As required by
the Washington State Administrative Procedure Act
Chapter 34.05 RCW

CONCISE EXPLANATORY STATEMENT
AND
RESPONSIVENESS SUMMARY
FOR THE ADOPTION OF
Chapter 173-407 WAC, CARBON DIOXIDE MITIGATION PROGRAM FOR FOSSIL-FUELED THERMAL ELECTRIC GENERATING FACILITIES

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CONCISE EXPLANATORY STATEMENT

I. Introduction

- Identify the reasons for adopting this rule (RCW 34.05.325(6)(a)(i)):

During the 2004 legislative session, SHB3141 became law. The new law (codified as Chapter 80.70 RCW and RCW 70.94.892) establishes a carbon dioxide mitigation program and requires carbon dioxide offsets from new and certain modified fossil-fueled thermal electric generating facilities. The purpose of the rule is to recover permitting authority costs related to implementing the mitigation program, to clarify CO_2 emissions calculations, and to integrate mitigation program plans into the air quality permits using the order of approval process. (CR102)

- Identify the adoption date of rule and effective date of rule.

The adoption date of the rule is December 21, 2004. The effective date is 31 days after the rule is filed with the Code Reviser.

II. Describe Differences Between Proposed and Final Rule

- Describe the differences between the text of the proposed rule as published in the Washington State Register and the text of the rule as adopted, other than editing changes. State the reasons for the differences (RCW 34.05.325(6)(a)(ii)):

1. Through out the regulation, change **mmBtu to MMBtu**.
   Rationale for change: Editing

2. **Add hyphen** between station and generating throughout the rule.
   Rationale for Change: Editing

3. **Change title in 030(4)** to: Modifiying existing fossil-fueled thermal electric generating facilities.
   Rationale for Change: clarification

4. **Change 030(4)(c) to read:**
   (c) *The increase to the facility or units is the greater of the following measures:*
   (i) an increase of station-generating capability of more than 25 MWe; or
   (ii)an increase in CO_2 emissions output by 15% or more.

   Rationale for Change: Clarification

5. In 050(1) **replace "similar analysis" with *unless a differing analysis is necessary or appropriate for the electric generating process and type of equipment:***

Now reads:

(1) **Step 1 is to calculate the total quantity of CO_2.** The total quantity of CO_2 is referred to as the **maximum potential emissions of CO_2.** The maximum potential emissions of CO_2 is defined as the annual CO_2 emission rate. The annual CO_2 emission rate is derived by the following formula *unless a differing analysis is necessary or appropriate for the electric generating process and type of equipment:*

Rationale for Change: Clarification.

6. In 050(1)(e) **add source notation (AP-42) for fuel chart;**
(e) Fuel to CO_2 conversion factors (derived from the EPA's AP-42, Compilation of Air Pollutant Emission Factors):
Rationale for Change: Clarify information source.

7. In 050(1)e**) add categories to the fuel chart to specifically denote fossil and non- fossil fuels:**

Other ***fossil-*** fuels	Calculate based on carbon content of the fossil fuel and application of the gross heat content (higher heating value) of the fuel
Non fossil-fuels	***00.00***

Rationale for Change: Add clarity to ensure only fossil fuels are used in calculating carbon dioxide emissions.

III. Summarize Comments

- Summarize all comments received regarding the proposed rule and respond to comments by category or subject matter. You must indicate how the final rule reflects agency consideration of the comments or why it fails to do so (RCW 34.05.325(6)(a)(iii)):

General Comments

Comment 1: The rule is a good starting point.

The City of Tacoma Solid Waste Division supports efforts to reduce greenhouse gas (GHG) emissions. The Carbon Dioxide Mitigation Program proposed by WAC 173-407 is a good starting

point toward that effort. The cost per megawatt of electricity proposed will be well spent in the effort to reach a sustainable society. **(6- City of Tacoma Solid Waste Division)**

Ecology Response: Ecology agrees. Thank you for your comment.

Comment 2: Inserting whole RCW sections and using a Q & A format for this regulation is bulky and ineffecient.

- The format and style of the proposed regulation is inefficient. The insertion of whole sections of chapter 80.70 RCW and the inconsistent reliance on a question and answer format, results in a bulky regulation. In some instances the proposed regulation extends beyond statutory direction. **(1- Weyerhaeuser)**
- A rule, from a user's perspective, should start with a clearly stated need and objective along with definition of whom the rule applies to. That should be followed by clearly stated requirements, and if a permit or approval is needed, the process that must be followed. Extraneous information should be avoided **(7 - Western States Petroleum Association)**

Ecology Response: Ecology disagrees with your conclusion. The Department of Ecology is required to write rules using plain English where possible. The rule- writing techniques Ecology used for this rule allow the average person to determine where information originated from and uses the question and answer format to highlight provisions in statute that would otherwise be difficult to find.

Comment 3: Although the rule provides a good overall frame-work, the regulation should follow the wording of the legislation as closely as possible.

- We support the Department of Ecology's Air Quality Program in developing rules that assist the public and facility developers to mitigate greenhouse gases. We believe the current draft rule provides a good overall framework for evaluating CO_2 emissions and mitigation projects, but it should adhere more closely to the statutory language in RCW 80.70. This will provide more clarity and avoid potential misunderstandings between agency reviewers and applicants. We offer the following specific comments:

  Comment 1 - WAC 173-407 (General Comment)

  The proposed language in this rule is different from the corresponding statutory language in several locations. The regulation should follow the wording of the legislation as closely as possible. New language should not be proposed in the regulation when there is specific or related provisions provided in the statute. When the statute is silent or leaves a gap, then regulatory language may be appropriate provided there is a clear record that the additional language clarifies the issue and is consistent with the statute. Using different language from the statute when it is not clearly necessary creates the appearance of amending the legislation through the rulemaking process.

  We recommend that Ecology follow the statutory language to the maximum extent possible and the specific comments below [Comments 1(a) through 1(e)] are based on that recommendation. These recommendations are taken directly from the legislation. **(9 - Puget Sound Clean Air Agency)**

- ***Comment 2 - WAC 173-407 (General Comment)***

In the event Ecology decides not to make the changes we proposed in the various parts of our Comment 1, we suggest changing all instances of "mmBtu" to "MMBtu." The term "mm" is an abbreviation for the metric unit of length equal to one thousandth of a meter, and "MM" is an abbreviation for one million. "M" is the Roman numeral for one thousand, and "MM" indicates one thousand multiplied by one thousand. "MMBtu" is a traditional symbol for one million Btu, a unit used widely in the energy industry. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Ecology worked diligently to apply the principles you outline. Regarding your comment 2, the rule language has been revised to replace mmBtu with MMBtu. However, after reviewing your specific suggestions 1(a)-1(e), Ecology finds your suggestions do no more to fulfill the principles and do little to assist Ecology in meeting the plain English requirements and objectives. Comments (1)(a)-(1)(e) are further addressed under the corresponding or referenced Ecology rule section.

Comment 4: Does the rule apply to bio-fuel units and was bio-fuels considered in the 2004 legislation?

- Applicability of regulation – Cogeneration units in the forest products industry typically would be combination-fuel fired, with wood waste or pulp cooking liquors as the predominately fuel types. Various fossil fuels might supplement these base fuels to varying degrees to ensure process steam requirements are achieved. The proposed WAC 173-407 does not reveal whether or how these combustion units might be subject to the regulation. Does Ecology intend the term "fossil fuel thermal electric generation facility" to apply to facilities burning fossil fuels exclusively, or is there a different evaluation intended that could cause a combination fuel-fired unit to be subject to this rule? If the latter, Ecology needs to define the applicability criteria, re-propose the draft regulation, and allow for review and comments by affected companies. **(1- Weyerhaeuser)**

- Mr. Ruby's second comment had to do with how the rule applies to bio-fuels. He feels that it would be consistent with the law to have bio-fuels considered in determining whether a generator is included under the rule. In particular if a permit for a facility provides direction related to the use of bio-fuels then that contribution should be considered in the calculation of station generating capability in the rule. This would require amendments to the definitions in 173-407-020. **(4-Envirometrics, Inc. [summary of testimony at hearing])**

- Basically, I am concerned that we are not properly differentiating between renewable biological-based fuels and geological fossil fuels. The statute was written with large projects in mind, specifically natural gas-fired combustion turbines. It was never imagined that renewable biofuels could be a significant part of their operation so biofuels were simply ignored as the bill was written. However, the installations of the size Ecology is dealing with will be much more likely to utilize renewable biofuels either as the principal fuel or as a supplemental fuel. Additional clarification for the units that are uniquely within the ambit of this rule would certainly be "consistent with" the statute. **(4- Envirometrics, Inc.)**

- First, some general comments on the proposed rule. The intent of RCW 80.70 and WAC 173-407 is to encourage the reduction of GHG from new and expanded power plants. A general observation is that energy from fuels considered to offset fossil fuel GHG

emissions are included in the baseline energy production (25 megawatt threshold) to determine the applicability of the rule. To promote the use of alternative fuels that offset fossil fuel GHG emissions, it is strongly recommended that only fossil fuels contribution to energy production be counted towards the 25 megawatt minimum threshold for plants not regulated by the Council. This will provide an incentive to using biomass or other fuels that would otherwise go to waste, or discourage fossil fuel use at facilities that may use these alternative fuels. **(6-City of Tacoma Solid Waste Division)**

Ecology Response: Given the newness of the legislation, Ecology believes the most appropriate approach is two-fold: 1) to leave the 25MWe threshold alone and apply that threshold as specified in statute and 2) clarify that the calculation section only applies to fossil fuels. The fuel chart has been revised to reflect this.

Comment 5: The rule-making process was inadequate and the proposed rule is flawed.

- We appreciate the opportunity to comment on proposed rule173-407. In view of the fact that this rule and its underlying statute create a new area of regulation for both the Department and for business, it is important that all parties concerned proceed carefully and with full understanding of the opinions of all stakeholders. It is therefore disappointing that the rule has proceeded this far without any discussion with the businesses that will potentially be affected. The Association of Washington Business (AWB) did comment on an earlier draft but most of those comments are not reflected in the current proposal and there has been no opportunity to discuss them with the agency. We urge you to accept the offer from business to meet with you before continuing with rulemaking. **(7 - Western States Petroleum Association)**

- Department staff initially stated that the Ecology rule would follow an EFSEC rule that established CO_2 mitigation requirements for large thermal electric generating facilities. The EFSEC rule has not been proposed. Subsequently, Department staff stated that the Ecology rule must be adopted by the end of 2004. This urgency has not been explained.

- It is our opinion that the desire to create the rule quickly, without allowing for interactive discussion with affected stakeholders, has resulted in a proposed rule that is difficult to follow and is unnecessarily flawed. **(7 - Western States Petroleum Association)**

- These WSPA comments are submitted with respect to the Department's need to implement applicable provisions of RCW 80.70, and with the intent of offering constructive suggestions. They all point to one conclusion. There is a need for discussion between the Department and the regulated community before the rule is adopted.

  We believe that there is a common goal that could be achieved, a goal to create a rule that simply and effectively implements the authorizing legislation, providing clarification where needed, and establishing a well defined process for affected facilities to follow. We are willing to join with other interested business groups to work with the Department to expeditiously achieve that goal. **(7 - Western States Petroleum Association)**

Ecology Response: First, Ecology disagree that the proposed rule was hastily drafted and unnecessarily flawed. Second, there appears to be confusion regarding why Ecology is

proposing a rule before EFSEC. The primary reason is new legislation. At the time the statement was made, the 2004 legislature had yet to meet. During the 2004 session the legislature enacted what is now codified as RCW 70.94.892 and Chapter 80.70 RCW. RCW 70.94.892, which became effective in June of 2004, directs Ecology to implement a carbon dioxide mitigation program consistent with Chapter 80.70 RCW. Ecology evaluated the new legislation and determined rule-making was still necessary to fully implement RCW70.94.892.

Given that only a few issues remained, an external stakeholder review process was selected with the offer of a face-to-face meeting. We elected not to have an extensive stakeholder process because the rulemaking was a fairly direct implementation of the new law. Air Quality Program staff specifically offered the Association of Washington Businesses (AWB) contact the option of a face-to-face meeting. Although AWB submitted comments, a meeting was not requested at any time prior to filing the CR 102 (mid-October). Interestingly, the external stakeholder rule review period was extended by three weeks, specifically to accommodate AWB. No other group asked for additional time. Regarding the comments Ecology incorporated AWB comments into the proposed rule that added value to the overall rule.

173-407-010

Comment 6: Eliminate section or restructure this section.

- The proposed WAC 173-407-010 *Policy and Purpose* should be eliminated. Chapter 80.70 RCW does not even offer policy and purpose statements. Recognize that this regulation will probably apply to fewer than 6 emission units statewide. These will be large sources with knowledgeable environmental management staff for which a Policy and Purpose recitation has little value.

  If a *Policy and Purpose* statement must be provided, the statutory language from RCW 70-94.892(1) (currently appearing at the proposed WAC 173-407-030(1)) could be used. **(1-Weyerhaeuser)**

- Part (1) of section 010 establishes policy that is the prerogative of the legislature and was not included in the authorizing legislation. The first sentence could say it is the purpose of this chapter to ……. . It would also be helpful to clarify in section 010 and/or in section 030 that the chapter applies only to facilities that can sell power to the grid for public consumption. Part (2) of section 010 is not necessary and could lead to confusion rather than clarification. WAC 173-401 defines the facilities that require an operating permit; addressing the issue here is not beneficial. Part (3) of section 010 is not correct the way it is written as sources under the jurisdiction of local agencies are not included in the Ecology registration program under WAC 173-400. **(7 - Western States Petroleum Association)**

- ***Comment 1(a) - WAC 173-407-010.***

We recommend replacing all of the proposed WAC 173-407-010 with the applicability portion of RCW 80.70.020, so the rule would read as follows:

WAC 173-407-010 Applicability. The provisions of this chapter apply to:

(1) New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, for which an application for an order of approval has been submitted after July 1, 2004; and

(2) Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that have an existing order of approval and, after July 1, 2004, apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its station-generating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.

This recommendation provides for an applicability section in the front of the regulation, which follows the pattern established for most Department of Ecology regulations, and does not change the wording of the legislation. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Ecology believes this section appropriately introduces this WAC. More importantly, the information in this section accurately outlines how this WAC and other Ecology Air Quality WACs interrelate.

173-407-020

Comment 7: Retain the exact wording of the definitions from RCW 80.70.010.

Comment 1(b) - WAC 173-407-020

We agree with the proposal to retain the exact wording of the definitions from RCW 80.70.010.

We recommend adding a space between the words “certificate” and “holder” in WAC 173-407-020(12)(a), as stated in RCW 80.70.010(12)(a).

We recommend revising WAC 173-407-020(17) so that the references to the legislation refer to equivalent references in the regulation. This will be necessary if you adopt the recommendations given immediately below. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: We notified the Order Typing Service to correct the spacing issue. As far as revising the references found in definition (17), Ecology finds that since the section itself is a reprint of statute, the revision suggested is not necessary. To avoid the confusion you mentioned, Ecology included a reprint of the "references to the legislation" found in definition (17) in Section 030.

Comment 8: Ecology should add and amend the definitions in Section 020

- 173-407-020(3): Defining carbon credit needs to be much more defined. Chicago Climate Futures Exchange LLC is attempting to be the North American exchange forum, but WA DOE should assist buyers and sellers of emission credits in Washington to find each other.

It may be necessary, due to a need to control logistics costs, for DOE to insist that buyers and sellers are limited to physical facilities only in Washington State. On the other hand, the international market's vast size means that Washington power producers would be able to readily find third parties/ investment opportunities/ those with excess emission credits. Whether DOE decides to make geographic limits or not, it should either create the forum or be of great assistance in helping sellers find buyers and vice versa. **(3-Citizen)**

- 173-407-020(12): 'Mitigation Project' may also need to be elaborated in the future. RCW 80.70.020(4) does not set an actual greenhouse gas emissions cap goal, but state or federal law may in the future. If so, then the reduction requirement merely based on a percentage of an ever growing demand will not be enough. Thus, a mitigation project must make a distinction between those projects that actually remove or prevent greenhouse gases from going into the atmosphere and those that exploit energy production capacity as the greenhouse gases are going into the air. A credit scheme that gives greater credit to sequestration than efficiency projects may be appropriate. **(3-Citizen)**

- Although it was omitted from the statute (RCW 80.70), we suggest that this section of the regulation include a definition of "natural gas" to add clarity to the definition of "fossil fuel" (Section 020(10)). Natural gas is gas produced beneath the earth's crust by natural thermogenic processes. A definition such as this will be helpful to avoid future misunderstanding regarding the scope of the mitigation program.
  Natural gas, with a typical composition of 90% methane, is sometimes referred to as methane gas. An incorrect extension of this understanding could be that the other methane-rich gases derived from the decomposition of waste materials are also natural gases. These gases include landfill gas, agricultural waste digester gas, and sanitary waste treatment offgas. Clearly, these biogases are not fossil fuels and the mitigation program is not intended to apply to power plants that use these fuels. (This intent is evidenced in the cost-benefit analysis for the proposed rule in that the use of landfill methane is identified as an example of a CO_2 emissions offset project.) A definition of natural gas would make the scope of the program more explicit. **(10 - Energy Northwest)**

- "Petroleum coke is a waste product of the petroleum refining industry. This waste could be used as a beneficial source of energy by the utility sector. Not managing this product as a waste, but rather as a source of energy, would benefit both industries and would prevent this material from entering the environment [as a waste] that must be treated and properly disposed in a landfill. Therefore, we are asking that you allow an exclusion from the definition of fossil fuel for petroleum coke generated from a petroleum refinery provided that coke is used as an environmentally beneficial fuel by a utility." **(8-Puget Sound Energy)**

Ecology Response: Ecology included the definitions in 020 that are enacted by the legislature. As such, for the definitions listed Ecology will not be making specific changes unless the legislature enacts changes. In the future, Ecology will evaluate whether additional definitions, not currently found in the section, are needed. Until that time, Ecology will use the definitions as they are currently written.

Comment 9: Does this regulation address net metering?

- A second issue is the question of net metering, which is also more likely to be found with these smaller units. The definition of a thermal power plant in RCW 80.50.020 makes it clear that it applies only to generating facilities that produce power "for distribution of electricity by electric utilities". However, a plant that is tied in to an electric utility and uses net metering to wheel power over time, may be interpreted to trigger this definition even though over any reasonable averaging period it is a net purchaser of power from the utility. Of course, if it is (or expected to be) a net supplier of power over any reasonable averaging period it should be covered by the regulations. **(4- Envirometrics, Inc.)**

- This rule as written appears to cover a group of hogged fuel boilers at a plant that are allowed to use diesel fuel as a supplemental fuel during wet conditions if they generate electric power that moves to an electric utility. They may well be covered in to the regulation even though the diesel fuel is a relatively minor portion of the total fuel and the power is only net metered. **(4- Envirometrics, Inc.)**

Ecology Response: RCW 80.50.20 applies to the Energy Facilities Site Evaluation Council, not Ecology. What this really means is that Ecology is more limited in using alternative methods to the definitions in Chapter 80.70.RCW. Ecology recognizes that net metering is an alternative method to determining a commercial operation (specifically to the defined phrase "commercial sale to the power grid"). As such, although "commercial sale to the power grid" becomes the bench mark, the net metering concept will have to operate in a prospective manner.

As to the example, it is possible this group of hogged fuel boilers may be covered under the regulation. Unfortunately, it is not clear at this time whether Ecology should create additional exemption not currently in statute(s).

173-407-030

Comment 10: This section should be eliminated and replaced with the suggested language or reduced.

- 2. In the spirit of efficiency and clarity, all of proposed WAC 173-407-030 should be eliminated and replaced with the following:

  WAC 173-401-030 *Applicability*.

  1. This chapter applies to:

  a) New fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more and fossil-fueled floating thermal electric generation facilities of one hundred thousand kilowatts or more under RCW 80.50.020(14)(a), for which an application for site certification is made to the council after July 1, 2004:

  b) New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal

electric generation facilities under the council's jurisdiction, for which an application for an order of approval has been submitted after July 1, 2004;

c) Fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more that have an existing site certification agreement and, after July 1, 2004, apply to the council to increase the output of carbon dioxide emissions by fifteen percent or more through permanent changes in facility operations or modifications or equipment, and

d) Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that have an existing order of approval and, after July 1, 2004, apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its station-generating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.

2. Carbon dioxide is not an air contaminant within the meaning of 173-401 WAC and does not trigger air operating permit applicability. For facilities subject to this chapter and already subject to 173-401 WAC, the CO2 mitigation requirements are applicable requirements of an operating permit.

3. A fossil fueled thermal electric generating facility subject to this chapter but not subject to the requirements of Chapter 173-401 WAC is subject to the requirements of the registration program in Chapter 173-400 WAC, or to the rules of the local air pollution control authority having jurisdiction over the source. **(1- Weyerhaeuser)**

- Part (2) of section 030 is a restatement of law including sections that are not relevant to the facilities that would be subject to this rule. The section could be reduced and would be more easily followed if it cited the law and stated only the parts that are applicable to sources under Ecology jurisdiction. We urge you to reconsider the reformatting concept that was suggested earlier by AWB. **(7 - Western States Petroleum Association)**

Ecology Response: Ecology believes this section is both valuable to the overall structure of the rule and appropriate.

Comment 11: Is the change described below subject to the mitigation program?
The University of Washington (UW) Seattle Campus Power Plant is equipped with natural gas/oil steam boilers that fuel an existing 5MWe (approx.) steam turbine-electric generator. The UW does not currently supply electrical power to the state's power grid. In addition, the UW is subject to the WAC 173-401 Air Operating Permit program, and is not under the jurisdiction of the energy facility site evaluation council. . . .

If the UW Power Plant was to install an additional steam turbine-electric generator resulting in a 15% or more increase in generator-associated CO2 emissions, please verify that proposed WAC 173-407 would **NOT** apply to the UW. Under this scenario, the UW may or may not contribute to the state's power grid.(In other words, does the language contained in proposed WAC 173-

407-030(4)(c)(ii) and 173-407-030(4)(d) suggest that WAC 173-407 **DOES** apply to the UW.) **(2-University of Washington, Plant Operations)**

Ecology Response: The short answer is the change, as described, is below the threshold limits, so the mitigation program does not apply.

Comment 12: I recommend adding language to 030(2)

While I am certain that it was never anyone's intention that emissions of renewable biological-based fuels should be subject to mitigation under this legislation, I cannot say that anyone gave any thought to excluding sources from regulation that would be marginally less than the trigger levels if they employed some fraction of renewable fuels.
However, I am certain that no one wanted to regulate primarily renewable biological-based fuel sources that used fossil fuels for start up or as a backup fuel to assist during poor fuel or upset conditions. I would suggest the following language be added to 407-030(2):
"Fossil-fueled thermal electric generation facilities do not include a source that is restricted by its permit from using more than 10% of its fuel (by heat content) from fossil fuels." **(4-Envirometrics, Inc.)**

Ecology Response: We added language to clarify that bio-fuels are not counted in calculating carbon dioxide emissions. Regarding the suggested language, the legislature did not include this exemption or threshold. As such Ecology is reluctant to add such an exemption at this time.

