

Chapter 173-407 WAC

GREENHOUSE GAS MITIGATION REQUIREMENTS AND EMISSIONS PERFORMANCE STANDARD FOR POWER PLANTS

WAC

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173-407-006 Adoption of federal rules.

(Order 07-11), § 173-407-230, filed 6/19/08, effective 7/20/08.] Amended and decodified by WSR 18-05-091 (Order 16-12), filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. Recodified as 173-407-160.

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173-407-090 Severability. [Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-090, filed 12/22/04, effective 1/22/05.] Decodified by WSR 08-14-011 (Order 07-11), filed 6/19/08, effective 7/20/08. Statutory Authority: Chapter 80.80 RCW. Recodified as § 173-407-400.
173-407-230 Emissions and electrical production monitoring, record-keeping and reporting requirements under Part II. [Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011

WAC 173-407-005 Overview. (1) This rule has three separate parts:

(a) Part I covers CO₂ mitigation in WAC 173-407-010 through 173-407-080.

(b) Part II covers GHG EPS in WAC 173-407-100 through 173-407-240.

(c) Part III covers long-term financial commitments and ecology's consultation in WAC 173-407-300 through 173-407-320.

(2) Part I and Part II work together. Apply the requirements in this sequence:

(a) GHG EPS (Part II); and then

(b) CO₂ mitigation (Part I).

(3) The owner of a coal-fired electric generation facility subject to RCW 80.80.040 (3)(c) must comply with RCW 80.70.080.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-005, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-005, filed 6/19/08, effective 7/20/08.]

WAC 173-407-006 Adoption of federal rules. Federal rules mentioned in this rule are adopted as they exist on February 21, 2018.

[Statutory Authority: Chapters 80.70 and 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-006, filed 2/21/18, effective 3/24/18.]

PART I

CARBON DIOXIDE MITIGATION REQUIREMENTS

WAC 173-407-010 Policy and purpose of Part I. (1) Chapter 80.70 RCW requires mitigation of CO₂ emissions from all new and certain modified fossil-fueled thermal electric generating facilities with station-generating capability of more than 25 megawatts of electricity (MWe).

(2) A fossil-fueled thermal electric generating facility is not subject to the requirements of chapter 173-401 WAC solely due to its emissions of CO₂.

(a) Emissions of other regulated air pollutants must trigger the requirements of chapter 173-401 WAC.

(b) For a fossil-fueled thermal electric generating facility subject to chapter 173-401 WAC, the CO₂ mitigation requirements are an applicable requirement under that regulation.

(3) A fossil-fueled thermal electric generating facility not subject to the requirements of chapter 173-401 WAC is subject to the requirements of the registration program in chapter 173-400 WAC.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-010, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-010, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-010, filed 12/22/04, effective 1/22/05.]

WAC 173-407-020 Definitions to Part I. The definitions in this section are only applicable to Part I.

"Annual CO₂ emission rate" means the maximum potential annual CO₂ emission rate.

"Applicant" has the meaning provided in RCW 80.50.020 and includes an applicant for a permit for a fossil-fueled thermal electric generation facility subject to RCW 70.94.152 and 80.70.020 (1)(b) or (d).

"Carbon credit" means a verified reduction in carbon dioxide or carbon dioxide equivalents that is registered with a state, national, or international trading authority or exchange that has been recognized by EFSEC.

"Carbon dioxide equivalents" means a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

"CO₂" means carbon dioxide.

"Cogeneration credit" means the carbon dioxide emissions that EFSEC or the permitting authority, as appropriate, estimates a stand-alone industrial and commercial facility would produce on an annual basis that is equivalent in operating characteristics and output to the industrial or commercial heating or cooling process component of the cogeneration plant.

"Cogeneration plant" means a fossil-fueled thermal power plant in which the heat or steam is also used for industrial or commercial heating or cooling purposes and that meets federal energy regulatory commission standards for qualifying facilities under the Public Utility Regulatory Policies Act of 1978.

"Commercial operation" means the date that the first electricity produced by a facility is delivered for commercial sale to the power grid.

"Ecology" means the department of ecology.

"EFSEC" means the energy facility site evaluation council.

"Fossil fuel" means natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such material to produce heat for the generation of electricity.

"Independent qualified organization" is an organization identified by EFSEC as meeting the requirements of RCW 80.70.050.

"Mitigation plan" means a proposal that includes the process or means to achieve carbon dioxide mitigation through use of mitigation projects or carbon credits.

"Mitigation project" means one or more of the following:

(a) Projects or actions implemented by the certificate holder or order of approval holder, directly or through its agent, or by an independent qualified organization to mitigate the emission of carbon dioxide produced by the fossil-fueled

thermal electric generation facility. This term includes, but is not limited to:

(i) The use of energy efficiency measures;
 (ii) Clean and efficient transportation measures;
 (iii) Qualified alternative energy resources;
 (iv) Demand side management of electricity consumption; and

(v) Carbon sequestration programs.

(b) Direct application of combined heat and power (cogeneration);

(c) Verified carbon credits traded on a recognized trading authority or exchange; or

(d) Enforceable and permanent reductions in carbon dioxide or carbon dioxide equivalents through process change, equipment shutdown, or other activities under the control of the facility and approved as part of a carbon dioxide mitigation plan.

"Modification" means the definition in WAC 173-400-030.

"MWe" means megawatts of electricity.

"Order of approval" means an order issued under RCW 70.94.152 with respect to a fossil-fueled thermal electric generation facility subject to WAC 173-407-030.

"Permanent" means that emission reductions used to offset emission increases are assured for the life of the corresponding increase, whether unlimited or limited in duration.

"Permitting authority" means ecology or the local air pollution control authority with jurisdiction over the source.

"Qualified alternative energy resource" has the same meaning as in RCW 19.29A.090.

"Station generating capability" means the maximum load a generator can sustain over a given period of time without exceeding design limits, and measured using maximum continuous electric generation capacity, less net auxiliary load, at average ambient temperature and barometric pressure.

"Total carbon dioxide emissions" means:

(a) For a fossil-fueled thermal electric generation facility described in WAC 173-407-030(1), the amount of carbon dioxide emitted over a thirty-year period based on:

(i) The manufacturer's or designer's guaranteed total net station generating capability;

(ii) New equipment heat rate; and

(iii) An assumed sixty percent capacity factor for facilities under EFSEC's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, taking into account any enforceable limitations on operational hours or fuel types and use.

(b) For a fossil-fueled thermal electric generation facility described in WAC 173-407-030(2), the amount of carbon dioxide emitted over a thirty-year period based on:

(i) The proposed increase in the amount of electrical output of the facility that exceeds the station generation capability of the facility prior to the facility applying for certification or an order of approval;

(ii) New equipment heat rate; and

(iii) An assumed sixty percent capacity factor for facilities under EFSEC's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, taking into account any enforceable limitations on operational hours or fuel types and use.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-020, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-020, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-020, filed 12/22/04, effective 1/22/05.]

WAC 173-407-030 Carbon dioxide mitigation program applicability for Part I. (1) New facility. A fossil-fueled thermal electric generating facility must mitigate CO₂ emissions when the facility meets the following criteria:

(a) A facility submits a notice of construction application after July 1, 2004;

(b) The station-generating capability is between 25 MWe and 350 MWe; and

(c) The facility is not a fossil-fueled floating thermal electric generation facility regulated by EFSEC (100 MWe or more).

(2) Modifying an existing fossil-fueled thermal electric generating facility. A fossil-fueled thermal electric generating facility seeking to modify the facility or an electrical generating unit must mitigate the increased CO₂ emissions when the facility meets the following criteria:

(a) A facility submits a notice of construction application after July 1, 2004;

(b) The unmodified station generating capability is between 25 MWe and 350 MWe;

(c) The increase to the facility or units is the greater of the following measures:

(i) An increase in station-generating capability of at least 25 MWe; or

(ii) An increase in CO₂ emissions output by 15 percent or more;

(d) The facility is not a fossil-fueled floating thermal electric generation facility regulated by EFSEC (100 MWe or more).

