to 180 °F or higher, or have a storage volume of two gallons or more. See EPCA sections 321(27) and 340(12), 42 U.S.C. 6291(27) and 6311(12). However, EPCA provides, in effect, that an instantaneous water heater would be considered to be a commercial product if it is not, to any significant extent, distributed for personal use or consumption by individuals, and if it is, to any significant extent, distributed for industrial or commercial use. EPCA sections 321(1) and 340(1)–(2), 42 U.S.C. 6291(1) and 6311(1)–(2).

During both the April 1998 and October 1998 workshops, GAMA stated that instantaneous water heaters designed to heat water to temperatures of 180 °F or higher are not designed or marketed for consumer/residential applications, regardless of the input ratings. (GAMA, April 1998 transcript, at 67, and GAMA, October 1998 transcript, at 183–184.) Therefore, GAMA believes these products should be subject to the energy efficiency standards that apply to commercial water heaters. This would be consistent with the definition of gas-fired instantaneous water heaters contained in the DOE test procedure for consumer water heaters, Appendix E to Subpart B of 10 CFR Part 430, which excludes water heaters designed to deliver water at a controlled temperature of 180 °F or higher, or that have storage volumes of two gallons or more. Six manufacturers of commercial water heaters were contacted regarding these products, and they confirmed that these are marketed and sold primarily for commercial applications. Although the manufacturers did not provide exact numbers, they indicated that the size of the market for these products is relatively small. The product literature of three manufacturers of products in this category (*i.e.,* instantaneous water heaters having storage volumes greater than 2 gallons, capable of delivering water at temperatures of 180 °F or higher) states that these are intended for use as booster water heaters for

commercial applications, such as ware-washing in restaurant kitchens.

Based on GAMA's statements, product literature and the definition of gas-fired instantaneous water heaters in DOE's test procedure for consumer water heaters, see 55 FR 42161, 42164 (October 17, 1990), the Department concurs that these products are generally distributed for commercial or industrial use, and rarely if ever for use by individual consumers. Therefore, under the EPCA definition provisions summarized above—sections 321(1), and 340(1), (2) and (12)—such water heaters are subject to the applicable standards and test procedures set forth in sections 342(a)(5) and 343(a)(4), respectively, for commercial water heaters. Today's proposed rule incorporates and implements these provisions of EPCA. Consequently, although the proposed rule does not specifically mention instantaneous water heaters designed to heat water to temperatures of 180 °F or higher, or having a storage volume of two gallons or more, we intend, and the proposed rule clearly contemplates, that they would be subject to the energy efficiency standards and test procedures for commercial products established by EPCA.

2. Hot Water Supply Boilers

One of the issues this rulemaking is addressing is the application of EPCA energy efficiency standards and test procedures to hot water supply boilers, because such boilers perform functions that are also typically performed by water heaters. In the following discussion we present some background on the nature of these and related products, on how they were addressed by ASHRAE Standard 90.1–1989 before and after the publication of Addendum n to Standard 90.1–1989 (''Addendum n''), and on how we propose to treat them under EPCA.

a. *Types of water heating products:* The following sets forth our understanding of the facts relevant to the proposals below for rating and testing commercial hot water supply boilers.

The term ''boiler'' normally applies to a self-contained appliance for supplying steam or hot water. A ''boiler'' generally neither has a storage tank nor heats the water within the appliance unless there is a demand for hot water, *i.e.,* it does not use its energy source to maintain the temperature of the water within the appliance when there is no demand. There are many types of boilers and they can be categorized according to a variety of characteristics including: Application, fuel-type, operating temperature and pressure, heat exchanger material and configuration, burners, and input ratings. However, within the building industry, boilers are typically categorized according to two fundamental applications: space and service water heating. *Hydronic boilers* usually supply water within a closed system that provides space heating. They typically employ a maximum temperature limit of about 250 °F, and a maximum pressure of 30 to 60 psig. *Hot water supply boilers* usually provide potable water to be used external to the water heating system, *i.e.,* they provide service water heating. These boilers are typically limited to providing hot water (and no steam) at temperatures up to 210 °F, and to operate at pressures not to exceed 160 psig. In addition, boilers used to provide service hot water employ heat exchangers made of materials that will not affect water potability (*e.g.,* by rusting), whereas hydronic boilers can use water treatment that renders the water unpotable to prevent deterioration (*e.g.,* rusting) of the heat exchanger components.

A ''water heater'', on the other hand, is generally a self-contained appliance for heating water that is withdrawn for use external to the water heating system, for purposes other than space heating or process requirements. Water heaters are typically designed to operate at pressures not in excess of 160 psig, and temperatures that do not exceed 210 °F. The materials that come in contact with the service hot water provided by water heaters must not render the water unpotable, and must therefore be corrosion resistant.

There are several means of classifying water heaters. Within this rulemaking, we deal with two basic categories of water heaters: *storage water heaters* and *instantaneous water heaters.* Storage water heaters have storage tanks that are integrated with the energy source and maintain the stored water temperature based on thermostatic control. Instantaneous water heaters typically lack integral storage tanks. They usually heat water only when there is a demand for the water (*i.e.,* water is being withdrawn from the system), and the temperature of the water within the appliance is not maintained when there is no demand. Instantaneous water heaters are also identified as having an input-to-volume ratio greater than 4,000 Btu/h per gallon of stored water, where input is the rate of heat input of the energy source.

It is our understanding that, notwithstanding the features they have in common with instantaneous water heaters, commercial hot water supply boilers are constructed in accordance with boiler specifications and are still considered to be ''boilers.'' Physically, many similarities exist between hot water supply and hydronic boilers, with the main differences being the temperature limiting controls and pressure or pressure/temperature relief valves with which they are typically equipped. We understand that these distinctions are not always evident when a product is manufactured, *i.e.,* a boiler might not be outfitted with these features until a distributor is filling a specific order for one product or the other. In other words, some manufacturers provide the same boiler to be used either as a hydronic boiler or a hot water supply boiler. Other manufacturers sell essentially the same boiler, but with different temperature controls and pressure relief valves already installed, in both hot water supply and hydronic boiler models. And finally, other manufacturers provide only hot water supply boilers or only hydronic boilers.

We understand that boiler manufacturers generally test and rate their products based on the uses for which they sell them. For example, manufacturers that market the same or similar boilers as both hot water supply boilers and hydronic boilers test and rate them as both. Manufacturers that provide only one type of product only test and rate as that type of product.

b. *Standards and test procedures in EPCA and ASHRAE Standard 90.1*: EPCA covers commercial packaged boilers and defines a packaged boiler as ''a boiler that is shipped complete with heating equipment, mechanical draft equipment, and automatic controls; usually shipped in one or more sections.'' 42 U.S.C. 6311(11)(B). Hot water supply boilers meet this statutory definition and are therefore covered by EPCA.

The minimum energy efficiency standards prescribed in section 342(a)(4) of EPCA for commercial packaged boilers are shown in Table 1.

TABLE 1.—ENERGY EFFICIENCY STANDARDS FOR PACKAGED BOILERS FROM EPCA AND ASHRAE STANDARD 1989 (PRE AND POST ADDENDUM N).

Equipment	Size or input rating	Energy efficiency standard
Packaged Boiler (gas-fired)	300,000 Btu/h or more	80% minimum combustion efficiency.
Packaged Boiler (oil-fired)	300,000 Btu/h or more	83% minimum combustion efficiency.