Comment 13: Section 030(4) needs re-wording to be clearer.

- The wording in 407-030(4)c) is a bit muddled. I would propose it be rewritten as follows:
  (c)The modification to the fossil-fueled thermal electric generating facility or units will increase output more than the greater of:
  (i) 25 MWe of electric power; or
  (ii) 15% of the emissions of CO2.
  Note that the latter provision is similar to the statement on modification in RCW 80.70.020**(4- Envirometrics, Inc.)**

- Mr. Kato's comment was about 173-407.030(4). He has been told by agency employees that the intent of this section is that the trigger is meant to be an increase of 15% of fossil fuel emissions. He would like clarification added to the rule as to whether or not this means an increase over historical emissions or permitted emissions. **(5-City of Tacoma Solid Waste Division [summary of testimony at hearing])**

- WAC 173-407-030(4)(c) - It was explained to City staff at the November 30 hearing that the 15% CO2 threshold was intended to apply to increases in CO2 emissions due to use of additional fossil fuels. This is not specified in the regulation.
  To clarify Ecology's position and to prevent future interpretation issues, the City of Tacoma recommends that the language in WAC-173-407-030(4)(c)(ii) be revised as follows:
  "An increase in the annual emissions of CO2 of 15% or more over emissions rates permitted as of July 1, 2004, that result from the combustion of additional fossil fuels".

This language serves the purpose of covering the increases in fossil fuels that are specified by the legislature while not penalizing those plants that may wish to increase capacity by using fuels other than fossil fuels. **(6-City of Tacoma Solid Waste Division)**

- *Comment 4 - WAC 173-407-030(4)(c)*

In the event our recommendations in Comment 1 are not incorporated into the final rule, we recommend that Ecology use the exact statutory language when referring to and defining modifications. For example, the statute uses the term "increase its station-generating capability" while the proposed rule uses the words "increase electrical output" to help define a modification which could trigger applicability of this regulation for existing sources. "Station generating capability" has a very specific definition in RCW 80.70.010(16). The different wording proposed appears to change the meaning of the statute. Modifications likely relate to "design" or "capacity" for the station and not a comparison to "past actuals" for operation or emissions. Using the exact words from the statute avoids a New Source Review type debate relative to modifications. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Ecology agrees the section could be more clearly written and reworded the section to read:

(4)(c)The increase to the facility or units is the greater of the following measures: (i) an increase of station-generating capability of more than 25 MWe; or (ii)an increase in CO_2 emissions output by 15% or more.

Comment 14: Parts (5) (d) and (e) of section 030 may need further explanation or definition. As an example, is it the intent that hydrocarbon reformer CO_2 emissions be mitigated?

Parts (5) (d) and (e) of section 030 may need further explanation or definition to assure that they meet the concept of a fossil fuel fired thermal electric generating facility capable of supplying power to the grid that is envisioned by the law. For example is it the intent that hydrocarbon reformer CO_2 emissions are to be mitigated if the hydrogen was captured and used in fuel cells for cars? **(7 - Western States Petroleum Association)**

Ecology Response: Ecology believes (5)(d) and (e) provide a logical starting point. In the example given, the answer is No, since the power generated was not for commercial sale to the power grid.

Comment 15: Replace Section 030 with wording from RCW 80.70.020 and 030. In the event this recommendation is not incorporated, delete Section (1)

- ***Comment 1(c) - WAC 173-407-030 (and beyond)***

As stated previously, the regulation should follow the wording of the legislation as closely as possible. Therefore, we recommend that you delete the proposed language of WAC 173-407-030 and replace it with the wording from RCW 80.70.020(2) through (6) and RCW 80.70.030, suitably renumbered in the WAC format, to read as follows:

WAC 173-407-030 Carbon dioxide mitigation plan. (1) For fossil-fueled thermal electric generation facilities subject to this regulation, the order of approval shall require an approved carbon dioxide mitigation plan.

(2) Order of approval holders may request, at any time, a change in conditions of an approved carbon dioxide mitigation plan if the department or authority, as appropriate, finds that the change meets all requirements and conditions for approval of such plans.

WAC 173-407-032 Mitigation. (1) 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:

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

(b) Direct purchase of permanent carbon monoxide credits; or

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

(2) Fossil-fueled thermal electric generation facilities that receive an order of approval shall provide mitigation for twenty percent of the total carbon dioxide emissions produced by the facility.

(3) If the order of approval holder chooses to pay a third party to provide the mitigation the mitigation rate shall be one dollar and sixty cents per metric ton of carbon monoxide, subject to increase or decrease by the council on a biennial basis pursuant to RCW 80.70.020(5)(a) and (b).

(4) The applicant may choose to make to the third party a lump sum payment or partial payment over a period of five years.

(a) Under the lump sum payment option, the payment amount is determined by multiplying the total carbon dioxide emissions by the twenty percent mitigation requirement under subsection (2) of this section and by the per ton mitigation rate established under subsection (3) of this section.

(b) No later than one hundred twenty days after the start of commercial operation, the order of approval holder shall make a one-time payment to the independent qualified organization for the amount determined under subsection (3) of this section.

(c) As an alternative to a one-time payment, the order of approval holder may make a partial payment of twenty percent of the amount determined under subsection (3) of this section no later than one hundred twenty days after commercial operation and a payment in the same amount or as adjusted according to subsection (3) of this section, on the anniversary date of the initial payment in each of the following four years. With the initial payment, the order of approval holder shall provide a letter of credit or other comparable security acceptable to the department for the remaining eighty percent mitigation payment amount including possible changes to the rate per metric ton made by the council pursuant to RCW 80.70.020(5)(a) and (b).

WAC 173-407-034 Permanent carbon credits. (1) Carbon dioxide mitigation plans relying on purchase of permanent carbon credits must meet the following criteria:

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

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

(c) The credits may not have been used for other carbon dioxide mitigation projects.

(2) Permanent carbon credits purchased for project mitigation shall not be resold unless approved by the department or authority.

(9 - Puget Sound Clean Air Agency)

- ***Comment 3 - WAC 173-407-030***

In the event our recommendations in Comment 1 are not incorporated into the final rule, we recommend deleting Section 1 of the proposed WAC 173-407-030. Section 1 is unnecessary because the same words are contained in the statute. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Ecology disagrees that including the language from multiple Sections of Chapter 80.70 RCW and then renumbering provides a better or more readable regulation. Additionally, Section 1 in 030 is included precisely because it is the guiding statute language directing Ecology to implement a carbon dioxide mitigation program.

173-407-040

Comment 16: This fee collection should be eliminated from the regulation.

WAC 173-407-040 *Carbon dioxide mitigation program fees*. This fee collection mechanism should be eliminated from the regulation. The administrative costs of agency time for accounting and invoice preparation, compared to the proposed fee amounts, do not make this a worthwhile effort.
Existing fee programs should be considered to adequately compensate jurisdictional agencies for the evaluations specified in this proposed section. Note that any new or modified fossil fueled thermal electric generator of greater than 25 MW output would surely be paying many thousands of dollars to the jurisdictional agency for the processing of new source applications, and/or annual permit fees or annual registration fees. (Fee collection provisions are detailed in chapter 80.50 RCW *Energy Facility Site Evaluation Council*, WAC 173-401 *Operating Permit Regulation*, WAC 173-400 *General Air Regulation* for new source review or registration fees, and local air authority regulations. These amount to “fees for service” and total $1,800-18,000 for a new source review, and $30,000-120,000 per year for AOP sources.) That these fees are tied to criteria or toxic air pollution emissions or source permitting transaction, and not to carbon dioxide emissions, is immaterial. **(1- Weyerhaeuser)**

Ecology Response: RCW 70.04.892 specifically authorizes Ecology to determine, assess, and collect fees sufficient to cover to review and approve or deny the carbon dioxide plan components of an order of approval.

Comment 17: We support the fees levels proposed.
In our comment letter today, we did not include any specific comments on your fee section of the proposed regulation (WAC 173-407-040) because we had no changes to suggest at this time. As we previously communicated,we support Ecology's effort to determine and collect fees to cover the staff time involved with review work associated with this regulation. Our suggestion at that time was that the preliminary draft fee schedule may have been inadequate for the level of review effort this regulation could produce. We still support Ecology's effort to establish an effective fee schedule which covers the costs. The proposed fee schedule is effective in that it uses an hourly rate fee structure to cover the level of effort. That should keep costs and level of effort in

balance. While some may be looking for more fixed fee structures, it is probably not possible for anyone to accurately estimate or commit how much time any specific project will take to review. Without a past history to establish reasonable fixed fee structures, The proposed approach appears to be a prudent and reasonable option at this time. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Thank you for your comment.

Comment 18: Statutory language excludes Ecology from monitoring the purchase of CO_2 credits.

Statutory language RCW 80.70.040 (5) (b) specifically excludes Ecology from monitoring the purchase of CO_2 credits.

"For facilities under the jurisdiction of the department or authority pursuant to RCW 80.70.020 (1) (b) or (c), the implementation of a carbon dioxide mitigation project, other than a purchase of carbon dioxide equivalent emission reduction credits, shall be monitored by the department or authority issuing the order of approval." Justification for charging fees for this form of mitigation needs to be discussed. **(7 - Western States Petroleum Association)**

Ecology Response: Ecology disagrees. RCW 70.94.892 allows this activity. Further, it is reasonable to follow up on a yearly basis to ensure the carbon credits are still in existence.

Comment 19: It is not apparent that fees were included in the benefit-cost analysis. We conclude the Department considers the fee to be trivial compared to the mitigation charges.

Section 040(2). The proposal differs from the draft version in that the Department's fees are to be charged at an hourly rate rather than at a flat rate. Although this may be reasonable, it was not apparent that the fees were included in the benefit-cost analysis that accompanied the proposed rule. We conclude that the Department considers the fees to be trivial compared to the mitigation charges. **(10 - Energy Northwest)**

Ecology Response: The economist who prepared the benefit-cost analysis evaluated the fees as directed by the Administrative Procedure Act (APA). Since the fees are set at a per hour level to recover costs, the APA does not require a further evaluation.

173-407-050

Comment 20: Add the following language to the table in Section 050(1)(e) "Non-fossil fuels do not generate CO2 emissions for this calculation."

Mr. Ruby would also like to see some clarification made in section 173.407.050(1)(e). It is not currently clear that bio-fuels are not included in this calculation. **(4-Envirometrics, Inc. [summary of testimony at hearing])**

While it may be your intention that non-fossil fuels are excluded from the calculation of CO2 liability, I think that it will be much more clear if you were to add to the table in 407-050(e) to the explanation for the item "Other fuels" the following: "Non-fossil fuels do not generate CO2 emissions for this calculation." **(4- Envirometrics, Inc.)**

Ecology Response: We agree that it is important to add language to clarify that emissions from non-fossil fuel are not counted in the calculations. In determining the most direct way to address this issue, we added language to the fuel chart itself.

Comment 21: The Department of Energy emission factors should be used. As an alternative, identify and support the emissions factors used.

WAC 173-407-050 *Calculating total carbon dioxide emissions to be mitigated*. The "fuel to CO2 conversion factors" in WAC 173-050(1)(e) includes factors for some fuels that are higher than those published in other sources. For example, the third column in the accompanying table presents CO2 emission factors from the United States Department of Energy for comparison to the proposed factors in this draft regulation. The factors for lignite, sub-bituminous coal, and bituminous coal provided by the Department of Ecology are significantly higher than the emission factors recommended by the US Department of Energy.

	WA DOE factors	US DOE factors[1]
Fuel	K_n lb CO_2/mmBtu	lb CO_2/mmBtu
#2 oil	158.16	161.386[2]
#4 oil	160.96	161.386[2]
#6 oil	166.67	173.906
Lignite	328.57	215.400
Sub-bituminous coal	282.94	212.700
Bituminous coal, low volatility	312.50	205.300[3]
Bituminous coal, medium volatility	274.55	205.300[3]
Bituminous coal, high volatility	306.11	205.300[3]
Natural gas	117.6	117.080
Propane	136.61	139.178
Butane	139.38	N/A
Petroleum coke	242.91	225.130
Coal coke	243.1	N/A
Other fuels	Calculate based on carbon content of the fossil fuel	

The Department of Energy emission factors should be used.

As an alternative, and in response to this comment, the Department of Ecology should identify the source of and support the appropriateness of the emission factors promulgated in this rule. **(1- Weyerhaeuser)**

[1] US DOE factors in this table were drawn from *Instructions for Form EIA-1605, Voluntary Reporting of Greenhouse Gases, For Data Through 2002*, US DOE, Energy Information Administration, Washington DC, March 2003.
[2] US DOE does provides a single factor for "Distillate Fuel (No. 1, No. 2, No. 4 Fuel Oil and Diesel)"
[3] US DOE does not distinguish between low, medium, or high volatility bituminous coal (provides a single factor for "Bituminous" coal)

Ecology Response: *The table is derived from EPA source material, AP-42, not the Department of Energy material. We believe that the AP-42 provides the most appropriate values for calculating carbon dioxide emissions. Ecology engineering staff reviewed the Department of Energy material, is aware that unlike other information sources on the heat content of fossil fuels, the Department of Energy does not segregate fuel oils or bituminous coals for carbon dioxide emissions, However, Department of Energy does make other segregations to bituminous coal for heat content (Btu/lb of coal) based on area of origin, which relates to the volatility of the bituminous coal.*
As suggested, Ecology identified the EPA source material, AP-42 in the final rule.

Comment 22: Include a provision to exempt CO_2 that is captured and sold as a product.
Section 050 - It is essential that a provision be added to exempt all CO_2 that is captured and sold as a product from mitigation calculations and fees. **(7 - Western States Petroleum Association)**

Ecology Response: Ecology believes the definition of Commercial Operation, which contains the phrase "for commercial sale to the power grid", is adequate and an additional exemption is not warranted at this time.

Comment 23:

- The wording of part (1) of section 050 re the total quantity of CO_2 as an emission rate and the definition of total carbon dioxide as used in 050(2) can be confusing. The factors of 30 and 0.6 used in 050(2) should be explained in the same way other formula factors are listed instead of referring to a definition. **(7 - Western States Petroleum Association)**

- Section 050(1). The lead-in to this section is awkward (total quantity = maximum potential emissions = annual emissions rate) and misleading (it does not calculate total quantity; it calculates an annual maximum). The format is also inconsistent with the headings for the three subsections that follow. We suggest it be reworded to:
  Step 1- *Calculate the maximum potential annual emissions of CO2 by the following formula or similar analysis:*
  (10 - Energy Northwest)

Ecology Response: Ecology believes the titles adequately and accurately represent what occurs in the various Steps. The factors refer to a definition because they are found in a definition.

Comment 24:

- ***Comment 1(d) - WAC 173-407-050***

The calculation details provided in this section of the proposed regulation do not mirror the statute and we believe that can lead to confusion about the language used. The statute defines "Total carbon dioxide emissions" by using terms that include "manufacturer's or designer's guaranteed total net station generating capability" and "new equipment heat rate". In contrast, Step 1 in of the proposed WAC 173-407-050 starts out with the term "total quantity of CO_2" and then says that term "is referred to as the maximum potential emissions of CO_2. The next sentence says "maximum potential emissions of CO_2" is defined as the annual CO_2 emission rate. That language provides three phrases talking about the same thing. If taken out of context and away from the statutory language, users might mistakenly

make different initial assumptions when starting with this calculation as provided here. We believe the calculation information provided in the proposed rule may be helpful to some users, yet it is not explicitly binding because the last statement prior to the first equation states "derived by the following formula or similar analysis". If an applicant submitted an application with another calculation approach, we believe our obligation under this proposed language would review it for consistency with the statute language. As such, this calculation section of the proposed rule reads like guidance or regulations that the permit review authority has discretionary authority to review and interpret for compliance with the statute. We recommend deleting all of the proposed WAC 173-407-050 (letting the other statutory language we are suggesting cover the terms and amount of emissions which must be mitigated) and replacing it with the following language, adapted from RCW 80.70.050:

> **WAC 173-407-050 Independent qualified organizations.** (1) Any organization that would be considered an "independent qualified organization" for the purposes described in this regulation shall fulfill all the requirements of RCW 80.70.050, and shall provide evidence of listing by the council pursuant to RCW 80.70.050(1).
>
> (2) An independent qualified organization must file biennial reports with the department or authority on the performance of carbon dioxide mitigation projects, including the amount of carbon dioxide reductions achieved and a statement of cost for the mitigation period. **(9 - Puget Sound Clean Air Agency)**

- ***Comment 5 - WAC 173-407 (General Comment)***

We recommend Ecology add a more clear statement in the rule that all calculations complete for the purposes of this regulation shall be in terms of "higher heating value (HHV)". Presently, the only use of this term in the proposed regulation is in the table with "Fuel to CO_2 Conversion Factors" which said any other fuel conversion factors must be based on HHV. However, others in the power plant design or development world may not realize this is based on HHV when reporting the new equipment heat rate in terms of Btu/MWe. Somewhere in the regulation, it may be best to define the preferred term and state that unless otherwise specified, the defined term will be used for all calculations. **(9 - Puget Sound Clean Air Agency)**

Ecology Response: Ecology disagrees with your interpretations and reflections on Section 050. We believe the section is adequate as written and will lead to a consistent application of the regulation across the state.. Regarding an incorporating an additional statement that all calculations shall be in terms of higher heating value, Ecology believes this is over-kill at this stage, but may consider this suggestion at some time in the future.

Comment 25: Reword Section (2) with the suggested format below.

Section 050(2). The proposed heading says this section determines the total CO_2 emissions to be mitigated but, in fact, the mitigation quantity is not determined until Step 4 (Section 050(4)). We suggest the following format:

Step 2 – *Determine the total carbon dioxide emissions through application of the following formula:*

$CO_{2Total} = CO_{2Rate} \times 30 \times 0.6$

where

30 = years of operation (from RCW 80.70.010(17))

0.6 = assumed capacity factor (from RCW 80.70.010(17))

(10 - Energy Northwest)

Ecology Response: Unfortunately, your suggestion stumbles in the same manner you believe the proposed language does. There is little difference, since the "total" in one definition of RCW 80.70.020 is subsequently modified by another. The point is to break down a large and convoluted formula into individual steps.

Comment 26: Reword Section (3) with the suggested format below.

Section 050(3). As worded, this section says the cogeneration credit is an annual emissions rate, but it goes on to define it as a 30-year total. The section could be presented as follows:

Step 3 – *Determine the cogeneration credit (if applicable) by application of the following formula or similar method:*

$CO_{2Credit}$ = Hs x K_a ÷2204.6 ÷ 0.35 x 30

where H_s = [as proposed]

K_a = [as proposed]

0.35 = [efficiency or heat rate adjustment?]

(10 - Energy Northwest)

Ecology Response: Ecology included the 30 years because the equipment life is set by definition in statute at 30 years. Ecology believes the formula is workable as proposed, particularly since your suggestion does not change the outcome.

Comment 27: Reword Section (4) with the suggested format below.

Section 050(4). Proposed subsection 050(4)(a) is unnecessary because it just inserts language from the statute, the relevant part of which (the 20% mitigation factor) is repeated in subsection 050(4)(b). We suggest the following wording:

Step 4- *Determine the mitigation quantity by application of the following formula:*

$CO_{2Mitigation}$ = CO_{2Total} x 0.20 – $CO_{2Credit}$

where

0.20 = mitigation factor (from RCW 80.70.020(4))

Ecology Response: Ecology believes the statutory reference is important precisely because the factor is in a definition.

173-407-060

Comment 28: I support the efforts to move away from fossil fuels and urge Ecology to adopt this rule.

173-407-060: As this is the section where the wheels hit the road, I must express my full support. I know that many will comment to you that these proposed rules are yet another way that Washington is making an unfriendly business climate, but that is a myopic, recalcitrant, and uninspired attitude that fails to take into account the huge economic vitality that results from the incentive to move on to technological frontiers not yet achieved. If the true economic costs of reliance on fossil fuels is accounted, it is abundantly clear that there is nothing advantageous about continuing to rely on its dwindling and hard to access quantities. Rather, these proposed rules are in sum a mechanism for the old, established technologies to fund the capital costs of creating the new energy production technologies that are going to open up new worlds of possibility for Washington State. Just as the World Bank on a global scale is doing with its emissions credit trading programs, this will result in an economic revitalization allowing exploitation of ignored sources such as ocean waves, biomass, sunlight, and better hydroelectric

technology. I urge DOE to adopt these rules and the Governor and Legislature to continue creating progressive and responsible law. **(3-Citizen)**

Ecology Response: Thank you.

Comment 29: Ecology and local air authorities should expect issues to arise relating to the application of the mitigation plan requirements and options.

5. WAC 173-407-060 *Carbon dioxide mitigation plan requirements and options*. The paths for carbon dioxide mitigation described as "direct purchase of permanent carbon credits" and "investments in applicant-controlled carbon dioxide mitigation projects" require the jurisdictional agency to evaluate and then approve the mitigation proposal. While RCW 80.70.030 specifies that the mitigation must be "real, verified, permanent and enforceable," issues relating to the application of these criteria can be expected. **(1 - Weyerhauser)**

Ecology Response: We agree. Ecology has already begun efforts to inform engineers throughout the state about the new law. As a starting point, Ecology staff has already prepared a PowerPoint presentation with real life examples of how the new law works using equipment and/or changes to operating conditions.

Comment 30: Ecology should include regulatory language indicating it will adhere to greenhouse gas accounting policies and measurement methodologies with several list organizations.

5. WAC 173-407-060 *Carbon dioxide mitigation plan requirements and options*. [continued from comment 29] To facilitate consistency and predictability in the administration of this aspect of the rule, Ecology should include regulatory language indicating that it will adhere to greenhouse gas accounting policies and measurement methodologies identical to, or harmonious with, the World Resources Institute/World Bank Council for Sustainable Development Green House Gas Protocol. In addition, there should be a commitment to rely on standardized GHG credit registry and trading rules consistent with those being developed by California's Climate Action Registry and the Chicago Climate Exchange. All GHG accounting, registry, and trading rules that may be adopted by the state should also be harmonious with the US 1605(b) Greenhouse Gas Registry's requirement and pending amendments, and the requirements of other national GHG emissions trading programs being developed by other countries signatory to the Kyoto Protocol. **(1-Weyerhaeuser)**

Ecology Response: The benchmark for carbon credits, as defined in Chapter 80.70 RCW, is that the credits are real, verified, permanent, and enforceable. Ecology will be looking at many sources of information including those mentioned in your suggestion. Since Ecology is not establishing a trading program, including regulatory language on the subject is premature.

