

§ 6313. Standards

(a) Small, large, and very large commercial package air conditioning and heating equipment, packaged terminal air conditioners and heat pumps, warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, and unfired hot water storage tanks

(1) Each small commercial package air conditioning and heating equipment (including single package vertical air conditioners and single package vertical heat pumps) manufactured on or after January 1, 1994, shall meet the following standard levels:

(A) The minimum seasonal energy efficiency ratio of air-cooled three-phase electric central air conditioners and central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), split systems, shall be 10.0.

(B) The minimum seasonal energy efficiency ratio of air-cooled three-phase electric central air conditioners and central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), single package, shall be 9.7.

(C) The minimum energy efficiency ratio of air-cooled central air conditioners and central air conditioning heat pumps at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be 8.9 (at a standard rating of 95 degrees F db).

(D) The minimum heating seasonal performance factor of air-cooled three-phase electric central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), split systems, shall be 6.8.

(E) The minimum heating seasonal performance factor of air-cooled three-phase electric central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), single package, shall be 6.6.

(F) The minimum coefficient of performance in the heating mode of air-cooled central air conditioning heat pumps at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be 3.0 (at a high temperature rating of 47 degrees F db).

(G) The minimum energy efficiency ratio of water-cooled, evaporatively-cooled and water-source central air conditioners and central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity) shall be 9.3 (at a standard rating of 95 degrees F db, outdoor temperature for evaporatively cooled equipment, and 85 degrees Fahrenheit entering water temperature for water-source and water-cooled equipment).

(H) The minimum energy efficiency ratio of water-cooled, evaporatively-cooled and water-source central air conditioners and central air conditioning heat pumps at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be 10.5 (at a standard rating of 95 degrees F db, outdoor temperature for evaporatively cooled equipment, and 85 degrees Fahrenheit entering water temperature for water source and water-cooled equipment).

(I) The minimum coefficient of performance in the heating mode of water-source heat pumps less than 135,000 Btu per hour (cooling

capacity) shall be 3.8 (at a standard rating of 70 degrees Fahrenheit entering water).

(2) Each large commercial package air conditioning and heating equipment (including single package vertical air conditioners and single package vertical heat pumps) manufactured on or after January 1, 1995, but before January 1, 2010, shall meet the following standard levels:

(A) The minimum energy efficiency ratio of air-cooled central air conditioners and central air conditioning heat pumps at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be 8.5 (at a standard rating of 95 degrees F db).

(B) The minimum coefficient of performance in the heating mode of air-cooled central air conditioning heat pumps at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be 2.9.

(C) The minimum energy efficiency ratio of water- and evaporatively-cooled central air conditioners and central air conditioning heat pumps at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be 9.6 (according to ARI Standard 360-86).

(3) Each packaged terminal air conditioner and packaged terminal heat pump manufactured on or after January 1, 1994, shall meet the following standard levels:

(A) The minimum energy efficiency ratio (EER) of packaged terminal air conditioners and packaged terminal heat pumps in the cooling mode shall be 10.0 — (0.16 x Capacity [in thousands of Btu per hour at a standard rating of 95 degrees F db, outdoor temperature]). If a unit has a capacity of less than 7,000 Btu per hour, then 7,000 Btu per hour shall be used in the calculation. If a unit has a capacity of greater than 15,000 Btu per hour, then 15,000 Btu per hour shall be used in the calculation.

(B) The minimum coefficient of performance (COP) of packaged terminal heat pumps in the heating mode shall be 1.3 + (0.16 x the minimum cooling EER as specified in subparagraph (A)) (at a standard rating of 47 degrees F db).

(4) Each warm air furnace and packaged boiler manufactured on or after January 1, 1994, shall meet the following standard levels:

(A) The minimum thermal efficiency at the maximum rated capacity of gas-fired warm-air furnaces with capacity of 225,000 Btu per hour or more shall be 80 percent.

(B) The minimum thermal efficiency at the maximum rated capacity of oil-fired warm-air furnaces with capacity of 225,000 Btu per hour or more shall be 81 percent.

(C) The minimum combustion efficiency at the maximum rated capacity of gas-fired packaged boilers with capacity of 300,000 Btu per hour or more shall be 80 percent.

(D) The minimum combustion efficiency at the maximum rated capacity of oil-fired packaged boilers with capacity of 300,000 Btu per hour or more shall be 83 percent.

(5) Each storage water heater, instantaneous water heater, and unfired water storage tank

manufactured on or after January 1, 1994, shall meet the following standard levels:

(A) Except as provided in subparagraph (G), the maximum standby loss, in percent per hour, of electric storage water heaters shall be $0.30 + (27/\text{Measured Storage Volume [in gallons]})$.

(B) Except as provided in subparagraph (G), the maximum standby loss, in percent per hour, of gas- and oil-fired storage water heaters with input ratings of 155,000 Btu per hour or less shall be $1.30 + (114/\text{Measured Storage Volume [in gallons]})$. The minimum thermal efficiency of such units shall be 78 percent.

(C) Except as provided in subparagraph (G), the maximum standby loss, in percent per hour, of gas- and oil-fired storage water heaters with input ratings of more than 155,000 Btu per hour shall be $1.30 + (95/\text{Measured Storage Volume [in gallons]})$. The minimum thermal efficiency of such units shall be 78 percent.

(D) The minimum thermal efficiency of instantaneous water heaters with a storage volume of less than 10 gallons shall be 80 percent.

(E) Except as provided in subparagraph (G), the minimum thermal efficiency of instantaneous water heaters with a storage volume of 10 gallons or more shall be 77 percent. The maximum standby loss, in percent/hour, of such units shall be $2.30 + (67/\text{Measured Storage Volume [in gallons]})$.

(F) Except as provided in subparagraph (G), the maximum heat loss of unfired hot water storage tanks shall be 6.5 Btu per hour per square foot of tank surface area.