EPCA also requires uniform test procedures for determining the efficiency of commercial packaged boilers. Basically, section 343(a)(4) provides that the test procedures shall be those referenced in ASHRAE Standard 90.1 and in effect on June 30, 1992, and may be amended if ASHRAE Standard 90.1 is amended. These test procedure provisions, as well as specific efficiency standards, also apply to commercial water heaters.

Neither EPCA nor ASHRAE Standard 90.1–1989 (as in effect on June 30, 1992) explicitly addressed the category of hot water supply boilers. However, an ASHRAE Interpretation (Interpretation IC 90.1–1989–18; June 26, 1995) provided that hot water supply boilers were to be considered packaged boilers under ASHRAE Standard 90.1–1989. Thus, one or more of the five packaged boiler test procedures referenced in ASHRAE Standard 90.1–1989 applied to hot water supply boilers, both under ASHRAE Standard 90.1 and EPCA, and under ASHRAE Standard 90.1 the efficiency standards for boilers applied to this product. This was consistent with EPCA in that the statute's energy efficiency standards for packaged boilers, listed in Table 1, were the same as those in Standard 90.1 and applied to hot water supply boilers.

In 1997, ASHRAE amended Standard 90.1–1989 by adopting Addendum n. The foreword to ASHRAE Standard 90.1–1989 contains the following statement: ''Addendum 90.1–1997 provides more equitable treatment for service water heating equipment by requiring hot water supply boilers to meet the same requirements as water heaters.'' The Addendum also added definitions for water heaters, hot water supply boilers and boilers, which previously were not defined in Standard 90.1. Table 11.1 and section 11.4.2 of Standard 90.1, as revised in Addendum n, state that gas and oil-fired hot water supply boilers with input ratings between 300,000 and 12,500,000 Btu/h, ''and used solely for heating potable water,'' must meet the energy efficiency requirements presented in Table 2 and be tested according to ANSI Standard Z21.10.3–1993. The Department understands that Addendum n became effective on January 28, 1998, the date ANSI approved it.

TABLE 2.—ENERGY EFFICIENCY STANDARDS FOR HOT WATER SUPPLY BOILERS FROM ADDENDUM N OF ASHRAE STANDARD 90.1–1989.

Equipment	Input	Volume	Energy efficiency standard
Hot water supply boiler (gas and oil-fired).	≥300,000 Btu/h and ≤12,500,000 Btu/h and Input/Volume ≥4,000 Btu/h per gallon.	under 10 gallons	80% minimum thermal efficiency.
		10 gallons or more	77% minimum thermal efficiency; (2.3+67/measured storage volume) maximum standby loss.

The requirements presented in Table 2 are the same as those prescribed for commercial instantaneous water heaters with the same ranges of storage volumes, and ANSI Z21.10.3–1993 is a testing standard for commercial water heaters.

c. *The proposed rule for hot water supply boilers:* EPCA provisions require the Department to adopt amendments to the ASHRAE Standard 90.1 energy efficiency standards and test procedures for commercial products such as packaged boilers, except in certain circumstances. Addendum n amended ASHRAE Standard 90.1–1989 with respect to hot water supply boilers (a type of packaged boiler), and the EPCA provisions apply to these amendments. We are proposing in this rulemaking to adopt these amendments, with limited modifications necessary to adapt them for use under EPCA.

We propose to define a ''hot water supply boiler'' in terms of the intrinsic characteristics of such a boiler, as well as the way the manufacturer markets this product for use as a hot water supply boiler. Such hot water supply boilers would have to meet energy efficiency requirements set forth in ASHRAE Standard 90.1 for water heaters. Further, the Department proposes that if a boiler is manufactured to be used as both a hot water supply boiler and a hydronic heating boiler, then it would have to meet the energy efficiency standards for, and be tested as, both types of products. In large part because we believe manufacturers are already following the provisions of Addendum n, these proposals would become effective 30 days after the final rule is promulgated. We also continue to consider other approaches.

i. Product definition. ASHRAE Standard 90.1–1989, as amended by Addendum n, prescribes requirements for a hot water supply boiler according to the *actual use* of the appliance. Section 3.4 of ASHRAE Standard 90.1–1989 defines ''hot water supply boiler'' as ''a boiler used to heat water for purposes other than space heating.'' Section 11.4.2 further provides that the efficiency requirements applicable to water heaters shall apply to ''[h]ot water supply boilers with inputs from 300,000 Btu/h to 12,500,000 Btu/h and used solely for heating potable water.'' These provisions remain unchanged in the recently adopted ASHRAE Standard 90.1–1999. Thus, under Standard 90.1, the actual use of a boiler is a significant element in determining whether it must satisfy the requirements for water heaters or for boilers.

EPCA requirements, however, apply to products as *manufactured.* EPCA defines ''packaged boiler,'' for example, as a boiler with certain specified characteristics, and prescribes efficiency standards and test procedures that apply to ''each * * * packaged boiler manufactured'' after a specified date. 42 U.S.C. 6313(a)(4) and 6314(a)(4)(A). A manufacturer can identify and comply with the requirements that apply to a

''packaged boiler'' it manufactures, and other parties can monitor the manufacturer's compliance. If DOE were to adopt the above-quoted language of Sections 3.4 and 11.4.2 of Standard 90.1, however, the applicable requirements under EPCA for hot water supply boilers would depend on a product's actual use: the standards and test procedures for packaged boilers would apply to a boiler used as a hydronic boiler, whereas the water heater requirements would apply to a boiler used as a hot water supply boiler. For manufacturers that do not know how their product will be used, the applicable requirements would be unknown, or at best uncertain, at the point of manufacture. This would be untenable for manufacturers and for monitoring compliance. In addition, adoption of the ''use'' criterion would appear to create uncertainty as to the applicable requirements even for boilers with features that identify them as hydronic or hot water supply boilers.

As discussed, a manufacturer of boilers lacking such features often *manufactures products with the intent that they will be used for* hydronic heating and/or service water heating. Although the manufacturers may not foresee the actual end uses of their products, we understand that they normally provide information as to the intended use of the products in one or more of the following: product literature, product markings, product marketing, and product installation and operating instructions. This is consistent with Sections 10.3 and 11.3 of ASHRAE Standard 90.1–1989, which require that when hydronic heating and service water heating equipment is supplied, information must be included to enable the determination of compliance with the applicable energy efficiency requirements of ASHRAE Standard 90.1.

Based on the above discussion, we are proposing, for purposes of EPCA, to define a hot water supply boiler as follows:

A packaged boiler that (a) has an input rating from 300,000 Btu/h to 12,500,00 Btu/h and of at least 4,000 Btu/h per gallon of stored water, (b) is suitable for heating potable water, and (c) meets either or both of the following conditions: (1) It has temperature and pressure controls necessary for heating potable water for purposes other than space heating, or (2) the manufacturer's product literature, product markings, product marketing, or product installation and operation instructions indicate that the boiler's intended uses include heating potable water for purposes other than space heating.

Finally, if a product meets the above definition of hot water supply boiler, and is also manufactured to provide space heating, then it must also meet the requirements established under EPCA for commercial packaged boilers and be tested accordingly. Standards and test procedures for commercial packaged boilers manufactured to be used for hydronic heating purposes are being addressed within a separate rulemaking for those products.