Comment 31: The "plain speak" style is inconsistent with the format of the rest of the proposed regulation. We recommend the regulation follow the legislation as closely as possible, using the format suggested below.

Comment 1(e) - WAC 173-407-060- We appreciate Ecology's efforts to emulate the new EPA "plain speak" style, but recommend the regulation follow the legislation as closely as possible with text from RCW 70.94.082 (2) and (3).

Again, we recommend that the regulation follow the legislation as closely as possible. To meet that objective, we recommend replacing all of proposed WAC 173-407-060 with the text from RCW 70.94.082 (2) and (3), as shown below:

> **WAC 173-407-036 Direct investment mitigation projects – Enforcement – Federal requirements may replace this section.** (1) The carbon dioxide mitigation option that provides for direct investment shall be implemented through mitigation projects conducted directly by, or under the control of, the order of approval holder.
>
> (2) Mitigation projects must be approved by the department, or authority, as appropriate, and made a condition of the order of approval. Direct investment mitigation projects shall be approved if the mitigation projects provide a reasonable certainty that the performance requirements of the mitigation projects will be achieved and the mitigation projects were implemented after July 1, 2004. No order of approval holder shall be required to make direct investments that would exceed the cost of making a lump sum payment to a third party, had the order of approval holder chosen that option under RCW 80.70.020.
>
> (3) Mitigation projects must be in place within a reasonable time after the start of commercial operation. Failure to implement an approved mitigation plan is subject to enforcement under Chapter 70.94 RCW.
>
> (4) 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.
>
> (5) For facilities subject to this regulation, the implementation of a carbon dioxide mitigation project, other than a purchase of carbon dioxide equivalent emission reduction credits, shall be monitored by the department or authority issuing the order of approval.
>
> (6) Upon promulgation of federal requirements for carbon dioxide mitigation for fossil-fueled thermal electric generation facilities, those requirements may be deemed by the department, or authority to be equivalent and a replacement for the requirements of this section.

(9 - Puget Sound Clean Air Agency)

Ecology Response: We chose the question and answer format to pull together several types of information pieces scattered throughout Chapter RCW 80.70 RCW and to outline how these pieces come together. Simply renumbering the reprinted statute sections does not accomplish this objective.

173-407-070

Comment 32: This section needs more clarity. Additionally, some definitions have a different meaning than the same words used in WAC 173-400.

- Section 070 needs more clarity. Are applications submitted with a notice of construction required under WAC 173-400? If an NOCA is not needed what is the process for submittal? What is the timing? Is approval required before construction commences or before production? What are the elements of an application that the department needs to conduct its review? Will the department have application forms? **(7 - Western States Petroleum Association)**

- Some words may have a different meaning than the same words used in WAC 173-400. “Application”, “modification”, and “station generating capability” are not defined but have a major impact on the implementation of the rule. **(7 - Western States Petroleum Association)**

Ecology Response: Ecology agrees that there are several definitions in Chapter 80.70 and Chapter 70.94. RCW, which differ. The concept of a "modification" is one example where greatest differences exist.

Ecology envisions the notice of construction as the most logical intersection given the legislative direction in RCW 70.94.892 and the various sections of Chapter RCW 80.70.RCW. Our evaluation of the differing applicability sections of the two sets of regulatory criteria lead us to believe that it will be extremely rare for there to be a project subject to mitigation program requirements that is not also subject to the notice of construction process. If the requested modification results in an increase in the station generating capability or carbon dioxide emissions and does not require a notice of construction application to be filed - then the mitigation plan is still required to be submitted and would then need to be approved as a change of conditions to an order of approval.

Finally, we believe Section 070, as proposed, integrates appropriate portions of Chapter 80.70 RCW and clearly outlines what is expected from an applicant and when.

Economic Analyses

Comment 33: The costs for implementing this rule are not unreasonable.

Mr. Ruby ran the calculations for implementation for a client and wants to support Ecology’s efforts. He found that the costs for implementing this rule were not an unreasonable amount for using a best available control technology. (He estimated the cost to be about $.23 a megawatt.) **(4-Envirometrics, Inc. [summary of testimony at hearing])**

Ecology Response: Thank you for your comment.

SEPA

No comments were received on the DNS.

IV. Summary of Public Involvement Opportunities

Please provide a summary of public involvement opportunities for this rule adoption:

List or describe:

- hearing dates and locations:
  A hearing was held on November 30, 2004 at the Department of Ecology, 300 Desmond Dr. SE, Lacey, WA 98503. Eight people attended the hearing.

- mass mailing pieces: (i.e., FOCUS sheet, news releases)
  A news release was issued and posted on Ecology's Laws and Rules web site. Notices of the hearing were emailed to about 30 interested parties. The hearing notice was also posted on Ecology's Laws and Rules web site.

- advertisements and/or newspaper announcements:
  Legal notices of this hearing were published in the Washington State Register on November 3, 2004, WSR # **04-21-070**. Ecology also published notice in the Daily Journal of Commerce on October 29, 2004 and SEPA notice on November 10, 2004.

V. Appendices

APPENDIX A
Oral and Written Comments

Hearing Testimony:

Public Hearing
Chapter 173-407 WAC
November 30, 2004

Hello, I'm Bari Schreiner, Hearing Officer for this afternoon's hearing. We're here to conduct a public hearing on the Rule Proposal for Chapter 173-407 WAC, Carbon Dioxide Mitigation Requirements for fossil fuel thermo-electric generating facilities. Let the record show that it is now 2:25 p.m. on November 30, 2004 and this hearing is being held at the Department of Ecology Headquarters Building, 300 Desmond Drive, Lacey, Washington 98503. Legal notices of this hearing were published in the Washington State Register (WSR) on November 3, 2004, WSR No. 04-21-070. We also published notice in the Daily Journal of Commerce on October 29th and SEPA notice published on November 10th; in addition, notices of the hearing were e-mailed to about 30 interested parties, and was also posted on Ecology's Laws and Rules web site. We will now be taking public testimony -- if you'll come up to chair and speak into this microphone. At this time, Mike Ruby indicated he wanted to provide testimony.

My name is Mike Ruby and I'm commenting on the Proposed Carbon Dioxide Mitigation Program 173-407. And I want to offer one primary area of comments and also make a short comment about the cost. Let me do the second one first. Just in support of this regulation, I want to indicate that I'd gone through some calculations for one of my clients to see just exactly what the cost would be for a program quite like this in which the – following the same rules, the 20 percent and the $1.45 per English ton. And when looked at for a generating facility, that cost comes out to be something on the order of 23 cents a megawatt. I think we can all agree that when we're producing power in the many dollars per megawatt range in most stations that 23 cents a megawatt is not an unreasonable amount to be paid as a best available control technology option for these plants. Getting specific about the rule – I am concerned that we have not properly addressed bio-fuels. I believe that there are two primary places where that comes into play. One is in its trigger for plants to come under the rule. I believe it would be consistent with the state law for Ecology to determine that what constitutes a fossil fuel thermo-electric generating plant when multiple fuels are used would be to consider only those fuels of geological origin as opposed to those of biological origin. This is consistent with the – in a governmental panel on climate change it's definition of how you handle CO_2 emissions. I would like to suggest that with respect to the definitions in Section 407-020 that provisions could be placed there that would state if the permit of the facility limits the amount of geological source fossil fuels as opposed to biological source to fuels – carbon containing fuels, that that could be considered and calculated in determining an equivalent plant capability. That would be done both in terms of a new facility or a modified facility as is considered by the law. The other place that it would be important is in 050-1E where the calculations are made of the carbon dioxide emissions that need to be mitigated. There is an other fuels there which is stated as calculated based on the carbon content of the fossil fuel. Yes, it says fossil fuel and that's not a biological fuel, but I think it should be made clear here that biological fuels would be – the calculation is essentially assumed to be zero on the carbon content of the fuel. I do believe that a clarification there would aid in that. Here again, no doubt that has to be something that is found in the permit, since this rule like the law is a forward looking rather than an annual ____. Thank you very much.

Thank you. Is there anybody else that would like to provide testimony this afternoon?

(can't hear)
Okay.
My name is Gary Conto (?) and I'm representing the City of Tacoma. My comments are directed at Section 030, subsection 4. And it was explained to me today during the hearing that the intent of the regulation was to have one of the triggers be 15 percent of the previous CO_2 emissions, an increase I should say. And I think the clarification was that it was met to apply to an increase of 15 percent that was generated from fossil fuel for additional fossil fuels. And we would ask that that be clarified in the rule. That was not explicit in the rule. And another comment related to that same section would be – I think I saw some references in other parts of the rule, but it might be good to make it explicit in that section whether or not that applies to a permitted capacity or permitted emissions versus actual past emissions because in a lot of cases, especially in plants that are older or have some problem with their reliability, the permitted amounts and their past averages are vastly different. And so that would be something that would be a good clarification for a lot of the older plants. And with that, thank you very much for the chance to comment on this regulation.
Thank you. Is there anybody else that would like to provide testimony? Okay. If you'd like to send Ecology written comments, please remember they must be postmarked by December 8, 2004. You can send them to Melissa McEachron and this information is also up here, but Melissa McEachron, Department of Ecology, PO Box 47600, Olympia WA 98504-7600. It can also be sent by email to mmce461@ecy.wa.gov or they can also be faxed to 360-407-7543.
34.
34, 43?
(can't hear)
Okay. Thank you. All testimony received at this hearing, along with any written comments, will be part of the official hearing record for this proposal. Any one who has testified here today or submitted written comments or who otherwise indicates that they would like to receive a copy of the Concise Explanatory Statement will receive one. The Concise Explanatory Statement will among other things contain the agency's response to questions and issues of concern that were raised during the public comment period. If you'd like to receive a copy, but you're not sure if you're on the list, please let me know after the hearing and I'll make sure you'll get added. The next step in the process is to look at all the comments, evaluate them, and then bring the final proposal to Ecology's Director who will read the Concise Explanatory Statement, look at staff recommendations, and ultimately will make the decision about adopting this proposal. Adoption is currently scheduled for December 21, 2004. If the proposed rule should be adopted that day and filed with the Code Reviser on that day, it will go into effect 31 days later. On behalf of the Department of Ecology, thank you very much for coming.

Written Comments

Weyerhaeuser
The future is growing™

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November 19, 2004

Melissa McEachron
Air Quality Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 985047600

Dear Ms. McEachron:

Thank you for the opportunity to offer comments on the proposed WAC 173-407 *Carbon Dioxide Mitigation Program for Fossil-Fueled Thermal Electric Generating Facilities.*

General Comment

1. The format and style of the proposed regulation is inefficient. The insertion of whole sections of chapter 80.70 RCW and the inconsistent reliance on a question and answer format, results in a bulky regulation. In some instances the proposed regulation extends beyond statutory direction. The comments provided below detail these concerns.

2. Applicability of regulation — Cogeneration units in the forest products industry typically would be combination-fuel fired, with wood waste or pulp cooking liquors as the predominately fuel types. Various fossil fuels might supplement these base fuels to varying degrees to ensure process steam requirements are achieved. The proposed WAC 173-407 does not reveal whether or how these combustion units might be subject to the regulation. Does Ecology intend the term “fossil fuel thermal electric generation facility” to apply to facilities burning fossil fuels exclusively, or is there a different evaluation intended that could cause a combination fuel-fired unit to be subject to this rule? If the latter, Ecology needs to define the applicability criteria,
re-propose the draft regulation, and allow for review and comments by affected companies.

Specific Comments

I. The proposed WAC 173-407-010 *Policy and Purpose* should be eliminated, Chapter 80.70 RCW does not even offer policy and purpose statements. Recognize that this regulation will probably apply to fewer than 6 emission units statewide. These will be large sources with knowledgeable environmental management staff for which a Policy and Purpose recitation has little value. If a *Policy and Purpose* statement must be provided, the statutory language from RCW 70-94.892(1) (currently appearing at the proposed WAC 173-407-030(1)) could be used.

2. In the spirit of efficiency and clarity, all of proposed WAC 173-407-030 should be eliminated and replaced with the following:

WAC 173-401-030 *Applicability.*

1. This chapter applies to:

a) New fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more and fossil-fueled floating thermal electric generation facilities of one hundred thousand kilowatts or more under RCW 0.50.020(l4)(a), for which an application for site certification is made to the council after July 1, 2004:

b) New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, for which an application for an order of approval has been submitted after July 1, 2004;

c) Fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more that have an existing site certification agreement and, after July 1, 2004, apply to the council to increase the output of carbon dioxide emissions by fifteen percent or more through permanent changes in facility operations or modifications or equipment, and

d) Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that have an existing order of approval and, after July 1, 2004,

apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its station-generating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.

2. Carbon dioxide is not an air contaminant within the meaning of 173-401 WAC and does not trigger air operating permit applicability. For facilities subject to this chapter and already subject to 173-401 WAC, the CO2 mitigation requirements are applicable requirements of an operating permit.

3. A fossil fueled thermal electric generating facility subject to this chapter but not subject to the requirements of Chapter 173-401 WAC is subject to the requirements of the registration program in Chapter 173-400 WAC, or to the rules of the local air pollution control authority having jurisdiction over the source.

3. WAC 173-407-040 *Carbon dioxide mitigation program fees.* This fee collection mechanism should be eliminated from the regulation. The administrative costs of agency time for accounting and invoice preparation, compared to the proposed fee amounts, do not make this a worthwhile effort.

   Existing fee programs should be considered to adequately compensate jurisdictional agencies for the evaluations specified in this proposed section. Note that any new or modified fossil fueled thermal electric generator of greater than 25 MW output would surely be paying many thousands of dollars to the jurisdictional agency for the processing of new source applications, and/or annual permit fees or annual registration fees. (Fee collection provisions are detailed in chapter 80.50 RCW *Energy Facility Site Evaluation Council,* WAC 173-401 *Operating Permit Regulation,* WAC 173-400 *General Air Regulation* for new source review or registration fees, and local air authority regulations. These amount to “fees for service” and total $ 1,800-18,000 for a new source review, and $30,000-120,000 per year for AOP sources.) That these fees are tied to criteria or toxic air pollution emissions or source permitting transaction, and not to carbon dioxide emissions, is immaterial.

4. WAC 173-407-050 *Calculating total carbon dioxide emissions to be mitigated.* The “fuel to CO2 conversion factors” in WAC 173-050(1)(e) includes factors for some fuels that are higher than those published in other sources. For example, the third column in the accompanying table presents C02 emission factors from the United States Department of Energy for comparison to the proposed factors in this draft regulation. The factors for lignite, sub-bituminous coal, and bituminous coal provided by the Department of Ecology are significantly higher than the emission factors recommended by the US Department of Energy. The Department of Energy emission factors should be used.

	WA DOE factors	US DOE factors[1]
Fuel	K~ lb $C0_2$/mmBtu	lb $C0_2$/mrnBtu
#2 oil	158.16	161.386[ii]
#4oil	160.96	161.386[2]
#6 oil	166.67	173.906
Lignite	328.57	215.400
Sub-bituminous coal	282.94	212.700
Bituminous coal, low volatility	312.50	205.3 00[iii]
Bituminous coal, medium volatility	274.55	205.300[3]
Bituminous coal, high volatility	306.11	205.300[3]
Natural gas	117.6	117.080
Propane	136.61	139.178
Butane	139.38	N/A
Petroleum coke	242.91	225.130
Coal coke	243.1	N/A
Other fuels	Calculate based on carbon content of the fossil fuel	

As an alternative, and in response to this comment, the Department of Ecology should identify the source of and support the appropriateness of the emission factors promulgated in this rule.

5. WAC 173-407-060 *Carbon dioxide mitigation plan requirements and options.* The paths for carbon dioxide mitigation described as “direct purchase of permanent carbon credits” and “investments in applicant-controlled carbon dioxide mitigation projects” require the jurisdictional agency to evaluate and then approve the mitigation proposal. While RCW 80.70.030 specifies that the mitigation must be “real, verified, permanent and enforceable,” issues relating to the application of these criteria can be expected.

   To facilitate consistency and predictability in the administration of this aspect of the rule, Ecology should include regulatory language indicating that it will adhere to greenhouse gas accounting policies and measurement methodologies identical to, or harmonious with, the World Resources Institute/World Bank Council for Sustainable Development Green House Gas Protocol. In addition, there should be a commitment to rely on standardized GHG credit registry and trading rules consistent with those being developed by California’s Climate Action Registry and the Chicago Climate

Exchange. All GHG accounting, registry, and trading rules that may be adopted by the state should also be harmonious with the US 1605(b) Greenhouse Gas Registry's requirement and pending amendments, and the requirements of other national GHG emissions trading programs being developed by other countries signatory to the Kyoto Protocol.

We look forward to working with Ecology to finalize this regulation. Please let me know how we can assist you in this effort.

Sincerely,

Ken Johnson
Washington Regulatory Affairs Manager

---

[1] US DOE factors in this table were drawn from *Instructions for Form EIA-1605, Voluntary Reporting of Greenhouse Gases, For Data Through 2002*, US DOE, Energy Information Administration, Washington DC, March 2003.
[2] US DOE does provides a single factor for "Distillate Fuel (No. 1, No. 2, No. 4 Fuel Oil and Diesel)"
[3] US DOE does not distinguish between low, medium, or high volatility bituminous coal (provides a single factor for "Bituminous" coal)

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Melissa McEachron
Air Quality Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 985047600

98504+7600 01

McEachron, Melissa M

From: David Ogrodnik [dmo@uwashington.edu]
Sent: Monday, November 29, 2004 11:07 AM
To: McEachron, Melissa M.
Subject: Proposed 002 Mitigation Program (WAG 173-407)

Ms. McEachron,

The University of Washington (13W) Seattle Campus Power Plant is equipped with natural gas/oil steam boilers that fuel an existing 5MWe (approx.) steam turbine-electric generator. The UN does not currently supply electrical power to the state's power grid. In addition, the UN is subject to the WAC 173-401 Air Operating Permit program, and is not under the jurisdiction of the energy facility site evaluation council.

If the UN Power Plant was to install an additional steam turbine-electric generator resulting in a 15% or more increase in generator-associated C02 emissions, please verify that proposed WAC 173-407 would **NOT** apply to the UN. Under this scenario, the UN may or may not contribute to the state's power grid.

(In other words, does the language contained in proposed WAC l73-407-030(4)(c)(ii) and 173-407-030(4)(d) suggest that WAC 173-407 **DOES** apply to the UN.)

Thank you.

David M. Ogrodnik, P.E.
University of Washington
Sr. Facilities Engineer--Environmental
Plant Operations Annex 6, Box 352165
Seattle, WA 98195-2165

Direct: (206) 221-4285
FAX: (206) 543-8420
E-mail: dmo@u.washington.edu

McEachron, Melissa M

From: Alan Trunkey [trunkey4@hotmait.com]
Sent: Tuesday, November 30, 2004 11:15 AM
To: McEachron, Melissa M.
Subject: 173-407 WAC comments

(3)

Chapter 173-407 WAC

I am writing in full support of sections 173-407-010. Some comments:

173-407-020(3): Defining carbon credit needs to be much more defined. Chicago Climate Futures Exchange LLC is attempting to be the North American exchange forum, but WA DOE should assist buyers and sellers of emission credits in Washington to find each other. It may be necessary, due to a need to control logistics costs, for DOE to insist that buyers and sellers are limited to physical facilities only in Washington State. On the other hand, the international market's vast size means that Washington power producers would be able to readily find third parties! investment opportunities/those with excess emission credits. Whether DOE decides to make geographic limits or not, it should either create the forum or be of great assistance in helping sellers find buyers and vice versa.

173-407-020(12): 'Mitigation Project' may also need to be elaborated in the future. RCW 80.70.020(4) does not set an actual greenhouse gas emissions cap goal, but state or federal law may in the future. If so, then the reduction requirement merely based on a percentage of an ever growing demand will not be enough. Thus, a mitigation project must make a distinction between those projects that actually remove or prevent greenhouse gases from going into the atmosphere and those that exploit energy production capacity as the greenhouse gases are going into the air. A credit scheme that gives greater credit to sequestration than efficiency projects may be appropriate.

173-407-060: As this is the section where the wheels hit the road, I must express my full support. I know that many will comment to you that these proposed rules are yet another way that Washington is making an unfriendly business climate, but that is a myopic, recalcitrant, and uninspired attitude that fails to take into account the huge economic vitality that results from the incentive to move on to technological frontiers not yet achieved. If the true economic costs of reliance on fossil fuels is accounted, it is abundantly clear that there is nothing advantageous about continuing to rely on its dwindling and hard to access quantities. Rather, these proposed rules are in sum a mechanism for the old, established technologies to fund the capital costs of creating the new energy production technologies that are going to open up new worlds of possibility for Washington State. Just as the World Bank on a global scale is doing with its emissions credit trading programs, this will result in an economic revitalization allowing exploitation of ignored sources such as ocean waves, biomass, sunlight, and better hydroelectric technology. I urge DOE to adopt these rules and the Governor and Legislature to continue creating progressive and responsible law.

I am not affiliated with any organization.

12/2/2004

Thank you, Alan Trunkey, trunkey4~hotmai1.com
3649 46TH Ave SW
Seattle WA 98116
Phone:(206) 933-0308, (206) 465-4147

McEachron, Melissa M.

From: Mike Ruby {mruby@envirometrics.com}
Sent: Thursday, December 02, 2004 9:55 AM
To: McEachron, Melissa M.; Newman, Alan R.
Subject: Comments on CO2 rule

(4)

Please consider this an additional formal comment on the proposed C02 rule.

Basically, I am concerned that we are not properly differentiating between renewable biological-based fuels and geological fossil fuels. The statute *was* written with large projects in mind, specifically natural gas-fired combustion turbines. It was never imagined that renewable biofuels could be a significant part of their operation so biofuels were simply ignored as the bill was written. However, the installations of the size Ecology is dealing with will be much more likely to utilize renewable biofuels either as the principal fuel or as a supplemental fuel. Additional clarification for the units that are uniquely within the ambit of this rule would certainly be "consistent with" the statute.

A second issue is the question of net metering, which is also more likely to be found with these smaller units. The definition of a thermal power plant in RCW 80.50.020 makes it clear that it applies only to generating facilities that produce power "for distribution of electricity by electric utilities". However, a plant that is tied in to an electric utility and uses net metering to wheel power over time, may be interpreted to trigger this definition even though over any reasonable averaging period it is a net purchaser of power from the utility. Of course, if it is (or expected to be) a net supplier of power over any reasonable averaging period it should be covered by the regulations.

This rule as written appears to cover a group of hogged fuel boilers at a plant that are allowed to use diesel fuel as a supplemental fuel during wet conditions if they generate electric power that moves to an electric utility. They may well be covered in to the regulation even though the diesel fuel is a relatively minor portion of the total fuel and the power is only net metered.

