



# Oregon

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**Date:** November 30, 2017

**To:** Oregon Energy Facility Siting Council (EFSC)

**From:** Jason Sierman, Policy Analyst  
Todd Cornett, Siting Division Administrator

**Subject:** Agenda Item H (Action Item) Rulemaking: Phase 2 Updates to Carbon Dioxide (CO<sub>2</sub>) Standards for the December 14-15, 2017 Council Meeting

- 1) Define the purpose and scope for a rulemaking project to amend the Council's CO<sub>2</sub> Emissions Standards;
- 2) Define the purpose and scope for the Rulemaking Advisory Committee (RAC) for this rulemaking project; and
- 3) Appoint a RAC for this rulemaking project.

## Overview

At its January 19, 2017 Council meeting, the Council approved its rulemaking schedule for 2017. In doing so, the Council split its rulemaking project to update its CO<sub>2</sub> emissions standards into two separate and distinct rulemaking projects, a Phase 1 project and a Phase 2 project. The differences between Phase 1 and Phase 2 are discussed in more detail below. The Phase 1 project is complete, with new rule language effective as of October 23, 2017.

EFSC staff has completed preliminary work on the Phase 2 rulemaking project. This update will evaluate and potentially amend the Council's CO<sub>2</sub> emissions standards. In order to amend the standard, the Council must determine that the most efficient stand-alone combined cycle, combustion turbine (CCCT), natural gas-fired energy facility that is commercially demonstrated and operating in the United States has a net heat rate less than 6,995 Btu per kilowatt hour higher heating value adjusted to ISO conditions. According to OAR 345-024-0570, any change to the Council's CO<sub>2</sub> emissions standards must be based on finding this most efficient CCCT energy facility in the U.S.

To proceed with the Phase 2 project, staff recommends the Council: set the scope of this rulemaking project; appoint a Rulemaking Advisory Committee (RAC); and set the scope of the RAC's purpose.

## Purpose and Scope of the Phase 2 CO<sub>2</sub> Rulemaking Project

The administrative rules promulgating the Council's CO<sub>2</sub> standards are collectively located in Chapter 345, Division 24 – they begin at OAR 345-024-0500 and end at 345-024-0720. Within this set of rules, the Council has identified three specific issues to address in 2017:

- 1) Phase 2 - evaluate and update the CO<sub>2</sub> emissions standards for *base load gas plants*<sup>1</sup>, *non-base load power plants*<sup>2</sup> and *nongenerating energy facilities*<sup>3</sup>;
- 2) Phase 1 [**complete**] - evaluate and update the monetary offset rate per ton of CO<sub>2</sub> emissions; and

- 3) Phase 1 [**complete**] - update the CO<sub>2</sub> equivalency weights for methane and nitrous oxide under the standard for nongenerating energy facilities. The following is a summary of the specific rules that could be amended as part of these updates:

Phase 2 – Updates to CO<sub>2</sub> Standards:

- 1) Evaluate and update the CO<sub>2</sub> emissions standards under:
  - OAR 345-024-0570 Modification of the Standard for Base Load Gas Plants,
  - OAR 345-024-0550 Standard for Base Load Gas Plants,
  - OAR 345-024-0590 Standard for Non-Base Load Power Plants, and
  - OAR 345-024-0620 Standard for Nongenerating Energy Facilities

Phase 1 - Updates to CO<sub>2</sub> Standards (Complete and Effective 10/23/17):

- 2) New monetary offset rate under OAR 345-024-0580 is now \$1.90 per ton of CO<sub>2</sub>
- 3) CO<sub>2</sub> equivalency weights for methane and nitrous oxide under OAR 345-024-0620 are respectively now 25 and 298 pounds of CO<sub>2</sub>.

**Purpose and Function of the CO<sub>2</sub> Emissions Standards**

The purpose of the Council's CO<sub>2</sub> emissions standards are two-fold. The first purpose is to encourage applicants proposing a fossil-fueled energy facility to build the most efficient facility possible, thereby directly reducing the gross amount of CO<sub>2</sub> emitted from fossil-fueled energy facilities sited within the Council's jurisdiction. The second purpose is to reduce the net amount of greenhouse gasses (GHGs) attributable to fossil-fueled energy facilities sited within the Council's jurisdiction. The Council's standards accomplish these two purposes by:

- 1) Setting standards for the net CO<sub>2</sub> emissions rate for CO<sub>2</sub> emitting energy facilities sited within Council jurisdiction; and
- 2) Requiring site certificate applicants that propose a facility subject to the standards to offset that energy facility's gross CO<sub>2</sub> emissions by the amount that facility's gross CO<sub>2</sub> emissions exceed the set standards for the net CO<sub>2</sub> emissions rate. As further described below, there are three pathways to compliance with this rule, but to date, all applicants have complied with the standard by making monetary offset payments to a qualified organization (The Climate Trust).

This design requires applicants to offset those gross CO<sub>2</sub> emissions that exceed the set standards, and is intended to provide an incentive for applicants to directly reduce CO<sub>2</sub> emissions by proposing efficient energy facilities that emit CO<sub>2</sub> at rates as close to the set standards as possible.

As specified under ORS 469.503(2) and OAR 345-024-0500 through -0720, the Council's current CO<sub>2</sub> emissions standards set the net CO<sub>2</sub> emissions rate at 0.675 lb. CO<sub>2</sub>/kWh for CO<sub>2</sub> emitting energy facilities within EFSC jurisdiction.<sup>4</sup> Energy facilities subject to these standards may emit CO<sub>2</sub> at a net rate below 0.675 lb. CO<sub>2</sub>/kWh without needing to offset those CO<sub>2</sub> emissions any further, and any emissions above the net rate of 0.675 lb. CO<sub>2</sub>/kWh must be offset via one of the

compliance pathway options outlined in rule (as noted, to date all applicants have complied with the CO<sub>2</sub> emissions standards by providing monetary offset funds to a qualified organization, The Climate Trust).