In summary, we are proposing to adopt verbatim virtually all of the criteria in ASHRAE Standard 90.1 that define and delineate the hot water supply boilers to which efficiency requirements for water heaters will apply. But in lieu of the language concerning the actual use of the product, which DOE believes is not suitable for adoption under EPCA, we propose to adopt provisions that define a hot water supply boiler in terms of physical features that are a necessary part of the product, and of how the manufacturer intends that the product be used. We believe that our proposed definition implements the intent of Addendum n, which is to apply requirements for commercial water heaters to boilers that provide service water heating.

ii. Energy efficiency standards. We are directed under EPCA Section 342(a)(6)(A) to establish an amended uniform national energy efficiency standard for each covered commercial product at the level specified in the amended ASHRAE Standard 90.1, unless the Secretary determines, by rule published in the **Federal Register** and supported by clear and convincing evidence, that adoption of a more stringent standard for such product would result in significant additional conservation of energy and is technologically feasible and economically justified. Addendum n amended ASHRAE Standard 90.1 by providing, in part, that hot water supply boilers must meet the same efficiency standards that apply to commercial instantaneous water heaters. We intend to adopt that amendment in this rulemaking. Hence, today's proposed rule provides that any products that are hot water supply boilers, as defined in this notice, are to meet the requirements established for such products in Table 11.1 of ASHRAE Standard 90.1–1989 as amended by Addendum n. The relevant portions of Table 11.1 are presented in Table 2 of this preamble. We are not proposing a more stringent standard at this time. However, an upcoming rulemaking will address this issue due to the recent publication of ASHRAE Standard 90.1–1999, which modifies Standard 90.1's energy efficiency standards for commercial water heating products.

iii. Test procedures. As indicated in EPCA Section 343(a)(4)(A), the test procedures to be used to determine energy efficiency must be those prescribed by ASHRAE Standard 90.1–1989 as in effect on June 30, 1992. Section 343(a)(4)(B) of EPCA further states that if such industry test procedures are amended, then the Secretary shall amend the DOE test procedure as necessary to be consistent with the amended industry test procedure unless the Secretary determines, by rule, published in the **Federal Register** and supported by clear and convincing evidence, that to do so would not meet the requirements for test procedures described in sections 343(a)(2) and (3). These latter sections basically state that the test procedure must be reasonably designed to produce test results that reflect the energy efficiency of the product, and not be unduly burdensome to conduct. Addendum n's amendments to ASHRAE Standard 90.1 include a requirement that hot water supply boilers use the test procedure that ANSI Standard Z21.10.3–1993 specifies for water heaters. As mentioned below in section II.C.1. of this document, this test procedure was amended in 1998. At the October 1998 workshop, stakeholders indicated that this amended test procedure is accepted by industry as being reasonably designed and not overly burdensome to conduct for hot water supply boilers (BR Laboratories, October 1998 transcript, at 143–149). As reflected in today's proposed rule, we intend to require that commercial hot water supply boilers be tested according to ANSI Z21.10.3–1998, and to incorporate relevant provisions by reference into DOE regulations. We do not intend to determine that ANSI Z21.10.3–1998 is either unduly burdensome to conduct or not reasonably designed to produce results that reflect the energy efficiency of such boilers.

iv. Effective date. EPCA does not address specifically when the Department's adoption of an amendment to a test procedure in ASHRAE/IES Standard 90.1 can become effective. Section 342(a)(6)(C) of EPCA, however, provides that our adoption of an efficiency standard contained in an amendment to Standard 90.1, for packaged boilers or instantaneous water heaters, shall become effective two years or more after the effective date of such amendment for purposes of Standard 90.1. Thus, because Addendum n became effective as an amendment to

Standard 90.1 on January 28, 1998, January 28, 2000 is the earliest date DOE could have made Addendum n's efficiency standards effective as a Federal requirement.

The Department understands that manufacturers currently are, and for some time have been, observing Addendum n's test procedures and efficiency standards for hot water supply boilers. Imposing them immediately as Federal requirements, therefore, should not create any burdens or alter the status quo for manufacturers. Consequently, the Department intends to make its adoption of the above described provisions for hot water supply boilers effective 30 days after publication of the final rule. Today's proposed rule also provides that, for the most part, hot water supply boilers manufactured prior to such effective date, and subsequent to the date Addendum n became effective as a provision of Standard 90.1, could meet either the requirements of Addendum n or the applicable requirements for packaged boilers under EPCA, and that any products manufactured prior to Addendum n's becoming effective must meet the latter requirements.

d. *Alternative Proposals:* In addition to the proposals set forth in today's notice, we are considering other possible approaches in applying energy efficiency standards and test procedures to hot water supply boilers. This is because we are concerned about whether basing efficiency requirements on product marketing could create too much uncertainty as to which requirements apply, or could cause manufacturers to alter their marketing strategies to fit their products into one category or another.

Therefore, we continue to consider adoption of the following alternative approaches for rating and testing hot water supply boilers under EPCA, in lieu of the approach outlined above:

(1) Any packaged boiler that is capable of providing potable water must meet the energy efficiency standards for, and be tested as, both a hydronic boiler and a hot water supply boiler/water heater.

(2) Any hot water supply boiler must meet the energy efficiency standards for, and be tested only as, a packaged boiler.

(3) Any packaged boiler that is capable of providing potable water must meet the energy efficiency standards for, and be tested as, a hot water supply boiler.

We seek comments regarding both the proposal in this notice and these three alternative approaches.

3. Heat Pump Water Heaters

The October 1998 workshop generated both oral and written comments with respect to the application of EPACT energy efficiency test procedures to commercial heat pump water heaters. Workshop participants commented that a variety of heat pump water heaters sold in the market exceed the size threshold to be considered consumer products under the NAECA amendment to EPCA, and appear to fall within the scope of the EPACT amendment to EPCA. In written comments, the American Gas Association advocated that ''commercial heat pump water heaters should be covered by DOE test procedures * * * based on the commercial availability and extensive commercial and utility promotion of this technology.'' LaClede Gas Company of St. Louis, Missouri expressed the same opinion. (Written comments number 11 and 12, Public Workshop, October 13, 1998)

American National Standard Institute (ANSI) standard Z21.10.3 is the test procedure presently referenced in ASHRAE/IES Standard 90.1–1989 for testing commercial water heaters. Heat pump water heaters are not within the scope of this standard, nor can the procedure be readily adapted to measure their performance. Furthermore, the existing DOE residential water heater test procedure is not suitable for commercial heat pump water heaters for the following reasons:

- The water draw rates are not representative of commercial applications.
- The small tank sizes used in testing are not representative of commercial installations, and the disparity could adversely affect test results of large heat pump water heaters.
- Water temperatures are higher, and ambient air temperatures are lower than those typically found in commercial applications.

Therefore, we do not consider either the existing ANSI Z21.10.3 standard or our residential water heater test procedure to be reasonably designed to produce results which reflect energy efficiency of the commercial product as required under EPCA Section 343(a)(2).

ASHRAE is currently developing a new Standard ASHRAE 118.1–1993R, Method of Testing for Rating Commercial Service Water Heating Equipment, which is currently undergoing public review. Its current draft covers commercial heat pump water heaters explicitly. The ASHRAE development process is expected to lead to an approved standard that would be referenced in revised versions of ASHRAE Standard 90.1.

Since a new test procedure would need to be developed for commercial heat pump water heaters, and because ASHRAE has already made progress in developing one, the Department is postponing action within the current rulemaking to consider a test procedure for these products. The Department anticipates considering such a test procedure after ASHRAE develops/publishes it.