While I am certain that it was never anyone's intention that emissions of renewable biological-based fuels should be subject to mitigation under this legislation, I cannot say that anyone gave any thought to excluding sources from regulation that would be marginally less than the trigger levels if they employed some fraction of renewable fuels. However, I am certain that no one wanted to regulate primarily renewable biological-based fuel sources that used fossil fuels for start up or as a backup fuel to assist during poor fuel or upset conditions. I would suggest the following language be added to 407-030(2):
"Fossil-fueled thermal electric generation facilities do not include a source that is restricted by its permit from using more than l0~ of its fuel (by heat content) from fossil fuels."

While it may be your intention that non-fossil fuels are excluded from the calculation of C02 liability, I think that it will be much more clear if you were to add to the table in 407-050(e) to the explanation for the item "Other fuels" the following: "Non-fossil fuels do not generate C02 emissions for this calculation."

The wording in 407-030 (4) (c) is a bit muddled. I would propose it be rewritten *as* follows:
(c)The modification to the fossil-fueled thermal electric generating facility or units will increase output more than the greater of:
(i) 25 MWe of electric power; or
(ii) 15% of the emissions of C02.
Note that the latter provision is similar to the statement on modification in RCW 80.70.020

Mike Ruby
Envirometrics, Inc.
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Seattle WA 98103

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Check out our website at http://www.envirornetrics.com

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FAX

City of Tacoma
Public Works Department
Solid Waste Management

DATE: 12/7/04 PAGES: 3

TO: MELISSA McEACHRON FROM: GARY KATO

FAX: FAX: (253) 591-5547

PHONE: PHONE: (253) 591-5543

RE: COMMENTS ON WAC 173-407

COMMENTS:

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COPY

City of Tacoma
Public Works Department

December 7, 2004

Melissa McEachron
Washington Department of Ecology
Air Quality Program
P.O .Box 47600
Olympia, WA 98504-7600

Dear Ms. McEachron:

This letter provides you with the City of Tacoma's comments on WAC 173-407, *Carbon Dioxide Mitigation Program for Fossil-Fueled Thermal Electric Generating Facilities.* We appreciate the opportunity to comment on the proposed regulation.

The City of Tacoma (City) Solid Waste Management (SWM) supports efforts to reduce greenhouse gas (GHG) emissions. The *Carbon Dioxide Mitigation Program* proposed by WAC 173-407 is a good starting point toward that effort. The cost per megawatt of electricity proposed will be well spent in the effort to reach a sustainable society.

First, some general comments on the proposed rule. The intent of RCW 80.70 and WAC 173-407 is to encourage the reduction of GHG emissions from new and expanded power plants. A general observation is that energy from fuels considered to offset fossil fuel GHG emissions are included in the baseline energy production (25 megawatt threshold) to determine the applicability of the rule. To promote the use of alternative fuels that offset fossil fuel GHG emissions, it is strongly recommended that only fossil fuels' contribution to energy production be counted towards the 25-megawatt minimum threshold for plants not regulated by the Council. This will provide an incentive to using biomass, or other fuels, that would otherwise go to waste, or discourage fossil fuel use at facilities that may use these alternative fuels.

Specific Comments – WAC 173-407-030(4)(c)

It was explained at the November 30, 2004 hearing that the 15% CO2 threshold was intended to apply to increases in CO2 emissions due to use of additional fossil fuels. This is not specified in the regulation.

To clarify the Department of Ecology's position, and to prevent future interpretation issues, the City recommends that the language in WAC-173-407-030(4)(c)(ii) be revised as follows:

> "An increase in the annual emissions of CO2 of 15% or more over emissions rates permitted as of July 1, 2004, that result from the combustion of additional fossil fuels . . ."

This language serves the purpose of covering the increases in fossil fuels that are specified by the legislature while not penalizing those plants that may wish to increase capacity by using fuels other than fossil fuels.

If you have any questions, please contact Gary Kato of the Solid Waste Management at 253-593-7713.

Sincerely,

Alan M. Tebaldi, P.E.
Public Works Division Manager
Solid Waste Management

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File: Department of Ecology

(6)

Tacoma

City of Tacoma
Public Works Department

December 7, 2004

Melissa McEachron
Washington Department of Ecology
Air Quality Program
P.O .Box 47600
Olympia, WA 98504-7600

Dear Ms. McEachron:

This letter provides you with the City of Tacoma's comments on WAC 173-407, *Carbon Dioxide Mitigation Program for Fossil-Fueled Thermal Electric Generating Facilities.* We appreciate the opportunity to comment on the proposed regulation.

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First, some general comments on the proposed rule. The intent of RCW 80.70 and WAC 173-407 is to encourage the reduction of GHG emissions from new and expanded power plants. A general observation is that energy from fuels considered to offset fossil fuel GHG emissions are included in the baseline energy production (25 megawatt threshold) to determine the applicability of the rule. To promote the use of alternative fuels that offset fossil fuel GHG emissions, it is strongly recommended that only fossil fuels' contribution to energy production be counted towards the 25-megawatt minimum threshold for plants not regulated by the Council. This will provide an incentive to using biomass, or other fuels, that would otherwise go to waste, or discourage fossil fuel use
at facilities that may use these alternative fuels.

Specific Comments — WAC 173--407-030(4)(c)

It was explained at the November 30, 2004 hearing that the 15% C02 threshold was intended to apply to increases in C02 emissions due to use of additional fossil fuels.
This is not specified in the regulation.

Environmental Services/Solid Waste Management ▮ 3510 South Mullen Street ▮ Tacoma, Washington 98409-2200 ▮ (253) 591-5543
www.cityoftacoma.org

To clarify the Department of Ecology's position, and to prevent future interpretation issues, the City recommends that the language in WAC-173-407-030(4)(c)(ii) be revised as follows:

> "An increase in the annual emissions of CO2 of 15% or more over emissions rates permitted as of July 1, 2004, that result from the combustion of additional fossil fuels

This language serves the purpose of covering the increases in fossil fuels that are specified by the legislature while not penalizing those plants that may wish to increase capacity by using fuels other than fossil fuels.

If you have any questions, please contact Gary Kato of the Solid Waste Management at 253-593-7713.

Sincerely,

Alan M. Tebaldi, P.E.
Public Works Division Manager
Solid Waste Management

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File: Department of Ecology

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Washington Department of Ecology
Air Quality Program
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Frank E. Holmes
Manager, Northwest Region

December 7, 2004

Melissa McEachron, MS: 7600
WA Department of Ecology
P0 Box 47600
Olympia, WA 98504-7600

SUBJECT: WAC 173-107

Dear Ms. McEachron:

The Western States Petroleum Association (WSPA) is a trade association whose members conduct much of the producing, refining, transporting, and marketing of petroleum and petroleum products in the western United States.

We appreciate the opportunity to comment on proposed rule 1 73-407. In view of the fact that this rule and its underlying statute create a new area of regulation for both the Department and for business, it is important that all parties concerned proceed carefully and with full understanding of the opinions of all stakeholders. It is therefore disappointing that the rule has proceeded this far without any discussion with the businesses that will potentially be affected. The Association of Washington Business (AWB) did comment on an earlier draft but most of those comments are not reflected in the current proposal and there has been no opportunity to discuss them with the agency. We urge you to accept the offer from business to meet with you before continuing with rulemaking.

Department staff initially stated that the Ecology rule would follow an EFSEC rule that established CO_2 mitigation requirements for large thermal electric generating facilities. The EFSEC rule has not been proposed. Subsequently, Department staff stated that the Ecology rule must be adopted by the end of 2004. This urgency has not been explained.

It is our opinion that the desire to create the rule quickly, without allowing for interactive discussion with affected stakeholders, has resulted in a proposed rule that is difficult to follow and is unnecessarily flawed.

A rule, from a user's perspective, should start with a clearly stated need and objective along with definition of whom the rule applies to. That should be followed by clearly stated requirements, and if a permit or approval is needed, the process that must be followed. Extraneous information should be avoided.

Part (1) of section 010 establishes policy that is the prerogative of the legislature and was not included in the authorizing legislation. The first sentence could say it is the purpose of this chapter to…….It would also be helpful to clarify in section 010 and/or in section 030 that the chapter applies only to facilities that can sell power to the grid for public consumption. Part (2) of section 010 is not necessary and could lead to confusion rather than clarification. WAC 173-40 1 defines the facilities that require an operating permit; addressing the issue here is not beneficial. Part (3) of section 010 is not correct the way it is written as sources under the jurisdiction of local agencies are not included in the Ecology registration program under WAC 173-400.

Part (2) of section 030 is a restatement of law including sections that are not relevant to the facilities that would be subject to this rule. The section could be reduced and would be more easily followed if it cited the law and stated only the parts that are applicable to sources under Ecology jurisdiction. We urge you to reconsider the reformatting concept that was suggested earlier by AWB.

Parts (5) (d) and (e) of section 030 may need further explanation or definition to assure that they meet the concept of a fossil fuel fired thermal electric generating facility capable of supplying power to the grid that is envisioned by the law. For example is it the intent that hydrocarbon reformer CO_2 emissions are to be mitigated if the hydrogen was captured and used in fuel cells for cars?

Section 040 establishes fees, some of which are based on an hourly rate. That concept departs from traditional fixed new source review fees and can result in major differences of opinion regarding how long an action should take. The concept may have some merit but should be discussed with potential fee payers before being adopted into a rule. As a minimum, this is one place where quoting the statute on fee use and accountability requirements would be informative.

Statutory language RCW 80.70.040 *(5)* (b) specifically excludes Ecology from monitoring the purchase of CO_2 credits.

> "For facilities under the jurisdiction of the department or authority pursuant to RCW 80.70.020 (1) (b) or (c), the implementation of a carbon dioxide mitigation project, other than a purchase of carbon dioxide equivalent emission reduction credits, shall be monitored by the department or authority issuing the order of approval." Justification for charging fees for this form of mitigation needs to be discussed.

Section 050 - It is essential that a provision be added to exempt all CO_2 that is captured and sold as a product from mitigation calculations and fees.

The wording of part (1) of section 050 re the total quantity of CO_2 as an emission rate and the definition of total carbon dioxide as used in 05 0(2) can be confusing. The factors of 30 and 0.6 used in 050(2) should be explained in the same way
other formula factors are listed instead of referring to a definition.

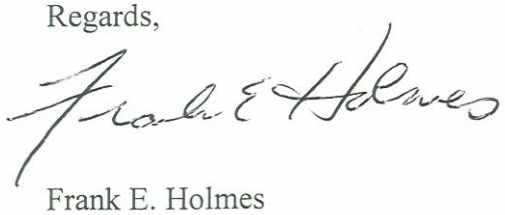
Section 070 needs more clarity. Are applications submitted with a notice of construction required under WAC 173-400? If an NOCA is not needed what is the process for submittal? What is the timing? Is approval required before construction commences or before production? What are the elements of an application that the department needs to conduct its review? Will the department have application forms?

Some words may have a different meaning than the same words used in WAC 173-400. "Application", "modification", and "station generating capability" are not defined but have a major impact on the implementation of the rule.

These WSPA comments are submitted with respect to the Department's need to implement applicable provisions of RCW 80.70, and with the intent of offering constructive suggestions. They all point to one conclusion. There is a need for discussion between the Department and the regulated community before the rule is adopted.

We believe that there is a common goal that could be achieved, a goal to create a rule that simply and effectively implements the authorizing legislation, providing clarification where needed, and establishing a well defined process for affected facilities to follow. We are willing to join with other interested business groups to work with the Department to expeditiously achieve that goal.

Regards,



Frank E. Holmes
Manager, Northwest Region

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Western States Petroleum Association
111 Market Street NE, Suite 325
Olympia, Washington 98501

Melissa McEachron
MS: 7600
WA Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

McEachron, Melissa M.

From: Faretra, Keith M {keith.faretra@pse.com}
Sent: Wednesday, December 08, 2004 3:52 PM
To: McEachron, Melissa M.
Subject: Puget Sound Energy Comment on Proposed Carbon Dioxide Mitigation Rule for Fossil-Fueled Thermal Electric Generating Facilities (Chapter 173-407)

Melissa,

Puget Sound Energy (PSE) has reviewed the draft Proposed Carbon Dioxide Mitigation Rule for Fossil-Fueled Thermal Electric Generating Facilities (Chapter 173-407) .We have prepared and are submitting as part of this rulemaking process the following comment regarding the applicability of certain sources of energy that may be subject to the rule.

Comment:

"Petroleum coke is a waste product of the petroleum refining industry. This waste could be used as a beneficial source of energy by the utility sector. Not managing this product as a waste, but rather as a source of energy, would benefit both industries and would prevent this material from entering the environment [as a waste] that must be treated and properly disposed in a landfill. Therefore, we are asking that you allow an exclusion from the definition of fossil fuel for petroleum coke generated from a petroleum refinery provided that coke is used as an environmentally beneficial fuel by a utility."

Sincerely,

Puget Sound Energy

If you wish to contact PSE for questions regarding this comment please contact:

Keith Faretra
Puget Sound Energy
6905 South 228th Street
Kent, WA 98032
253-437-6751 (Phone)
keith.faretra@pse.com

McEachron, Melissa M.

From: Steve Van Slyke [SteveV@pscleanair.org)
Sent: Wednesday, December 08, 2004 4:36 PM
To: McEachron, Melissa M.
Subject: Additional Comment on WAC 173-407 (No Change Suggested)

Melissa,

In our comment letter today, we did not include any specific comments on your fee section of the proposed regulation (WAC 173-407-040) because we had no changes to suggest at this time. As we previously communicated, we support Ecology's effort to determine and collect fees to cover the staff time involved with review work associated with this regulation. Our suggestion at that time was that the preliminary draft fee schedule may have been inadequate for the level of review effort this regulation could produce. We still support Ecology's effort to establish an effective fee schedule which covers the costs. The proposed fee schedule is effective in that it uses an hourly rate fee structure to cover the level of effort. That should keep costs and level of effort in balance. While some may be looking for more fixed fee structures, it is probably not possible for anyone to accurately estimate or commit how much time any specific project will take to review. Without a past history to establish reasonable fixed fee structures, the proposed approach is appears to be a prudent and reasonable option at this time.

Steve Van Slyke
Supervisory Engineer
Puget Sound Clean Air Agency
110 Union St., Suite 500
Seattle, WA 98101-2038

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(206) 343-7522 (fax)

(9)

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Air Agency

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110 Union Street
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WA 98101-2038

December 8, 2004

Melissa McEachron
Air Quality Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Dear Ms. McEachron:

Puget Sound Clean Air Agency Comments
Proposed Rulemaking for WAC 173-407

Thank you for providing the opportunity to comment on WAC 173-407, Carbon Dioxide Mitigation Program for Fossil-Fueled Thermal Electric Generating Facilities.

We support the Department of Ecology's Air Quality Program in developing rules that assist the public and facility developers to mitigate greenhouse gases. We believe the current draft rule provides a good overall framework for evaluating CO_2 emissions and mitigation projects, but it should adhere more closely to the statutory language in RCW 80.70. This will provide more clarity and avoid potential misunderstandings between agency reviewers and applicants. We offer the following specific comments:

Comment 1 - WAC 173-407 (General Comment)

The proposed language in this rule is different from the corresponding statutory language in several locations. The regulation should follow the wording of the legislation as closely as possible. New language should not be proposed in the regulation when there is specific or related provisions provided in the statute. When the statute is silent or leaves a gap, then regulatory language may be appropriate provided there is a clear record that the additional language clarifies the issue and is consistent with the statute. Using different language from the statute when it is not clearly necessary creates the appearance of amending the legislation through the rulemaking process (see our Comment 4 below).

We recommend that Ecology follow the statutory language to the maximum extent possible and the specific comments below [Comments 1(a) through 1(e)] are based on that recommendation. These recommendations are taken directly from the legislation.

Comment 1(a) - WAC 173-407-010

We recommend replacing all of the proposed WAC 173-407-010 with the applicability portion of RCW 80.70.020, so the rule would read as follows:

> **WAC 173-407-010 Applicability.** The provisions of this chapter apply to:
>
> (1)New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, for which an application for an Order of Approval has been submitted after July 1, 2004; and
>
> (2)Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that have an existing Order of Approval and, after July 1, 2004, apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its station-generating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.

This recommendation provides for an applicability section in the front of the regulation, which follows the pattern established for most Department of Ecology regulations, and does not change the wording of the legislation.

Comment 1(b) - WAC173-407-020

We agree with the proposal to retain the exact wording of the definitions from RCW 80.70.010.

We recommend adding a space between the words "certificate" and "holder" in WAC 173-407-020(l2)(a), as stated in RCW 80.70.010(12)(a).

We recommend revising WAC 173-407-020(17) so that the references to the legislation refer to equivalent references in the regulation. This will be necessary if you adopt the recommendations given immediately below.

Comment 1(c) - WA C 173-407-030 (and beyond)

As stated previously, the regulation should follow the wording of the legislation as closely as possible. Therefore, we recommend that you delete the proposed language of WAC 173-407-030 and replace it with the wording from RCW 80.70.020(2) through (6) and RCW 80.70.030, suitably renumbered in the WAC format, to read as follows:

WAC 173-407-030 Carbon dioxide mitigation plan.
(1) For fossil-fueled thermal electric generation facilities subject to this regulation, the Order of Approval shall require an approved carbon dioxide mitigation plan.

(2) Order of Approval holders may request, at any time, a change in conditions of an approved carbon dioxide mitigation plan if the department or authority, as appropriate, finds that the change meets all requirements and conditions for approval of such plans.

WAC 173-407-032 Mitigation. (1) 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:

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

(b) Direct purchase of permanent carbon monoxide credits; or

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

(2) Fossil-fueled thermal electric generation facilities that receive an Order of Approval shall provide mitigation for twenty percent of the total carbon dioxide emissions produced by the facility.

(3) If the Order of Approval holder chooses to pay a third party to provide the mitigation the mitigation rate shall be one dollar and sixty cents per metric ton of carbon monoxide, subject to increase or decrease by the council on a biennial basis pursuant to RCW 80.70.020 (5) (a) and (b)

(4) The applicant may choose to make to the third party a lump sum payment or partial payment over a period of five years.

(a) Under the lump sum payment option, the payment amount is determined by multiplying the total carbon dioxide emissions by the twenty percent mitigation requirement under subsection (2) of this section and by the per ton mitigation rate established under subsection (3) of this section.

(b) No later than one hundred twenty days after the start of commercial operation, the Order of Approval holder shall make a one-time payment to the independent qualified organization for the amount determined under subsection (3) of this section.

Cc) As an alternative to a one-time payment, the Order of Approval holder may make a partial payment of twenty percent of the amount determined under subsection (3) of this section no later than one hundred twenty days after commercial operation and a payment in the same amount or as adjusted according to subsection (3) of this section, on the anniversary date of the initial payment in each of the following four years. With the initial payment, the Order of Approval holder shall provide a letter of credit or other comparable security acceptable to the department for the remaining eighty percent mitigation payment amount including possible changes to the rate per metric ton made by the council pursuant to RCW 80.70.020(5) (a) and
(b)

WAC 173-407-034 Permanent carbon credits. (1) Carbon dioxide mitigation plans relying on purchase of permanent carbon credits must meet the following criteria:

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

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

(c) The credits may not have been used for other carbon dioxide mitigation projects.

(2) Permanent carbon credits purchased for project mitigation shall not be resold unless approved by the department or authority.

Comment 1(d) WAC173-407-050

The calculation details provided in this section of the proposed regulation do not mirror the statute and we believe that can lead to confusion about the language used. The statute defines "Total carbon dioxide emissions" by using terms that include "manufacturer's or designer's guaranteed total net station generating capability" and "new equipment heat rate". In contrast, Step 1 in of the-proposed WAC 173-407-050 starts out with the term "total quantity of $C0_2$" and then says that term "is referred to as the maximum potential emissions of CO_2. The next sentence says "maximum potential emissions of CU_2" is defined as the annual CO_2 emission rate. That language provides three phrases talking about the same thing. If taken out of context and away from the statutory language, users might mistakenly make different initial assumptions when starting with this calculation as provided here. We believe the calculation information provided in the proposed rule may be helpful to some users, yet it is not explicitly binding because the last statement prior to the first equation states "derived by the following formula or similar analysis". If an applicant submitted an application with another calculation approach, we believe our obligation under this proposed language would be to review it for consistency with the statute language. As such, this calculation section of the proposed rule reads like guidance or regulations that the permit review authority has discretionary authority to review and interpret for compliance with the statute. We recommend deleting all of the proposed WAC 173-407-050 (letting the other statutory language we are suggesting cover the terms and amount of emissions which **must** be mitigated) and replacing it with the following language, adapted from RCW 80.70.050:

WAC 173-407-050 Independent qualified organizations. (1) Any organization that would be considered an "independent qualified organization" for the purposes described in this regulation shall fulfill all the requirements of RCW 80.70.050, and shall provide evidence of listing by the council pursuant to RCW 80.70.050(1)

(2) An independent qualified organization must file biennial reports with the department or authority on the performance of carbon dioxide mitigation projects, including the amount of carbon dioxide reductions achieved and a statement of cost for the mitigation period.

Comment 1(e) - WAC173-407-060

We appreciate Ecology's efforts to emulate the new EPA "plainspeak" style, but this style is inconsistent with the format for the rest of the proposed regulation.

Again, we recommend that the regulation follow the legislation as closely as possible. To meet that objective, we recommend replacing all of proposed WAC 173-407-060 with the text from RCW 70.94.082 (2) and (3), as shown below:

> **WAC 173-407-036 Direct investment mitigation projects - Enforcement - Federal requirements may replace this section.** (1) The carbon dioxide mitigation option that provides for direct investment shall be implemented through mitigation projects conducted directly by, or under the control of, the Order of Approval holder.
>
> (2) Mitigation projects must be approved by the department, or authority, as appropriate, and made a condition of the Order of Approval. Direct investment mitigation projects shall be approved if the mitigation projects provide a reasonable certainty that the performance requirements of the mitigation projects will be achieved and the mitigation projects were implemented after July 1, 2004. No Order of Approval holder shall be required to make direct investments that would exceed the cost of making a lump sum payment to a third party, had the Order of Approval holder chosen that option under RCW 80.70.020.
>
> (3) Mitigation projects must be in place within a reasonable time after the start of commercial operation. Failure to implement an approved mitigation plan is subject to enforcement under chapter 70.94 RCW.
>
> (4) 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.
>
> (5) For facilities subject to this regulation, the implementation of a carbon dioxide mitigation project, other than a purchase of carbon dioxide equivalent emission reduction credits, shall be

monitored by the department or authority issuing the Order of Approval.