(3) Examples of fossil-fueled thermal electric generation units. The following are some examples of fossil-fueled thermal electric generating units:

(a) Coal, oil, natural gas, or coke fueled steam generating units (boilers) supplying steam to a steam turbine - electric generator;

(b) Simple cycle combustion turbine attached to an electric generator;

(c) Combined cycle combustion turbine (with and without duct burners) attached to an electric generator and supplying steam to a steam turbine - electric generator;

(d) Coal gasification unit, or similar device, where the synthesis gas produced is used to fuel a combustion turbine, boiler or similar device used to power an electric generator or provide hydrogen for use in fuel cells; or

(e) Hydrocarbon reformer emissions where the hydrogen produced is used in fuel cells or other combustion units to produce electricity. Hydrogen used to fuel motor vehicles is not subject to the requirements of this part.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-030, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-030, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-030, filed 12/22/04, effective 1/22/05.]

WAC 173-407-040 Carbon dioxide mitigation program fees under Part I. Fees can be found in WAC 173-455-050.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-040, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-040, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.181, [70.94.]152, [70.94.]331, [70.94.]650, [70.94.]745, [70.94.]892, [70.94.]011. WSR 07-19-005 (Order 07-10), § 173-407-040, filed 9/6/07, effective 10/7/07. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-040, filed 12/22/04, effective 1/22/05.]

WAC 173-407-050 Calculating total carbon dioxide emissions to be mitigated under Part I. (1) Step 1 - Calculate the annual CO₂ emission rate. Calculate the annual CO₂ emission rate using the following formula unless a differing analysis is necessary or appropriate for the electric generating process and type of equipment:

$$CO_{2rate} = \frac{F_s \times K_s}{2204.6} \times T_s + \frac{F_1 \times K_1}{2204.6} \times T_1 + \frac{F_2 \times K_2}{2204.6} \times T_2 + \frac{F_3 \times K_3}{2204.6} \times T_3 \dots + \frac{F_n \times K_n}{2204.6} \times T_n$$

where:

CO_{2rate} = Annual CO₂ emission rate in metric tons per year

F₁ to F_n = Maximum design fuel firing rate in MMBtu/hour calculated as manufacturer or designer's guaranteed total net station generating capability in MWe/hour times the new equipment heat rate in MMBtu/MWe. Determined based on higher heating values of fuel

K₁ to K_n = Fuel to CO₂ conversion factor for the fuel(s) being evaluated in lb CO₂/MMBtu for fuel F₁ to F_n

T₁ to T_n = Hours per year fuel F₁ to F_n is allowed to be used. The default is 8760 hours unless there is a limitation on hours in an order of approval

F_s = Maximum design supplemental fuel firing rate in MMBtu/hour, at higher heating value of the fuel

K_s = Fuel to CO₂ conversion factor for the supplemental fuel being evaluated in lb CO₂/MMBtu for fuel F_s given fuel

T_s = Hours per year supplemental fuel F_s is allowed. The default is 8760 hours unless there is a limitation on hours in an order of approval

(a) When there are multiple new fossil-fueled electric generating units, the above calculation must be performed for each unit and the annual CO₂ emission rate of all units must be summed.

(b) A unit or facility allowed to use multiple fuels must use the maximum allowed hours on the highest CO₂ producing fuels for each fuel until the total of all hours per fuel add up to the allowable annual hours.

(c) A new unit or facility allowed to use multiple fuels without restriction in its order of approval must perform this calculation assuming that the fuel with the highest CO₂ emission rate is used 100 percent of the time.

(d) When the order of approval restricts the annual operating hours for any reason, the total of T₁ to T_n equals the annual allowable hours of operation in the order of approval.

(e) Fuel to CO₂ conversion factors. For K₁ to K_n and K_s in the formula in subsection (1) of this section, use the CO₂ emission factors for fossil fuels in 40 C.F.R. Part 98, Table C-1 (in effect on the date in WAC 173-407-006), except that the values for nonfossil fuels must be 0.00 lb/MMBtu.

(2) Step 2 - Determine the total carbon dioxide emissions. You must use the following formula to determine total carbon dioxide emissions:

$$\text{Total CO}_2 \text{ Emissions} = \text{CO}_{2\text{rate}} \times 30 \times 0.6$$

where:

- CO_{2rate} = Annual CO₂ emission rate in metric tons per year
- 30 = Thirty-year period
- 0.6 = Assumed capacity factor

(4) Step 4 - Determine the mitigation quantity. Determine the CO₂ emissions mitigation quantity using the following formula:

$$\text{Mitigation Quantity} = \text{Total CO}_2 \text{ Emissions} \times 0.2 - \text{Cogeneration Credit}$$

where:

- Mitigation quantity = The total CO₂ emissions to be mitigated in metric tons
- 0.2 = The mitigation factor in RCW 80.70.020(4)

(5) Additional restrictions for a modification to an existing facility not involving installing new generating units. Calculate the CO₂ mitigation quantity using the method in subsections (1) through (4) of this section with the following restrictions:

(a) The quantity of CO₂ subject to mitigation is limited to the emissions resulting from the modification and does not include the emissions occurring prior to the modification;

(b) An increase in operating hours or other operational limitations established in an order of approval is not an exempt modification under this regulation. However, only emissions related to the increase in operating hours are subject to the CO₂ mitigation program requirements;

(c) The annual CO₂ emission rate (CO_{2rate}) in subsection (1) of this section is the difference between the premodification condition and the postmodification condition, but using the like new heat rate for the combustion equipment; and

(d) A facility may use a cogeneration credit only if it is a new cogeneration credit established after July 1, 2004.

(3) Step 3 - Determine the cogeneration credit (if any).

(a) Where the cogeneration unit or facility qualifies for cogeneration credit, the cogeneration credit is the annual CO₂ emission rate (in metric tons per year). You must use the following formula or a similar method to determine the annual CO₂ cogeneration credit:

$$\text{CO}_{2\text{credit}} = \frac{H_s}{2204.6} \times (K_a) \div n$$

where:

- CO_{2credit} = The annual CO₂ cogeneration credit in metric tons/year
- H_s = Annual heat energy supplied by the cogeneration plant to the "steam host" per the contract or other binding obligation/agreement between the parties in MMBtu/yr as substantiated by an engineering analysis
- K_a = The time weighted fuel to CO₂ conversion factor for the cogeneration plant in lb CO₂/MMBtu supplied. The time weighted average is calculated similarly to the above method described in subsection (1) of this section
- n = Efficiency of new boiler that would provide the same quantity of thermal energy. Assume n = 0.85 unless facility provides information supporting a different value

(b) Calculate the metric tons of the cogeneration credit over the thirty-year period.

$$\text{Cogeneration Credit} = \text{CO}_{2\text{credit}} \times 30$$

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-050, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-050, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-050, filed 12/22/04, effective 1/22/05.]

WAC 173-407-060 Carbon dioxide mitigation plan requirements and options under Part I. (1) Mitigation plan requirements.

(a) The facility must mitigate the quantity of CO₂ emissions determined by WAC 173-407-050 (4) or (5) as applicable. The facility must have an approved CO₂ mitigation plan as part of the order of approval. The facility does not need to submit any mitigation plan if the calculated mitigation quantity is less than or equal to zero.

(b) The facility must implement the mitigation plan based on the schedule in the order of approval. A facility may request an extension of the schedule by submitting a written request to the permitting authority before applicable deadline(s). The request must propose a revised schedule and document why the facility needs more time to implement the mitigation plan.

(2) Mitigation plan options. An applicant for a fossil-fueled thermal electric generation facility must include one or a combination of the following CO₂ mitigation options as part of its mitigation plan:

(a) Payment to a third party to provide mitigation;

(b) Direct purchase of permanent carbon credits; or

(c) Investment in applicant-controlled CO₂ mitigation projects, including combined heat and power (cogeneration).