4. Waste Heat Recovery Water Heaters

According to the *Commercial Water Heating Applications Handbook* (EPRI TR–100212 December 1992) published by the Electric Power Research Institute (EPRI), waste heat recovery water heaters use simple heat exchangers to recover useful heat, from fluid streams leaving commercial facilities. The heat that is recovered by these systems is often that which would have otherwise been lost to the environment. Often a heat recovery water heater is used to preheat incoming cold service water before it is heated by a conventional water heater. One workshop participant pointed out that these devices should not be confused with heat exchangers used to heat water via a dedicated heat source such as a hot water supply boiler that provides a stream of hot fluid for indirectly heating the service water within the heat exchanger. (LaClede Gas Company, October 1998 transcript, at 187–191.) In this case both the heat source (the boiler) and the tank that contains the heat exchanger might be covered under EPCA. Some waste heat recovery systems employ products that are considered EPCA-covered products. For example, a hot water storage tank might contain a heat exchanger and supplemental electric resistance heating elements used as a backup when the heat recovery capabilities of the heat exchanger are temporarily inadequate.

EPCA does not provide energy conservation standards or test procedures for waste heat recovery water heaters. Therefore, we do not address these products within today's proposed rule. However, the fact that an EPCA-covered product is used as part of a waste heat recovery system does not exclude the product from coverage.

C. Commercial Water Heaters—Test Procedures for the Measurement of Energy Efficiency

1. Gas-Fired Water Heaters

As quoted above, EPCA states that ''the test procedures shall be those generally accepted industry testing procedures or rating procedures

developed or recognized by the Air-conditioning and Refrigeration Institute or by [ASHRAE], as referenced in ASHRAE/IES Standard 90.1 and in effect on June 30, 1992.'' EPCA section 343(a)(4)(A), 42 U.S.C. 6314(a)(4)(A). EPCA also provides that if such industry test procedure is amended, the Secretary must adopt the amended procedure unless the Secretary determines, in essence, that the amended procedure is unduly burdensome to conduct or is not reasonably designed to produce results which reflect the energy efficiency of the product. EPCA section 343(a)(4)(B), 42 U.S.C. 6314(a)(4)(B).

ASHRAE/IES Standard 90.1–1989 with Addendum b was in effect on June 30, 1992 and the referenced test procedure for commercial water heaters was ANSI Z21.10.3–1990. Since then, ANSI Z21.10.3 has been amended several times. Table 3 lists the amendments, their dates, and a brief summary of changes to the portions related to energy efficiency test procedures.

TABLE 3.—LIST OF AMENDMENTS TO ANSI Z21.10.3

Document version	ANSI approval date	Summary of changes to efficiency test portions
ANSI Z21.10.3a–1990	4 October 1990	Correction to equation for standby loss.
ANSI Z21.10.3b–1992	27 January 1992	None.
ANSI Z21.10.3–1993	8 April 1993	None.
ANSI Z21.10.3a-1994	14 February 1994	None.
ANSI Z21.10.3b–1994	5 December 1994	None.
ANSI Z21.10.3c–1996	29 March 1996	None.
ANSI Z21.10.3–1998	19 March 1998	—Specifies accuracy of measurement devices. —Requires two full cutout periods prior to initiation of standby loss measurement period. —Changes the requirements for the duration of the standby loss test.

Some of the discussion at the October 13, 1998 workshop related to whether we should adopt the latest version of this test procedure . The stakeholders at the workshop agreed that the test for thermal efficiency contained in the 1998 version of ANSI Z21.10.3 has not changed from previous versions. However, as some stakeholders acknowledged, the standby loss portion of this test procedure, which has been slightly modified from the previous version, could yield slightly different results and thus affect compliance with standby loss requirements. In versions of ANSI Z21.10.3 prior to the 1998 version, the standby loss test procedure called for the water heater to undergo one cutout period prior to the initiation of data collection, and the standby test loss duration was at least 48 hours from the initiation of data collection. The test terminated at the end of 48 hours unless the water heater was in the heating mode at that time, in which case the test continued until the thermostat acted to reduce the gas supply to a minimum. The 1998 version of the test procedure calls for the water heater to undergo two cutout periods prior to the initiation of data collection, and the standby loss test continues until the first cutout that occurs after 24 hours from the time that data collection is initiated. Two workshop participants with experience in the field of testing these appliances, Bodh Subherwal of B.R. Laboratories, Inc. and Mark Taylor of Bradford-White Corporation, commented that this is not likely to have a significant effect on results. While no data has yet been provided in support of these comments, there is also no data to contradict them. (Various participants, October 1998 transcript, at 138–149.)

The Department recognizes the differences between the 1998 and 1990 versions of the ANSI test procedure. However, we are aware of no evidence which would establish that the newer version would significantly alter the standby loss measurements.

In accordance with EPCA section 343(a)(4)(B), the Department intends to adopt, through incorporation by reference, those portions of the ANSI Z21.10.3–1998 that address thermal efficiency and standby loss testing. Specifically, we intend to adopt the subsections labeled ''Method of Test'' in sections 2.9 and 2.10, as well as sections 2.1.7, 2.3.3, 2.3.4, and 2.30 and Figure 3. The Department does not intend to determine that the 1998 version of ANSI Z21.10.3 is either unduly burdensome to conduct or not reasonably designed to produce results that reflect the energy efficiency of commercial water heaters.

2. Oil-Fired Water Heaters

ANSI Z21.10.3–1998 does not directly address the testing of oil-fired water heaters. However, footnote e to Table 11.1 of ASHRAE/IES Standard 90.1–1989 Addendum n provides a means to adapt the ANSI Z21.10.3 test procedure for testing of oil-fired water heaters. The Department intends to incorporate these same adaptations for the purpose of testing commercial oil-fired water heaters.

3. Electric Water Heaters

ANSI Z21.10.3–1998 does not directly address the testing of electric water heaters. However, as in the case of oil-fired water heaters, footnote e to Table 11.1 of ASHRAE/IES Standard 90.1–1989 Addendum n provides a means to adapt the ANSI Z21.10.3 test procedure for testing of electric water heaters. The Department intends to incorporate these same adaptations for the purpose of testing commercial electric water heaters. Also, today's proposed test procedure will provide additional instructions related to the adjustment of multiple thermostats for those electric water heaters that utilize them.

D. Commercial Unfired Hot Water Storage Tanks

1. Exemption From and Application of Maximum Heat Loss Requirement

EPCA Sections 342(a)(5)(F) and 342(a)(5)(G) provide that the maximum heat loss of an unfired hot water storage tank must be 6.5 Btu per hour per square foot (Btu/h–ft^2) of tank surface area, unless the tank has more than 140 gallons of storage capacity and its surface area is thermally insulated to R–12.5.

We believe the latter criterion does not contemplate that the tank be insulated to an ''effective R-value'' of R–12.5. Heat losses occur both through the actual surface area of a tank (the surface that has not been eliminated by pipe penetrations and tank supports) and through the areas that have such penetrations and supports. The latter areas cannot be insulated. An ''effective R-value'' of R–12.5 would mean that the product as a whole would have to be insulated to R–12.5, and as a practical matter, that the insulation of the actual surface area would have to be greater than R–12.5. Such a requirement would appear to be at odds with the language

of the statute, and a statement at the April 1998 workshop that such a requirement was not intended went uncontested. The Department has therefore tentatively concluded that only the actual surface area of a tank larger than 140 gallons must be covered by R–12.5 insulation in order for the tank to be exempt from the requirement to have a maximum heat loss of 6.5 Btu/h–ft^2 of tank surface area.