(6) Upon promulgation of federal requirements for carbon dioxide mitigation for fossil-fueled thermal electric generation facilities, those requirements may be deemed by the department, or authority to be equivalent and a replacement for the requirements of this section.

Comment 2- WAC173-407(General Comment)

In the event Ecology decides not to make the changes we proposed in the various parts of our Comment 1, we suggest changing all instances of "mmBtu" to "MMBtu." The term "mm" is an abbreviation for the metric unit of length equal to one thousandth of a meter, and "MM" is an abbreviation for one million. "M" is the Roman numeral for one thousand, and "MM" indicates one thousand multiplied by one thousand. "MMBtu" is a traditional symbol for one million Btu, a unit used widely in the energy industry.

Comment 3 WAC 173 -407-030

In the event our recommendations in Comment 1 are not incorporated into the final rule, we recommend deleting Section 1 of the proposed WAC 173-407-030. Section 1 is unnecessary because the same words are contained in the statute.

Comment 4- WAC 173 -407-030(4) (c)

In the event our recommendations in Comment 1 are not incorporated into the final rule, we recommend that Ecology use the exact statutory language when referring to and defining modifications. For example, the statute uses the term "increase its station-generating capability" while the proposed rule uses the words "increase electrical output" to help define a modification which could trigger applicability of this regulation for existing sources. "Station generating capability" has a very specific definition in RCW 80.70.010(16). The different wording proposed appears to change the meaning of the statute. Modifications likely relate to "design" or "capacity" for the station and not a comparison to "past actuals" for operation or emissions. Using the exact words from the statute avoids a New Source Review type debate relative to modifications.

Comment 5- WA C 173-407 (General Comment)

We recommend Ecology add a more clear statement in the rule that all calculations complete for the purposes of this regulation shall be in terms of "higher heating value (HHV)". Presently, the only use of this term in the

proposed regulation is in the table with "Fuel to CO_2 Conversion Factors"

which said any other fuel conversion factors must be based on HHV. However, others in the power plant design or development world may not realize this is based on HHV when reporting the new equipment heat rate in terms of Btu/MWe. Somewhere in the regulation, it may be best to define the preferred term and state that unless otherwise specified, the defined term will be used for all calculations.

Again, we appreciate your efforts to complete this rulemaking and look forward to continuing to work with you on this effort. If you have any questions about this, please contact me at (206) 689-4052.

Sincerely,

Steven M. Van Slyke
Supervisory Engineer

SMV:*ns*

cc: Jim Nolan
Laurie Halvorson
Leslie Stanton

Melissa McEachron
Air Quality Program
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

110 Union Street, Suite 500
Seattle, Washington 98101-2038

(10)

ENERGY NORTHWEST

P.O. Box 968 • Richland, WA • 99352-0968

December 2, 2004
GO2-04-202

Melissa McEachron
Air Quality Program
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Dear Ms. McEachron:

Subject: **COMMENTS ON PROPOSED RULES FOR CARBON DIOXIDE MITIGATION (WAC 173-407)**

We have reviewed the proposed regulation on carbon dioxide mitigation that was filed with the Code Reviser's office on October 19, 2004 and offer comments below for your consideration.

Section 020. Although it was omitted from the statute (RCW 80.70), we suggest that this section of the regulation include a definition of "natural gas" to add clarity to the definition of "fossil fuel" (Section 020(10)). Natural gas is gas produced beneath the earth's crust by natural thermogenic processes. A definition such as this will be helpful to avoid future misunderstanding regarding the scope of the mitigation program.

Natural gas, with a typical composition of 90% methane, is sometimes referred to as methane gas. An incorrect extension of this understanding could be that other methane-rich gases derived from the decomposition of waste materials are also natural gases. These gases include landfill gas, agricultural waste digester gas, and sanitary waste treatment offgas. Clearly, these biogases are not fossil fuels and the mitigation program is not intended to apply to power plants that use these fuels. (This intent is evidenced in the cost-benefit analysis for the proposed rule in that the use of landfill methane is identified as an example of a CO_2 emissions offset project.) A definition of natural gas would make the scope of the program more explicit.

Section 050(1). The lead-in to this section is awkward (total quantity maximum potential emissions **=** annual emissions rate) and misleading (it does not calculate total quantity; it calculates an annual maximum). The format is also inconsistent with the headings for the three subsections that follow. We suggest it be reworded to:

> *Step I — Calculate the maximum potential annual emissions of* CO_2 *by the following formula or similar analysis:*

COMMENTS ON PROPOSED RULES FOR CARBON DIOXIDE MITIGATION

Section 050(2). The proposed heading says this section determines the total CO_2 emissions to be mitigated but, in fact, the mitigation quantity is not determined until Step 4 (Section 050(4)). We suggest the following format:

> *Step 2— Determine the total carbon dioxide emissions through application of the following formula:*
>
> $CO_{2Total} = CO_{2Rate} \times 30 \times 0.6$
>
> *where*
>
> *30 = years of operation (from RCW 80.70.010(17))*
>
> *0.6 = assumed capacity factor (from RCW 80.70.010(17))*

Section 050(3). As worded, this section says the cogeneration credit is an annual emissions rate, but it goes on to define it as a 30-year total. The section could be presented as follows:

> *Step 3— Determine the cogeneration credit (if applicable) by application of the following formula or similar method:*
>
> $CO_{2Credit} = H_s \times K_a \div 2204.6 \div 0.35 \times 30$
>
> *where*
>
> H_s = [as proposed]
>
> K_a = [as proposed]
>
> *0.35* = [efficiency or heat rate adjustment?]

Section 050(4). Proposed subsection 050(4)(a) is unnecessary because it just inserts language from the statute, the relevant part of which (the 20% mitigation factor) is repeated in subsection 050(4)(b). We suggest the following wording:

> *Step 4— Determine the mitigation quantity by application of the following formula:*
>
> $CO_{2Mitigation} = CO_{2Total} \times 0.20 — CO_{2credit}$
>
> *where*
>
> *0.20 = mitigation factor (from RCW 80.70.020(4))*

Section 040(2). The proposal differs from the draft version in that the Department's fees are to be charged at an hourly rate rather than at a flat rate. Although this may be reasonable, it was not apparent that the fees were included in the benefit-cost analysis that accompanied the proposed rule. We conclude that the Department considers the fees to be trivial compared to the mitigation charges.

We appreciate your consideration of the comments.

Respectfully,

D.W. Coleman (Mail Drop PE20)
Manager, Regulatory Programs

ENERGY NORTHWEST
People · Vision · Solutions
P.O. Box 968 • Richland, WA • 99352-0968
Ms. Melissa McEachron
Air Quality Program
Department of Ecology
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98504-7600 01

Appendix B
Comment Index
List of Individuals and Index

Name		Comment #
1.	**Ken Johnson** **Weyerhaeuser** **P.O. Box 9777** **Federal Way, WA 98063-9777**	**2, 4, 6, 10, 16, 21, 29, 30**
2.	**David M. Ogrodnik** **University of Washington** **Plant Operations Annex 6** **Box 352165** **Seattle, WA 98195-2165**	**11**
3.	**Alan Trunkey** **3649 46th Ave. S.W.** **Seattle, WA 98116**	**8, 28**
4.	**Mike Ruby** **Envirometrics, Inc.** **4803 Fremont N.** **Seattle, WA 98103**	**4, 9, 12, 13, 20, 33**
5.	**Gary Kato** **City of Tacoma Solid Waste Division** **3510 South Mullen Street** **Tacoma, WA 98409-2200** **[Summary of testimony at hearing])**	**13**
6.	**Alan M. Tebaldi** **City of Tacoma Solid Waste Division** **3510 South Mullen Street** **Tacoma, WA 98409-2200**	**1, 4, 13**
7.	**Frank E. Holmes** **Western States Petroleum Association** **111 Market Street N.E.** **Suite 325** **Olympia, WA 98501**	**2, 5, 6, 10, 14, 18, 22, 23, 32**

Name	Comment #
8. Puget Sound Energy **Keith Faretra** **6905 South 228th Street** **Kent, WA 98032**	**8**
9. Steve Van Slyke **Puget Sound Clean Air Agency** **110 Union Street** **Suite 500** **Seattle, WA 98101-2038**	**3, 6, 7, 13, 15, 17, 24, 31**
10. D.W. Coleman **Energy Northwest** **P.O. Box 968** **Richland, WA 99352-0968**	**8, 19, 23, 25, 26, 27**

Appendix C
Public Notices

STATE OF WASHINGTON – KING COUNTY

--ss.

178715 No.
DEPT OF ECOLOGY

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

PN:NOTICE DNS

was published on

11/10/2004

Affidavit of Publication

Subscribed and sworn to before me on

11/10/2004

Notary public for the State of Washington,
residing in Seattle

State of Washington, King County

State of Washington

NOTICE OF DETERMINATION OF NONSIGNIFICANCE

The Department of Ecology issued a determination of nonsignificance (DNS) under the State Environmental Policy Act Rules (Chapter 197-11 WAC) for the following project: Rule on Carbon Dioxide Mitigation at Fossil-Fueled Thermal Electrical Generating Facilities. After review of completed environmental checklist and other information on file, the Department of Ecology has determined this proposal will not have a probable significant adverse impact on the environment.

Copies of the DNS are available at no charge from Melissa McEachron, Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600.

(360) 407-6860. The public is invited to comment on this DNS by submitting written comments no later than December 7, 2004 to Melissa McEachron at the address above.

Date of publication in the Seattle Daily Journal of Commerce, November 10, 2004.

11/10(178715)

Page 2 of affidavit

STATE OF WASHINGTON – KING COUNTY

--ss.

178305 No. FOSSIL FUELED THERMAL ELE
DEPT OF ECOLOGY

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

PNPH:CARB.DIOX.MITIGATION

was published on

10/29/2004

Subscribed and sworn to before me on

10/29/2004

Notary public for the State of Washington,
residing in Seattle

Affidavit of Publication

State of Washington, King County

State of Washington

NOTICE OF PUBLIC HEARING

Department of Ecology, Air Quality Program

Proposal for Carbon Dioxide Mitigation Program for Fossil Fueled Thermal Electric Generating Facilities - Chapter 173-407 WAC

Background information

The Department of Ecology (Ecology) is proposing a new rule to implement a law passed by the 2004 Washington State Legislature. The law establishes a program to reduce carbon dioxide (CO_2) emissions from both small and large power plants that burn fossil fuel and feed the state's power grid.

In Ecology's proposed rule, small power plants of less than 350 megawatts that sell to the state's power grid would be charged a fee to recover permitting authority costs. They would be asked to submit carbon-dioxide mitigation plans before their air quality permits could be approved. The proposed rule also establishes how carbon dioxide emissions would be calculated.

Under the new law, each small power plant may select from three options to offset its carbon dioxide emissions. They may make payments to a third party to provide the mitigation, they may purchase permanent carbon dioxide credits, or they may invest in applicant-controlled carbon dioxide mitigation projects, including cogeneration.

A copy of the proposed rule can be found on Ecology's web site at http://www.ecy.wa.gov/laws-rules/activity/wac173407.html, or can be requested from Melissa McEachron, (360) 407-6860.

Hearing information

Ecology has scheduled a hearing to receive public comment on this proposed rule:

Tuesday, November 30, 2004
2:00 p.m.
Department of Ecology
Headquarters Building
Room A-36
300 Desmond Drive
Lacey, WA

Comments may be provided at the hearing or mailed, emailed,

Dahlgren, Tami

From: DJC Legals [legals@djc.com]
Sent: Tuesday, October 26, 2004 2:23 PM
To: Dahlgren, Tami

Subject: RE: Legal notice to be published *10/29*

Hi Tami
We will publish your notice on 10/29 as requested.
Thanks very much

Melissa Dowd
Public Notice Department
Daily Journal of Commerce
83 Columbia St. Seattle
(206) 622-8272 Phone
(206) 622-8416 Fax

From: Dahigren, Tami [mailto:tdah46l@ECY.WA.GOV]
Sent: Tuesday, October 26, 2004 2:20 PM
To: DJC Legals'
Cc: McEachron, Melissa **M.**
Subject: Legal notice to be published 10/29

Hello,

Attached is a legal notice from the Department of Ecology's Air Quality Program, to be published on Friday, October 29, 2004.

Please send tear sheet, affidavit of publication, and billing to:

Tami Dahlgren
Air Quality Program
P0. Box 47600
Olympia, WA 98504-7600

Please email me back or call me at (360) 407-6830 if you have questions or problems. Thank you!

Tami Dahlgren
Air Quality Program

<<Nov 30 hearing legal notice.doc>>

Dahlgren, Tami

From: DJC Legals [legals©djccom]
Sent: Tuesday, November 09, 2004 10:54 AM
To: Dahlgren, Tami
Subject: RE: DNS notice for publication in Daily Journal

Hello
We will publish this notice on 11/10 as requested.
Thank you

Melissa Dowd
Public Notice Department
Daily Journal of Commerce
83 Columbia St. Seattle
(206) 622-8272 Phone
(206) 622-8416 Fax

From: Dahlgren, Tami [mailto:tdah46 1@ECY.WA.GOV]
Sent: Tuesday, November 09, 2004 10:29 AM
To: 'DJC Legals'
Subject: FW: DNS notice for publication in Daily Journal

Hi,

The notice below is for publication on 11/10/04, if possible. Please contact Tami Dahlgren at (360) 407-6830 or by replying to this email if publication on the 10th is not possible. Please send billing, tear sheet and affidavit of publication to:

Tami Dahlgren
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Thanks very much:

11/12/2004

Message

NOTICE OF DETERMINATION OF NONSIGNIFICANCE

The Department of Ecology issued a determination of nonsignificance (DNS) under the State Environmental Policy Act Rules (Chapter 197-11 WAC) for the following project: Rule on Carbon Dioxide Mitigation at FossilFueled Thermal Electrical Generating Facilities. After review of completed environmental checklist and other information on file, the Department of Ecology has determined this proposal will not have a probable significant adverse impact on the environment.

Copies of the DNS are available at no charge from Melissa McEachron, Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600.

(360) 407-6860. The public is invited to comment on this DNS by submitting written comments no later than December 7, 2004 to Melissa McEachron at the address above.

11/12/2004

NOTICE OF PUBLIC HEARING
Department of Ecology, Air Quality Program
Proposal for Carbon Dioxide Mitigation Program for Fossil Fueled Thermal Electric Generating Facilities - Chapter 173-407 WAC

Background information

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Under the new law, each small power plant may select from three options to offset its carbon dioxide emissions. They may make payments to a third party to provide the mitigation, they may purchase permanent carbon dioxide credits, or they may invest in applicant-controlled carbon dioxide mitigation projects, including cogeneration.

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Hearing information

Ecology has scheduled a hearing to receive public comment on this proposed rule:

Tuesday, November 30, 2004 2:00 p.m.	Department of Ecology Headquarters Building Room A-36 300 Desmond Drive Lacey, WA

Comments may be provided at the hearing or mailed, emailed, or faxed to Melissa McEachron, Department of Ecology, P.O. Box 4700, Olympia, WA 98504-7600; FAX (360) 407-7534; email mmce461@ecy.wa.gov . Comments must be postmarked by December 8, 2004.

For more information

Contact:

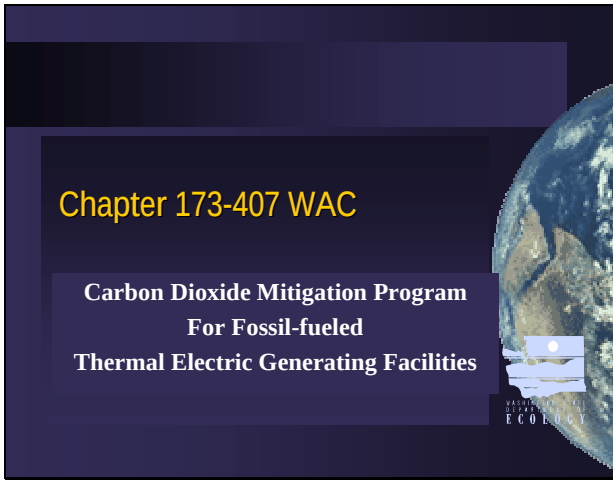
Melissa McEachron	(360) 407-6860
Department of Ecology	mmce461@ecy.wa.gov
Air Quality Program	

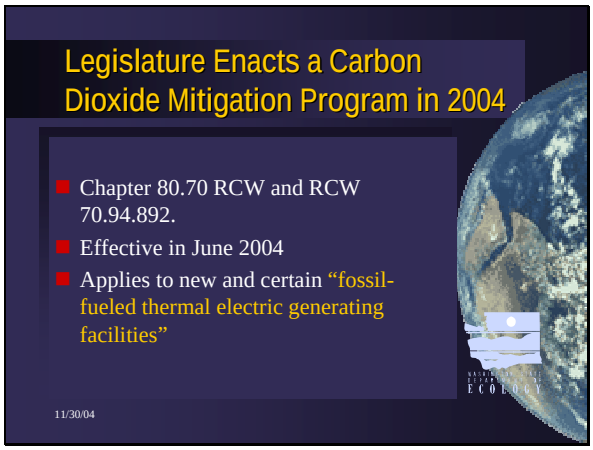
If you need special accommodations, please call Tami Dahlgren, (360) 407-6800 by November 20. If you are a person with a speech or hearing impairment, call 711 or 1-800-833-6388 for TTY.

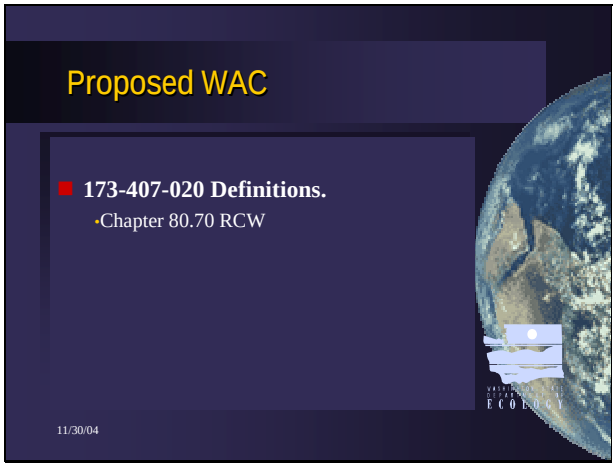
Notice of Determination of Nonsignificance

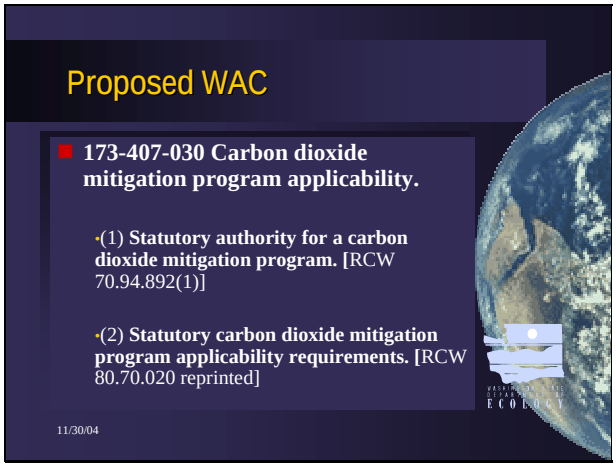
The Department of Ecology issued a determination of nonsignificance (DNS) under the State Environmental Policy Act Rules (Chapter 197-11 WAC) for the following project: Rule on Carbon Dioxide Mitigation at Fossil-Fueled Thermal Electrical Generating Facilities. After review of completed environmental checklist and other information on file, the Department of Ecology has determined this proposal will not have a probably significant adverse impact on the environment.

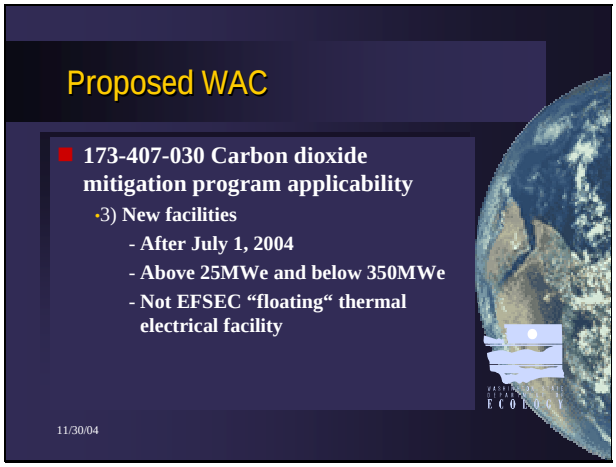
Copies of the DNS are available at no charge from Melissa McEachron, Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, (360) 407-6860. The public is invited to comment on this DNS by submitting written comments no later than December 7, 2004 to Melissa McEachron at the address above.