(3) Requirements of the payment to a third-party option.

(a) The initial mitigation rate is \$1.60 per metric ton of CO₂ to be mitigated. For a cogeneration plant, the monetary amount is based on the difference between twenty percent of the total carbon dioxide emissions and the cogeneration credit. This rate will change when EFSEC adjusts it through the process described in RCW 80.70.020 (5)(a) and (b).

Total payment amount = Mitigation rate × Mitigation quantity

(b) An applicant may choose between a lump sum payment and partial payments over a period of five years.

(i) The applicant must pay the lump sum payment amount to the independent qualified organization no later than one hundred twenty days after the start of commercial operation.

(ii) The applicant must make partial payments to the independent qualified organization in five equal payments over five years. The applicant must pay the first twenty percent of the total payment to the independent qualified organization no later than one hundred twenty days after the start of commercial operation. An applicant must make a payment of the same amount (or an adjusted amount if the rate is changed under RCW 80.70.020 (5)(a)) by the anniversary date of the initial payment for the next four consecutive years. The facility must provide a letter of credit or comparable security for the remaining 80 percent at the time of the first payment. The letter of credit or comparable security must include possible rate changes.

(4) Requirements of the permanent carbon credits option. The applicant must acquire permanent carbon credits equaling the mitigation quantity as calculated in WAC 173-407-050(4), unless the power plant permanently ceases operation. The permanent carbon credits must meet the following criteria:

(a) Credits must derive from real, verified, permanent, and enforceable CO₂ or CO₂ equivalents emission mitigation not otherwise required by statute, regulation, or other legal requirements;

(b) The credits must be acquired after July 1, 2004;

(c) The credits may not have been used for other CO₂ mitigation projects; and

(d) The credits purchased for CO₂ mitigation must not be resold unless approved by the permitting authority. The permitting authority must determine the permanent carbon credits proposed for resale are offset by other CO₂ mitigation

method(s). Facilities that cease operation may sell their carbon credits without replacement.

(5) Applicant controlled mitigation projects option. The facility may invest directly in mitigation projects. The permitting authority cannot require the direct investment cost of the applicant controlled mitigation project, including funds used for selection, monitoring, and evaluation of mitigation projects, to exceed the cost of the total payment to a third party per WAC 173-407-060(3).

The applicant controlled mitigation project must be:

(a) Conducted directly by or under the control of the order of approval holder.

(b) Approved by the permitting authority and included as a condition of the order of approval.

(c) Operational within one year after the start of commercial operation. Failure to implement an approved mitigation plan is subject to enforcement under WAC 173-407-080.

(d) The order of approval holder may not use more than twenty percent of the total funds for the selection, monitoring, and evaluation of mitigation projects, and the management and enforcement of contracts.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-060, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-060, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-060, filed 12/22/04, effective 1/22/05.]

WAC 173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval under Part I. (1)

The notice of construction application to the permitting authority must indicate the selected mitigation option(s).

(2) Applicants using payment to an independent qualified organization (a third party) or the permanent carbon credit option must provide the documentation to the permitting authority to show how the applicant will satisfy the requirements before the permitting authority can issue an order of approval.

(3) Applicants using the facility controlled mitigation project option must submit the entire mitigation plan to the permitting authority. The permitting authority will review the plan for consistency with the requirements of Part I of this chapter.

(4) Upon completing the review, the permitting authority must approve or deny the mitigation plan.

(5) An approved mitigation plan must become part of the order of approval.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-070, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-070, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-070, filed 12/22/04, effective 1/22/05.]

WAC 173-407-080 Enforcement under Part I. A facility violating the CO₂ mitigation program requirements is subject to the enforcement provisions of chapter 70.94 RCW.

[Statutory Authority: Chapter 80.70 RCW. WSR 18-05-091 (Order 16-12), § 173-407-080, filed 2/21/18, effective 3/24/18. Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), § 173-407-080, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-080, filed 12/22/04, effective 1/22/05.]

PART II

GREENHOUSE GAS EMISSIONS PERFORMANCE STANDARD AND SEQUESTRATION PLANS AND PROGRAMS

WAC 173-407-100 Policy and purpose of Part II. The legislature established statutory goals for the statewide reduction of greenhouse gas emissions. The legislature further intends by chapter 80.80 RCW to authorize immediate actions in the electric power generation sector for the reduction of greenhouse gas emissions.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-100, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-100, filed 6/19/08, effective 7/20/08.]

WAC 173-407-110 Definitions to Part II and Part III. The following definitions apply when these terms are used in the provisions of Part II and Part III of this chapter.

"Average available greenhouse gas emissions output" means the level of greenhouse gas emissions as surveyed and determined by the energy policy division of the department of commerce under RCW 80.80.050.

"Baseload electric cogeneration facility" means a cogeneration facility that provides baseload electric generation. For a cogeneration facility, the sixty percent annual capacity factor applies to only the electrical production intended to be supplied for sale.

"Baseload electric generation" means electric generation from a power plant that is designed and intended to provide electricity at an annualized plant capacity factor of at least sixty percent. For purposes of Part II and Part III of this rule, "designed" means originally specified by the design engineers for the power plant or generating units (such as simple cycle combustion turbines) installed at a power plant; and "intended" means allowed for by the current permits for the

power plant, recognizing the capability of the installed equipment or intent of the owner or operator of the power plant at the time of original permitting.

"Baseload electric generation facility" means a power plant that provides baseload electric generation.

"Benchmark" means a planned quantity of the greenhouse gases to be sequestered each calendar year at a sequestration facility as identified in the sequestration plan or sequestration program.

"Bottoming-cycle cogeneration facility" means a cogeneration facility in which the energy input to the system is first applied to a useful thermal energy application or process, and at least some of the reject heat emerging from the application or process is then used for electrical power production.

"Change in ownership" as related to cogeneration plants means a new ownership interest in the electric generation portion of the cogeneration facility or unit.

"Coal transition power" means the output of a coal-fired electric generation facility that is subject to an obligation to meet the standards in RCW 80.80.040 (3)(c).

"Cogeneration facility" means a power plant in which the heat or steam is also used for industrial or commercial heating or cooling purposes and that meets Federal Energy Regulatory Commission standards for qualifying facilities under the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. Sec. 824a-3), as amended. In general, a cogeneration facility is comprised of equipment and processes which through the sequential use of energy are used to produce electric energy and useful thermal energy (such as heat or steam) that is used for industrial, commercial, heating, or cooling purposes.

"Combined-cycle natural gas thermal electric generation facility" means a power plant that employs a combination of one or more gas turbines and steam turbines in which electricity is produced in the steam turbine from otherwise lost waste heat exiting from one or more of the gas turbines.

"Commence commercial operation" means, in regard to a unit serving an electric generator, to have begun to produce steam or other heated medium, or a combustible gas used to generate electricity for sale or use, including test generation.

"Consumer-owned utility" means a municipal utility formed under Title 35 RCW, a public utility district formed under Title 54 RCW, an irrigation district formed under chapter 87.03 RCW, a cooperative formed under chapter 23.86 RCW, a mutual corporation or association formed under chapter 24.06 RCW, or port district within which an industrial district has been established as authorized by Title 53 RCW, that is engaged in the business of distributing electricity to more than one retail electric customer in the state.

"Ecology" means the department of ecology.

"Electric generating unit" (EGU) is the equipment required to convert the thermal energy in a fuel into electricity. In the case of a steam electric generation unit, the EGU consists of all equipment involved in fuel delivery to the plant site, as well as individual boilers, any installed emission control equipment, and any steam turbine/generators dedicated to generating electricity. Where a steam turbine generator is supplied by two or more boiler units, all boilers contributing to that steam turbine/generator comprise a single electric generating unit. All combustion units/boilers/combined cycle turbines that produce steam for use in a single steam tur-

bine/generator unit are part of the same electric generating unit.