As indicated, this heat loss requirement applies to all storage tanks having capacities of 140 gallons or less. It was suggested at the October 1998 workshop that, since R–12.5 insulation is roughly equivalent to a heat loss of 6.5 Btu/h–ft^2, for these storage tanks the Department's regulations could permit use of such insulation as an alternative to testing for heat loss.[1] (BR Laboratories, October 1998 transcript, at 156–158.) Because only the actual surface area of a tank is insulated, such an approach would be problematic. On the one hand, it could imply that the heat loss requirement applies only to losses from the actual surface area. Section 342(a)(5)(F) of EPCA appears to provide, however, that losses from the entire tank shall be 6.5 Btu/h–ft^2 of surface area. In other words, all losses, not just losses from the insulated portion of the surface area, must be divided by the tank surface area. On the other hand, to allow R–12.5 insulation in lieu of heat loss testing would in effect decrease the efficiency requirement for tanks smaller than 140 gallons, by allowing a heat loss of more than 6.5 Btu/h–ft^2 of surface area. This is because the heat losses from areas with pipe penetrations and supports, which are not insulated, would necessarily result in a heat loss per square foot of actual surface area, and even of ''nominal surface area'' (the actual surface area plus the surface area that would exist absent the penetrations and supports), in excess of 6.5 Btu/h. But EPCA does not authorize the Department to lower efficiency levels prescribed by the statute and, in any event, the Department does not seek in this rulemaking to alter the level EPCA prescribes for unfired storage tanks. Finally, under such an approach, the efficiency requirements for tanks smaller than 140 gallons would be virtually identical to those for the larger tanks. EPCA specifies different requirements, however, for hot water storage tanks and storage water heaters in these two categories, in effect requiring the smaller products to be more efficient.

Consequently, the proposed rule provides that unfired hot water storage tanks having capacities of 140 gallons or less must be tested for heat loss. Moreover, the proposed test procedure takes the approach that all losses must be included in determining the heat loss per square foot of surface area. The proposed test procedure also requires calculation of the heat loss per square foot of tank surface area that would exist if the tank had no pipe penetrations or supports, *i.e,* of the ''nominal surface area.'' As presented previously, the nominal surface area is used here, because it includes the entire area of the tank through which heat loss can occur. The Department believes that this approach is consistent with section 342(a)(5)(F) of EPCA.

2. Unfired Hot Water Storage Tank Test Procedure

As indicated above, EPCA specifies in essence that the test procedures for the products covered by this notice shall be those referenced in ASHRAE/IES Standard 90.1. But since Standard 90.1 references no test procedure for unfired hot water storage tanks, none is prescribed in EPCA.

At the October 1998 workshop, two methods were presented for determining the heat loss of unfired hot water storage tanks. The first method involves performing the standby loss test procedure on an electric storage water heater utilizing an identical tank with identical insulation and jacketing as that of the unfired storage tank model, and performing the necessary calculations to determine heat loss per square foot of tank surface area. The second method utilizes a separate water heater connected to the unfired storage tank to charge the storage tank before and after a standby loss test period. Stakeholders present at the October 1998 workshop responded that they favored the first method, and that the second method was unnecessary.

We agree with the comments from the October 1998 workshop attendees, and are proposing the first method as the DOE test procedure for determining the rate of heat loss per square foot of tank surface area of unfired hot water storage tanks. We understand that typically a manufacturer will sell a tank as an unfired storage tank, and also use the same tank as part of an electric water heater. Therefore, it makes sense to require the tank to be tested as part of a water heater. Indeed, it appears that the same test used to rate the standby loss of the water heater could be used to rate the heat loss of the unfired storage tank. Thus, the proposed rule provides that the method of testing an unfired storage tank would be to test an electric storage water heater utilizing electric resistance heating as the energy source, using the standby loss test procedure of ANSI Z21.10.3–1998.

III. Procedural Requirements

A. Review Under the National Environmental Policy Act of 1969

EPCA prescribes energy efficiency standards and test procedures for commercial products, and we propose to implement these requirements for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks. We have reviewed the proposed rule under the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 *et seq.*, the regulations of the Council on Environmental Quality, 40 CFR parts 1500–1508, our regulations for compliance with NEPA, 10 CFR Part 1021, and the Secretarial Policy on the National Environmental Policy Act (June 1994). Implementation of the proposed rule would not result in environmental impacts. We have therefore determined that the proposed rule is covered under the Categorical Exclusion found at paragraph A6 of appendix A to subpart D of the Department's regulations, which applies to rulemakings that are strictly procedural. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

B. Review Under Executive Order 12866, ''Regulatory Planning and Review''

We have determined that today's proposed rule is not a ''significant regulatory action,'' as defined in section 3(f) of Executive Order 12866, ''Regulatory Planning and Review.'' 58 FR 51735 (October 4, 1993). Accordingly, this action is not subject to review under the Executive Order by the Office of Information and Regulatory Affairs in the Office of Management and Budget (OMB).

C. Review Under the Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980, 5 U.S.C. 603, requires the preparation of an initial regulatory flexibility analysis for every rule which, by law, an agency must propose for

[1] We assume for purposes of this discussion that, at a temperature difference of 80°F, an insulation level of R–12.5 is equivalent to a heat loss rate of 6.5 Btu/h–ft^2 of covered surface. We note that ideally, however, for a flat surface insulated to R–12.5 h·°F·ft^2/Btu having a temperature difference across it of 80 °F, the heat loss would be approximately 6.4 Btu/h–ft^2. For the walls of a cylinder, the heat loss would vary depending on the radius of the cylinder and would likely be greater than 6.5 Btu/h–ft^2 unless the cylinder was quite large—about 16 feet in diameter.

public comment, unless it certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis examines the impact of the rule on small entities and considers alternative ways of reducing negative impacts.

The Small Business Administration considers an entity to be a small business if, together with its affiliates, it employs fewer than a threshold number of workers specified in 13 CFR Part 121. The threshold number for SIC classification 3589, which includes commercial water heaters, hot water supply boilers, and unfired hot water storage tanks, along with other service industry machinery not elsewhere classified, is 500. We estimate that approximately 25 firms manufacture water heaters, hot water supply boilers, and unfired hot water storage tanks, and the majority of these are small businesses. The number of small businesses that manufacture commercial-sized equipment covered by the EPACT standards could be smaller.

EPCA establishes efficiency standards for covered commercial products and requires us to prescribe test procedures that are accepted by industry and referenced in ASHRAE Standard 90.1. As EPCA specifies the standards and virtually all of the test procedures incorporated in today's proposed rule, the costs of complying with them are imposed by EPCA and not the rule. Moreover, today's proposed rule simply codifies testing procedures that are already generally employed by manufacturers, both large and small.

The cost of meeting the requirements of the rule as proposed will depend on the number of basic models a manufacturer produces and the number of these models that do not comply with the efficiency standards imposed by EPCA and would consequently need to be redesigned or removed from the market. Since most of the efficiency standards have been in force by statute since 1994, we expect that a negligible number of products presently manufactured would need to be redesigned or discontinued. The cost of performing the proposed test procedures depends on unit size, but could amount to several thousands of dollars per basic model. Those manufacturers who already test their products for efficiency to assure that they meet the existing statutory efficiency standards, or for any other reason, will not incur new costs in complying with today's proposed rule. We believe that any significant economic impact will fall only on companies which do not now routinely test their products. We further believe that testing is a widely accepted practice, and that companies that do not test are rare and do not represent a substantial number of small entities.

We have no discretion to apply different requirements to small manufacturers. EPCA mandates uniform standards and test procedures for commercial and industrial products, irrespective of the size of a business. In this regard, it is noteworthy that although EPCA contains a ''small manufacturer exemption'' for consumer products (42 U.S.C. 6295 (t)), it includes no such exemption for commercial and industrial products.