(G) Storage water heaters and hot water storage tanks having more than 140 gallons of storage capacity need not meet the standby loss or heat loss requirements specified in subparagraphs (A) through (C) and subparagraphs (E) and (F) if the tank surface area is thermally insulated to R-12.5 and if a standing pilot light is not used.

(6) AMENDED ENERGY EFFICIENCY STANDARDS.—

(A) IN GENERAL.—

(i) ANALYSIS OF POTENTIAL ENERGY SAVINGS.—If ASHRAE/IES Standard 90.1 is amended with respect to the standard levels or design requirements applicable under that standard to any small commercial package air conditioning and heating equipment, large commercial package air conditioning and heating equipment, very large commercial package air conditioning and heating equipment, packaged terminal air conditioners, packaged terminal heat pumps, warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, or unfired hot water storage tanks, not later than 180 days after the amendment of the standard, the Secretary shall publish in the Federal Register for public comment an analysis of the energy savings potential of amended energy efficiency standards.

(ii) AMENDED UNIFORM NATIONAL STANDARD FOR PRODUCTS.—

(I) IN GENERAL.—Except as provided in subclause (II), not later than 18 months after the date of publication of the amendment to the ASHRAE/IES Standard 90.1 for a product described in clause (i), the Sec-

retary shall establish an amended uniform national standard for the product at the minimum level specified in the amended ASHRAE/IES Standard 90.1.

(II) MORE STRINGENT STANDARD.—Subclause (I) shall not apply if the Secretary determines, by rule published in the Federal Register, and supported by clear and convincing evidence, that adoption of a uniform national standard more stringent than the amended ASHRAE/IES Standard 90.1 for the product would result in significant additional conservation of energy and is technologically feasible and economically justified.

(B) RULE.—

(i) IN GENERAL.—If the Secretary makes a determination described in subparagraph (A)(ii)(II) for a product described in subparagraph (A)(i), not later than 30 months after the date of publication of the amendment to the ASHRAE/IES Standard 90.1 for the product, the Secretary shall issue the rule establishing the amended standard.

(ii) FACTORS.—In determining whether a standard is economically justified for the purposes of subparagraph (A)(ii)(II), the Secretary shall, after receiving views and comments furnished with respect to the proposed standard, determine whether the benefits of the standard exceed the burden of the proposed standard by, to the maximum extent practicable, considering—

(I) the economic impact of the standard on the manufacturers and on the consumers of the products subject to the standard;

(II) the savings in operating costs throughout the estimated average life of the product in the type (or class) compared to any increase in the price of, or in the initial charges for, or maintenance expenses of, the products that are likely to result from the imposition of the standard;

(III) the total projected quantity of energy savings likely to result directly from the imposition of the standard;

(IV) any lessening of the utility or the performance of the products likely to result from the imposition of the standard;

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

(VI) the need for national energy conservation; and

(VII) other factors the Secretary considers relevant.

(iii) ADMINISTRATION.—

(I) ENERGY USE AND EFFICIENCY.—The Secretary may not prescribe any amended standard under this paragraph that increases the maximum allowable energy use, or decreases the minimum required energy efficiency, of a covered product.

(II) UNAVAILABILITY.—

(aa) IN GENERAL.—The Secretary may not prescribe an amended standard under this subparagraph if the Secretary finds (and publishes the finding) that inter-

ested persons have established by a preponderance of the evidence that a standard is likely to result in the unavailability in the United States in any product type (or class) of performance characteristics (including reliability, features, sizes, capacities, and volumes) that are substantially the same as those generally available in the United States at the time of the finding of the Secretary.

(bb) OTHER TYPES OR CLASSES.—The failure of some types (or classes) to meet the criterion established under this subclause shall not affect the determination of the Secretary on whether to prescribe a standard for the other types or classes.

(C) AMENDMENT OF STANDARD.—

(i) IN GENERAL.—Every 6 years, the Secretary shall conduct an evaluation of each class of covered equipment and shall publish—

(I) a notice of the determination of the Secretary that standards for the product do not need to be amended, based on the criteria established under subparagraph (A); or

(II) a notice of proposed rulemaking including new proposed standards based on the criteria and procedures established under subparagraph (B).

(ii) NOTICE.—If the Secretary publishes a notice under clause (i), the Secretary shall—

(I) publish a notice stating that the analysis of the Department is publicly available; and

(II) provide an opportunity for written comment.

(iii) AMENDMENT OF STANDARD; NEW DETERMINATION.—

(I) AMENDMENT OF STANDARD.—Not later than 2 years after a notice is issued under clause (i)(II), the Secretary shall publish a final rule amending the standard for the product.

(II) NEW DETERMINATION.—Not later than 3 years after a determination under clause (i)(I), the Secretary shall make a new determination and publication under subclause (I) or (II) of clause (i).

(iv) APPLICATION TO PRODUCTS.—Notwithstanding subparagraph (D), an amendment prescribed under this subparagraph shall apply to products manufactured after a date that is the later of—

(I) the date that is 3 years after publication of the final rule establishing a new standard; or

(II) the date that is 6 years after the effective date of the current standard for a covered product.

(v) CONSIDERATION OF PRICES AND OPERATING PATTERNS.—If the Secretary is considering revised standards for air-cooled 3-phase central air conditioners and central air conditioning heat pumps with less¹ 65,000 Btu per hour (cooling capacity), the Sec-

retary shall use commercial energy prices and operating patterns in all analyses conducted by the Secretary.

(vi) For any covered equipment as to which more than 6 years has elapsed since the issuance of the most recent final rule establishing or amending a standard for the product as of December 18, 2012, the first notice required under clause (i) shall be published by December 31, 2013.

(D) A standard amended by the Secretary under this paragraph shall become effective for products manufactured—

(i) with respect to small commercial package air conditioning and heating equipment, packaged terminal air conditioners, packaged terminal heat pumps, warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, and unfired hot water storage tanks, on or after a date which is two years after the effective date of the applicable minimum energy efficiency requirement in the amended ASHRAE/IES standard referred to in subparagraph (A); and

(ii) with respect to large commercial package air conditioning and heating equipment and very large commercial package air conditioning and heating equipment, on or after a date which is three years after the effective date of the applicable minimum energy efficiency requirement in the amended ASHRAE/IES standard referred to in subparagraph (A);

except that an energy conservation standard amended by the Secretary pursuant to a rule under subparagraph (B) shall become effective for products manufactured on or after a date which is four years after the date such rule is published in the Federal Register.

