

Carbon dioxide mitigation and sequestration program for fossil-fueled thermal electric generating facilities, Chapter 173-407 WAC

173-407-xxx Sequestration Plan Requirements. In order to enforce the emissions performance standard, all baseload generation facilities that are subject to this rule will submit plans for approval to EFSEC or ecology, as appropriate.¹

(1) **Timing of plan submittals:** A sequestration plan is required to be submitted when ever any of the following events occur:

- (a) As part of Site Certificate application submitted to EFSEC for new baseload generation;
- (b) As part of a site certificate application submitted to EFSEC for a modification to an existing baseload electric generation plant that has a site certificate and the modification is not an exempt upgrade;
- (c) As part of a Notice of Construction application submitted to ecology or a local authority for new baseload generation or cogeneration;
- (d) As part of a Notice of Construction application submitted to ecology or a local authority for a modification to an existing baseload electric generation plant and the modification is not an exempt upgrade;
- (e) Whenever a baseload generation unit enters a new long term contract to provide baseload power; or
- (f) Whenever a qualifying ownership interest change occurs

(2) The criteria for approval of the sequestration plan for baseload electric generation facilities that will commence sequestration after the date that electricity is first produced are:²

(a)³ Sequestration projects plans shall contain sufficient detail to insure that costs associated with the construction and operation of necessary equipment, and any other significant costs are and will be available when the sequestration mechanism is built or implemented. Further a separate financial assurance shall be established to cover costs associated with the end of active sequestration processes (closure) and post closure assurance that the sequestered carbon stays sequestered.

(i) The owner or operator of a proposed sequestration project shall establish an account to cover all expenses for construction and operation of necessary equipment, and any other significant costs. The operator may fund the account with a trust fund, surety bond, letter of credit, or insurance. The

¹ Although Ch 80.80 RCW (ESSB 6001) requires that plans be written and approves there is no specific requirement to submit these plans. It is implied. I am suggesting making it a requirement.

² Based on RCW 80.80.040(11) (ESSB 6001 Section 5(11)).

³ The language of the statute is: “Provisions for financial assurances, as a condition of plant operation, sufficient to ensure successful implementation of the carbon sequestration plan, including construction and operation of necessary equipment, and any other significant costs.”

cost estimate for the sequestration project shall be revised annually to include any changes in the project and to include cost changes due to inflation.

(ii) Closure and post Closure Financial Assurances. The owner or operator shall establish a closure and post closure account to cover all closure and post closure expenses. The operator may fund the account with a trust fund, surety bond, letter of credit, or insurance. The value of the closure and post closure account shall cover all costs of closure and post closure care identified in the closure and post closure plan. The closure and post closure cost estimate shall be revised annually to include any changes in the sequestration project and to include 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 account is enforceable regardless of whether the requirement is a specific condition of the permit.

(b)⁴ The application for approval of a sequestration plan shall include (but not limited to) the following:

(i) A current site map showing the boundaries of the sequestration project and all areas where carbon dioxide will be stored.

(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 facilities and place of carbon dioxide storage.

(C) A complete site description of the site, including but not limited to the terrain, the geology, the climate (including rain and snowfall expected), any land use restrictions that exist at the time of the application or will be placed upon the site in the future, **etc.**

(D) The proposed calculated maximum volume of CO₂ to be sequestered and aeral extent of the location where the carbon dioxide will be stored using a method acceptable to and filed with the department;

(E) Evaluation of the quantity of leakage {need to agree on a definition of this term – it relates to growth or replacement fossil CO₂ emissions as a result of this project} that may or will occur due to the proposed project

(F) **MORE????**

(iii) The extent of where the CO₂ will be stored, using all information available.

⁴ The section here is modeled on John Stormon's proposal for UIC wells. It is not as detailed because this part of the rule covers many types of sequestration, beyond geologic.

(iv)⁵ A detailed description of the proposed project public safety and emergency response plan. The plan shall detail the safety procedures concerning the sequestration project and residential, commercial, and public land use within one mile, or any other distance as deemed necessary by the department, of the outside boundary of the project area. The public safety and emergency response procedures shall include contingency plans for CO₂ leakage from any storage mechanism, or associated equipment, or other permitted facility. The public safety and emergency response procedures also shall identify specific contractors and equipment vendors capable of providing necessary services and equipment to respond to such CO₂ storage leaks or loss of containment from the CO₂ storage site. These emergency response procedures should be updated as necessary throughout the operational life of the permitted storage facilities.

(v) A detailed worker safety plan that addresses CO₂ safety training and safe working procedures at the sequestration project;

(vi) A corrosion monitoring and prevention plan for all facilities where carbon dioxide gas, liquid or solid is present;

(vii) A leak detection and monitoring plan for all parts of the sequestration project. The approved leak detection and monitoring plan shall address identification of potential release to the atmosphere;

(viii) A detailed schedule of annual benchmarks for sequestration of carbon dioxide.

(ix) **MORE????**

(x) A performance bond covering the surface sequestration project in an amount established by department. The amount of the bond shall be sufficient to provide financial assurance to the department to cover the closure and post closure costs as found in WAC 173-407-~~xxx(1)(a)(ii)~~

(xi) Any other information that the department requires; and

(xii) A closure and post closure plan.

(xiii)⁶ **Payment of a fee.** The fee shall equal the fees found in WAC 173-455-050(2)(b)(iii)⁷⁸

(c)⁹ In order to monitor the effectiveness of the implementation of the sequestration plan the owner or operator shall submit a detailed monitoring plan that will be able to detect **any failure** of the sequestration method to place the carbon dioxide into a sequestered state and to monitor for losses of sequestered carbon dioxide at **a level**

⁵ Sections 4 through 8 anticipate gaseous or liquid CO₂, Should the language here be modified to cover other types of sequestration, such as iron seeding of the oceans, afforestation, etc. If so;how? Wordsmithing please

⁶ The ability to charge fees is implied in Ch. 80.80 RCW (ESSB 6001) by the requirement that ecology and EFSEC review the plans.