Based on the above, we certify that this proposed rule would not impose a significant impact on a substantial number of small businesses.

D. Review Under Executive Order 13132, ''Federalism''

Executive Order 13132 (64 FR 43255, August 4, 1999) imposes certain requirements on agencies formulating and implementing policies or regulations that have federalism implications. Agencies are required to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and carefully assess the necessity for such actions. Agencies must have an accountable process to ensure meaningful and timely input by state and local officials in the development of regulatory policies that have federalism implications. DOE published its intergovernmental consultation policy on March 14, 2000 (65 FR 13735). The proposed rule published today would not regulate the States. It would primarily codify energy efficiency standards and test procedures already established by EPCA for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks. We have determined that today's proposed rule would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. No further action is required by Executive Order 13132.

E. Review Under Executive Order 12630, ''Governmental Actions and Interference with Constitutionally Protected Property Rights''

We have determined under Executive Order 12630, ''Governmental Actions and Interference with Constitutionally Protected Property Rights,'' 52 FR 8859 (March 18, 1988), that this proposed regulation would not result in any takings which might require compensation under the Fifth Amendment to the United States Constitution.

F. Review Under the Paperwork Reduction Act

Today's proposed rule would primarily codify energy efficiency standards and test procedures already established by EPCA for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks. The proposed rule would not require any additional reports or record-keeping. Accordingly, this action does not contain a collection of information subject to OMB review under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*

G. Review Under Executive Order 12988, ''Civil Justice Reform''

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

We reviewed today's proposed rule under the standards of Section 3 of the Executive Order and determined that, to the extent permitted by law, it meets the requirements of those standards.

H. Review Under Section 32 of the Federal Energy Administration Act of 1974

Under section 301 of the Department of Energy Organization Act (Pub. L. 95–91), we must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. 15 U.S.C. 788. Section 32 provides in part that, where a proposed rule contains or involves use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards.

The rule proposed in this notice incorporates a commercial testing standard referenced by ASHRAE/IES Standard 90.1–1989 for measuring the efficiency of commercial water heaters and hot water supply boilers, which EPCA requires be used. Because we have very limited discretion to depart from a standard referenced in ASHRAE/IES 90.1, Section 32 of the FEAA does not apply to it.

ASHRAE/IES Standard 90.1 does not, however, reference a test procedure to measure the heat loss of unfired hot water storage tanks. DOE proposes to require use of portions of ANSI Standard Z21.10.3–1998 to test this product. The Department has evaluated this standard and is unable to conclude whether it fully complies with the requirements of section 32(b) of the Federal Energy Administration Act, *i.e.,* that it was developed in a manner that fully provides for public participation, comment and review.

As required by section 32(c) of the Federal Energy Administration Act, we will consult with the Attorney General and the Chairman of the Federal Trade Commission, prior to prescribing a final rule, concerning the impact on competition of requiring use of this standard to test unfired hot water storage tanks.

I. Review Under Unfunded Mandates Reform Act of 1995

Section 202 of the Unfunded Mandates Reform Act of 1995 (''Unfunded Mandates Act'') requires that we prepare an impact statement before promulgating a rule that includes a Federal mandate that may result in expenditure by state, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any one year. The impact statement must include: (i) Identification of the Federal law under which the rule is promulgated; (ii) a qualitative and quantitative assessment of anticipated costs and benefits of the Federal mandate and an analysis of the extent to which such costs to state, local, and tribal governments may be paid with Federal financial assistance; (iii) if feasible, estimates of the future compliance costs and of any disproportionate budgetary effects the mandate has on particular regions, communities, non-Federal units of government, or sectors of the economy; (iv) if feasible, estimates of the effect on the national economy; and (v) a description of our prior consultation with elected representatives of state, local, and tribal governments and a summary and evaluation of the comments and concerns presented. DOE published a policy statement on intergovernmental consultation under the unfunded mandates act on March 18, 1997 (62 FR 12820).

We have determined that the action proposed today does not include a Federal mandate that may result in estimated costs of $100 million or more to state, local or to tribal governments in the aggregate or to the private sector. Therefore, the requirements of Sections 203 and 204 of the Unfunded Mandates Act do not apply to this action.

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

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. No. 105–277) requires federal agencies to issue a Family Policymaking Assessment for any proposed rule or policy that may affect family well-being. Today's proposal would not have any impact on the autonomy or the integrity of the family as an institution. Accordingly, we have concluded that it is not necessary to prepare a Family Policymaking Assessment.

K. Plain Language Directive

The President's Memorandum on ''Plain Language in Government Writing,'' 63 FR 31885 (June 10, 1998) directs each Federal agency to write all published rulemaking documents in plain language. The Memorandum includes general guidance on what constitutes ''plain language.'' Plain language requirements will vary from one document to another, depending on the intended audience, but all plain language documents should be logically organized and clearly written.

We have tried to make this proposed rule easy to understand. We are also requesting suggestions on how to improve its readability further.

IV. Public Comment

A. Written Comment Procedures

We invite interested persons to participate in the proposed rulemaking by submitting data, comments, or information with respect to the issues set forth in today's rule to Ms. Brenda Edward-Jones, at the address indicated at the beginning of the notice. We will consider all submittals received by the date specified at the beginning of this notice in developing the final rule.

According to 10 CFR 1004.11, any person submitting information which he or she believes to be confidential and exempt by law from public disclosure should submit one complete copy of the document and ten (10) copies, if possible, from which the information believed to be confidential has been deleted. We will make our own determination with regard to the confidential status of the information and treat it according to that determination.

Factors of interest to us, when evaluating requests to treat as confidential information that has been submitted, include:

(1) A description of the items;

(2) An indication as to whether and why such items are customarily treated as confidential within the industry;

(3) Whether the information is generally known by or available from other sources;

(4) Whether the information has previously been made available to others without obligation concerning its confidentiality;

(5) An explanation of the competitive injury to the submitting person which would result from public disclosure;

(6) An indication as to when such information might lose its confidential character due to the passage of time; and

(7) Why disclosure of the information would be contrary to the public interest.

B. Public Workshop

1. Procedures for Submitting Requests To Speak

You will find the time and place of the public workshop listed at the beginning of this notice of proposed rulemaking. We invite any person who has an interest in today's notice of proposed rulemaking, or who is a representative of a group or class of persons that has an interest in these proposed issues, to make a request for an opportunity to make an oral presentation. If you would like to attend the public workshop, please notify Ms. Brenda Edwards-Jones at (202) 586–2945. You may hand deliver requests to speak to the address indicated at the

beginning of this notice between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, except Federal holidays, or send them by mail.

The person making the request should state why he or she, either individually or as a representative of a group or class of persons, is an appropriate spokesperson, briefly describe the nature of the interest in the rulemaking, and provide a telephone number for contact. We request each person selected to be heard to submit an advance copy of his or her statement at least two weeks prior to the date of this workshop as indicated at the beginning of this notice. At our discretion, we may still permit any person who cannot do this to participate if that person has made alternative arrangements with the Office of Building Research and Standards in advance. The request to give an oral presentation should ask for such alternative arrangements.

2. Conduct of Workshop

The Department will designate a Department official to preside at the workshop, and we may also use a professional facilitator to facilitate discussion. The workshop will not be a judicial or evidentiary-type hearing, but the Department will conduct it in accordance with 5 U.S.C. 553 and Section 336 of the Act and a court reporter will be present to record the transcript of the workshop. We reserve the right to schedule the presentations by workshop participants, and to establish the procedures governing the conduct of the workshop.