(7) Small commercial package air conditioning and heating equipment (other than single package vertical air conditioners and single package vertical heat pumps) shall meet the following standards:

(A) For equipment manufactured on or after January 1, 2010, the minimum energy efficiency ratio of air-cooled central air conditioners at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be—

(i) 11.2 for equipment with no heating or electric resistance heating; and

(ii) 11.0 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

(B) For equipment manufactured on or after January 1, 2010, the minimum energy efficiency ratio of air-cooled central air conditioner heat pumps at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be—

(i) 11.0 for equipment with no heating or electric resistance heating; and

(ii) 10.8 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

¹ So in original. Probably should be followed by "than".

(C) For equipment manufactured on or after January 1, 2010, the minimum coefficient of performance in the heating mode of air-cooled central air conditioning heat pumps at or above 65,000 Btu per hour (cooling capacity) and less than 135,000 Btu per hour (cooling capacity) shall be 3.3 (at a high temperature rating of 47 degrees F db).

(D) For equipment manufactured on or after the later of January 1, 2008, or the date that is 180 days after December 19, 2007—

(i) the minimum seasonal energy efficiency ratio of air-cooled 3-phase electric central air conditioners and central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), split systems, shall be 13.0;

(ii) the minimum seasonal energy efficiency ratio of air-cooled 3-phase electric central air conditioners and central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), single package, shall be 13.0;

(iii) the minimum heating seasonal performance factor of air-cooled 3-phase electric central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), split systems, shall be 7.7; and

(iv) the minimum heating seasonal performance factor of air-cooled 3-phase electric central air conditioning heat pumps less than 65,000 Btu per hour (cooling capacity), single package, shall be 7.7.

(8) Large commercial package air conditioning and heating equipment (other than single package vertical air conditioners and single package vertical heat pumps) manufactured on or after January 1, 2010, shall meet the following standards:

(A) The minimum energy efficiency ratio of air-cooled central air conditioners at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be—

(i) 11.0 for equipment with no heating or electric resistance heating; and

(ii) 10.8 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

(B) The minimum energy efficiency ratio of air-cooled central air conditioner heat pumps at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be—

(i) 10.6 for equipment with no heating or electric resistance heating; and

(ii) 10.4 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

(C) The minimum coefficient of performance in the heating mode of air-cooled central air conditioning heat pumps at or above 135,000 Btu per hour (cooling capacity) and less than 240,000 Btu per hour (cooling capacity) shall be 3.2 (at a high temperature rating of 47 degrees F db).

(9) Very large commercial package air conditioning and heating equipment (other than sin-

gle package vertical air conditioners and single package vertical heat pumps) manufactured on or after January 1, 2010, shall meet the following standards:

(A) The minimum energy efficiency ratio of air-cooled central air conditioners at or above 240,000 Btu per hour (cooling capacity) and less than 760,000 Btu per hour (cooling capacity) shall be—

(i) 10.0 for equipment with no heating or electric resistance heating; and

(ii) 9.8 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

(B) The minimum energy efficiency ratio of air-cooled central air conditioner heat pumps at or above 240,000 Btu per hour (cooling capacity) and less than 760,000 Btu per hour (cooling capacity) shall be—

(i) 9.5 for equipment with no heating or electric resistance heating; and

(ii) 9.3 for equipment with all other heating system types that are integrated into the equipment (at a standard rating of 95 degrees F db).

(C) The minimum coefficient of performance in the heating mode of air-cooled central air conditioning heat pumps at or above 240,000 Btu per hour (cooling capacity) and less than 760,000 Btu per hour (cooling capacity) shall be 3.2 (at a high temperature rating of 47 degrees F db).

(10) SINGLE PACKAGE VERTICAL AIR CONDITIONERS AND SINGLE PACKAGE VERTICAL HEAT PUMPS.—

(A) IN GENERAL.—Single package vertical air conditioners and single package vertical heat pumps manufactured on or after January 1, 2010, shall meet the following standards:

(i) The minimum energy efficiency ratio of single package vertical air conditioners less than 65,000 Btu per hour (cooling capacity), single-phase, shall be 9.0.

(ii) The minimum energy efficiency ratio of single package vertical air conditioners less than 65,000 Btu per hour (cooling capacity), 3-phase, shall be 9.0.

(iii) The minimum energy efficiency ratio of single package vertical air conditioners at or above 65,000 Btu per hour (cooling capacity) but less than 135,000 Btu per hour (cooling capacity), shall be 8.9.

(iv) The minimum energy efficiency ratio of single package vertical air conditioners at or above 135,000 Btu per hour (cooling capacity) but less than 240,000 Btu per hour (cooling capacity), shall be 8.6.

(v) The minimum energy efficiency ratio of single package vertical heat pumps less than 65,000 Btu per hour (cooling capacity), single-phase, shall be 9.0 and the minimum coefficient of performance in the heating mode shall be 3.0.

(vi) The minimum energy efficiency ratio of single package vertical heat pumps less than 65,000 Btu per hour (cooling capacity), 3-phase, shall be 9.0 and the minimum coefficient of performance in the heating mode shall be 3.0.

(vii) The minimum energy efficiency ratio of single package vertical heat pumps at or above 65,000 Btu per hour (cooling capacity) but less than 135,000 Btu per hour (cooling capacity), shall be 8.9 and the minimum coefficient of performance in the heating mode shall be 3.0.

(viii) The minimum energy efficiency ratio of single package vertical heat pumps at or above 135,000 Btu per hour (cooling capacity) but less than 240,000 Btu per hour (cooling capacity), shall be 8.6 and the minimum coefficient of performance in the heating mode shall be 2.9.