Examples:

(a) For an integrated gasification combined cycle combustion turbine plant, the EGU consists of all equipment involved in fuel delivery to the unit, as well as all equipment used in the fuel conversion and combustion processes, any installed emission control equipment, and all equipment used for the generation of electricity.

(b) For a combined cycle natural gas fired combustion turbine, the EGU begins at the point where natural gas is delivered to the plant site and ends with the generation of electricity from the combustion turbine and from steam produced and used on a steam turbine.

(c) An EGU also includes fuel cells fueled by hydrogen produced:

(i) In a reformer utilizing nonrenewable fuels; or

(ii) By a gasifier producing hydrogen from nonrenewable fuels.

"Electricity from unspecified sources" means electricity that is to be delivered in Washington pursuant to a long-term financial commitment entered into by an electric utility and whose sources or origins of generation and expected average annual deliveries cannot be ascertained with reasonable certainty.

"EFSEC" means the energy facility site evaluation council.

"Electric utility" means an electrical company or a consumer-owned utility.

"Electrical company" means a company owned by investors that meets the definition of RCW 80.04.010.

"EPA" means Environmental Protection Agency.

"Fossil fuel" means natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such material to produce heat for the generation of electricity.

"Fuel feed stock" means any renewable, biological material that can be used directly as a fuel, or converted to another form of fuel or energy product.

"GHG EPS" means greenhouse gas emissions performance standard.

"Governing board" means the board of directors or legislative authority of a consumer-owned utility.

"Greenhouse gas" or "GHG" includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

"Long-term financial commitment" means:

(a) Either a new ownership interest in baseload electric generation or an upgrade to a baseload electric generation facility; or

(b) A new or renewed contract for baseload electric generation with a term of five or more years for the provision of retail power or wholesale power to end-use customers in this state.

"Modification" means the definition in WAC 173-400-030.

"MWh" means megawatt-hour electricity.

"MWh_{eq}" means megawatt-hour equivalent electrical energy of useful thermal energy output. 1 MWh_{eq} = 3.413 million Btu of thermal energy.

"New ownership interest" means a change in the ownership structure of a baseload power plant or a cogeneration facility or the electrical generation portion of a cogeneration facility affecting at least:

(a) Five percent of the market value of the power plant or cogeneration facility; or

(b) Five percent of the electrical output of the power plant or cogeneration facility.

The above thresholds apply to each unit within a multi-unit generation facility.

"Permanent sequestration" means the retention of greenhouse gases in a containment system using a method that is in accordance with standards approved by ecology and that creates a high degree of confidence that substantially ninety-nine percent of the greenhouse gases will remain contained for at least one thousand years.

"Permitting authority" means ecology or the local air pollution control authority with jurisdiction over the source.

"Plant capacity factor" means the ratio of the electricity produced during a given time period, measured in kilowatt-hours, to the electricity the unit could have produced if it had been operated at its rated capacity during that period, expressed in kilowatt-hours.

"Power plant" means a facility for the generation of electricity that is permitted as a single plant by a jurisdiction inside or outside the state. A power plant may be comprised of one or more individual electrical generating units, each unit of which can be operated or owned separately from the other units.

"Regulated greenhouse gas emissions" is the mass of carbon dioxide emitted plus the mass of nitrous oxide emitted plus the mass of methane emitted. Regulated greenhouse gas emissions include carbon dioxide produced by a sulfur dioxide control system such as a wet limestone scrubber system.

"Renewable fuel" means:

(a) Landfill gas;

(b) Biomass energy utilizing animal waste, solid organic fuels from wood, forest, or field residues or dedicated energy crops that do not include wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenic;

(c) By-products of pulping or wood manufacturing processes including, but not limited to, bark, wood chips, sawdust, and lignin in spent pulping liquors;

(d) Gas from sewage treatment facilities; or

(e) Biodiesel fuel as defined in RCW 82.29A.135 that is not derived from crops raised on land cleared from old growth or first-growth forests where the clearing occurred after December 7, 2006.

"Renewable resources" means electricity generation facilities fueled by renewable fuels plus electricity generation facilities fueled by:

(a) Water;

(b) Wind;

(c) Solar energy;

(d) Geothermal energy; or

(e) Ocean thermal, wave, or tidal power.

"Sequential use of energy" means:

(a) For a topping-cycle cogeneration facility, the use of reject heat from a power production process in sufficient

amounts to support a thermal application or process to conform to the requirements of the operating standard; or

(b) For a bottoming-cycle cogeneration facility, the use of reject heat from a thermal application or process, at least some of which is then used for power production.

"Sequestration plan" means a comprehensive plan describing how a plant owner or operator will comply with the emissions performance standard by means of sequestering greenhouse gases, where the sequestration will start after electricity is first produced, but within five years of the start of commercial operation.

"Sequestration program" means a comprehensive plan describing how a baseload electric generation plant's owner or operator will demonstrate compliance with the emissions performance standard at start of commercial operation and continuing unchanged into the future. The program is a description of how the facility meets the emissions performance standard based on the characteristics of the baseload electric generation facility or unit or by sequestering greenhouse gas emissions to meet the emissions performance standard with the sequestration starting on or before the start of commercial operation.

"Supplementary firing" means an energy input to:

(a) A cogeneration facility used only in the thermal process of a topping-cycle cogeneration facility;

(b) The electric generating process of a bottoming-cycle cogeneration facility; or

(c) Any baseload electric generation unit to temporarily increase the thermal energy that can be converted to electrical energy.

"Topping-cycle cogeneration facility" means a cogeneration facility in which the energy input to the facility is first used to produce useful electrical power output, and at least some of the reject heat from the power production process is then used to provide useful thermal energy.

"Total energy input" means the total energy supplied by all fuels used to produce electricity in a baseload electric generation facility or unit.

"Total energy output" of a cogeneration facility or unit is the sum of the useful electrical power output and useful thermal energy output.

"Upgrade" means any modification made for the primary purpose of increasing the electric generation capacity of a baseload electric generation facility or unit. Upgrade does not include:

(a) Routine or necessary maintenance;

(b) Installation of emission control equipment;

(c) Installation, replacement, or modification of equipment that improves the heat rate of the facility; or

(d) Installation, replacement, or modification of equipment for the primary purpose of maintaining reliable generation output capability that does not increase the heat input or fuel usage as specified in existing generation air quality permits as of July 22, 2007, but may result in incidental increases in generation capacity.

"Useful energy output" of a cogeneration facility means the electric or mechanical energy made available for use, exclusive of any such energy used in the power production process.

"Useful thermal energy output" of a cogeneration facility means the thermal energy:

(a) That is made available to and used in an industrial or commercial process (minus any heat in condensate return and/or makeup water);

(b) That is used in a heating application (e.g., space heating, domestic hot water heating);

(c) That is used in a space cooling application (i.e., thermal energy used by an absorption chiller); or

(d) That is used to drive a chemical conversion process (i.e., thermal energy to convert limestone to lime or to produce cement clinker from limestone and other materials).

"UTC" means the utilities and transportation commission.

"Waste gas" is refinery gas and other fossil fuel derived gases with a heat content of more than 300 Btu/standard cubic foot. Waste gas does not include gaseous renewable energy sources.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-110, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-110, filed 6/19/08, effective 7/20/08.]

WAC 173-407-120 Greenhouse gas emissions performance standard applicability for Part II.

(1) Starting July 1, 2008, a baseload electric generation facility or unit or baseload electric cogeneration facility or unit located in Washington is subject to the GHG EPS each time it meets one of the following conditions:

(a) Commence commercial operation;

(b) New ownership interest;

(c) New or renewed long-term financial commitment; or

(d) Upgraded.

(2) Starting July 1, 2008, a baseload electric generation facility or unit or baseload electric cogeneration facility or unit is subject to the GHG EPS when it enters into a long-term financial commitment to serve power to Washington customers.

(3) Exceptions to the conditions in subsections (1) and (2) of this section are as follows:

(a) A baseload electric cogeneration facility or unit fueled by natural gas or waste gas or a combination of the two fuels that was in operation before July 1, 2008, is exempt from meeting the GHG EPS until:

(i) Change in ownership; or

(ii) Upgraded.