The Department will permit each participant to make a prepared general statement, limited to five (5) minutes, prior to the discussion of specific topics. The general statement should not address these specific topics, but may cover any other issues pertinent to this rulemaking. The Department will permit other participants to briefly comment on any general statements. We will divide the remainder of the hearing into segments, with each segment consisting of one or more of the following specific topics covered by this notice:

Commercial Water Heaters and Hot Water Supply Boilers—Definitions and Coverage

- Instantaneous water heaters
- Hot water supply boilers
- Heat pump water heaters
- Waste heat recovery water heaters

Commercial Water Heaters—Test Procedures for the Measurement of Energy Efficiency

- Gas-fired water heaters
- Oil-fired water heaters
- Electric water heaters

Commercial Unfired Hot Water Storage Tanks

- Exemption from and application of maximum heat loss requirement
- Unfired hot water storage tank test procedure

Other Topics

The Department will introduce each topic with a brief summary of the relevant provisions of the proposed rule, and the significant issues involved. We will then permit participants in the hearing to make a prepared statement limited to five (5) minutes on that topic. At the end of all prepared statements on a topic, we will permit each participant to briefly clarify his or her statement and comment on statements made by others. Participants should be prepared to answer questions by us and by other participants concerning these issues. Our representatives may also ask questions of participants concerning other matters relevant to the hearing. The total cumulative amount of time allowed for each participant to make prepared statements will be 20 minutes.

The official conducting the hearing will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further procedural rules, or modification of the above procedures, needed for the proper conduct of the hearing.

We will make the entire record of this rulemaking, including the transcript, available for inspection in the Department's Freedom of Information Reading Room. Any person may purchase a copy of the transcript from the transcribing reporter.

C. Issues on Which Comments Are Requested

We are interested in receiving comments and/or data concerning the feasibility, workability and appropriateness of the test procedures proposed in today's rulemaking. Also, we welcome discussion on improvements or alternatives to the proposed approaches. We also invite comments on how to make this proposed rule easier to understand. For example:

- Are the requirements in the rule clearly stated?
- Have we organized the material to suit your needs, or would a different organization be better?
- Can we improve the rule's format?

List of Subjects in 10 CFR Part 431

Administrative practice and procedure, Energy conservation, Incorporation by reference.

Issued in Washington, DC, on July 18, 2000.

Dan W. Reicher,

Assistant Secretary, Energy Efficiency and Renewable Energy.

For the reasons set forth in the preamble, Title 10, Part 431 of the Code of Federal Regulations is proposed to be amended as set forth below:

PART 431—ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT

1. The authority citation for Part 431 continues to read as follows:

Authority: 42 U.S.C. 6311–6316.

2. Subpart L is added to read as follows:

Subpart L—Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

Subpart L—Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

§ 431.451 Purpose and scope.

This subpart contains energy conservation requirements for certain commercial water heaters, hot water supply boilers and unfired hot water storage tanks, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C 6311–6316.

§ 431.452 Definitions for commercial water heaters, hot water supply boilers, and unfired hot water storage tanks.

For purposes of subparts I through P of this part, terms are defined as provided for elsewhere in this part, in section 340 of the Act, and as follows:

ASTM–D–2156–80 means the test standard published in 1980 by the American Society of Testing and Measurements and titled Method for Smoke Density in Flue Gases from Burning Distillate Fuels.

Gas means natural gas or propane as defined by the Federal Power Commission.

Hot water supply boiler means a packaged boiler that,

(1) Has an input rating from 300,000 Btu/h to 12,500,00 Btu/h and of at least 4,000 Btu/h per gallon of stored water,

(2) Is suitable for heating potable water, and

(3) Meets either or both of the following conditions:

(i) It has the temperature and pressure controls necessary for heating potable water for purposes other than space heating, or

(ii) The manufacturer's product literature, product markings, product marketing, or product installation and operation instructions indicate that the boiler's intended uses include heating potable water for purposes other than space heating.

Instantaneous water heater means a water heater that has an input rating not less than 4,000 Btu per hour per gallon of stored water, and that is a commercial HVAC & WH product.

Nominal tank surface area means the outside surface area of an uninsulated tank or the jacket area of a jacketed storage tank. To determine this area, assume that there are no holes or protrusions within the main body of the tank or jacket.

R-value means the thermal resistance of insulating material as determined based on ASTM Standard Test Method C177–97 or C518–91 and expressed in ($°F°ft^2°h/Btu$).

Standby loss means the average hourly energy required to maintain the stored water temperature, expressed as a percentage (per hour) of the heat content of the stored water and determined by the formula for S given in Section 2.10 of ANSI Z21.10.3–1998.

Storage water heater means a water heater that heats and stores water within the appliance at a thermostatically controlled temperature for delivery on demand and that is a commercial HVAC & WH product. Such term does not include units with an input rating of 4,000 Btu per hour or more per gallon of stored water.

Tank surface area means, for the purpose of determining portions of a tank requiring insulation, those areas of a storage tank, including hand holes and manholes, in its uninsulated or pre-insulated state, that do not have pipe penetrations or tank supports attached.

Thermal efficiency means the ratio of the heat transferred to the water flowing through the water heater to the amount of energy consumed by the water heater as measured during the thermal efficiency test procedure prescribed in this subpart.

Unfired hot water storage tank means a tank used to store water that is heated externally, and which is a commercial HVAC & WH product.

Test Procedures

§ 431.461 Materials incorporated by reference.

(a) *General.* The Department incorporates by reference the following test procedures which are not otherwise set forth in this part 431. The Director of the Federal Register has approved the material listed in paragraph (b) of this section for incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to this material by the standard-setting organization will not affect the DOE test procedures unless and until DOE amends its test procedures. The Department incorporates the material as it exists on the date of the approval and a notice of any change in the material will be published in the **Federal Register**.

(b) *Test procedures incorporated by reference:* American National Standards Institute (ANSI) Standard Z21.10.3–1998, ''Gas Water Heaters, Volume III, Storage Water Heaters with Input Ratings above 75,000 Btu per Hour, Circulating and Instantaneous'', subsections entitled ''Method of Test'' of sections 2.9 and 2.10, sections 2.1.7, 2.3.3, 2.3.4 and 2.30, and Figure 3.

(c) *Availability of references.* (1) *Inspection of test procedures.* The test procedures incorporated by reference are available for inspection at:

(i) Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

(ii) U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Hearings and Dockets, ''Test Procedures and Efficiency Standards for Commercial Water Heaters, Hot Water Supply Boilers, and Unfired Hot Water Storage Tanks,'' Docket No. EE–RM/TP–99–480, 1000 Independence Avenue, SW, Washington, DC 20585.

(2) *Obtaining copies of Standards.* Anyone can obtain a copy of standards incorporated by reference from the following sources:

(i) Request copies of the ASHRAE Standards from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1971 Tullie Circle, NE, Atlanta, GA 30329, or http://www.ashrae.org/book/bookshop.htm.

(ii) Request copies of the ANSI Standard from Global Engineering Documents, 15 Inverness Way West, Englewood, CO 80112, or http://global.ihs.com/, or http://webstore.ansi.org/ansidocstore/.

(d) *Reference standards.*

(1) *General.* The standards listed in this paragraph are referred to in the DOE test procedures, and elsewhere, in this subpart L, but they are not incorporated by reference. These sources are given here for information and guidance.

(2) *List of References.* (i) ASTM Standard Test Method C518–91, ''Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.''

(ii) ASTM Standard Test Method C177–97, ''Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.''