(B) REVIEW.—Not later than 3 years after December 19, 2007, the Secretary shall review the most recently published ASHRAE/IES Standard 90.1 with respect to single package vertical air conditioners and single package vertical heat pumps in accordance with the procedures established under paragraph (6).

(b) Electric motors

(1) Except for definite purpose motors, special purpose motors, and those motors exempted by the Secretary under paragraph (2),² each electric motor manufactured (alone or as a component of another piece of equipment) after the 60-month period beginning on October 24, 1992, or in the case of an electric motor which requires listing or certification by a nationally recognized safety testing laboratory, after the 84-month period beginning on October 24, 1992, shall have a nominal full load efficiency of not less than the following:

Number of poles	Nominal Full-Load Efficiency					
	Open Motors			Closed Motors		
	6	4	2	6	4	2
Motor Horsepower						
1	80.0	82.5	80.0	82.5	75.5
1.5	84.0	84.0	82.5	85.5	84.0	82.5
2	85.5	84.0	84.0	86.5	84.0	84.0
3	86.5	86.5	84.0	87.5	87.5	85.5
5	87.5	87.5	85.5	87.5	87.5	87.5
7.5	88.5	88.5	87.5	89.5	89.5	88.5
10	90.2	89.5	88.5	89.5	89.5	89.5
15	90.2	91.0	89.5	90.2	91.0	90.2
20	91.0	91.0	90.2	90.2	91.0	90.2
25	91.7	91.7	91.0	91.7	92.4	91.0
30	92.4	92.4	91.0	91.7	92.4	91.0
40	93.0	93.0	91.7	93.0	93.0	91.7
50	93.0	93.0	92.4	93.0	93.0	92.4
60	93.6	93.6	93.0	93.6	93.6	93.0
75	93.6	94.1	93.0	93.6	94.1	93.0
100	94.1	94.1	93.0	94.1	94.5	93.6
125	94.1	94.5	93.6	94.1	94.5	94.5
150	94.5	95.0	93.6	95.0	95.0	94.5
200	94.5	95.0	94.5	95.0	95.0	95.0

(2) ELECTRIC MOTORS.—

(A) GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE I).—Except as provided in subparagraph (B), each general purpose electric motor (subtype I) with a power rating of 1 horsepower or greater, but not greater than 200 horsepower, manufactured (alone or as a component of another piece of equipment) after the 3-year period beginning on December 19,

2007, shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-12.

(B) FIRE PUMP MOTORS.—Each fire pump motor manufactured (alone or as a component of another piece of equipment) after the 3-year period beginning on December 19, 2007, shall have nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-11.

(C) GENERAL PURPOSE ELECTRIC MOTORS (SUBTYPE II).—Each general purpose electric motor (subtype II) with a power rating of 1 horsepower or greater, but not greater than 200 horsepower, manufactured (alone or as a component of another piece of equipment) after the 3-year period beginning on December 19, 2007, shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-11.

(D) NEMA DESIGN B, GENERAL PURPOSE ELECTRIC MOTORS.—Each NEMA Design B, general purpose electric motor with a power rating of more than 200 horsepower, but not greater than 500 horsepower, manufactured (alone or as a component of another piece of equipment) after the 3-year period beginning on December 19, 2007, shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-11.

(3)(A) The Secretary may, by rule, provide that the standards specified in paragraph (1) shall not apply to certain types or classes of electric motors if—

(i) compliance with such standards would not result in significant energy savings because such motors cannot be used in most general purpose applications or are very unlikely to be used in most general purpose applications; and

(ii) standards for such motors would not be technologically feasible or economically justified.

(B) Not later than one year after October 24, 1992, a manufacturer seeking an exemption under this paragraph with respect to a type or class of electric motor developed on or before October 24, 1992, shall submit a petition to the Secretary requesting such exemption. Such petition shall include evidence that the type or class of motor meets the criteria for exemption specified in subparagraph (A).

(C) Not later than two years after October 24, 1992, the Secretary shall rule on each petition for exemption submitted pursuant to subparagraph (B). In making such ruling, the Secretary shall afford an opportunity for public comment.

(D) Manufacturers of types or classes of motors developed after October 24, 1992, to which standards under paragraph (1) would be applicable may petition the Secretary for exemptions from compliance with such standards based on the criteria specified in subparagraph (A).

(4)(A) The Secretary shall publish a final rule no later than the end of the 24-month period beginning on the effective date of the standards established under paragraph (1) to determine if such standards should be amended. Such rule shall provide that any amendment shall apply to electric motors manufactured on or after a date

² See References in Text note below.

which is five years after the effective date of the standards established under paragraph (1).

(B) The Secretary shall publish a final rule no later than 24 months after the effective date of the previous final rule to determine whether to amend the standards in effect for such product. Any such amendment shall apply to electric motors manufactured after a date which is five years after—

- (i) the effective date of the previous amendment; or
- (ii) if the previous final rule did not amend the standards, the earliest date by which a previous amendment could have been effective.

(c) Commercial refrigerators, freezers, and refrigerator-freezers

(1) In this subsection:

(A) The term “AV” means the adjusted volume (ft³) (defined as 1.63 x frozen temperature compartment volume (ft³) + chilled temperature compartment volume (ft³)) with compartment volumes measured in accordance with the Association of Home Appliance Manufacturers Standard HRF1-1979.

(B) The term “V” means the chilled or frozen compartment volume (ft³) (as defined in the Association of Home Appliance Manufacturers Standard HRF1-1979).

(C) The term “service over the counter, self-contained, medium temperature commercial refrigerator” or “(SOC-SC-M)” means a medium temperature commercial refrigerator—

- (i) with a self-contained condensing unit and equipped with sliding or hinged doors in the back intended for use by sales personnel, and with glass or other transparent material in the front for displaying merchandise; and
- (ii) that has a height not greater than 66 inches and is intended to serve as a counter for transactions between sales personnel and customers.