(b) A baseload electric generation facility or unit or baseload electric cogeneration facility or unit fueled by at least 90 percent renewable fuels, on an annual heat input basis, is deemed to be in compliance with the GHG EPS;

(c) A baseload electric generation facility or unit powered exclusively by renewable resources is deemed to be in compliance with the GHG EPS;

(d) A new or renewed long-term financial commitment with the Bonneville power administration is exempt from meeting the GHG EPS;

(e) Long-term purchase of coal transition power and the coal-fired power plant providing the power are exempt from meeting the GHG EPS as provided by RCW 80.80.040 (3)(c).

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-120, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-120, filed 6/19/08, effective 7/20/08.]

WAC 173-407-130 Emissions performance standard under Part II. (1) A baseload electric generation facility or unit or baseload electric cogeneration facility or unit must comply with the GHG EPS in subsection (2) of this section in effect at the time when the facility or unit triggers the applicability in WAC 173-407-120.

(2) GHG EPS.

Table 1
GHG EPS by Time Period

GHG EPS lb GHG/MWh	First Applicable Date	Last Applicable Date
1,100	July 1, 2008	March 23, 2018
970	March 24, 2018	Determined by chapter 194-26 WAC
Chapter 194-26 WAC (Starting March 24, 2018)*		

* Commerce reviews and, if appropriate, updates the GHG EPS every five years as directed by RCW 80.80.050.

(3) A facility may comply with the GHG EPS through the use of:

(a) Fuel and power plant design; or

(b) GHG emission control and sequestration methods meeting the requirements of WAC 173-407-220 or 173-218-115, as appropriate.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-130, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-130, filed 6/19/08, effective 7/20/08.]

WAC 173-407-140 Calculating greenhouse gas emissions and determining compliance for a baseload electric generation facility or unit under Part II. (1) The owner or operator of a baseload electric generation facility or unit must collect the following data to demonstrate compliance with the GHG EPS in WAC 173-407-130:

(a) The usage and heat content of fuels and fuel feed stocks that provide energy input to the baseload electric generation facility or unit. The facility must monitor and report these data as directed by WAC 173-407-160.

(b) Electrical output in MWh as measured and recorded per WAC 173-407-160.

(c) Regulated GHG emissions in pounds/MMBtu from the baseload electric generation facility or unit as monitored, reported and calculated in WAC 173-407-160.

(d) Adjustment for use of renewable resources. If the owner or operator of a baseload electric generation facility or unit adjusts its GHG emissions to account for the use of renewable resources, GHG emissions are reduced based on the ratio of the annual heat input from renewable resources and the annual heat input from all fuels and fuel feed stocks. The facility owner or operator must base this adjustment on records of fuel usage and representative heat contents approved by ecology.

(e) Adjustment for sequestered GHG emissions. A facility owner or operator can subtract the quantity of GHG emissions that are permanently sequestered through an approved

sequestration method(s) during the calendar year from the total pounds of GHG emitted during that year.

(2) By January 31st of each year, the owner or operator of a baseload electric generation facility or unit subject to the compliance demonstration requirements of Part II and Part III of this rule must:

(a) Use the data collected under subsection (1) of this section to calculate the pounds of regulated GHG emissions emitted per MWh of electricity produced during the prior calendar year by dividing the total regulated GHG emissions in pounds by the total electricity produced in MWh in that year; and

(b) Submit that calculation and all supporting information to ecology.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-140, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-140, filed 6/19/08, effective 7/20/08.]

WAC 173-407-150 Calculating greenhouse gas emissions and determining compliance for a baseload electric cogeneration facility or unit under Part II. (1) This section applies to a facility or unit certified to the Federal Energy Regulatory Commission under the provisions of 18 C.F.R. Part 292, Subpart B as a qualifying cogeneration facility (in effect on the date in WAC 173-407-006).

(2) The owner or operator of a baseload electric cogeneration facility or unit that must demonstrate compliance with the GHG EPS in WAC 173-407-130 must collect the following data:

(a) The usage and heat content of fuels and fuel feed stocks that provide energy input to the baseload electric cogeneration facility or unit. The facility or unit owner or operator must monitor and report these data as directed by WAC 173-407-160.

(b) Electrical output in MWh as measured and recorded per WAC 173-407-160.

(c) All useful thermal energy and useful energy used for nonelectrical generation uses in MMBtu must be converted to units of MWh_{eq} by using the conversion factor of 3.413 million British thermal units per megawatt hour (MMBtu/MWh).

(d) Regulated GHG emissions in pounds/MMBtu from a baseload electric cogeneration facility or unit as monitored, reported and calculated in WAC 173-407-160.

(e) Adjustments for use of renewable resources. If the owner or operator of a baseload electric cogeneration facility or unit adjusts its GHG emissions to account for the use of renewable resources, the GHG emissions are reduced based on the ratio of the annual heat input from renewable resources and the annual heat input from use of all fuels and fuel feed stocks. The owner or operator must base this adjustment on records of fuel usage and representative heat contents approved by ecology.

(f) Adjustment for sequestered GHG emissions. An owner or operator can subtract the quantity of GHG emissions that are permanently sequestered through an approved sequestration method(s) during the calendar year from the total pounds of GHG emitted during that year.

(3) Bottoming-cycle cogeneration facilities. Ecology and the facility must jointly develop the formula to determine compliance of a bottoming-cycle cogeneration facility or unit

with the GHG EPS. To the extent possible, ecology and the facility must base the facility-specific formula on the one for topping-cycle facilities identifying the amount of energy converted to electricity, thermal losses, and energy from the original fuel(s) used to provide useful thermal energy in the industrial process. Ecology and the facility must ensure that the formula is specific to the equipment installed, thermal energy uses, and specific operating conditions of the facility.

(4) Topping-cycle cogeneration facilities. To demonstrate compliance with the GHG EPS, a topping-cycle facility or unit must:

- (a) Determine annual electricity produced in MWh.
 - (b) Determine the annual electrical energy equivalent of the useful thermal energy output in MWh_{eq} .
 - (c) Determine the annual regulated GHG emissions produced in pounds.
- (5) By January 31st of each year, the owner or operator of a baseload electric cogeneration facility or unit subject to the compliance demonstration requirements of Part II and Part III of this rule must:

- (a) Calculate the pounds of regulated GHG emissions emitted per MWh of electricity produced during the prior calendar year by dividing the total regulated GHG emissions in pounds by the sum of the electricity produced in MWh and thermal energy output in MWh_{eq} in that year; and
- (b) Submit that calculation and all supporting information to ecology.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-150, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-150, filed 6/19/08, effective 7/20/08.]

WAC 173-407-160 Emissions and electrical production monitoring, recordkeeping and reporting requirements under Part II. (1) Monitoring and recordkeeping requirements. A baseload electric generation facility or unit and baseload electric cogeneration facility or unit required to meet GHG EPS in WAC 173-407-130 must monitor and report the following parameters as explained below:

(a) Electrical output in MWh: Electrical output as measured at the point of connection with the local electrical distribution network or transmission line, as appropriate. The facility will measure on an hourly or daily basis and the measurements in a form suitable for calculations to determine compliance with GHG EPS;

(b) Useful thermal energy output in MWh_{eq} : Quantity of energy supplied to nonelectrical production determined by monitoring both the energy supplied and the unused energy returned by the thermal energy user or uses. The facility can accomplish required monitoring through:

- (i) Measurement of the mass, pressure, and temperature of the supply and return streams of the steam or thermal fluid; or
- (ii) Use of thermodynamic calculations as approved by ecology.
- (iii) Each facility will measure on an hourly or daily basis and record the measurements in a form suitable for calculations to determine compliance with the GHG EPS.

(c) Regulated GHG emissions.

