CHAPTER 30

ENERGY CONSERVATION

Authority

N.J.S.A. 52:27F–11(g).

Source and Effective Date

R.1991 d.69, effective February 19, 1991.
See: 22 N.J.R. 3315(b), 23 N.J.R. 413(b).

Executive Order No. 66(1978) Expiration Date

Chapter 30, Energy Conservation, expires February 19, 1996.

Chapter Historical Note

Chapter 30, Energy Conservation, was recodified from N.J.A.C. 14A:3 upon adoption, pursuant to Reorganization Plan (No. 002–1989). N.J.A.C. 14A:3 expired October 7, 1990 and was readopted as new rules at Chapter 30, by R.1991 d.69, effective February 19, 1991. See: Source and Effective Date.

See annotations at N.J.A.C. 14A:3 for detailed historical information.

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SUBCHAPTER 1. GENERAL PROVISIONS

14:30–1.1 Purpose and scope

The purpose of these rules is to achieve substantial savings of one or more energy sources in compliance with the provisions of P.L. 1977, c.146, section 9g. These rules shall apply uniformly to each member of the segment of society within the State to whom such rule is directed unless otherwise specified in writing by the Board.

14:30–1.2 Construction and amendment

(a) These rules shall be liberally construed to permit the Board to effectively carry out its statutory functions and to insure the maximum conservation of energy sources within the State.

(b) These rules may be amended by the Board in accordance with the provisions of N.J.S.A. 52:14B–1 et seq.

14:30–1.3 Copies

Copies of all reports, correspondence, documents, data, analysis, and whatever other information, as required by the provisions of these rules, shall be filed in original plus three copies, and addressed to the Board of Public Utilities, Two Gateway Center, Newark, New Jersey 07102.

14:30–1.4 Variances and exemptions

(a) The Board will consider requests for variances or exemptions from any of the provisions of this chapter. Any person requesting a variance should complete an "Application for a Variance or an Exemption", which may be obtained from the:

Board of Public Utilities
Two Gateway Center
Newark, New Jersey 07102

(b) The completed form should be submitted to the Board. The Board shall review the request and notify the person of its determination and the basis for the determination within 90 days of receipt of the application. This determination should constitute final agency action on the application.

(c) The Board may grant a variance if the person demonstrates to the satisfaction of the Board that compliance with the provisions of this chapter would:

1. Create undue economic, environmental or technical hardship;

2. Increase the amount of energy consumed by a building; or

3. Be detrimental to the public health, safety or welfare.

SUBCHAPTER 2. LARGE BOILER COMBUSTION EFFICIENCY STANDARDS

14:30–2.1 Scope

Unless otherwise indicated, the provisions of this subchapter shall apply to all fossil fuel-fired large boilers, operated within the State of New Jersey, as defined in N.J.A.C. 14:30–2.2, except those operated by electric and gas public utilities subject to the jurisdiction of the New Jersey Board of Public Utilities.

14:30–2.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise:

"Board" means the New Jersey Board of Public Utilities.

"BTU" or "British Thermal Unit" means the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit from the temperature 60 degrees Fahrenheit at standard pressure (14.7 psia) conditions.

"Combustion efficiency" (Ec) means the percentage ratio of heat available minus heat lost in the products of combustion and excess air to heat available, where heat available is the higher heating value of the fuel.

Ec = (heat available) − (heat lost in the products of combustion and excess air))/(heat available)

"High fire" means a condition at which the boiler is operating at its maximum firing rate within its normal operating range, when in service.

"In service" means a condition of the boiler when operating.

"Large boiler" means any fired steam boiler, steam generator, hot water boiler, or hot oil unit whose rated capacity exceeds either 499 square feet of heating surface or 100 boiler horsepower, or four million BTU/hour input, regardless of temperature or pressure conditions.

"Load" means the demand of the boiler in appropriate units per hour at the operating temperature and pressure conditions.

"Low fire" means a condition at which the boiler is operating at its minimum firing rate when in service.

"Optimum percent oxygen" means the lowest percent oxygen content in the flue gas which can be achieved without:

1. Exceeding 220 ppm carbon monoxide for gas fired boilers or the air pollution levels specified by N.J.A.C. 7:27–3 for coal and oil fired boilers; or

2. Causing delayed ignition, visible flame instability, flame carryover, flame impingement, pulsation noise.

"Optimum percent oxygen performance characteristic curve" means a relationship between the optimum percent oxygen in the flue gas and the load.

"Optimum temperature" means the temperature of the flue gas at the condition of optimum percent oxygen for that load condition.