(D) The term “TDA” means the total display area (ft²) of the refrigerated case, as defined in AHRI Standard 1200.

(E) Other terms have such meanings as may be established by the Secretary, based on industry-accepted definitions and practice.

(2) Each commercial refrigerator, freezer, and refrigerator-freezer with a self-contained condensing unit designed for holding temperature applications manufactured on or after January 1, 2010, shall have a daily energy consumption (in kilowatt hours per day) that does not exceed the following:

Refrigerators with solid doors	0.10 V + 2.04
Refrigerators with transparent doors	0.12 V + 3.34
Freezers with solid doors	0.40 V + 1.38
Freezers with transparent doors	0.75 V + 4.10
Refrigerators/freezers with solid doors the greater of	0.27 AV - 0.71 or 0.70.

(3) Each commercial refrigerator with a self-contained condensing unit designed for pull-down temperature applications and transparent doors manufactured on or after January 1, 2010, shall have a daily energy consumption (in kilowatt hours per day) of not more than 0.126 V + 3.51.

(4)(A) Each SOC-SC-M manufactured on or after January 1, 2012, shall have a total daily en-

ergy consumption (in kilowatt hours per day) of not more than 0.6 × TDA + 1.0.

(B) Not later than 3 years after December 18, 2012, the Secretary shall—

- (i) determine whether the standard established under subparagraph (A) should be amended; and
- (ii) if the Secretary determines that such standard should be amended, issue a final rule establishing an amended standard.

(C) If the Secretary issues a final rule pursuant to subparagraph (B) establishing an amended standard, the final rule shall provide that the amended standard shall apply to products manufactured on or after the date that is—

- (i) 3 years after the date on which the final amended standard is published; or
- (ii) if the Secretary determines, by rule, that 3 years is inadequate, not later than 5 years after the date on which the final rule is published.

(5)(A) Not later than January 1, 2009, the Secretary shall issue, by rule, standard levels for ice-cream freezers, self-contained commercial refrigerators, freezers, and refrigerator-freezers without doors, and remote condensing commercial refrigerators, freezers, and refrigerator-freezers, with the standard levels effective for equipment manufactured on or after January 1, 2012.

(B) The Secretary may issue, by rule, standard levels for other types of commercial refrigerators, freezers, and refrigerator-freezers not covered by paragraph (2)(A) with the standard levels effective for equipment manufactured 3 or more years after the date on which the final rule is published.

(6)(A) Not later than January 1, 2013, the Secretary shall issue a final rule to determine whether the standards established under this subsection should be amended.

(B) Not later than 3 years after the effective date of any amended standards under subparagraph (A) or the publication of a final rule determining that the standards should not be amended, the Secretary shall issue a final rule to determine whether the standards established under this subsection or the amended standards, as applicable, should be amended.

(C) If the Secretary issues a final rule under subparagraph (A) or (B) establishing amended standards, the final rule shall provide that the amended standards apply to products manufactured on or after the date that is—

- (i) 3 years after the date on which the final amended standard is published; or
- (ii) if the Secretary determines, by rule, that 3 years is inadequate, not later than 5 years after the date on which the final rule is published.

(d) Automatic commercial ice makers

(1) Each automatic commercial ice maker that produces cube type ice with capacities between 50 and 2500 pounds per 24-hour period when tested according to the test standard established in section 6314(a)(7) of this title and is manufactured on or after January 1, 2010, shall meet the following standard levels:

Equipment Type	Type of Cooling	Harvest Rate (lbs ice/24 hours)	Maximum Energy Use (kWh/100 lbs Ice)	Maximum Condenser Water Use (gal/100 lbs Ice)
Ice Making Head	Water	<500	7.80–0.0055H	200–0.022H
		≥500 and <1436	5.58–0.0011H	200–0.022H
		≥1436	4.0	200–0.022H
Ice Making Head	Air	<450	10.26–0.0086H	Not Applicable
		≥450	6.89–0.0011H	Not Applicable
Remote Condensing (but not remote compressor)	Air	<1000	8.85–0.0038H	Not Applicable
		≥1000	5.10	Not Applicable
Remote Condensing and Remote Compressor	Air	<934	8.85–0.0038H	Not Applicable
		≥934	5.3	Not Applicable
Self Contained	Water	<200	11.40–0.019H	191–0.0315H
		≥200	7.60	191–0.0315H
Self Contained	Air	<175	18.0–0.0469H	Not Applicable
		≥175	9.80	Not Applicable

H = Harvest rate in pounds per 24 hours.
 Water use is for the condenser only and does not include potable water used to make ice.

(2)(A) The Secretary may issue, by rule, standard levels for types of automatic commercial ice makers that are not covered by paragraph (1).

(B) The standards established under subparagraph (A) shall apply to products manufactured on or after the date that is—

- (i) 3 years after the date on which the rule is published under subparagraph (A); or
- (ii) if the Secretary determines, by rule, that 3 years is inadequate, not later than 5 years after the date on which the final rule is published.

(3)(A) Not later than January 1, 2015, with respect to the standards established under paragraph (1), and, with respect to the standards established under paragraph (2), not later than 5 years after the date on which the standards take effect, the Secretary shall issue a final rule to determine whether amending the applicable standards is technologically feasible and economically justified.

(B) Not later than 5 years after the effective date of any amended standards under subparagraph (A) or the publication of a final rule determining that amending the standards is not technologically feasible or economically justified, the Secretary shall issue a final rule to determine whether amending the standards established under paragraph (1) or the amended standards, as applicable, is technologically feasible or economically justified.

(C) If the Secretary issues a final rule under subparagraph (A) or (B) establishing amended standards, the final rule shall provide that the amended standards apply to products manufactured on or after the date that is—

- (i) 3 years after the date on which the final amended standard is published; or

(ii) if the Secretary determines, by rule, that 3 years is inadequate, not later than 5 years after the date on which the final amended standard is published.