(i) The regulated GHG emissions are the emissions of regulated GHG from the main plant exhaust stack and any

bypass stacks or flares. A facility or unit using CO₂ controls and sequestration to comply with the GHG EPS must include direct and fugitive CO₂ emissions from the CO₂ separation and compression process.

(ii) Carbon dioxide.

(A) A facility or unit subject to WAC 173-407-130, with a net output rating of 25 MW or more of electricity, must monitor CO₂ emissions by a continuous emission monitoring system meeting the requirements of 40 C.F.R. 75.10 and 75.13 and 40 C.F.R. Part 75, Appendix F, except under (c)(i)(A)(I) and (II) of this subsection (federal rules in effect on the date in WAC 173-407-006):

(I) If allowed by the requirements of 40 C.F.R. Part 72, a facility may estimate CO₂ emissions through fuel carbon content monitoring and methods meeting the requirements of 40 C.F.R. 75.10 and 75.13 and 40 C.F.R. Part 75, Appendix G (federal rules in effect on the date in WAC 173-407-006).

(II) If the annual heat input to the electric generation facility is less than 90 percent fossil fuel, ecology may approve the use of emission factors in 40 C.F.R. Part 98, Table C-1 (in effect on the date in WAC 173-407-006).

(B) A facility or unit subject to WAC 173-407-130, with a net output of less than 25 MW of electricity, must use one of the following three methods:

(I) Continuous emission monitoring system meeting the requirements of 40 C.F.R. 75.10 and 75.13 and 40 C.F.R. Part 75, Appendix F (federal rules in effect on the date in WAC 173-407-006);

(II) Fuel carbon content monitoring and methods meeting the requirements of 40 C.F.R. 75.10 and 75.13 and 40 C.F.R. Part 75, Appendix G (federal rules in effect on the date in WAC 173-407-006); or

(III) Emission factors in 40 C.F.R. Part 98, Table C-1 (in effect on the date in WAC 173-407-006).

(C) When the monitoring data from a continuous emission monitoring system does not meet the completeness requirements of 40 C.F.R. Part 75, Subpart D, the facility owner or operator must substitute data according to the process in 40 C.F.R. Part 75, Appendix C (in effect on the date in WAC 173-407-006).

(D) A facility or unit must install continuous emission monitors for CO₂ under (c)(ii) of this subsection at a location meeting the requirements of 40 C.F.R. Part 75, Appendix A. The CO₂ and flow monitoring equipment must meet the quality control and quality assurance requirements of 40 C.F.R. Part 75, Appendix B (in effect on the date in WAC 173-407-006).

(iii) Nitrous oxide (N₂O).

(A) A facility or unit that triggers the applicability in WAC 173-407-120 prior to March 24, 2018, and produces 25 MW or more of electricity must determine the N₂O emissions as follows:

(I) For the first year of operation, facility owner or operator will estimate N₂O emissions using the emission factors from 40 C.F.R. Part 98, Table C-2 or other authoritative source as approved by ecology.

(II) For succeeding years, facility operator or owner will estimate N₂O emissions using generating unit specific emission factors derived from emissions testing using ecology or

EPA approved methods. Facility owner or operator must derive the emission factor through testing N₂O emissions from the stack at varying loads and through at least four separate test periods spaced evenly throughout the first year of commercial operation.

(B) A facility or unit that triggers the applicability in WAC 173-407-120 prior to March 24, 2018, and produces less than 25 MW of electricity will estimate the annual N₂O emissions by the emission factors from 40 C.F.R. Part 98, Table C-2 or other authoritative source as approved by ecology.

(C) A facility or unit required to develop a generating unit specific N₂O emission factor prior to March 24, 2018, must estimate N₂O emissions using the generating unit specific emission factor.

(D) Any facility or unit that triggers the applicability in WAC 173-407-120 on or after March 24, 2018, must estimate N₂O emissions using one of the following emission factors:

(I) Generating unit specific emission factor derived through emissions testing following the schedule in (c)(iii)(A) of this subsection;

(II) Emission factor from 40 C.F.R. Part 98, Table C-2; or

(III) Other emission factor from authoritative sources as approved by ecology.

(iv) Methane (CH₄).

(A) A facility or unit that triggers the applicability in WAC 173-407-120 prior to March 24, 2018, and produces 25 MW or more of electricity must determine the CH₄ emissions as follows:

(I) For the first year of operation, the facility owner or operator will estimate CH₄ emissions using the emission factors from 40 C.F.R. Part 98, Table C-2 or other authoritative source as approved by ecology.

(II) For succeeding years, the facility owner or operator will estimate CH₄ emissions using generating unit specific emission factors derived from emissions testing using ecology or EPA approved methods. The facility owner or operator must derive the emission factor through testing CH₄ emissions from the stack at varying loads and through at least four separate test periods spaced evenly through the first year of commercial operation.

(B) A facility or unit that triggers the applicability in WAC 173-407-120 prior to March 24, 2018, and produces less than 25 MW of electricity will estimate the annual CH₄ emissions by the emission factors from 40 C.F.R. Part 98, Table C-2 or other authoritative source as approved by ecology.

(C) A facility or unit required to develop a generating unit specific CH₄ emission factor prior to March 24, 2018, must estimate CH₄ emissions using the generating unit specific emission factor.

(D) Any facility or unit that triggers the applicability in WAC 173-407-120 on or after March 24, 2018, must estimate CH₄ emissions using one of the following emission factors:

(I) Generating unit specific emission factor derived through emissions testing following the schedule in (c)(iv)(A) of this subsection;

(II) Emission factor from 40 C.F.R. Part 98, Table C-2; or

(III) Other emission factor from authoritative sources as approved by ecology.

(d) Fuel usage and heat content information.

(i) Facility owner and operator must monitor fossil fuel usage by measuring continuous fuel volume or weight as appropriate for the fuel used. Facility owner and operator must measure on an hourly or daily basis and record the measurements in a form suitable for use in calculating GHG emissions.

(ii) Facility owner or operator must monitor renewable fuel usage by measuring continuous fuel volume or weight as appropriate for the fuel used. Facility owner or operator must measure on an hourly or daily basis and record the measurements in a form suitable for use in calculating GHG emissions.

(iii) Facility owner or operator must monitor renewable fuel feedstocks by measuring the fuel volume or weight, as appropriate, as the feedstocks are used in the combustion process. Facility owner or operator must measure on an hourly or daily basis and record the measurements in a form suitable for use in calculating GHG emissions.

(iv) Facility owner or operator must monitor renewable resources used in the production of electricity continuously by a method approved by ecology to determine heat input to the electric generation process.

(v) Facility owner or operator must test heat content of fossil fuels at least once per calendar year. The owner or operator of the facility or unit must submit a proposed fuel content monitoring program to ecology for approval. Upon request and submission of appropriate documentation of fuel heat content variability, ecology may allow a source to:

(A) Test the heat content of the fossil fuel less often than once per year; or

(B) Use the representative heat content for the fuel instead of the periodic monitoring of heat content.

(vi) Facility owner or operator must test renewable fuel heat content monthly or with a different frequency approved by ecology. The facility owner or operator must base the different frequency on the variability of the heat content of the renewable fuel.

(A) If a facility or unit using a mixture of renewable and fossil fuels does not adjust their GHG emissions by accounting for the heat input from renewable fuels, ecology does not require monitoring of the heat content of the renewable fuels.

(B) Upon request and with appropriate documentation, ecology may allow a source to use representative heat content for the renewable fuel instead of the periodic monitoring of heat content required above.

(vii) Facility owner or operator must test the heat content of renewable fuel feedstocks monthly or on a different schedule approved by ecology. Ecology will approve the different schedule based on the variability of the heat content of the renewable fuel feedstocks. The facility owner or operator must measure the heat content of the fuel feedstocks in the form they are used in the combustion process.

(A) If a facility or a unit using a mixture of renewable and fossil fuels and does not adjust their GHG emissions by accounting for the heat input from renewable fuels, ecology does not require monitoring of the heat content of the renewable fuel feedstocks.