"Optimum temperature performance characteristic curve" means a relationship between the optimum temperature of the flue gas and the load.

"Percent oxygen" means the ratio of the volume of oxygen contained in the sample of flue gas to the total volume of the sample. Percent oxygen may be determined directly from a device which measures oxygen content or equivalent percent oxygen content may be determined indirectly by conversion from devices which measure carbon dioxide.

"Performance characteristic curves" means optimum percent oxygen performance characteristic curve and optimum temperature performance characteristic curve.

"Responsible person" means the owner or operator, whoever has control, either directly or indirectly through an agent, over the large boiler.

"Steady state condition" means equilibrium condition as indicated by a variation in the flue gas temperature of not more than plus or minus 10 degrees Fahrenheit obtained in three consecutive readings taken 10 minutes apart.

14:30–2.3 Standards

Responsible persons shall operate all large boilers at a combustion efficiency such that neither the percent oxygen shall be higher than 1.25 times the optimum percent oxygen value nor the temperature of the flue gases shall be higher than 1.15 times the optimum temperature value obtained from the performance characteristic curves for that load condition. However, where optimum percent oxygen is below 2.4 percent, the boilers may be operated at a combustion efficiency such that the percent oxygen is not higher than 3.0 percent.

14:30–2.4 Performance characteristic curves

(a) Responsible persons shall obtain initial performance characteristic curves for every large boiler as soon as practicable following its next annual internal inspection required by N.J.A.C. 12:90–4.10. The initial performance characteristic curves shall be obtained for the type of fuel(s) in use.

(b) Points on the curves shall include low fire, the upper end of the normal operating range, and several intermediate points uniformly spaced. For nonmodulating burners, intermediate points are not required.

(c) Performance characteristic curves for each boiler shall be redetermined every five years, or when the fuel type, or any component of the boiler which could change its combustion efficiency, has changed, or at the request of the Board. Performance characteristic curves shall be redetermined only after the boiler is made ready in a state similar to that required for annual internal inspection cited in (a) above.

14:30–2.5 Test requirements

Responsible persons shall test every large boiler in accordance with N.J.A.C. 14:30–2.6 not less than once during each calendar week when it is in service. Boilers used primarily for heating service shall be tested during the heating season.

14:30–2.6 Test procedure

(a) The boiler test procedure is as follows:

1. When the boiler is in service, continue operation until a steady state condition is reached at any point within the user's operating range; and

2. Measure and record the percent oxygen present in the flue gases and the temperature of the flue gases utilizing test equipment designed for such purposes. The test equipment shall be used in accordance with the equipment manufacturer's operating instructions.

14:30–2.7 Records and inspection

(a) Responsible persons shall maintain performance characteristic curves and weekly test results at the plant wherein the boiler is situated for a period of at least five years. Such reports shall be made available, upon request, for inspection by officials of the Board during normal business hours.

(b) Inspection by officials of the Board for the purpose of determining compliance with the provisions of this subchapter shall be made during normal business hours.

14:30–2.8 Variance

If compliance with the provisions of this subchapter creates undue economic, environmental or technical hardship, a variance of the provisions of this subchapter may be requested from the Board.

14:30–2.9 Failure to comply

Upon failure to comply with the provisions of this subchapter, the Board may seek an injunction against the user to prevent that user from operating a boiler in violation of this subchapter, pursuant to P.L. 1977, c.146, sec. 19.

14:30–2.10 Certification of compliance

(a) The responsible person shall complete in accordance with instructions provided by the Board, and post in a prominent location near the boiler, a "Certificate of Boiler Compliance". The responsible person shall certify on the certificate that the boiler is in compliance with this subchapter. The certificate shall set forth all applicable variances and exemptions granted by the Board.

(b) The responsible person shall, within 30 days of the boiler's initial compliance and thereafter only upon request of the Board, submit to the Board in accordance with instructions provided by the Board a "Boiler Compliance Form."

(c) It shall be deemed a violation of this chapter for a responsible person to knowingly provide false, misleading or incomplete information on the "Certificate of Boiler Compliance" or "Boiler Compliance Form."

SUBCHAPTER 3. ANNUAL OIL FIRED HEATING UNIT MAINTENANCE STANDARDS

14:30–3.1 Scope

The provisions of this subchapter shall apply to all oil-fired units on which maintenance is performed annually in residential premises, commercial premises and schools. Oil-fired units involving large boilers defined in and covered by N.J.A.C. 14:30–2 shall not be covered by this subchapter.

14:30–3.2 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings unless the context clearly indicates otherwise:

"Boiler" means a device designed to be the primary heating source for a structure which uses water or steam as the heat transfer medium.