(4) A final rule issued under paragraph (2) or (3) shall establish standards at the maximum level that is technically feasible and economically justified, as provided in subsections (o) and (p) of section 6295 of this title.

(e) Commercial clothes washers

(1) Each commercial clothes washer manufactured on or after January 1, 2007, shall have—

- (A) a Modified Energy Factor of at least 1.26; and
- (B) a Water Factor of not more than 9.5.

(2)(A)(i) Not later than January 1, 2010, the Secretary shall publish a final rule to determine whether the standards established under paragraph (1) should be amended.

(ii) The rule published under clause (i) shall provide that any amended standard shall apply to products manufactured 3 years after the date on which the final amended standard is published.

(B)(i) Not later than January 1, 2015, the Secretary shall publish a final rule to determine whether the standards established under paragraph (1) should be amended.

(ii) The rule published under clause (i) shall provide that any amended standard shall apply to products manufactured 3 years after the date on which the final amended standard is published.

(f) Walk-in coolers and walk-in freezers**(1) In general**

Subject to paragraphs (2) through (6), each walk-in cooler or walk-in freezer manufactured on or after January 1, 2009, shall—

(A) have automatic door closers that firmly close all walk-in doors that have been closed to within 1 inch of full closure, except that this subparagraph shall not apply to doors wider than 3 feet 9 inches or taller than 7 feet;

(B) have strip doors, spring hinged doors, or other method of minimizing infiltration when doors are open;

(C) contain wall, ceiling, and door insulation of at least R-25 for coolers and R-32 for freezers, except that this subparagraph shall not apply to glazed portions of doors nor to structural members;

(D) contain floor insulation of at least R-28 for freezers;

(E) for evaporator fan motors of under 1 horsepower and less than 460 volts, use—

- (i) electronically commutated motors (brushless direct current motors); or
- (ii) 3-phase motors;

(F) for condenser fan motors of under 1 horsepower, use—

- (i) electronically commutated motors;
- (ii) permanent split capacitor-type motors; or
- (iii) 3-phase motors; and

(G) for all interior lights, use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any), except that light sources with an efficacy of 40 lumens per watt or less, including ballast losses (if any), may be used in conjunction with a timer or device that turns off the lights within 15 minutes of when the walk-in cooler or walk-in freezer is not occupied by people.

(2) Electronically commutated motors**(A) In general**

The requirements of paragraph (1)(E)(i) for electronically commutated motors shall take effect January 1, 2009, unless, prior to that date, the Secretary determines that such motors are only available from 1 manufacturer.

(B) Other types of motors

In carrying out paragraph (1)(E)(i) and subparagraph (A), the Secretary may allow other types of motors if the Secretary determines that, on average, those other motors use no more energy in evaporator fan applications than electronically commutated motors.

(C) Maximum energy consumption level

The Secretary shall establish the maximum energy consumption level under subparagraph (B) not later than January 1, 2010.

(3) Additional specifications

Each walk-in cooler or walk-in freezer with transparent reach-in doors manufactured on or after January 1, 2009, shall also meet the following specifications:

(A) Transparent reach-in doors for walk-in freezers and windows in walk-in freezer doors shall be of triple-pane glass with either heat-reflective treated glass or gas fill.

(B) Transparent reach-in doors for walk-in coolers and windows in walk-in cooler doors shall be—

- (i) double-pane glass with heat-reflective treated glass and gas fill; or
- (ii) triple-pane glass with either heat-reflective treated glass or gas fill.

(C) If the appliance has an antisweat heater without antisweat heat controls, the appliance shall have a total door rail, glass, and frame heater power draw of not more than 7.1 watts per square foot of door opening (for freezers) and 3.0 watts per square foot of door opening (for coolers).

(D) If the appliance has an antisweat heater with antisweat heat controls, and the total door rail, glass, and frame heater power draw is more than 7.1 watts per square foot of door opening (for freezers) and 3.0 watts per square foot of door opening (for coolers), the antisweat heat controls shall reduce the energy use of the antisweat heater in a quantity corresponding to the relative humidity in the air outside the door or to the condensation on the inner glass pane.

(4) Performance-based standards**(A) In general**

Not later than January 1, 2012, the Secretary shall publish performance-based standards for walk-in coolers and walk-in freezers that achieve the maximum improvement in energy that the Secretary determines is technologically feasible and economically justified.

(B) Application**(i) In general**

Except as provided in clause (ii), the standards shall apply to products described in subparagraph (A) that are manufactured beginning on the date that is 3 years after the final rule is published.

(ii) Delayed effective date

If the Secretary determines, by rule, that a 3-year period is inadequate, the Secretary may establish an effective date for products manufactured beginning on the date that is not more than 5 years after the date of publication of a final rule for the products.

(5) Amendment of standards**(A) In general**

Not later than January 1, 2020, the Secretary shall publish a final rule to determine if the standards established under paragraph (4) should be amended.

(B) Application**(i) In general**

Except as provided in clause (ii), the rule shall provide that the standards shall apply to products manufactured beginning on the date that is 3 years after the final rule is published.

(ii) Delayed effective date

If the Secretary determines, by rule, that a 3-year period is inadequate, the Secretary may establish an effective date for products manufactured beginning on the date that is not more than 5 years after the date of publication of a final rule for the products.

(6) Innovative component technologies

Subparagraph (C) of paragraph (1) shall not apply to a walk-in cooler or walk-in freezer component if the component manufacturer has demonstrated to the satisfaction of the Secretary that the component reduces energy consumption at least as much as if such subparagraph were to apply. In support of any demonstration under this paragraph, a manufacturer shall provide to the Secretary all data and technical information necessary to fully evaluate its application.

(g) Lighting power supply circuits

If the Secretary, acting pursuant to section 6312(b) of this title, includes as covered equipment solid state lighting power supply circuits, drivers, or devices described in section 6291(36)(A)(ii) of this title, the Secretary may prescribe under this part, not earlier than 1 year after the date on which a test procedure has been prescribed, an energy conservation standard for such equipment.