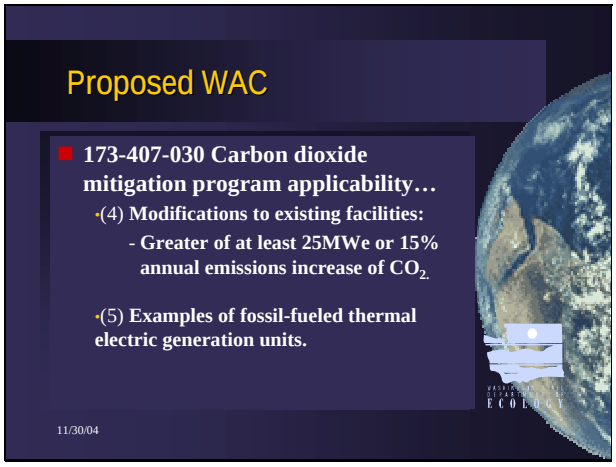

Chapter 173-407 WAC
Carbon Dioxide Mitigation Program
For Fossil-fueled
Thermal Electric Generating Facilities
ECOLOGY

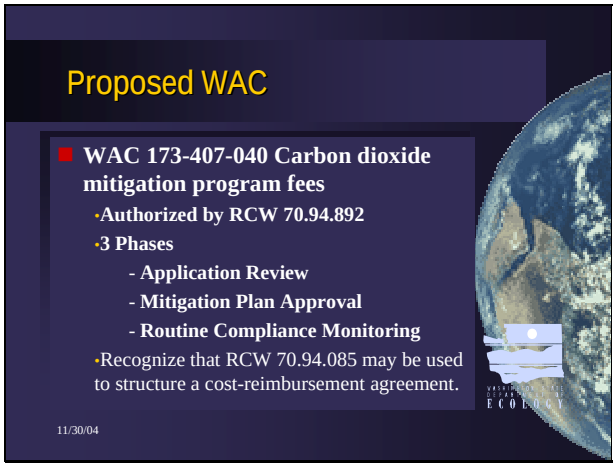

Legislature Enacts a Carbon Dioxide Mitigation Program in 2004
Chapter 80.70 RCW and RCW 70.94.892.
Effective in June 2004
Applies to new and certain "fossil-fueled thermal electric generating facilities"
11/30/04
ECOLOGY

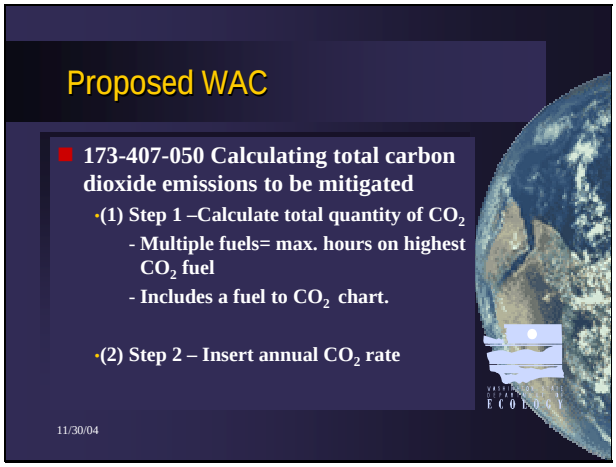

Proposed WAC
173-407-020 Definitions.
Chapter 80.70 RCW
11/30/04
ECOLOGY

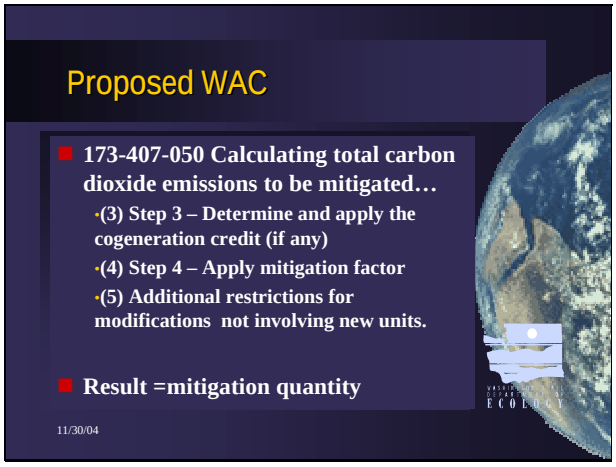

Proposed WAC
173-407-030 Carbon dioxide mitigation program applicability.
(1) Statutory authority for a carbon dioxide mitigation program. [RCW 70.94.892(1)]
(2) Statutory carbon dioxide mitigation program applicability requirements. [RCW 80.70.020 reprinted]
11/30/04

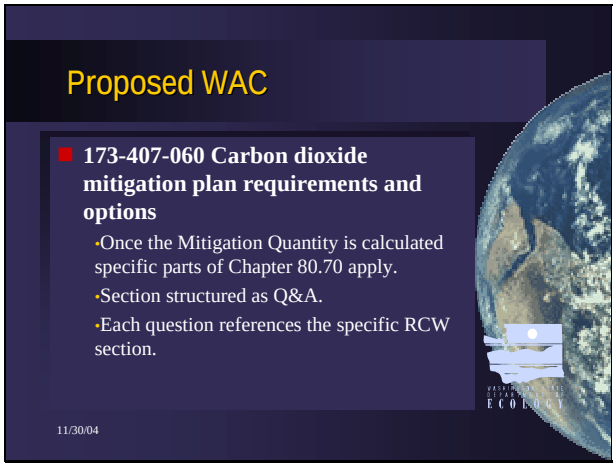

Proposed WAC
173-407-030 Carbon dioxide mitigation program applicability
3) New facilities
- After July 1, 2004
- Above 25MWe and below 350MWe
- Not EFSEC "floating" thermal electrical facility
11/30/04

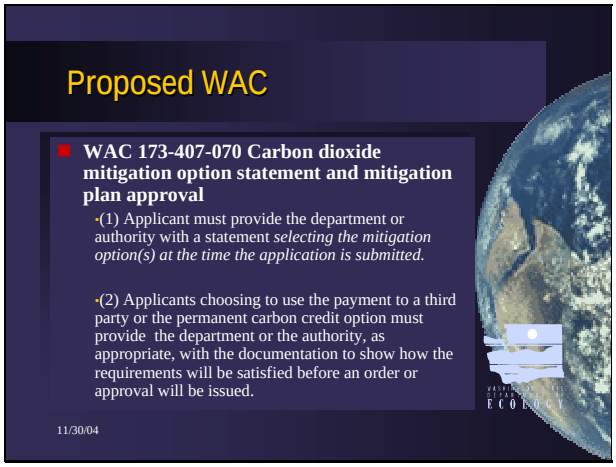

Proposed WAC
173-407-030 Carbon dioxide mitigation program applicability…
(4) Modifications to existing facilities:
- Greater of at least 25MWe or 15% annual emissions increase of CO_2.
(5) Examples of fossil-fueled thermal electric generation units.
11/30/04

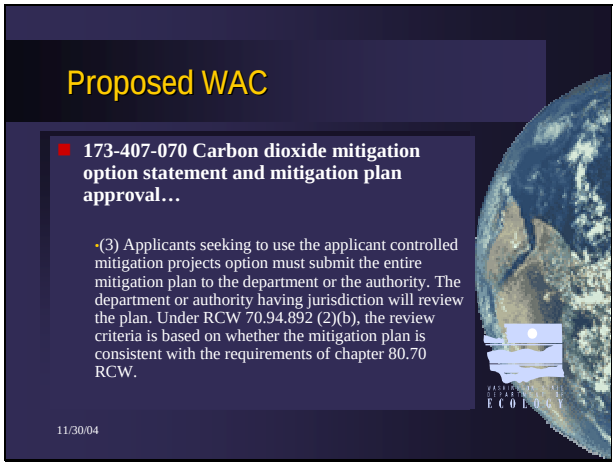

Proposed WAC
WAC 173-407-040 Carbon dioxide mitigation program fees
Authorized by RCW 70.94.892
3 Phases
- Application Review
- Mitigation Plan Approval
- Routine Compliance Monitoring
Recognize that RCW 70.94.085 may be used to structure a cost-reimbursement agreement.
11/30/04

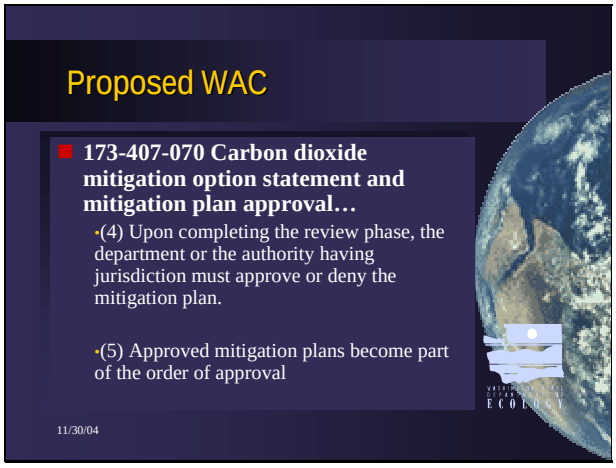

Proposed WAC
173-407-050 Calculating total carbon dioxide emissions to be mitigated
(1) Step 1 –Calculate total quantity of CO_2
- Multiple fuels= max. hours on highest CO_2 fuel
- Includes a fuel to CO_2 chart.
(2) Step 2 – Insert annual CO_2 rate
11/30/04


Proposed WAC
173-407-050 Calculating total carbon dioxide emissions to be mitigated…
(3) Step 3 – Determine and apply the cogeneration credit (if any)
(4) Step 4 – Apply mitigation factor
(5) Additional restrictions for modifications not involving new units.
Result =mitigation quantity
11/30/04

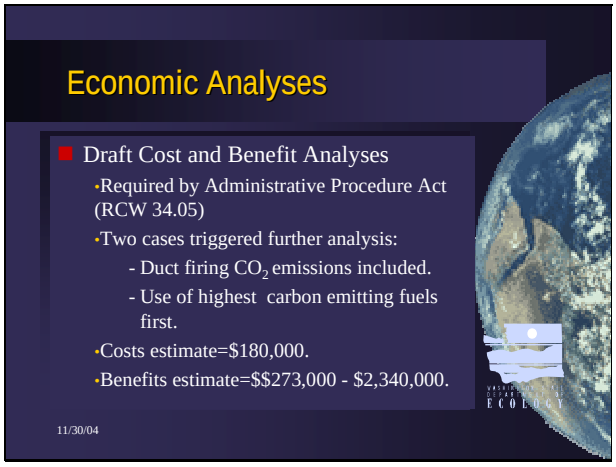

Proposed WAC
173-407-060 Carbon dioxide mitigation plan requirements and options
•Once the Mitigation Quantity is calculated specific parts of Chapter 80.70 apply.
•Section structured as Q&A.
•Each question references the specific RCW section.
11/30/04

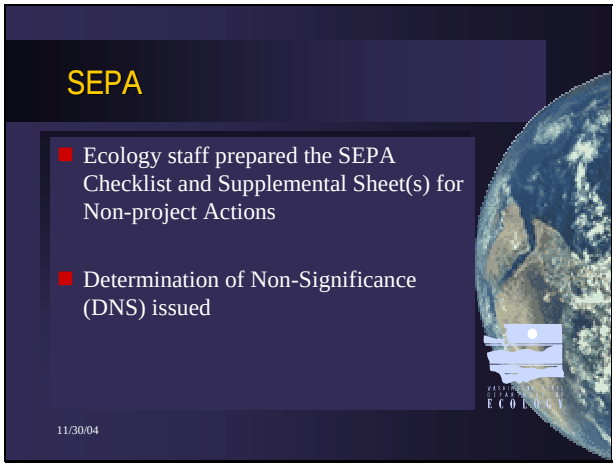

Proposed WAC
WAC 173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval
•(1) Applicant must provide the department or authority with a statement *selecting the mitigation option(s) at the time the application is submitted.*
•(2) Applicants choosing to use the payment to a third party or the permanent carbon credit option must provide the department or the authority, as appropriate, with the documentation to show how the requirements will be satisfied before an order or approval will be issued.
11/30/04


Proposed WAC
173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval…
•(3) Applicants seeking to use the applicant controlled mitigation projects option must submit the entire mitigation plan to the department or the authority. The department or authority having jurisdiction will review the plan. Under RCW 70.94.892 (2)(b), the review criteria is based on whether the mitigation plan is consistent with the requirements of chapter 80.70 RCW.
11/30/04


Proposed WAC
173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval…
(4) Upon completing the review phase, the department or the authority having jurisdiction must approve or deny the mitigation plan.
(5) Approved mitigation plans become part of the order of approval
11/30/04


Economic Analyses
Small Business Economic Impact Statement
Required under Chapter 19.85 RCW.
Ecology analyzed representative facilities.
Findings:
- Impact on sales minimal
- Rule will not likely have disproportionate impacts
11/30/04


Economic Analyses
Draft Cost and Benefit Analyses
Required by Administrative Procedure Act (RCW 34.05)
Two cases triggered further analysis:
- Duct firing CO_2 emissions included.
- Use of highest carbon emitting fuels first.
Costs estimate=$180,000.
Benefits estimate=$$273,000 - $2,340,000.
11/30/04


SEPA
Ecology staff prepared the SEPA Checklist and Supplemental Sheet(s) for Non-project Actions
Determination of Non-Significance (DNS) issued
11/30/04


Questions ???
11/30/04


Submit Comments to:
Melissa McEachron, Air Quality Program
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Email: MMCE461@ecy.wa.gov
Fax: (360) 407-7534
Accepted through December 8, 2004
11/30/04

WSR 04-21-070

PROPOSED RULES

DEPARTMENT OF ECOLOGY

[Order 03-09 -- Filed October 19, 2004, 11:42 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 03-21-119.

Title of Rule and Other Identifying Information: Chapter 173-407 WAC, Carbon dioxide mitigation program for fossil fueled thermal electric generating facilities.

Hearing Location(s): Department of Ecology, 300 Desmond Drive S.E., Lacey, WA 98503, on November 30, 2004, at 2:00 p.m.

Date of Intended Adoption: December 21, 2004.

Submit Written Comments to: Melissa McEachron, Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, e-mail MMCE461@ecy.wa.gov, fax (360) 407-7534, by December 8, 2004.

Assistance for Persons with Disabilities: Contact Tami Dahlgren by November 22, 2004, TTY (711) 1-800-833-6388 or (360) 407-6800.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: During the 2004 legislative session, SHB 3141 became law. The new law (codified as chapter 80.70 RCW and RCW 70.94.892) establishes a carbon dioxide mitigation program and requires carbon dioxide offsets from new and certain modified fossil-fueled electric generating facilities. The purpose of the rule is to recover permitting authority costs related to implementing the mitigation program, to clarify CO_2 emissions calculations, and to integrate mitigation program plans into the air quality permits using the order of approval process.

There is no existing rule related to carbon dioxide mitigation program for fossil-fueled thermal electric generating facilities. The anticipated effect of the proposal is a complete and ready to implement program.

Statutory Authority for Adoption: Chapters 70.94 and 80.70 RCW.

Statute Being Implemented: Chapter 80.70 RCW and RCW 70.94.892.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of Ecology, governmental.

Name of Agency Personnel Responsible for Drafting: Melissa McEachron, Olympia, Washington, (360) 407-6860; Implementation and Enforcement: Stu Clark, Olympia, Washington, (360) 407-6800.

A small business economic impact statement has been prepared under chapter 19.85 RCW.

Small Business Economic Impact Statement

1. INTRODUCTION.

BACKGROUND: The Department of Ecology (ecology) is proposing adoption of a new rule implementing chapter 70.94 RCW and Title 80 RCW. The proposed rule provides additional direction regarding carbon dioxide mitigation for public and private entities that are constructing certain types of energy facilities in Washington state. Ecology's goal is that the rule will provide clarification as to what is required for energy facility developers in Washington. As required under RCW 19.85.030, ecology is developing and issuing this small business economic impact statement (SBEIS) as part of its rule adoption process. Ecology will use the information developed in the SBEIS as required by law to ensure that the proposed rules are consistent with legislative policy.

RULE DEVELOPMENT: Washington has been actively involved in evaluating the implications of climate change having completed several studies in the last fifteen years. Development of a rule to mitigate GHG emissions was initiated by Governor Gary Locke in 2001. The governor authorized the Energy Facility Site Evaluation Council (EFSEC) to commence rule making in an effort to mitigate the amount of greenhouse gas emissions from new electricity generation facilities. The result was the proposed EFSEC carbon dioxide mitigation rule. The rule required new fossil fuel fired electricity generation facilities to mitigate 20% of their lifetime CO_2 emissions. However, the rule was never adopted because the 2004 legislature created law that closely reflected the proposed EFSEC rule. This statutory language modified portions of chapter 70.94 RCW and Title 80 RCW to reflect the legislature's intent to require greenhouse gas mitigation. Ecology is proposing to implement these revisions to statute via proposed chapter 173-407 WAC, Carbon dioxide mitigation program for fossil fueled thermal electric generating facilities, that is the subject of this analysis.

DESCRIPTION AND PURPOSE OF THE SBEIS: The objective of this SBEIS is to identify and evaluate the various requirements and costs that the proposed rule might impose on businesses. In particular, the SBEIS examines whether the costs to businesses that might be imposed by the proposed rule impose a disproportionate impact on the state's small businesses. The specific purpose and required contents of the SBEIS is contained in RCW 19.85.040 and are noted below (the bracketed numbers are for the reader's convenience, and reflect the organization of this SBEIS):

"A small business economic impact statement must include [1] a brief description of the reporting, record keeping and other compliance requirements of the proposed rule, and [2] the kinds of professional services that a small business is likely to need in order to comply with such requirements. [3] It shall analyze the costs of compliance for business required to comply with the proposed rule adopted pursuant to RCW 34.05.320, including costs of equipment, supplies, labor and increased administrative costs. [4] It shall consider, based on input received, whether compliance with the rule will cause businesses to lose sales or revenue. [5] To determine whether the proposed rule will have a disproportionate impact on small businesses, the impact statement must compare the costs of compliance for small businesses with the cost of compliance for the ten percent of businesses that are the largest businesses required to comply with the proposed rules using one or more of the following as a basis for comparing costs:

a. Cost per employee

b. Cost per hour of labor

c. Cost per hundred dollars of sales

(2) A small business economic impact statement must also include:

a. [6] A statement taken by the agency to reduce the costs of the rule on small businesses as required by RCW 19.85.030(3), or reasonable justification for not doing so, addressing the options listed in RCW 19.85.030(3).

b. [7] A description of how the agency will involve small business in the development of the rule; and

c. [8] A list of industries that will be required to comply with the rule.["]

For purposes of an SBEIS, "Small business," is defined by RCW 19.85.020: *"Small business" means any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, that has the purpose of making a profit, and that has fifty or fewer employees.*

CONTENTS OF THE DOCUMENT: The proposed carbon dioxide mitigation rule developed through this rule-making process will be further evaluated in the following sections as required in chapter 19.85 RCW.

Section 2 - This section discusses the new rule and provides [1] a brief description of the reporting, record keeping, and other compliance requirements, [2] the kinds of professional services that a small business is likely to need in order to comply, [3] the costs of compliance for businesses required to comply with the proposed rule including costs of equipment, supplies, labor, and increased administrative costs.

Section 3 - This section considers [4] whether compliance with the rule will cause businesses to lose sales or revenue and evaluates [5] whether the proposed rule will have a disproportionate impact on small business.

Section 4 - This section considers [6] actions taken to reduce the impact of the rule on small business, [7] how small business was involved in the development of this rule and provides [8] a list of industries required to comply with the rule. The appendix contains additional information used in this analysis.[1]

2. DISCUSSION OF COMPLIANCE COSTS FOR BUSINESSES.

INTRODUCTION: The proposed rule restates much of what is explicitly presented in chapter 70.94 RCW and Title 80 RCW and clarifies several aspects likely to be relevant to energy facility construction. The most significant clarification is explicitly stating the formula for calculating carbon dioxide emissions and outlining how to incorporate multiple fuels and supplemental firing. The proposed rule also provides a fee schedule. Ecology has carefully evaluated each of the proposed new rule sections and determined which are likely to have significant impacts on future applicants. These are discussed below along with a discussion of the baseline. A discussion of costs likely to be experienced by firms is also provided.

RULE DESCRIPTION AND BASELINE DEVELOPMENT: In order to discuss the cost impacts of the proposed rule it is necessary to consider the proposed rule language and the baseline from which the change in requirements is measured. The baseline is the best estimate of how chapter 70.94 RCW and Title 80 RCW would be implemented if the rule was not promulgated.

The proposed rule provides definitions of the regulated community, outlines statutory authority, and provides formulas for emissions calculations and requirements for addressing multiple fuels.[2] The rule requires all new or expanding fossil fuel powered electricity generation facilities to mitigate a portion of their carbon dioxide emissions. Twenty percent of all emissions forecast over a thirty-year period are required to be mitigated either via a third-party or through self-initiated mitigation.[3]

In the case of proposed chapter 173-407 WAC, much of the rule language is simply restated from the statute. If ecology did not adopt a rule, carbon dioxide mitigation would still be required from new fossil-fueled power plants since it is explicitly described in statute.[4] The components of the rule where there is additional direction provided than included in statute are those associated with supplemental firing and multiple fuel sources. The statute defines total carbon dioxide emissions as those emitted from fossil fuel powered facilities over thirty years and mandates *"taking into account any enforceable limitations on*

operational hours or fuel types and use." This statutory language is unclear as to whether it is to require mitigation of all fuel sources or the base fuel or some estimated fuel use up to the fuel's operational hour limitation. Ecology's proposed rule requires that all allowable supplemental firing hours be used in the emissions calculations and that the fuel with the highest CO_2 emissions factor be incorporated first until the total annual operational hours have been allocated. Without the rule, calculation of the CO_2 quantity subject to mitigation would be negotiated with individual permit writers resulting in differing mitigation requirements between otherwise identical proposals.

Ecology has chosen to base this analysis on two assumptions. First, because the statute is quite clear about considering limitations on operational hours and since supplemental firing is usually an allowed use based on a maximum number of hours, it is assumed that mitigation would be required for allowed supplemental firing hours even without the rule.

Second, because the statute is unclear about regulation of multiple fuels, ecology will assume that mitigation for reserve fuels with higher emission factors than the base fuel is an impact of this rule making. Though this could have been the intention of the statute, it could also be interpreted to require basing it on actual use, estimated use, etc. Without the rule, ecology permit writers and applicants would have to negotiate which fuels are included and how much of the allowable use of the higher emitting fuel would be considered. Therefore, the baseline in the case of multiple fuel sources will be mitigation based on the primary fuel type.

COST IMPACTS TO BUSINESSES: For those energy facilities that want the flexibility to use multiple fuel sources, the requirements described above will be a cost impact of the rule making. Firms may have to pay a greater amount of mitigation than would have been required if they had simply negotiated with individual permit writers. It is possible this may even cause some firms to choose to reduce their permitted use of back-up fuels from what would have been the case without the rule.

The economic impact of the proposed rule will most likely be experienced by those developing/modifying electricity generation facilities[5] as an increase in facility development costs. The following cost categories are required by chapter 19.85 RCW.

Reporting and Record keeping: Additional carbon mitigation rule requirements will not likely require additional on-going monitoring or record keeping.

Additional Professional Services: Additional carbon mitigation rule requirements may require additional project management services to execute additional carbon offsets if the self-mitigation option is selected. This cost is included in the mitigation amount.

Costs of Equipment, Supplies, Labor, and Increased Administrative Costs: No additional equipment, supplies, labor or administrative costs are anticipated.

Other Compliance Requirements: As mentioned above, the main impact of the rule will be the additional carbon mitigation that may be required of some facilities. This amount will vary with the facility, fuel-type and owner with a typical range of between $0 and $1,100,000.[6]

3. REVENUE IMPACTS AND DISTRIBUTION OF COSTS.

INTRODUCTION: RCW 19.85.040 requires that the analysis consider [4] whether compliance with this rule will cause businesses to lose sales or revenue and [5] whether the proposed rule will have a disproportionate impact on small businesses. The increased costs come from increased carbon dioxide mitigation requirements for new energy facilities locating in the state.

Increased mitigation costs associated with higher carbon emitting supplemental fuels could be reduced by decreasing the hourly limit on supplemental fuel use. This would reduce the amount of mitigation required of firms, but comes at the expense of decreased operational flexibility. All costs in this analysis assume no change in the use of supplemental fuels by electricity project proponents and therefore are conservative (biased against the rule).

The increased costs will affect both existing and proposed energy facilities and could have indirect effects on other business entities operating in Washington state. The increase will affect siting costs and is related to capacity of the facility but not the output.[7] In general, an increase in fixed costs will impact firms with less output (i.e. "small" firms) more significantly than firms with more output (i.e. "large" firms). This occurs because firms with less output that try to recoup fixed costs by raising the price of their final product must raise the price proportionately more than large firms.