"Flue gas analyzer" means a device used to extract a sample of flue gas and measure the percentage of carbon dioxide in the sample or the percentage of oxygen in the sample if the measuring device is so designed.

"Furnace" means a device designed to be the primary heating source for a structure which uses air as the heat transfer medium.

"Maintenance" means any inspection, cleaning, lubrication, adjustment, testing or replacement of parts of a unit or its controls. Maintenance shall not include emergency services.

"Responsible person" means any fuel oil supplier, heating contractor, or any person who provides maintenance on boilers or furnaces.

"Smoke scale" means a photometric scale to which the filter paper stained by the flue gas sample extracted by the smoke tester is compared to determine the smoke condition of the unit. A smoke scale shall be considered approved if it is constructed and operated in accordance with American Society for Testing Materials (ASTM) D 2156–80.

"Smoke tester" means a device used to extract a sample of flue gas. A smoke tester shall be considered approved if it is constructed and operated in accordance with ASTM D 2156–80.

"Steady-state condition" means equilibrium conditions as indicated by changes in the flue gas temperature of not more than plus or minus five degrees Fahrenheit obtained in two consecutive readings taken five minutes apart.

"Unit" means a boiler or furnace.

14:30–3.3 Listing requirement

(a) The Board shall maintain a list of all responsible persons who offer maintenance service to customers.

(b) All responsible persons who offer maintenance shall furnish the following information to the Board annually by the 30th of June:

1. Name of corporation, partnership or individual and a primary contact;

2. Business address;

3. Business telephone number; and

4. Summary account information, as follows:

i. For fuel oil suppliers, the number of accounts by classification, that is, residential, industrial, and commercial (to include schools, hospitals and government building accounts), and the total number of accounts within each classification that receive maintenance from the fuel oil supplier; and

ii. For all others, the total number of service accounts by classification, that is, residential, industrial, and commercial (to include schools, hospitals and government building accounts).

14:30–3.4 Standard

All responsible persons shall achieve a minimum permissible efficiency rating, as determined by N.J.A.C. 14:30–3.5, of 72 percent for all oil-fired units subject to the provisions of this subchapter.

14:30–3.5 Test procedure

(a) The test procedure to determine compliance with N.J.A.C. 14:30–3.4 is as follows. The responsible person shall:

1. Initiate operation of unit and continue operation until unit reaches steady-state condition;

2. Upon attaining steady-state conditions, measure and record:

i. Unit intake air temperature (Ta), degree Fahrenheit;

ii. Stack gas temperature (Ts), degree Fahrenheit;

iii. Percentage of carbon dioxide or percentage of oxygen using a flue gas analyzer;

iv. Smoke number of the flue gas using an approved smoke scale; and

v. Draft measured in inches water gauge; and

3. Adjust the draft to meet manufacturer's specification, if required.

(b) The following calculations shall be used to determine the following efficiency rating:

1. Calculate the difference in temperature (T) between the stack gas temperature (Ts) obtained in (b)2 and the unit intake air temperature (Ta) obtained in (b) as T = (Ts − Ta);

2. Using a stack loss chart and the values obtained in (b)3, and (d)1, compute the stack loss percentage (% SL); and

3. Calculate the percent efficiency using the following: % efficiency = 100 − (% SL).

14:30–3.6 Maintenance requirements

(a) All responsible persons shall maintain oil-fired units subject to the provisions of this subchapter annually to meet the requirement specified in N.J.A.C. 14:30–3.4.

1. All oil-fired units shall be adjusted to obtain optimum efficiency consistent with combustion characteristic indicated by a smoke number not in excess of number 1 smoke on an approved smoke scale;

2. Where the oil-fired unit cannot be maintained to meet the minimum efficiency rating as set forth in N.J.A.C. 14:30–3.4, the responsible person shall notify the owner of the premises that the unit cannot meet the efficiency rating recommended by the Board. A copy of the notice stating the efficiency rating achieved shall be kept on file at his or her place of business. Such notices shall be made available, upon request, for inspection by officials of the Board during normal business hours; and

3. The responsible person shall furnish the owner with conservation information pertaining to fuel savings of energy efficient units. Each responsible person, upon request, shall furnish the Board with a copy of the written material it provides the owner upon failure of the unit to meet the recommended efficiency rating.

14:30–3.7 Failure to comply

Upon the failure of a responsible person to comply with the provisions of this subchapter, the Board may seek an injunction to prevent such party from offering maintenance service pursuant to P.L. 1977 c.146, sec. 19.