(Pub. L. 94-163, title III, §342, as added Pub. L. 95-619, title IV, §441(a), Nov. 9, 1978, 92 Stat. 3269; amended Pub. L. 102-486, title I, §122(d), Oct. 24, 1992, 106 Stat. 2810; Pub. L. 109-58, title I, §136(b)-(e), Aug. 8, 2005, 119 Stat. 636-641; Pub. L. 110-140, title III, §§305(b), 306(c), 312(b), 313(b)(1), 314(b), Dec. 19, 2007, 121 Stat. 1554, 1559, 1564, 1568, 1570; Pub. L. 112-210, §§2, 4, 5(b), 10(a)(3), (4), Dec. 18, 2012, 126 Stat. 1514, 1516, 1518, 1522, 1524; Pub. L. 113-188, title VI, §601(c), Nov. 26, 2014, 128 Stat. 2019; Pub. L. 115-115, §2(b)(2), Jan. 12, 2018, 131 Stat. 2280.)

Editorial Notes

REFERENCES IN TEXT

Paragraph (2), referred to in subsec. (b)(1), probably means par. (3), formerly par. (2), of subsec. (b) of this section, which was redesignated by Pub. L. 110-140, §313(b)(1)(A).

AMENDMENTS

2018—Subsec. (g). Pub. L. 115-115 added subsec. (g).

2014—Subsec. (a)(6)(C)(v), (vi). Pub. L. 113-188, which directed amendment of subsec. (a)(6)(C) by striking cl. (v) and redesignating the cl. (vi) “as added by section 310(a)(4) of Public Law 112-110” as (v), was executed by striking cl. (v) and redesignating as (v) the cl. (vi) (relating to consideration of prices and operating patterns) which had been redesignated by section 10(a)(4) of Pub. L. 112-210, to reflect the probable intent of Congress. Prior to amendment, text of par. (v) read as follows: “The Secretary shall promptly submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a progress report every 180 days on compliance with this subparagraph, including a specific plan to remedy any failures to comply with deadlines for action established under this subparagraph.”

2012—Subsec. (a)(6)(A)(i). Pub. L. 112-210, §5(b)(1), inserted “the standard levels or design requirements ap-

plicable under that standard to” before “any small commercial”.

Subsec. (a)(6)(B). Pub. L. 112-210, §10(a)(3)(A)(i)-(iii), designated existing provisions as cl. (i), inserted cl. (i) heading, and substituted “subparagraph (A)(ii)(II)” for “clause (ii)(II)” and “subparagraph (A)(i)” for “clause (i)”.

Subsec. (a)(6)(B)(ii). Pub. L. 112-210, §10(a)(3)(A)(iv), added cl. (ii).

Subsec. (a)(6)(B)(iii). Pub. L. 112-210, §10(a)(4), redesignated cl. (iii), relating to consideration of prices and operating patterns, as cl. (vi) of subsec. (a)(6)(C).

Pub. L. 112-210, §10(a)(3)(A)(iv), added cl. (iii). Former cl. (iii) redesignated cl. (vi) of subsec. (a)(6)(C).

Subsec. (a)(6)(C)(i). Pub. L. 112-210, §5(b)(2)(A), in introductory provisions, substituted “Every 6 years,” for “Not later than 6 years after issuance of any final rule establishing or amending a standard, as required for a product under this part,” and inserted “conduct an evaluation of each class of covered equipment and shall” after “the Secretary shall”.

Subsec. (a)(6)(C)(iv). Pub. L. 112-210, §10(a)(3)(B), substituted “Notwithstanding subparagraph (D), an amendment prescribed under this subparagraph” for “An amendment prescribed under this subsection” in introductory provisions.

Subsec. (a)(6)(C)(vi). Pub. L. 112-210, §10(a)(4), redesignated cl. (iii) of subsec. (a)(6)(B), relating to consideration of prices and operating patterns, as cl. (vi) of subsec. (a)(6)(C).

Pub. L. 112-210, §5(b)(2)(B), added cl. (vi) relating to notices for covered equipment for which more than 6 years has elapsed since the issuance of the most recent final rule establishing or amending a standard for the product.

Subsec. (c)(1)(C) to (E). Pub. L. 112-210, §4(1), added subpars. (C) and (D) and redesignated former subpar. (C) as (E).

Subsec. (c)(4) to (6). Pub. L. 112-210, §4(2), (3), added par. (4) and redesignated former pars. (4) and (5) as (5) and (6), respectively.

Subsec. (f)(1). Pub. L. 112-210, §2(1), substituted “paragraphs (2) through (6)” for “paragraphs (2) through (5)” in introductory provisions.

Subsec. (f)(6). Pub. L. 112-210, §2(2), added par. (6).

2007—Subsec. (a)(1). Pub. L. 110-140, §314(b)(1), (2), in introductory provisions, inserted “(including single package vertical air conditioners and single package vertical heat pumps)” after “heating equipment” and struck out “but before January 1, 2010,” after “January 1, 1994.”

Subsec. (a)(2). Pub. L. 110-140, §314(b)(1), inserted “(including single package vertical air conditioners and single package vertical heat pumps)” after “heating equipment” in introductory provisions.

Subsec. (a)(6). Pub. L. 110-140, §305(b), inserted heading, added subpars. (A) to (C), redesignated former subpar. (C) as (D), and struck out former subpars. (A) and (B) which related to, in subpar. (A), establishment of amended uniform national standards for certain air conditioning and heating equipment and products if ASHRAE/IES Standard 90.1 had been amended and, if such standard had not been amended, initiation of a rulemaking to determine whether a more stringent standard would result in additional energy conservation and be technologically feasible and economically justified, and, in subpar. (B), establishment of an amended standard, including factors to be considered, if a rule had been issued pursuant to a subpar. (A) termination and prohibition of an amended standard which would decrease energy efficiency or would likely result in the unavailability of a product type.

Subsec. (a)(6)(B)(iii). Pub. L. 110-140, §306(c), added cl. (iii) at end.