⁷ WAC 173-455-050 Carbon dioxide mitigation program fees. (Ch. 80.70 RCW) (2) Fees. The fees for the carbon dioxide mitigation program are described in this section and listed in the table below. (b) Mitigation plan approval (iii) Direct investment \$65.00/hr.

⁸ This fee language would eventually be rolled into Ch. 173-455 WAC, Air Quality Program's Fee Rule. At that time, the language here would merely mention the Fee Rule and say that one have to look there to determine the fee.

⁹ The bolded texts are policy decisions that need to be discussed in comments to this document.

of no greater than 20% of the leakage rate allowed in the definition of permanent sequestration. The monitoring shall continue for **the longer of 20 years** beyond either the end of placement of the carbon dioxide into sequestration, or the date upon which it is determined that **all** of the carbon dioxide has achieved that a state at which it is now stable in that environment.

(d)¹⁰ In the event of the failure of a sequestration plan the owner may purchase emissions reduction credits by the same criteria as found in WAC 173-407-060(2)(b)¹¹ but the amount to be mitigated must equal the amount required to meet the emissions performance standard found in section **?????** of this rule.

(3)¹² For baseload electric generation facilities that will commence sequestration on or before the date that electricity is first produced the criteria that will be used to evaluate the plan are Subsections above (2)(a)(ii), (2)(b), and (2)(c).

(4))^{13,14} **Public Notice and Comment** Ecology must provide public notice and a public comment period before approving or denying any sequestration plan.

(i) **Public notice.** Public notice shall be made only after all information required by the permitting authority has been submitted and after applicable preliminary determinations, if any, have been made. The applicant or other initiator of the action must pay the cost of providing public notice. Public notice shall include analyses of the effects **the local environment in the case of failure of the sequestration plan**¹⁵. The plan must be available for public inspection in at least one location near the proposed project.

(ii) **Public comment.**

(A) The public comment period must be at least the thirty-day period for written comment specified in the public notice.

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

(C) Ecology shall make no final decision on any sequestration plan until the public comment period has ended and any comments received during the public comment period have been considered.

(iii) **Public hearings.**

(A) Ecology will hold a public hearing within the thirty-day public comment period. Ecology will determine the location, date, and time of the public hearing.

¹⁰ The language of the statute is: “Provisions for an owner to purchase emissions reductions in the event of the failure of a sequestration plan under subsection (13) of this section;”

¹¹ (2) What are the mitigation plan options? The options are identified in RCW 80.70.020(3), which states that "An applicant for a fossil-fueled thermal electric generation facility shall include one or a combination of the following carbon dioxide mitigation options as part of its mitigation plan: (b) Direct purchase of permanent carbon credits;

¹² Based upon RCW 80.80.040(12) (ESSB 6001 section (5)(12)).

¹³ The language of the statute is: “Provisions for public notice and comment on the carbon sequestration plan.”

¹⁴ The following (public notice and comment) is adapted from WAC 173-400-171

¹⁵ Please comment on this concept.

(B) Ecology must provide at least thirty days prior notice of a hearing on a sequestration plan.

(5) Penalties for failure to achieve implementation of the plan on schedule. A penalty shall be assessed if the implementation of the sequestration plan fails to meet the performance required of it. These penalties can include:

(i) Submittal and implementation of a new plan; and

(ii) ¹⁶Financial penalties in the amount allowed by Chapter 70.94 RCW.

These financial penalties shall be assessed after one year of failure to meet a sequestration benchmark set in the sequestration plan.

(iii) Revocation of approval to construct and operate

¹⁷(iv) The owner or operator of a facility operated under an approved sequestration plan shall have the burden of proving to ecology or the decision-making authority in an enforcement action that failure to meet a sequestration benchmark was unavoidable. This demonstration shall be a condition to obtaining relief under subsections (iv), (v) and (vi) of this section.

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

(vi) Failure to meet a sequestration benchmark shall be reported within thirty days after the end of the accounting year during which the event occurred or as part of the routine sequestration monitoring reports. Upon request by ecology the owner(s) or operator(s) of the sequestration project source(s) shall 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.

(vii) Failure to meet a sequestration benchmark due to startup or shutdown conditions shall be considered unavoidable provided the source reports as required under subsection (v) above, and adequately demonstrates that the failure to meet a sequestration benchmark could not have been prevented through careful planning and design and if a bypass of equipment occurs, that such bypass is necessary to prevent loss of life, personal injury, or severe property damage.

(viii) Maintenance. Failure to meet a sequestration benchmark due to scheduled maintenance shall be considered unavoidable if the source reports as required under subsection (v) above, and adequately demonstrates that the excess emissions could not have been avoided through reasonable design, better scheduling for maintenance or through better operation and maintenance practices.

¹⁶ The ability to charge fees is implied in Ch. 80.80 RCW (ESSB 6001) by the requirement that ecology and EFSEC review the plans.

¹⁷ This part is based on WAC 173-400-107.

- (ix) Failure to meet a sequestration benchmark due to upsets shall be considered unavoidable provided the source reports as required under subsection (v) above, and adequately demonstrates that:
- (A) The event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;
 - (B) The event was not of a recurring pattern indicative of inadequate design, operation, or maintenance; and
 - (C) The operator took immediate and appropriate corrective action in a manner consistent with good practice for minimizing non-sequestration during the upset event.