Increased siting costs for new energy facilities could benefit existing firms if existing plants are used more intensively or retirements of existing plants are delayed. In some cases, the impacts may be passed along to others as secondary effects. Which business entities are affected and how these new requirements will affect them depend on the specific markets and market participants. Firms that provide third-party mitigation services may benefit from increased demand for their services.

ANALYSIS OF FUTURE PLANTS: The proposed rule will apply to any facility that sells power to the grid and uses a fossil fuel energy source. To analyze this, ecology considered existing and expected future market conditions and reviewed several facilities that have been constructed in the state and that obtained air operating permits. The analysis revealed that potentially impacted facilities likely to be constructed in the future include natural gas and coal-fired electricity generation plants. These facilities are typically constructed by consumer-owned utilities, investor-owned utilities, and independent power producers and range in size from 25 MW to 349 MW. Many of the larger facilities have supplemental firing capability, reserve fuels and can be cogeneration facilities.

Ecology elected to evaluate the impacts on three hypothetical electricity generation facilities that represent the anticipated range of facilities likely to be constructed in the future. All facilities are natural gas fired facilities[8] but operational capacities are different consisting of 30 MW, 172 MW and 274 MW facilities. Capabilities for supplemental firing, reserve fuels and cogeneration vary with each facility. The specific parameters are provided in Table 3.1.

Table 3.1. Parameters of Hypothetical Electrical Generation Facilities

Characteristic	Facility No. 1	Facility No. 2	Facility No. 3
Turbine Type	GE LM 2500+	Siemens/Westinghouse W501D5	Siemens/Westinghouse 501F
Nominal Capacity (MW)	30	172	274
Supplemental (Duct) Firing	No	No	Yes
Type & Primary Fuel	Natural Gas-Simple Cycle	Natural Gas-Comb. Cycle	Natural Gas-Comb. Cycle
Secondary Fuel	N/A	Distillate Fuel; 876 hour limit	Distillate Fuel; 1,752 hour limit
Cogeneration Facility	No	No	Yes

SALES IMPACTS: Potential sales impacts for new generating resources in Washington could occur if the increased cost of siting facilities delays construction or are passed along in wholesale electricity prices. Table 3-2 provides an analysis of cost and investment return impacts for the three proposed facilities.

Table 3-2. Facility Siting and Wholesale Electricity Cost and Investment Return Impacts Due to the Proposed Rule

	Facility No. 1 (NGSC-30 MW)	Facility No. 2 (NGCC-172 MW)	Facility No. 3 (NGCC-274 MW)
Increased Mitigation Cost from Rule (Thousand $)	0	108.6	312.9
Capital Cost (Million $)[9]	17.7	101.1	159.6
Percentage Increase in Capital Cost	0.0%	0.11%	0.20%
Percentage Change in NPV[10]	0.0%	-0.4%	-0.4%
Change in Cost of Electricity ($/MWh)	0.00	+0.01	+0.02

The estimated increased siting cost ranges from $0 to approximately $313,000 for the natural gas fired plants listed above. This represents an increase of between 0.0% and 0.20% of a typical plant's capital costs. If increased costs are passed along in wholesale electricity prices, the price of wholesale electricity is expected to increase between $0.0/MWh and $0.02/MWh which represents between 0% and 0.05% of the price of wholesale power.[11] This may result in a small decrease in sales depending on how sensitive the market is to a price increase. However, fuel price volatility, variable power demand and changing hydroelectric conditions are likely to be far more significant cost factors.

As mentioned previously, a reduction in NPV for new facilities or an increase in wholesale power costs may be a beneficial effect for existing facilities. Existing electricity generation facilities may experience an increase in sales if siting of new facilities is delayed due to the reduced investment return or if time of use (dispatch) is reduced. This would increase the dispatch of existing plants and potentially delay retirement of some plants. The impact of these investment value and price changes for both existing and new plants is likely to be relatively minor as other factors are likely to drive siting decisions like fuel costs, public responsiveness, plant efficiency, and availability of transmission facilities.

DISTRIBUTION OF COMPLIANCE COSTS: RCW 19.85.040 requires an evaluation of how compliance costs may vary between small firms and the largest 10% of firms required to comply. This is complicated in this case by the fact that the rule will only apply to facilities developed in the future. To inform the rule making, ecology evaluated several energy facilities that recently obtained AOP permits with capacities that would be subject to carbon mitigation requirements if constructed today. Sixteen permits for fossil-fuel fired facilities that sold electricity to the grid were considered. In all cases, the firms were large firms.

Changes in the wholesale power industry make plants developed in the past less relevant. Developers can be classified as consumer owned utilities (COUs), investor owned utilities (IOUs) and independent power producers (IPPs). In the past, IOUs and COUs were often vertically integrated providing generation, transmission and distribution. Restructuring in the electricity markets has allowed IPPs to develop a much larger share of electricity generation. Moreover, they will likely be much more prevalent in future development. As such, ecology analyzed all existing COUs and IOUs and considered a collection of IPPs

with existing assets or an interest in electricity development in Washington to assess proportionality.[12] The results are listed in Table 3-3.

Table 3-3. Proportionality of Compliance Costs (Dollars per Hundred Dollars in Sales)

Firm Size	No. Firms	Facility No. 1 (NGSC- 30 MW)	Facility No. 2 (NGCC-174 MW)	Facility No. 3 (NGCC-272 MW)
Small	40	0.0	0.007	0.012
Large	42	0.0	0.007	0.012

As can be seen from Table 3-3, the cost impacts as measured per hundred dollars in sales will not be greater for small firms but will vary with the capacity of the plant. These results are not surprising because the mitigation costs are spread over the same revenue stream for a given size plant and technology regardless of the number of employees. If plant capacity or technology selection varies with the size of developer, we would expect effects to be disproportionate. Therefore, a more relevant question is "does new plant capacity or technology choice vary with the size of the proponent firm in the class of plants 25 megawatts to 350 megawatts?" Ecology's experience with previously constructed facilities indicates little relationship between plant capacity and proponent size.[13]

It appears that mostly large firms develop plants between 25 MW and 350 MW capacity. Even in cases where small firms develop plants, there is little evidence that plant capacity is related to the number of employees of the proponent. For both of these reasons, the proposed rule should not disproportionately affect smaller proponents more than large proponents.

SECONDARY IMPACTS: It is possible that some or all of the increased costs associated with the proposed rule revisions will be passed on to consumers in the form of higher electricity rates. For COUs and IOUs this would occur by including the increased cost in the utility rates approved by individual utility boards. For IPPs, higher prices would be determined within the market for wholesale power. Analysis by ecology found that it is unlikely that there will be disproportionate secondary impacts. The complete analysis can be found in the appendix.

Natural gas has been the most efficient fuel used for new electricity facilities in recent years. Raising the cost to develop these plants might lead to a reduction in the use of natural gas. However, any impact would depend on the cost of the other generation technologies like wind, and on the cost for other inputs like coal. To the extent that coal will also be subject to increased requirements for carbon mitigation and that wind is a site specific resource with a low capacity factor, it is unlikely that the increased costs from the proposed rule will change the generation technology choice at the margin.

CONCLUSION: Businesses engaged in the production of electricity will incur increased compliance costs as a result of the rule revisions. These costs will vary significantly with the plant characteristics. The most important characteristics affecting siting costs will be the generation technology, plant size and use of supplemental fuels. Ecology has analyzed several representative facilities and finds that the impacts on sales should be minimal and that the rule will not likely have disproportionate impacts.

4. BUSINESS INVOLVEMENT AND INDUSTRY.

ACTIONS TAKEN TO REDUCE THE IMPACT ON SMALL BUSINESS: As noted previously, the rule making is unlikely to have disproportionate impacts on smaller firms. Ecology's overall intent for this rule making

is to implement state law mitigating greenhouse gases. It is intended that the new rule will reduce the uncertainty associated with siting 25MW-350MW capacity electricity generation facilities in Washington and reduce the associated financial penalties. To the extent that this is a fixed cost, it will benefit firms with less output more than firms with greater output. Because the impacts are unlikely to be disproportionate, ecology did not further pursue the options for reducing costs to small businesses listed in RCW 19.85.030(3).

HOW WAS SMALL BUSINESS INVOLVED IN THE DEVELOPMENT OF THIS RULE? As mentioned previously, the stimulus for rule making came from legislation passed in 2004. Ecology began rule making in 2004 by drafting preliminary rule language and posting it for external stakeholder review. Written comments were taken through August, 2004. The proposed rule was also posted on ecology's website. Throughout the process, ecology has encouraged the participation of all entities in considering the impacts and outcomes of the proposed rules. This public process was open to both small and large businesses. Further input will be encouraged during the future draft rule public comment period.

LIST OF INDUSTRIES REQUIRED TO COMPLY: The most likely industries to which this rule will apply will be those involved in the production of electricity. Other firms that elect to develop co-generation facilities might also be included. Table 4.1 contains [9] a list of industries required to comply with the rule. The table was constructed based on air permitting data and market analysis. In general, the majority of plants are classified SIC Code 4911.

Table 4.1. Industries Likely to be Required to Comply with the Rule Revisions

SIC Code	Description
4911	Electric Services
4931	Electric and other services combined

[1] Due to size limitations relating to the filing of documents with the code reviser, the SBEIS does not contain the appendices that further explain ecology's analysis. Additionally, it does not contain the raw data used in this analysis, or all of ecology's analysis of this data. However, this information is being placed in the rule-making file, and is available upon request.

[2] See www.ecy.wa.gov/programs/air/psd/draft_rule_page.html for complete text.

[3] Typical mitigation projects include those that will offset emissions elsewhere such as energy efficiency programs and green power purchases.

[4] Chapter 19.85 RCW does not require analysis where the statute explicitly defines the requirements.

[5] Replacement of turbines "in-kind" for remanufacturing/repair is unlikely to result in increased mitigation cost as the replacement turbine is usually of similar size.

[6] A cost of $0 would occur in the case of a simple cycle natural gas CT with no reserve fuels. An additional cost of $1,086,000 would occur for a 172 megawatt (MW) plant with unlimited use of back-up diesel. The likely upper limit in additional cost would be a 349 MW plant with unlimited back-up fuel in which mitigation would be increased by approximately $2,000,000.

[7] These are known as "fixed" costs. Costs that depend on output levels are known as "variable" costs.

[8] Coal-fired plants were not considered since rule requirements for reserve fuel mitigation will not likely affect the required mitigation since coal is a highly emitting fuel source.

[9] Cost assumptions taken from "Wholesale Power Price Forecast for the Fifth Power Plan," NPPC, 2003.

[10] NPV is "net present value." Calculations assume a wholesale electricity price of $40/MWh.

[11] Assuming a wholesale price of $40/MWh.

[12] Data used is from NPPC "Power Plants of the Northwest," the Northwest Independent Power Producers Coalition, Washington Employment Security, corporate websites and personal contacts.

[13] All proponents with existing plants considered by ecology were large firms. Among these firms the correlation coefficient of capacity vs. number of employees was 0.09.

A copy of the statement may be obtained by contacting David Reich, Department of Ecology, P.O. Box 47600, Olympia, WA 98504-7600, phone (360) 407-6865, fax (360) 407-6989, e-mail DAVR461@ecy.wa.gov.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting David Reich, Department of Ecology, P.O. Box 47600, Olympia, WA 98504-7600, phone (360) 407-6865, fax (360) 407-6989, e-mail DAVR461@ecy.wa.gov.

October 18, 2004

Polly Zehm

Deputy Director

OTS-7503.2

Chapter 173-407 WAC

CARBON DIOXIDE MITIGATION PROGRAM FOR FOSSIL-FUELED THERMAL ELECTRIC GENERATING FACILITIES

NEW SECTION

WAC 173-407-010 Policy and purpose. (1) It is the policy of the state to require mitigation of the emissions of carbon dioxide (CO_2) from all new and certain modified fossil-fueled thermal electric generating facilities with station generating capability of more than 25 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 CO_2.

(a) Emissions of other regulated air pollutants must be a large enough quantity to trigger those requirements.

(b) For fossil-fueled thermal electric generating facilities that are subject to chapter 173-401 WAC, the CO_2 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.

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NEW SECTION

WAC 173-407-020 Definitions. The definitions in this section are found in RCW 80.70.010 (2004) and apply throughout this chapter unless clearly stated otherwise. The definitions are reprinted below.

(1) "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).

(2) "Authority" means any air pollution control agency whose jurisdictional boundaries are coextensive with the boundaries of one or more counties.

(3) "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 the council.

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

(5) "Cogeneration credit" means the carbon dioxide emissions that the council, department, or authority, as appropriate, estimates would be produced on an annual basis by a stand-alone industrial and commercial facility equivalent in operating characteristics and output to the industrial or commercial heating or cooling process component of the cogeneration plant.

(6) "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.

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

(8) "Council" means the energy facility site evaluation council created by RCW 80.50.030.

(9) "Department" means the department of ecology.

(10) "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.

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

(12) "Mitigation project" means one or more of the following:

(a) Projects or actions that are implemented by the certificateholder 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, the use of energy efficiency measures, clean and efficient transportation measures, qualified alternative energy resources, demand side management of electricity consumption, and 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 applicant and approved as part of a carbon dioxide mitigation plan.

(13) "Order of approval" means an order issued under RCW 70.94.152 with respect to a fossil-fueled thermal electric generation facility subject to RCW 80.70.020 (1)(b) or (d).

(14) "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.

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

(16) "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.

(17) "Total carbon dioxide emissions" means:

(a) For a fossil-fueled thermal electric generation facility described under RCW 80.70.020 (1)(a) and (b), the amount of carbon dioxide emitted over a thirty-year period based on the manufacturer's or designer's guaranteed total net station generating capability, new equipment heat rate, an assumed sixty percent capacity factor for facilities under the council's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, and taking into account any enforceable limitations on operational hours or fuel types and use; and

(b) For a fossil-fueled thermal electric generation facility described under RCW 80.70.020 (1)(c) and (d), the amount of carbon dioxide emitted over a thirty-year period based on the proposed increase in the amount of electrical output of the facility that exceeds the station generation capability of the facility prior to the applicant applying for certification or an order of approval pursuant to RCW 80.70.020 (1)(c) and (d), new equipment heat rate, an assumed sixty percent capacity factor for facilities under the council's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, and taking into account any enforceable limitations on operational hours or fuel types and use.

[]

NEW SECTION

WAC 173-407-030 Carbon dioxide mitigation program applicability. (1) **Statutory authority for a carbon dioxide mitigation program.** RCW 70.94.892(1) states that "*For fossil-fueled electric generation facilities having more than twenty-five thousand kilowatts station generating capability but less than three hundred fifty thousand kilowatts station generation capability, except for fossil-fueled floating thermal electric generation facilities under the jurisdiction of the energy facility site evaluation council pursuant to RCW 80.50.010, the department or authority shall implement a carbon dioxide mitigation program consistent with the requirements of chapter 80.70 RCW.*"

(2) **Statutory carbon dioxide mitigation program applicability requirements.** RCW 80.70.020 describes the applicability requirements and is reprinted below:

(1) The provisions of this chapter apply to:

(a) New fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more and fossil-fueled floating thermal electric generation facilities of one hundred thousand kilowatts or more under RCW 80.50.020 (14)(a), for which an application for site certification is made to the council after July 1, 2004;

(b) New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, for which an application for an order of approval has been submitted after July 1, 2004;

(c) Fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more that have an existing site certification agreement and, after July

1, 2004, apply to the council to increase the output of carbon dioxide emissions by fifteen percent or more through permanent changes in facility operations or modification or equipment; and

(d) Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that have an existing order of approval and, after July 1, 2004, apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its station-generating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.

(3) **New facilities.** Any fossil-fueled thermal electric generating facility is required to mitigate CO_2 emissions as described in chapter 80.70 RCW, if the facility meets the following criteria:

(a) An application was received after July 1, 2004;

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

(c) The facility is not a fossil-fueled floating thermal electric generation facility subject to regulation by the energy facility site evaluation council.

(4) **Modifications to existing facilities.** A fossil-fueled thermal electric generating facility seeking to modify the facility or any electrical generating units is required to mitigate the increase of the emission of CO_2, as described in RCW 80.70.020, when the following occur:

(a) The application was received after July 1, 2004;

(b) The unmodified station generating capability is more than 25 MWe and less than 350 MWe;

(c) The modification to the fossil-fueled thermal electric generating facility or units will increase electrical output by the greater of:

(i) At least 25 MWe; or

(ii) An increase in the annual emissions of CO_2 of 15% or more;

(d) The facility or the modification is not under the jurisdiction of the energy facility site evaluation council;

(5) **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 turbines (with and without duct burners) attached to an electric generator and supplying steam to a steam turbine - electric generator;

(d) Coal gasification units, or similar devices, where the synthesis gas produced is used to fuel a combustion turbine, boiler or similar device used to power an electric generator;

(e) Hydrocarbon reformer emissions where the hydrogen produced is used in a fuel cell.

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NEW SECTION

WAC 173-407-040 Carbon dioxide mitigation program fees. (1) **Statutory authorization.** RCW 70.94.892 authorizes the department to determine, assess, and collect fees sufficient to cover costs to review and approve or deny the carbon dioxide mitigation plan components of an order of approval. The order of approval will specify costs to monitor conformance related to the carbon dioxide mitigation plan.

(2) **Fees.** The fees for the carbon dioxide mitigation program are described in this section and listed in the table below. The fees listed are added to the fees established in chapters 173-400 and 173-401 WAC, when the carbon dioxide mitigation plan requirements are triggered.

Activity	**Fee**
a. Application Review	$65.00/hr[1] not to exceed $500.00
b. Mitigation Plan approval	
i. Payment to third party	$100[2]
ii. Purchase of CO_2 credits	$65.00/hr[3]
iii. Direct investment	$65.00/hr[4]
c. Routine Compliance Monitoring	
i. Payment to third party	$100[5] annually until full amount paid
ii. Purchase of CO_2 credits	$65.00/hr[6]
iii. Applicant Controlled Project	$65.00/hr[7]

[1]Estimated using an EE3 per hour rate with a cap.

[2]Small fee primarily to check math and that the source is using an EFSEC approved qualified organization.

[3]Estimated EE3 per hour rate to check that the credits purchased will be verifiable and from a reputable trading or marketing organization.

[4]Estimated using an EE3 per hour rate.

[5]Same as rationale for [2] above.

[6]Verify and confirm credits with the trading or marketing organization.

(3) The department or authority may use RCW 70.94.085 to structure a cost-reimbursement agreement with the applicant.

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NEW SECTION

WAC 173-407-050 Calculating total carbon dioxide emissions to be mitigated. (1) **Step 1 is to calculate the total quantity of CO_2.** The total quantity of CO_2 is referred to as the **maximum potential emissions of CO_2.** The maximum potential emissions of CO_2 is defined as the annual CO_2 emission rate. The annual CO_2 emission rate is derived by the following formula or similar analysis:

$$CO_{2rate} = F_s \times K_s \times T_s + F_1 \times K_1 \times T_1 + F_2 \times K_2 \times T_2 + F_3 \times K_3 \times T_{3\ldots} + F_n \times K_n \times T_n$$

2204.6 2204.6 2204.6 2204.6 2204.6

$CO_{2\ rate}$	=	Maximum potential emissions in metric tons per year
F_{1-n}	=	Maximum design fuel firing rate in mmBtu/hour calculated as manufacturer/designer's guaranteed total net station generating capability in MWe times the new equipment heat rate in Btu/MWe
K_{1-n}	=	Conversion factor for the fuel(s) being evaluated in lb CO_2/mmBtu for fuel F_n
T_{1-n}	=	Hours per year fuel 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
K_s	=	Conversion factor for the supplemental fuel being evaluated in lb CO_2/mmBtu for fuel F_n given fuel
T_s	=	Hours per year supplemental fuel F_n 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 will be performed for each unit and the total CO_2 emissions of all units will be summed.

(b) When a unit or facility is allowed to use multiple fuels, the maximum allowed hours on the highest CO_2 producing fuels will be utilized for each fuel until the total of all hours per fuel add up to the allowable annual hours.

(c) When a new unit or facility is allowed to use multiple fuels without restriction in its approval order(s), this calculation will be performed assuming that the fuel with the highest CO_2 emission rate is used 100% of the time.

(d) When the annual operating hours are restricted for any reason, the total of all T_{1-n} hours equals the annual allowable hours of operation in the Order of Approval.

(e) Fuel to CO_2 conversion factors:

Fuel	K_n lb/mmBtu
#2 oil	158.16
#4 oil	160.96
#6 oil	166.67
Lignite	328.57
Sub-bituminous coal	282.94
Bituminous coal, low volatility	312.50
Bituminous coal, medium volatility	274.55
Bituminous coal, high volatility	306.11
Natural gas	117.6
Propane	136.61
Butane	139.38
Petroleum coke	242.91
Coal coke	243.1
Other fuels	Calculate based on carbon content of the fossil fuel and

application of the gross heat content (higher heating value) of the fuel

(2) **Step 2 - Insert the annual CO_2 rate to determine the total carbon dioxide emissions to be mitigated.** The formula below includes specifications that are part of the total carbon dioxide definition:

Total CO_2 Emissions = CO_{2rate} x 30 x 0.6

(3) **Step 3 - Determine and apply the cogeneration credit (if any).** Where the cogeneration unit or facility qualifies for cogeneration credit, the cogeneration credit is the annual CO_2 emission rate (in metric tons per year) and is calculated as shown below or similar method:

$$CO_{2credit} = \frac{H_s}{2204.6} (K_a) \div .35$$

Where cogeneration credit	=	The annual CO_2 credit for cogeneration 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 average CO_2 emission rate constant for the cogeneration plant in lb CO_2/mmBtu supplied. The time weighted average is calculated similarly to the above method described in subsection (1) of this section.

Cogeneration Credit = $CO_{2credit}$ x 30

(4) **Step 4 - Apply the mitigation factor.**

(a) RCW 80.70.020(4) states that "*Fossil-fueled thermal electric generation facilities that receive site certification approval or an order of approval shall provide mitigation for twenty percent of the total carbon dioxide emissions produced by the facility*."

(b) The CO_2 emissions mitigation quantity is determined by the following formula:

Mitigation Quantity = Total CO_2 Emissions x 0.2 - Cogeneration Credit

Mitigation quantity	=	The total CO_2 emissions to be mitigated in metric tons
CO_{2rate}	=	The annual maximum CO_2 emissions from the generating facility in tons/year
0.2	=	The mitigation factor in RCW 80.70.020(4)

(5) Additional restrictions for modifications to an existing facility not involving installation of new generating units. The quantity of CO_2 to be mitigated is calculated by the same methods used for the new generating units with the following restrictions:

(a) The quantity of CO_2 subject to mitigation is only that resulting from the modification and does not include the CO_2 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 CO_2 mitigation program requirements.