(B) Upon request and with supporting documentation, ecology may allow a source to use representative heat content for the renewable fuel feedstock instead of the periodic monitoring of heat content required above.

(2) Reporting requirements. Facility owner or operator must report the results of the monitoring required by this section to ecology and the permitting authority annually.

(a) Facility or unit subject to the reporting requirements of 40 C.F.R. Part 75. Facility owner or operator must report annual emissions of CO₂, N₂O and CH₄ that occurred in the previous calendar year and supporting information to ecology and the permitting authority by January 31st of each calendar year. The facility owner or operator may submit the report as an Excel™ or CSV format copy of the report submitted to EPA per 40 C.F.R. Part 75 with N₂O and CH₄ emissions appended to the report.

(b) Facility or unit not subject to the reporting requirements of 40 C.F.R. Part 75. Facility owners or operators must report annual emissions of CO₂, N₂O and CH₄ that occurred in the previous calendar year and supporting information to ecology and the permitting authority by January 31st of each calendar year.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), amended and recodified as § 173-407-160, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-230, filed 6/19/08, effective 7/20/08.]

WAC 173-407-200 Requirements for and timing of sequestration plan or sequestration program submittals under Part II. (1) The owner or operator of a facility or unit that does not meet the applicable EPS in WAC 173-407-130 must submit a sequestration plan to ecology when they propose to begin sequestration after the start of commercial operation and engage in an action listed in (a) through (d) of this subsection:

(a) The owner or operator of a new facility or unit submits a notice of construction application to the permitting authority;

(b) The owner or operator of an existing facility or unit submits a notice of construction application to the permitting authority for an upgrade and the upgrade is not exempt;

(c) The owner or operator of a facility or unit signs a new long-term financial commitment with an electric utility to provide baseload power and the facility or unit does not comply with the GHG EPS in effect at the time the new long-term financial commitment occurs; or

(d) A qualifying new ownership interest occurs and the facility or unit does not comply with the GHG EPS in effect at that time.

(2) The owner or operator of a facility or unit that does not meet the applicable GHG EPS in WAC 173-407-130 must submit a sequestration program to ecology when they propose to begin sequestration on or before the start of commercial operation and engage in an action listed in the following subsections:

(a) The owner or operator of a new facility or unit submits a notice of construction application to the permitting authority;

(b) The owner or operator of an existing facility or unit submits a notice of construction application to the permitting authority for an upgrade and the upgrade is not an exempt upgrade;

(c) The owner or operator of a facility or unit signs a new long-term financial commitment with an electric utility to provide baseload power if the facility or unit does not comply with the GHG EPS in effect at the time the new long-term financial commitment occurs; or

(d) A qualifying new ownership interest occurs and the facility or unit does not comply with the GHG EPS in effect at that time.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-200, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-200, filed 6/19/08, effective 7/20/08.]

WAC 173-407-210 Types of permanent sequestration under Part II. (1) Requirements for permanent geologic sequestration of GHG are in WAC 173-218-115.

(2) Requirements for permanent nongeologic sequestration of GHG are in WAC 173-407-220.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-210, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-210, filed 6/19/08, effective 7/20/08.]

WAC 173-407-220 Requirements for nongeologic permanent sequestration plans and sequestration programs under Part II. A baseload electric generation facility or unit or baseload electric cogeneration facility or unit that is subject to Part II and Part III of this chapter and proposes to use nongeologic sequestration of GHG to meet the GHG EPS must submit a sequestration plan or sequestration program for approval to ecology.

(1) A sequestration plan and sequestration program for nongeologic sequestration of GHG must include:

(a) Financial requirements. As a condition of plant operation, each owner or operator of a facility or unit must provide letters of credit sufficient to ensure successful implementation, closure, and post-closure activities identified in the sequestration plan or sequestration program.

(i) The owner or operator of a proposed sequestration project must establish a letter of credit to cover all expenses for construction and operation of necessary equipment, and any other significant costs. The owner or operator must revise the cost estimate for the sequestration project annually to include any changes in the project and cost changes due to inflation.

(ii) Closure and post-closure financial assurances. The owner or operator must establish a closure and a post-closure letter of credit to cover all closure and post-closure expenses, respectively. The owner or operator must designate ecology or EFSEC, as appropriate, as the beneficiary to carry out the closure and post-closure activities. The value of the closure and post-closure accounts must cover all costs of closure and post-closure care identified in the closure and post-closure plan. The owner or operator must revise the closure and post-closure cost estimates annually to include any changes in the sequestration project and cost changes due to inflation. The

obligation to maintain the account for closure and post-closure care survives the termination of any permits and the cessation of injection. The requirement to maintain the closure and post-closure accounts is enforceable regardless of whether the requirement is a specific condition of the permit.

(b) The application for approval of a sequestration plan or sequestration program must include, but is not limited to, the following:

(i) A current site map showing the boundaries of the permanent sequestration project containment system(s) and all areas where the system(s) will store GHG.

(ii) A technical evaluation of the proposed project, including but not limited to, the following:

(A) The name of the area in which the sequestration will take place;

(B) A description of the facility or unit and place of GHG containment system(s);

(C) A complete site description including, but not limited to, the terrain, the geology, the climate (including rain and snowfall expected), and any land use restrictions that exist at the time of the application or the applicant will place on the site in the future;

(D) The proposed calculated maximum quantity of sequestered GHG and areal extent of the location where the facility will store GHG using a method acceptable to and filed with ecology;

(E) Evaluation of the quantity of sequestered GHG and their physical or chemical forms that may escape from the containment system(s) at the proposed project.

(iii) A public safety and emergency response plan for the proposed project. The plan must detail the safety procedures concerning the sequestration project containment system and residential, commercial, and public land use within one mile, or as necessary to identify potential impacts, of the outside boundary of the project area.

(iv) A GHG loss detection and monitoring plan for all parts of the sequestration project. The approved GHG loss detection and monitoring plan must address identification of potential release to the atmosphere.

(v) A detailed schedule of annual benchmarks for sequestration of GHG.

(vi) A closure and post-closure plan.

(vii) Any other information that ecology deems necessary to make its determination.

(c) Monitoring plan. In order to monitor the effectiveness of the implementation of the sequestration plan or sequestration program, the owner or operator must submit a detailed monitoring plan that will ensure detection of failure of the GHG sequestration method to place the GHG into a sequestered state. The monitoring plan must be sufficient to provide reasonable assurance that the sequestration provided by the project meets the definition of permanent sequestration. The monitoring must continue for the longer of twenty years beyond the end of GHG placement of the greenhouse gases into a sequestration containment system, or twenty years beyond the date determined by ecology that all of the GHG have achieved a state that they are now stably sequestered in that environment.

(d) If the sequestration plan or sequestration program fails to sequester GHG as provided in the plan or program, the owner or operator of the baseload electric generation

facility or unit or baseload electric cogeneration facility or unit is no longer in compliance with the GHG EPS.

(2) Public notice and comment. Ecology must provide public notice and a public comment period before approving or denying any sequestration plan or sequestration program.

(a) Public notice. Ecology will make a public notice only after the owner or operator of the facility submits all information required by ecology and ecology makes all applicable preliminary determinations. The owner or operator of the facility or unit must pay the cost of providing public notice. Public notice must include analyses of the effects on the local, state and global environment in the case of failure of the sequestration plan or sequestration program. The owner or operator of the facility must make the sequestration plan or sequestration program available for public inspection in at least one location near the proposed project.

(b) Public comment period.

(i) The public comment period must be thirty days or longer as specified in the public notice.

(ii) The public comment period must extend through the hearing date.

(iii) Ecology must make no final decision on any sequestration plan or sequestration program until the public comment period has ended and ecology has considered all comments received during the public comment period.

(c) Public hearing(s).

(i) Ecology must hold a public hearing within the public comment period. Ecology will determine the location, date, and time of the public hearing.

(ii) Ecology must provide at least thirty days prior notice of the hearing on a sequestration plan or sequestration program.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-220, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-220, filed 6/19/08, effective 7/20/08.]