Subsec. (a)(7). Pub. L. 110-140, §314(b)(3), (4)(A), in introductory provisions, inserted “(other than single package vertical air conditioners and single package vertical heat pumps)” after “heating equipment” and struck out “manufactured on or after January 1, 2010,” before “shall meet”.

Subsec. (a)(7)(A) to (C). Pub. L. 110-140, §314(b)(4)(B), substituted “For equipment manufactured on or after January 1, 2010, the” for “The”.

Subsec. (a)(7)(D). Pub. L. 110-140, §314(b)(4)(C), added subpar. (D).

Subsec. (a)(8), (9). Pub. L. 110-140, §314(b)(3), inserted “(other than single package vertical air conditioners and single package vertical heat pumps)” after “heating equipment” in introductory provisions.

Subsec. (a)(10). Pub. L. 110-140, §314(b)(5), added par. (10).

Subsec. (b)(2) to (4). Pub. L. 110-140, §313(b)(1), added par. (2) and redesignated former pars. (2) and (3) as (3) and (4), respectively.

Subsec. (f). Pub. L. 110-140, §312(b), added subsec. (f), 2005—Subsec. (a). Pub. L. 109-58, §136(b)(1), substituted “Small, large, and very large” for “Small and large” in heading.

Subsec. (a)(1). Pub. L. 109-58, §136(b)(2), inserted “but before January 1, 2010,” after “January 1, 1994,” in introductory provisions.

Subsec. (a)(2). Pub. L. 109-58, §136(b)(3), inserted “but before January 1, 2010,” after “January 1, 1995,” in introductory provisions.

Subsec. (a)(6)(A). Pub. L. 109-58, §136(b)(4)(A), designated existing provisions as cl. (i), substituted “January 1, 2010” for “October 24, 1992”, inserted “and very large commercial package air conditioning and heating equipment, or if ASHRAE/IES Standard 90.1, as in effect on October 24, 1992, is amended with respect to any” after “large commercial package air conditioning and heating equipment,”, and added cl. (ii).

Subsec. (a)(6)(C)(ii). Pub. L. 109-58, §136(b)(4)(B), inserted “and very large commercial package air conditioning and heating equipment” after “large commercial package air conditioning and heating equipment”.

Subsec. (a)(7) to (9). Pub. L. 109-58, §136(b)(5), added pars. (7) to (9).

Subsecs. (c) to (e). Pub. L. 109-58, §136(c)–(e), added subsecs. (c) to (e).

1992—Pub. L. 102-486 amended section generally, substituting present provisions for former provisions requiring Secretary to conduct evaluations of electric motors and pumps and other industrial equipment for purposes of determining standards.

Statutory Notes and Related Subsidiaries

EFFECTIVE DATE OF 2012 AMENDMENT

Amendment by section 10(a)(3), (4) of Pub. L. 112-210 effective as if included in the Energy Independence and Security Act of 2007, Pub. L. 110-140, see section 10(a)(13) of Pub. L. 112-210, set out as a note under section 6291 of this title.

EFFECTIVE DATE OF 2007 AMENDMENT

Pub. L. 110-140, title III, §313(b)(2), Dec. 19, 2007, 121 Stat. 1569, provided that: “The amendments made by paragraph (1) [amending this section] take effect on the date that is 3 years after the date of enactment of this Act [Dec. 19, 2007].”

Amendment by Pub. L. 110-140 effective on the date that is 1 day after Dec. 19, 2007, see section 1601 of Pub. L. 110-140, set out as an Effective Date note under section 1824 of Title 2, The Congress.

§ 6314. Test procedures

(a) Prescription by Secretary; requirements

(1) TEST PROCEDURES.—

(A)¹ AMENDMENT.—At least once every 7 years, the Secretary shall conduct an evaluation of each class of covered equipment and—

- (i) if the Secretary determines that amended test procedures would more accurately or fully comply with the require-

ments of paragraphs (2) and (3), shall prescribe test procedures for the class in accordance with this section; or

- (ii) shall publish notice in the Federal Register of any determination not to amend a test procedure.

(2) Test procedures prescribed in accordance with this section shall be reasonably designed to produce test results which reflect energy efficiency, energy use, and estimated operating costs of a type of industrial equipment (or class thereof) during a representative average use cycle (as determined by the Secretary), and shall not be unduly burdensome to conduct.

(3) If the test procedure is a procedure for determining estimated annual operating costs, such procedure shall provide that such costs shall be calculated from measurements of energy use in a representative average-use cycle (as determined by the Secretary), and from representative average unit costs of the energy needed to operate such equipment during such cycle. The Secretary shall provide information to manufacturers of covered equipment respecting representative average unit costs of energy.

(4)(A) With respect to small commercial package air conditioning and heating equipment, large commercial package air conditioning and heating equipment, very large commercial package air conditioning and heating equipment, packaged terminal air conditioners, packaged terminal heat pumps, warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, and unfired hot water storage tanks to which standards are applicable under section 6313 of this title, the test procedures shall be those generally accepted industry testing procedures or rating procedures developed or recognized by the Air-Conditioning, Heating, and Refrigeration Institute or 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.

(B) If such an industry test procedure or rating procedure for small commercial package air conditioning and heating equipment, large commercial package air conditioning and heating equipment, very large commercial package air conditioning and heating equipment, packaged terminal air conditioners, packaged terminal heat pumps, warm-air furnaces, packaged boilers, storage water heaters, instantaneous water heaters, or unfired hot water storage tanks is amended, the Secretary shall amend the test procedure for the product as necessary to be consistent with the amended industry test procedure or rating 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 paragraphs (2) and (3) of this subsection.

(C) If the Secretary prescribes a rule containing such a determination, the rule may establish an amended test procedure for such product that meets the requirements of paragraphs (2) and (3) of this subsection. In establishing any amended test procedure under this subparagraph or subparagraph (B), the Secretary shall follow the procedures and meet the requirements specified in section 6293(e) of this title.

¹ So in original. No subpar. (B) has been enacted.