(c) The annual emissions ($CO_{2\ rate}$) is the difference between the premodification condition and the postmodification condition, but using the like new heat rate for the combustion equipment.

(d) The cogeneration credit may be used, but only if it is a new cogeneration credit, not a cogeneration agreement or arrangement established prior to July 1, 2004, or used in a prior CO_2 mitigation evaluation.

[7]Review reports and document project progress.

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NEW SECTION

WAC 173-407-060 Carbon dioxide mitigation plan requirements and options. (1) **Once the total carbon dioxide emissions mitigation quantity is calculated, what is next?** The facility must mitigate that level of carbon dioxide emissions. A CO_2 mitigation plan is required and must be approved as part of the order of approval. RCW 80.70.020 (2)(b) states that "*For fossil-fueled thermal electric generation facilities not under jurisdiction of the council, the order of approval shall require an approved carbon dioxide mitigation plan*." A mitigation plan is a proposal that includes the process or means to achieve carbon dioxide mitigation through use of mitigation projects or carbon credits (RCW 80.70.010).

(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:*

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

(b) Direct purchase of permanent carbon credits; or

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

(3) **What are the requirements of the payment to a third party option?** The payment to a third party option requirements are found in RCW 80.70.020 (5) and (6). Subsection (5) identifies the mitigation rate for this option and describes the process for changing the mitigation rate. Subsection (6) describes the payment options.

The initial mitigation rate is **$1.60 per metric ton** of carbon dioxide to be mitigated. If there is 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 the energy facility site evaluation council adjusts it through the process described in RCW 80.70.020 (5)(a) and (b). The total payment amount = mitigation rate x mitigation quantity.

An applicant may choose between **a lump sum payment or partial payment over a period of five years.** The **lump sum payment** is described in RCW 80.70.020 (6)(a) and (b). The payment amount is the mitigation quantity multiplied by the per ton mitigation rate. The entire payment amount is due to the independent qualified organization no later than one hundred twenty days after the start of commercial operation.

The alternative to a one-time payment is a **partial payment** described in RCW 80.70.020 (6)(c). Under this alternative, twenty percent of the total payment is due to the independent qualified organization no later than one hundred twenty days after the start of commercial operation. A payment of the same amount (or an adjusted amount if the rate is changed under RCW 80.70.020 (5)(a)) is due on the anniversary date of the initial payment for the next four consecutive years. In addition, the applicant is required to provide a letter of credit or comparable security for the remaining 80% at the time of the first payment. The letter of credit (or comparable security) must also include possible rate changes.

(4) **What are the requirements of the permanent carbon credits option?** RCW 80.70.030 identifies the criteria and specifies that these credits cannot be resold without approval from the local air authority having jurisdiction or ecology where there is no local air authority. The permanent carbon credit criteria of RCW 80.70.030(1) is as follows:

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

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

(c) The credits may not have been used for other carbon dioxide mitigation projects.

(5) **What are the requirements for the applicant controlled mitigation projects option?** RCW 80.70.040 identifies the requirements for applicant controlled mitigation projects. Subsections (1) through (5) specify the criteria. Subsection (6) specifies that if federal requirements are adopted for carbon dioxide mitigation for fossil-fueled thermal electric generation facilities, ecology or the local air authority may deem the federal requirements equivalent and replace RCW 80.70.040 with the federal requirements.

The applicant controlled mitigation project must be:

(a) Implemented through mitigation projects conducted directly by, or under the control of, order of approval holder. (Section 1);

(b) Approved by the authority having jurisdiction or the department where there is no local air authority and incorporated as a condition of the proposed order of approval. (Section 2);

(c) Fully in place within a reasonable time after the start of commercial operation. Failure to implement an approved mitigation plan is subject to enforcement under chapter 70.94 RCW. (Section 3)

In addition, an 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. (Section 4)

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NEW SECTION

WAC 173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval. (1) Applicants must provide the department or authority with a statement selecting the mitigation option(s) at the time the application is submitted.

(2) Applicants choosing to use the payment to a third party or the permanent carbon credit option must provide the department or the authority, as appropriate, with the documentation to show how the requirements will be satisfied before an order or approval will be issued.

(3) Applicants seeking to use the applicant controlled mitigation projects option must submit the entire mitigation plan to the department or the authority. The department or authority having jurisdiction will review the plan. Under RCW 70.94.892 (2)(b), the review criteria is based on whether the mitigation plan is consistent with the requirements of chapter 80.70 RCW.

(4) Upon completing the review phase, the department or the authority having jurisdiction must approve or deny the mitigation plan.

(5) Approved mitigation plans become part of the order of approval.

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NEW SECTION

WAC 173-407-080 Enforcement. Applicants or facilities violating the carbon dioxide mitigation program requirements are subject to the enforcement provisions of chapter 70.94 RCW.

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NEW SECTION

WAC 173-407-090 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.

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Appendix D
Rule Text

[1] OTS-7503.3

Chapter 173-407 WAC
CARBON DIOXIDE MITIGATION PROGRAM FOR FOSSIL-FUELED THERMAL ELECTRIC GENERATING FACILITIES

NEW SECTION

WAC 173-407-010 Policy and purpose. (1) It is the policy of the state to require mitigation of the emissions of carbon dioxide (CO_2) from all new and certain modified fossil-fueled thermal electric generating facilities with station-generating capability of more than 25 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 CO_2.

(a) Emissions of other regulated air pollutants must be a large enough quantity to trigger those requirements.

(b) For fossil-fueled thermal electric generating facilities that are subject to chapter 173-401 WAC, the CO_2 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.

NEW SECTION

WAC 173-407-020 Definitions. The definitions in this section are found in RCW 80.70.010 (2004) and apply throughout this chapter unless clearly stated otherwise. The definitions are reprinted below.

(1) "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).

(2) "Authority" means any air pollution control agency whose jurisdictional boundaries are coextensive with the

[2] OTS-7503.3 boundaries of one or more counties.

(3) "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 the council.

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

(5) "Cogeneration credit" means the carbon dioxide emissions that the council, department, or authority, as

appropriate, estimates would be produced on an annual basis by a stand-alone industrial and commercial facility equivalent in operating characteristics and output to the industrial or commercial heating or cooling process component of the cogeneration plant.
(6) "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.
(7) "Commercial operation" means the date that the first electricity produced by a facility is delivered for commercial sale to the power grid.
(8) "Council" means the energy facility site evaluation council created by RCW 80.50.030.
(9) "Department" means the department of ecology.
(10) "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.
(11) "Mitigation plan" means a proposal that includes the process or means to achieve carbon dioxide mitigation through use of mitigation projects or carbon credits.
(12) "Mitigation project" means one or more of the following:
(a) Projects or actions that are implemented by the certificateholder 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, the use of energy efficiency measures, clean and efficient transportation measures, qualified alternative energy resources, demand side management of electricity consumption, and 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 [3] OTS-7503.3 or carbon dioxide equivalents through process change, equipment shutdown, or other activities under the control of the applicant and approved as part of a carbon dioxide mitigation plan.
(13) "Order of approval" means an order issued under RCW 70.94.152 with respect to a fossil-fueled thermal electric generation facility subject to RCW 80.70.020 (1)(b) or (d).
(14) "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.
(15) "Qualified alternative energy resource" has the same meaning as in RCW 19.29A.090.

(16) "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.
(17) "Total carbon dioxide emissions" means:
(a) For a fossil-fueled thermal electric generation facility described under RCW 80.70.020 (1)(a) and (b), the amount of carbon dioxide emitted over a thirty-year period based on the manufacturer's or designer's guaranteed total net station generating capability, new equipment heat rate, an assumed sixty percent capacity factor for facilities under the council's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, and taking into account any enforceable limitations on operational hours or fuel types and use; and
(b) For a fossil-fueled thermal electric generation facility described under RCW 80.70.020 (1)(c) and (d), the amount of carbon dioxide emitted over a thirty-year period based on the proposed increase in the amount of electrical output of the facility that exceeds the station generation capability of the facility prior to the applicant applying for certification or an order of approval pursuant to RCW 80.70.020 (1)(c) and (d), new equipment heat rate, an assumed sixty percent capacity factor for facilities under the council's jurisdiction or sixty percent of the operational limitations on facilities subject to an order of approval, and taking into account any enforceable limitations on operational hours or fuel types and use.
[4] OTS-7503.3
NEW SECTION
WAC 173-407-030 Carbon dioxide mitigation program applicability. (1) **Statutory authority for a carbon dioxide mitigation program.** RCW 70.94.892(1) states that "*For fossil fueled electric generation facilities having more than twenty-five thousand kilowatts station generating capability but less than three hundred fifty thousand kilowatts station generation capability, except for fossil-fueled floating thermal electric generation facilities under the jurisdiction of the energy facility site evaluation council pursuant to RCW 80.50.010, the department or authority shall implement a carbon dioxide mitigation program consistent with the requirements of chapter 80.70 RCW.*"
(2) **Statutory carbon dioxide mitigation program applicability requirements.** RCW 80.70.020 describes the applicability requirements and is reprinted below:
(1) The provisions of this chapter apply to:
(a) New fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more and fossil-fueled floating thermal electric generation facilities of one hundred thousand kilowatts or more under

RCW 80.50.020 (14)(a), for which an application for site certification is made to the council after July 1, 2004;
(b) New fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, for which an application for an order of approval has been submitted after July 1, 2004;
(c) Fossil-fueled thermal electric generation facilities with station-generating capability of three hundred fifty thousand kilowatts or more that have an existing site certification agreement and, after July 1, 2004, apply to the council to increase the output of carbon dioxide emissions by fifteen percent or more through permanent changes in facility operations or modification or equipment; and
(d) Fossil-fueled thermal electric generation facilities with station-generating capability of more than twenty-five thousand kilowatts, but less than three hundred fifty thousand kilowatts, except for fossil-fueled floating thermal electric generation facilities under the council's jurisdiction, that
[5] OTS-7503.3
have an existing order of approval and, after July 1, 2004, apply to the department or authority, as appropriate, to permanently modify the facility so as to increase its stationgenerating capability by at least twenty-five thousand kilowatts or to increase the output of carbon dioxide emissions by fifteen percent or more, whichever measure is greater.
(3) **New facilities.** Any fossil-fueled thermal electric generating facility is required to mitigate CO_2 emissions as described in chapter 80.70 RCW, if the facility meets the following criteria:
(a) An application was received after July 1, 2004;
(b) The station-generating capability is below 350 MWe and above 25 MWe;
(c) The facility is not a fossil-fueled floating thermal electric generation facility subject to regulation by the energy facility site evaluation council.
(4) **Modifiying existing fossil-fueled thermal electric generating facilities.** A fossil-fueled thermal electric generating facility seeking to modify the facility or any electrical generating units is required to mitigate the increase of the emission of CO_2, as described in RCW 80.70.020, when the following occur:
(a) The application was received after July 1, 2004;
(b) The unmodified station generating capability is more than 25 MWe and less than 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 more

than 25 MWe; or
(ii) An increase in CO_2 emissions output by 15% or more;
(d) The facility or the modification is not under the jurisdiction of the energy facility site evaluation council.
(5) **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 turbines (with and without duct burners) attached to an electric generator and supplying steam to a steam turbine - electric generator;
(d) Coal gasification units, or similar devices, where the synthesis gas produced is used to fuel a combustion turbine, boiler or similar device used to power an electric generator;
(e) Hydrocarbon reformer emissions where the hydrogen produced is used in a fuel cell.
[6] OTS-7503.3
NEW SECTION
WAC 173-407-040 Carbon dioxide mitigation program fees.
(1) **Statutory authorization.** RCW 70.94.892 authorizes the department to determine, assess, and collect fees sufficient to cover costs to review and approve or deny the carbon dioxide mitigation plan components of an order of approval. The order of approval will specify costs to monitor conformance related to the carbon dioxide mitigation plan.
(2) **Fees.** The fees for the carbon dioxide mitigation program are described in this section and listed in the table below. The fees listed are added to the fees established in chapters 173-400 and 173-401 WAC, when the carbon dioxide mitigation plan requirements are triggered. **Activity Fee**
a. Application Review $65.00/hr[1] not to exceed $500.00
b. Mitigation Plan approval
i. Payment to third party $100[2]
ii. Purchase of CO_2 credits $65.00/hr[3]
iii. Direct investment $65.00/hr[4]
c. Routine Compliance Monitoring
i. Payment to third party $100[5] annually until full amount paid
ii. Purchase of CO_2 credits $65.00/hr[6]
iii. Applicant Controlled Project $65.00/hr[7]

[1]Estimated using an EE3 per hour rate with a cap.
[2]Small fee primarily to check math and that the source is using an EFSEC approved qualified organization.
[3]Estimated EE3 per hour rate to check that the credits purchased will be verifiable and from a reputable trading or marketing organization.
[4]Estimated using an EE3 per hour rate.
[5]Same as rationale for 2 above.

[6]Verify and confirm credits with the trading or marketing organization.

(3) The department or authority may use RCW 70.94.085 to structure a cost-reimbursement agreement with the applicant.

[7] OTS-7503.3

NEW SECTION

WAC 173-407-050 Calculating total carbon dioxide emissions to be mitigated. (1) **Step 1 is to calculate the total quantity of CO_2.** The total quantity of CO_2 is referred to as the **maximum potential emissions of CO_2.** The maximum potential emissions of CO_2 is defined as the annual CO_2 emission rate. The annual CO_2 emission rate is derived by the following formula unless a differing analysis is necessary or appropriate for the electric generating process and type of equipment: $CO_{2rate} = F_s \times K_s \times T_s + F_1 \times K_1 \times T_1 + F_2 \times K_2 \times T_2 + F_3 \times K_3 \times T_3 \ldots + F_n \times K_n \times T_n$

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$CO_{2\ rate}$ = Maximum potential emissions in metric tons per year

F_{1-n} = Maximum design fuel firing rate in MMBtu/hour calculated as manufacturer/designer's guaranteed total net station generating capability in MWe times the new equipment heat rate in Btu/MWe

K_{1-n} = Conversion factor for the fuel(s) being evaluated in lb CO_2/mmBtu for fuel F_n

T_{1-n} = Hours per year fuel 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

K_s = Conversion factor for the supplemental fuel being evaluated in lb CO_2/MMBtu for fuel F_n given fuel

T_s = Hours per year supplemental fuel F_n 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 will be performed for each unit and the total CO_2 emissions of all units will be summed.

(b) When a unit or facility is allowed to use multiple fuels, the maximum allowed hours on the highest CO_2 producing fuels will be utilized for each fuel until the total of all hours per fuel add up to the allowable annual hours.

(c) When a new unit or facility is allowed to use multiple fuels without restriction in its approval order(s), this calculation will be performed assuming that the fuel with the highest CO_2 emission rate is used 100% of the time.

(d) When the annual operating hours are restricted for any reason, the total of all T_{1-n} hours equals the annual allowable hours of operation in the Order of Approval.

(e) Fuel to CO_2 conversion factors (derived from the EPA's AP-42, Compilation of Air Pollutant Emmission Factors):

[8] OTS-7503.3

Fuel K_n lb/MMBtu

#2 oil 158.16

#4 oil 160.96

#6 oil 166.67

Lignite 328.57

Sub-bituminous coal 282.94

Bituminous coal, low volatility 312.50

Bituminous coal, medium

volatility
274.55
Bituminous coal, high
volatility
306.11
Natural gas 117.6
Propane 136.61
Butane 139.38
Petroleum coke 242.91
Coal coke 243.1
Other fossil-fuels Calculate based on carbon
content of the fossil fuel
and application of the gross
heat content (higher
heating value) of the fuel
Nonfossil-fuels 00.00

(2) **Step 2 - Insert the annual CO_2 rate to determine the total carbon dioxide emissions to be mitigated.** The formula below includes specifications that are part of the total carbon dioxide definition:

Total CO_2 Emissions = CO_{2rate} x 30 x 0.6

(3) **Step 3 - Determine and apply the cogeneration credit (if any).** Where the cogeneration unit or facility qualifies for cogeneration credit, the cogeneration credit is the annual CO_2 emission rate (in metric tons per year) and is calculated as shown below or similar method: $CO_{2credit} = H_s (K_a) \div .35$
2204.6
Where
cogeneration
credit
= The annual CO_2 credit for cogeneration 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.
[9] OTS-7503.3
K_a = The time weighted average CO_2 emission rate constant for the cogeneration plant in lb CO_2/MMBtu supplied. The time weighted average is calculated similarly to the above method described in subsection (1) of this section. **Cogeneration Credit = $CO_{2credit}$ x 30**

(4) **Step 4 - Apply the mitigation factor.**

(a) RCW 80.70.020(4) states that "*Fossil-fueled thermal electric generation facilities that receive site certification approval or an order of approval shall provide mitigation for twenty percent of the total carbon dioxide emissions produced by the facility*."

(b) The CO_2 emissions mitigation quantity is determined by the following formula: **Mitigation Quantity = Total CO_2 Emissions x 0.2 - Cogeneration Credit**
Mitigation quantity = The total CO_2 emissions to be mitigated in metric tons
CO_{2rate} = The annual maximum CO_2 emissions from the generating facility in tons/year
0.2 = The mitigation factor in RCW 80.70.020(4)

(5) Additional restrictions for modifications to an existing facility not involving installation of new generating units. The quantity of CO_2 to be mitigated is calculated by the same methods used for the new generating units with the following restrictions:

(a) The quantity of CO_2 subject to mitigation is only that resulting from the modification and does not include the CO_2

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 CO_2 mitigation program requirements.
(c) The annual emissions ($CO_{2\ rate}$) is the difference between the premodification condition and the postmodification condition, but using the like new heat rate for the combustion equipment.
(d) The cogeneration credit may be used, but only if it is a new cogeneration credit, not a cogeneration agreement or arrangement established prior to July 1, 2004, or used in a prior CO_2 mitigation evaluation.
7Review reports and document project progress.
[10] OTS-7503.3
NEW SECTION
WAC 173-407-060 Carbon dioxide mitigation plan requirements and options. (1) **Once the total carbon dioxide emissions mitigation quantity is calculated, what is next?** The facility must mitigate that level of carbon dioxide emissions. A CO_2 mitigation plan is required and must be approved as part of the order of approval. RCW 80.70.020 (2)(b) states that "*For fossil-fueled thermal electric generation facilities not under jurisdiction of the council, the order of approval shall require an approved carbon dioxide mitigation plan*." A mitigation plan is a proposal that includes the process or means to achieve carbon dioxide mitigation through use of mitigation projects or carbon credits (RCW 80.70.010).
(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:*
(a) Payment to a third party to provide mitigation;
(b) Direct purchase of permanent carbon credits; or
(c) Investment in applicant-controlled carbon dioxide mitigation projects, including combined heat and power (cogeneration)."
(3) **What are the requirements of the payment to a third party option?** The payment to a third party option requirements are found in RCW 80.70.020 (5) and (6). Subsection (5)identifies the mitigation rate for this option and describes the process for changing the mitigation rate. Subsection (6) describes the payment options. The initial mitigation rate is **$1.60 per metric ton** of carbon dioxide to be mitigated. If there is 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 the energy facility site evaluation council adjusts it through the process

described in RCW 80.70.020 (5)(a) and (b). The total payment amount = mitigation rate x mitigation quantity.
An applicant may choose between **a lump sum payment or partial payment over a period of five years.** The **lump sum payment** is described in RCW 80.70.020 (6)(a) and (b). The payment amount is the mitigation quantity multiplied by the per ton mitigation rate. The entire payment amount is due to the independent qualified organization no later than one hundred [11] OTS-7503.3 twenty days after the start of commercial operation. The alternative to a one-time payment is a **partial payment** described in RCW 80.70.020 (6)(c). Under this alternative, twenty percent of the total payment is due to the independent qualified organization no later than one hundred twenty days after the start of commercial operation. A payment of the same amount (or an adjusted amount if the rate is changed under RCW 80.70.020 (5)(a)) is due on the anniversary date of the initial payment for the next four consecutive years. In addition, the applicant is required to provide a letter of credit or comparable security for the remaining 80% at the time of the first payment. The letter of credit (or comparable security) must also include possible rate changes.
(4) **What are the requirements of the permanent carbon credits option?** RCW 80.70.030 identifies the criteria and specifies that these credits cannot be resold without approval from the local air authority having jurisdiction or ecology where there is no local air authority. The permanent carbon credit criteria of RCW 80.70.030(1) is as follows:
(a) Credits must derive from real, verified, permanent, and enforceable carbon dioxide or carbon dioxide equivalents emission mitigation not otherwise required by statute, regulation, or other legal requirements;
(b) The credits must be acquired after July 1, 2004; and
(c) The credits may not have been used for other carbon dioxide mitigation projects.
(5) **What are the requirements for the applicant controlled mitigation projects option?** RCW 80.70.040 identifies the requirements for applicant controlled mitigation projects. Subsections (1) through (5) specify the criteria. Subsection (6) specifies that if federal requirements are adopted for carbon dioxide mitigation for fossil-fueled thermal electric generation facilities, ecology or the local air authority may deem the federal requirements equivalent and replace RCW 80.70.040 with the federal requirements. The applicant controlled mitigation project must be:
(a) Implemented through mitigation projects conducted directly by, or under the control of, order of approval holder. (Section 1);
(b) Approved by the authority having jurisdiction or the department where there is no local air authority and incorporated as a condition of the proposed order of approval. (Section 2);

(c) Fully in place within a reasonable time after the start of commercial operation. Failure to implement an approved mitigation plan is subject to enforcement under chapter 70.94 RCW. (Section 3)
In addition, an order of approval holder may not use more than twenty percent of the total funds for the selection, [12] OTS-7503.3 monitoring, and evaluation of mitigation projects and the management and enforcement of contracts. (Section 4)
NEW SECTION
WAC 173-407-070 Carbon dioxide mitigation option statement and mitigation plan approval. (1) Applicants must provide the department or authority with a statement selecting the mitigation option(s) at the time the application is submitted.
(2) Applicants choosing to use the payment to a third party or the permanent carbon credit option must provide the department or the authority, as appropriate, with the documentation to show how the requirements will be satisfied before an order or approval will be issued.
(3) Applicants seeking to use the applicant controlled mitigation projects option must submit the entire mitigation plan to the department or the authority. The department or authority having jurisdiction will review the plan. Under RCW 70.94.892 (2)(b), the review criteria is based on whether the mitigation plan is consistent with the requirements of chapter 80.70 RCW.
(4) Upon completing the review phase, the department or the authority having jurisdiction must approve or deny the mitigation plan.
(5) Approved mitigation plans become part of the order of approval.
NEW SECTION
WAC 173-407-080 Enforcement. Applicants or facilities violating the carbon dioxide mitigation program requirements are subject to the enforcement provisions of chapter 70.94 RCW.
NEW SECTION
WAC 173-407-090 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.