WAC 173-407-240 Enforcement of the emissions performance standard under Part II.

Note: Ecology is the agency responsible for enforcing this section.

(1) A baseload electric generation facility or unit or baseload electric cogeneration facility or unit subject to WAC 173-407-130 that fails to meet the applicable GHG EPS or any implementation schedules and requirements in a sequestration plan or program may be subject to enforcement using the enforcement criteria and procedures specified in chapter 70.94 RCW.

Penalties can include:

(a) Financial penalties, which may be assessed after a failure to meet a sequestration benchmark in the sequestration plan or sequestration program. Each pound of GHG above the GHG EPS will constitute a separate violation, as averaged on an annual basis;

(b) Revocation of the approval to construct the source or to operate the source.

(2) If a new, modified or upgraded facility or unit fails to meet a sequestration plan or sequestration program benchmark on schedule, a revised sequestration plan or sequestration program must be submitted no later than one hundred fifty calendar days after the due date established under subsection (3)(c) of this section for reporting the failure. The

revised sequestration plan or sequestration program must be submitted to ecology for approval.

(3) Provisions for unavoidable circumstances.

(a) The owner or operator of a facility or unit operated under an approved sequestration plan or sequestration program shall have the burden of proving to ecology in an enforcement action that failure to meet a sequestration benchmark was unavoidable. This demonstration must be a condition to obtain relief under (d), (e), and (f) of this subsection.

(b) Failure to meet a sequestration benchmark determined to be unavoidable under the procedures and criteria in this section must be excused and not subject to financial penalty.

(c) Failure to meet a sequestration benchmark must be reported as part of the routine sequestration monitoring reports or by January 31st of the year following the calendar year during which the event occurred. Upon request by ecology, the owner or operator of the sequestration project must submit a full written report including the known causes, the corrective actions taken, and the preventive measures to be taken to minimize or eliminate the chance of recurrence.

(d) Failure to meet a sequestration benchmark due to startup or shutdown conditions must be considered unavoidable provided the source reports as required under (c) of this subsection. The owner or operator of the sequestration project must adequately demonstrate that the failure to meet a sequestration benchmark could not be prevented through careful planning and design and if a bypass of equipment occurs, and the bypass is necessary to prevent loss of life, personal injury, or severe property damage.

(e) Failure to meet a sequestration benchmark due to scheduled maintenance must be considered unavoidable if the source reports as required under (c) of this subsection, and adequately demonstrates that the excess emissions could not be avoided through reasonable design, better scheduling for maintenance or through better operation and maintenance practices.

(f) Failure to meet a sequestration benchmark due to upsets must be considered unavoidable provided the source reports as required under (c) of this subsection, and adequately demonstrates that:

(i) The event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;

(ii) The event was not of a recurring pattern that indicated inadequate design, operation, or maintenance; and

(iii) The owner or operator took immediate and appropriate corrective action in a manner consistent with good practice for minimizing nonsequestration during the upset event.

(4) Enforcement for permit violations. Enforcement of a violation of an order of approval must follow the requirements of chapter 70.94 RCW, as implemented by the permitting authority. Enforcement of an ecology approved sequestration plan or sequestration program must be in accordance with this section.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-240, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-240, filed 6/19/08, effective 7/20/08.]

PART III

LONG-TERM FINANCIAL COMMITMENTS; ECOLOGYS CONSULTATION WITH UTC AND CONSUMER-OWNED UTILITIES

WAC 173-407-300 Procedures for determining compliance with the emissions performance standard of a long-term financial commitment under Part II. (1) A baseload generation facility or unit or baseload cogeneration facility or unit in a long-term financial commitment must meet the GHG EPS in WAC 173-407-130 in effect at the time the parties sign the commitment.

(2) A long-term financial commitment must meet the following conditions to comply with the GHG EPS in WAC 173-407-130:

(a) Electricity from unspecified sources is limited to 12 percent of the total electricity in a long-term financial commitment.

(b) Long-term financial commitments with the Bonneville power administration are exempt from meeting the GHG EPS.

(c) For a long-term financial commitment with multiple power plants, each specified power plant named in the long-term financial commitment must individually meet the GHG EPS in WAC 173-407-130 in effect on the date the parties sign the commitment. Ecology deems a power plant named in a long-term financial commitment with multiple power plants meeting the following criteria to be in compliance with the GHG EPS:

(i) A facility or unit powered exclusively by renewable resources;

(ii) A facility or unit that is designed and intended to use a renewable fuel to provide at least 90 percent of its total annual heat input;

(iii) A baseload electric cogeneration facility or unit, fueled by natural gas or waste gas or a combination of the two fuels, that was in operation before June 30, 2008, unless it has:

(A) Changed ownership; or

(B) Upgraded.

(3) If ecology cannot determine compliance with the GHG EPS for a long-term financial commitment based on the conditions in subsection (2) of this section, ecology must use procedures in WAC 173-407-140 or 173-407-150 to determine compliance with the GHG EPS. All reports required by WAC 173-407-140(2) or 173-407-150(5) must be sent to ecology. An investor-owned electric utility must send another copy of the reports to UTC. A consumer owned electric utility must send another copy of the reports to their governing board.

(4) This rule exempts long-term purchase of coal transition power from meeting the GHG EPS as long as the term of the long-term purchase meets the schedule in RCW 80.80-040 (3)(c).

(5) In determining if a long-term financial commitment complies with the EPS, all unspecified power will have an emission rate of 2,300 lb/MWh.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-300, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-300, filed 6/19/08, effective 7/20/08.]

WAC 173-407-310 Ecology's consultation with UTC under Part II. (1) On request for assistance from the UTC, ecology must report to UTC whether baseload electric generation will comply with the GHG EPS for the period that the investor-owned utility contracts for the baseload electric generation.

(2) Ecology's consultation with UTC includes:

(a) Assist UTC to apply the conditions in WAC 173-407-300, 480-100-405, and 480-100-415.

(b) Determine if a long-term financial commitment for baseload electric generation meets the GHG EPS based on the conditions in WAC 173-407-300, 173-407-140, 173-407-150, and 173-407-160.

(3) Ecology will provide a report within thirty days of receiving all necessary information, unless UTC grants additional time.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-310, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-310, filed 6/19/08, effective 7/20/08.]

WAC 173-407-320 Ecology's consultation with consumer-owned utilities under Part II. (1) The governing boards of consumer-owned utilities may consult with ecology to determine whether the baseload electric generation supplied under a long-term financial commitment complies with the GHG EPS in WAC 173-407-130 in effect at the time the long-term financial commitment is signed.

(2) Ecology's assistance will be limited to providing technical support for the board to interpret, clarify or otherwise determine that the proposed long-term financial commitment for baseload electric generation will comply with the GHG EPS.

(3) The governing board of consumer-owned utilities must apply the conditions in WAC 173-407-300, 173-407-140, 173-407-150, and 173-407-160 to verify the emissions of GHG from baseload electric generation.

(4) The governing board may request assistance from ecology in performing the analyses in subsection (3) of this section.

(5) Ecology will provide technical support within thirty days of receiving all necessary information unless the governing board grants additional time.

[Statutory Authority: Chapter 80.80 RCW. WSR 18-05-091 (Order 16-12), § 173-407-320, filed 2/21/18, effective 3/24/18; WSR 08-14-011 (Order 07-11), § 173-407-320, filed 6/19/08, effective 7/20/08.]

WAC 173-407-400 Severability. The provisions of this regulation are severable. If any provision is held invalid, the application of that provision to other circumstances and the remainder of the regulation will not be affected.

[Statutory Authority: Chapter 80.80 RCW. WSR 08-14-011 (Order 07-11), recodified as § 173-407-400, filed 6/19/08, effective 7/20/08. Statutory Authority: RCW 70.94.892 and chapter 80.70 RCW. WSR 05-01-237 (Order 03-09), § 173-407-090, filed 12/22/04, effective 1/22/05.]