(iii) ASTM Standard Test Method D2156–80, ''Method for Smoke Density in Flue Gases from Burning Distillate Fuels.''

§ 431.462 Uniform Test Method for the Measurement of Energy Efficiency of Commercial Water Heaters and Hot Water Supply Boilers (Other than Commercial Heat Pump Water Heaters).

(a) *Scope.* This section covers the test procedures you must follow if, pursuant to EPCA, you are measuring the thermal efficiency or standby loss, or both, of a storage or instantaneous water heater or hot water supply boiler (other than commercial heat pump water heaters).

(b) *Testing and Calculations.* Determine the energy efficiency of each covered product by conducting the test procedure(s), set forth in the two rightmost columns of the following table, that apply to the energy efficiency descriptor(s) for that product:

Product	Energy efficiency descriptor	Use test setup, equipment and procedures in subsection labeled ''Method of Test'' of	With these additional stipulations
Gas-fired Storage and Instantaneous Water Heaters and Hot Water Supply Boilers.	Thermal Efficiency	ANSI Z21.10.3–1998, § 2.9	None.
	Standby Loss	ANSI Z21.10.3–1998, § 2.10.	
Oil-fired Storage and Instantaneous Water Heaters and Hot Water Supply Boilers.	Thermal Efficiency	ANSI Z21.10.3–1998, § 2.9	(1) Connect a vertical length of flue pipe to the flue gas outlet of sufficient height so as to meet the minimum draft specified by the manufacturer. (2) Adjust the burner rate so that (a) the hourly Btu input rate lies within ±2% of the manufacturer's specified input rate, (b) the CO_2 reading shows the value specified by the manufacturer, (c) smoke in the flue does not exceed No. 1 smoke as measured by the procedure in ASTM-D–2156–80, and (d) fuel pump pressure lies within ±1% of manufacturer's specifications.
	Standby Loss	ANSI Z21.10.3–1998, § 2.10.	
Electric Storage and Instantaneous Water Heaters.	Standby Loss	ANSI Z21.10.3–1998, § 2.10.	(1) Assume that the thermal efficiency (E_t) of electric water heaters with immersed heating elements is 98 percent. (2) Maintain the electrical supply voltage to within ±1% of the center of the voltage range specified on the water heater nameplate. (3) If the set up includes multiple adjustable thermostats, set the highest one first to yield a maximum water temperature in the specified range as measured by the topmost tank thermocouple. Then set the lower thermostat(s) to yield a maximum mean tank temperature within the specified range.

§ 431.463 Uniform Test Method for the Measurement of Energy Efficiency of Commercial Heat Pump Water Heaters. [Reserved]

§ 431.464 Uniform Test Method for the Measurement of Energy Efficiency of Commercial Unfired Hot Water Storage Tanks.

(a) *Scope.*

This section covers the test procedures you must follow if, pursuant to EPCA, you are measuring the heat loss per square foot of tank surface area of an unfired hot water storage tank.

(b) *Test Method.* You must use the test setup, equipment and procedures from the subsection entitled Method of Test of section 2.10 in ANSI Z21.10.3–1998, with the following additional stipulations:

(1) Use an electric water heater whose size, thickness and type of insulation, and jacketing are identical to that of the unfired storage tank.

(2) Maintain the electrical supply voltage to within ±1% of the center of the voltage range specified on the water heater nameplate.

(3) If the set up for that water heater includes multiple adjustable thermostats, set the highest one first to yield a maximum water temperature in the specified range as measured by the topmost tank thermocouple. Then set the lower thermostat(s) to yield a maximum mean tank temperature within the specified range.

(4) Use the value of 98 percent for Et_t for the calculation of the standby loss.

(c) *Calculations.* (1) Calculate the difference in internal energy of the tank water volume based on the mean tank temperature, at the beginning and end of the test, Q_{diff}, in Btu as follows:

$$Q_{diff} = K \cdot V_a \cdot \Delta T_4$$

Where,

K = 8.25 Btu per gallon °F, the nominal specific heat of water,

V_a = tank capacity expressed in gallons, as determined under section 2.30 of ANSI Z21.10.3–1998, and

ΔT_4 = difference between the final and initial mean tank temperatures, °F.

(2) Determine the rate of heat loss per square foot of nominal tank surface area, Q_{loss}, in Btu/h-ft² as follows:

$$Q_{loss} = \frac{E_c - \frac{Q_{diff}}{\eta_t / 100}}{A_s \cdot t}$$

Where,

E_c = electrical energy consumption as presented in section 2.10 of ANSI Z21.10.3–1998,

A_s = nominal tank surface area (ft²,

η_t = 98 percent, the assumed recovery efficiency for electric water heaters with immersed heating elements, and

t = duration of standby loss test as defined in section 2.10 of ANSI Z21.10.3–1998.

Energy Conservation Standards

§ 431.471 Energy conservation standards and their effective dates.

Each commercial storage water heater, instantaneous water heater, and unfired hot water storage tank manufactured on or after January 1, 1994, and each hot water supply boiler manufactured 30 days or more after [publication date of the final rule],[1] must meet the applicable energy conservation standard level(s) as follows:

Product	Size	Energy efficiency descriptor	Energy conservation standard
Electric storage water heaters.	All	Standby Loss[a] (in %/hr)	Maximum of 0.30 + (27/Measured Storage Volume [in gallons]).
Gas-fired and oil-fired storage water heaters.	≤155,000 Btu/h input	Standby Loss[a] (in %/hr)	Maximum of 1.30 + (114/Measured Storage Volume [in gallons]).
		Thermal Efficiency	Minimum of 78%.
	>155,000 Btu/h input	Standby Loss[a] (in %/hr)	Maximum of 1.30 + (95/Measured Storage Volume [in gallons]).
		Thermal Efficiency	Minimum of 78%.
Instantaneous water heaters; or hot water supply boilers.	<10 gallons storage volume.	Thermal Efficiency	Minimum of 80%.
	≥10 gallons storage volume.	Thermal Efficiency	Minimum of 77%.
		Standby Loss[a] (in %/hr)	Maximum of 2.30 + (67/Measured Storage Volume [in gallons]).
Unfired hot water storage tank.	≤140 gallons storage volume.	Heat Loss	Maximum of 6.5 Btu/h per ft^2 of the nominal tank surface area.
	>140 gallons[b] storage volume.	Heat Loss[b]	Maximum of 6.5 Btu/h per ft^2 of the nominal tank surface area.
		Thermal Insulation Level[b]	Minimum of R–12.5 over the tank surface area.

[a] Storage and instantaneous water heaters having more than 140 gallons of storage capacity need not meet the standby loss requirement if the tank surface area is thermally insulated to R–12.5 or more and if a standing pilot light is not used.

[b] Only one of the two requirements (*i.e.*, either the heat loss requirement or the thermal insulation requirement) must be met.

[FR Doc. 00–19722 Filed 8–8–00; 8:45 am]

BILLING CODE 6450–01–P

[1] The following provisions apply to a hot water supply boiler manufactured before [publication date of the final rule]: (1) if it was manufactured before January 28, 1998, it must meet the applicable requirements for a ''commercial packaged boiler'' under subpart K of this part; (2) if it was manufactured on or after January 28, 1998, and is a commercial packaged boiler, as defined in subpart K of this part, it must meet the requirements that apply to it under that subpart; (3) if it was manufactured on or after January 28, 1998, and is not a commercial packaged boiler, as defined in subpart K of this part, it must either meet the requirements listed in this section or the requirements for a ''commercial packaged boiler'' in subpart K of this part.