ORS 469.503(2) and OAR 345-024-0500 through -0720 also specify the means by which energy facilities subject to the CO<sub>2</sub> standards are allowed to offset CO<sub>2</sub> emissions. The specified means are commonly called the compliance pathways. The statute and rules limit the compliance pathways to any combination of the following three options:

- 1) the facility sequentially produces electrical and thermal energy from the same fuel source, and the thermal energy will be used to displace another source of CO<sub>2</sub> emissions that would have otherwise continued to occur;
- 2) the applicant or a third party implements particular CO<sub>2</sub> offset projects; and
- 3) the applicant or a third party agrees to provide funds in an amount deemed sufficient to produce the reduction in CO<sub>2</sub> emissions necessary to meet the applicable CO<sub>2</sub> standard (this third option is deemed the “Monetary Path Payment Requirement” under OAR 345-024-0710).

To date, all energy facilities subject to the Council’s CO<sub>2</sub> standards have complied with the standards through the monetary path, either singularly or in combination with other options, to meet the CO<sub>2</sub> standards. The amount of funds required by the monetary path is calculated by multiplying the tons of CO<sub>2</sub> reduction required to meet the applicable CO<sub>2</sub> standard by the “monetary offset rate,” which is specified under OAR 345-024-0580. Currently the monetary offset rate is \$1.90 per ton of CO<sub>2</sub> emissions.

### **History of Updates and Current Need to Update**

In 1997, ORS 469.503(2)(a) established the initial CO<sub>2</sub> emissions standard for base load gas plants at 0.70 lb. CO<sub>2</sub>/kWh. The statute requires the CO<sub>2</sub> emissions standard to be set at 17% below the most efficient gas plant operating in the United States. The initial standard was derived from a benchmark gas plant with a heat rate of 7,200 BTU/kWh. A heat rate is a measure of how efficient a thermal power plant is. It considers how much fuel energy, measured in British Thermal Units (BTUs), is used to produce 1 kilowatt-hour (kWh) of electricity. A heat rate can also be expressed in terms of an efficiency percentage. For example, the 1997 benchmark gas plant with a heat rate of 7,200 BTU/kWh was roughly 47% efficient.

The 1997 standard of 0.70 lb. CO<sub>2</sub>/kWh was derived from 7,200 BTU/kWh by using the conversion factor of 117 pounds of CO<sub>2</sub> per million BTU of combusted natural gas fuel. The conversion yields 0.8424 lb. CO<sub>2</sub>/kWh, and 0.70 lb. CO<sub>2</sub>/kWh represents a 17% reduction from 0.8424 lb. CO<sub>2</sub>/kWh.

ORS 469.503(2)(a) and OAR 345-024-0570 authorize the Council to modify the emissions standard for base load gas plants through rulemaking any time the Council finds sufficient evidence that gas plant efficiency has improved relative to the benchmark heat rate (the

benchmark heat rate is specified in OAR 345-024-0570). This authority gives the Council the ability to ensure that the net CO<sub>2</sub> emission rates of CO<sub>2</sub> emitting energy facilities sited within Council jurisdiction remain 17% below the CO<sub>2</sub> emission rate of the most efficient gas plant operating in the U.S. at any given time.

In January 2000, the Council found that the most efficient gas plant operating in the U.S. had a heat rate of 6,955 BTU/kWh (~49% efficiency). Based on this finding, the Council took action to modify its CO<sub>2</sub> standards by updating the benchmark heat rate to 6,955 BTU/kWh, calculating a 17% reduction (5,773 BTU/kWh), and converting that 17% reduction from 5,773 BTU/kWh to 0.675 lb. CO<sub>2</sub>/kWh. The 2000 rulemaking modified the CO<sub>2</sub> standard for base load gas plants to 0.675 lb. CO<sub>2</sub>/kWh and modified the standards for non-base load power plants and nongenerating energy facilities to the equivalent of 0.675 lb. CO<sub>2</sub>/kWh.

In the nearly 18 years since 2000, the power industry has experienced continuous improvements in power plant efficiency. Preliminary research suggests there may be natural gas-fired power plants in the U.S. operating at efficiencies upward of 60%. A power plant that is 60% efficient has a corresponding heat rate of roughly 5,690 BTU/kWh. Compared to the 6,955 BTU/kWh heat rate of the benchmark gas plant that was used to calculate the Council's current CO<sub>2</sub> emissions standards in 2000, a 5,690 BTU/kWh heat rate represents over an 18% improvement in power plant efficiency. In other words, the Council's CO<sub>2</sub> emissions standards are likely out of date and, if not modified to reflect the most efficient current technology, could allow an applicant to propose an energy facility that would not be required to offset a portion of its CO<sub>2</sub> emissions at all. If a proposed fossil-fueled energy facility is not required to offset its CO<sub>2</sub> emissions at all, the two-fold purpose of the Council's CO<sub>2</sub> emissions standards would no longer be met.

Three years after the CO<sub>2</sub> standards were first implemented in 1997, the Council found there were sufficient improvements in gas plant efficiencies to justify modification of the CO<sub>2</sub> standards in 2000. Considering the evaluation and modification of the standards in 2000 was the first and only evaluation and modification to date, it is appropriate that a thorough evaluation of the standards should take place at this time. In addition, staff's preliminary research has yielded evidence that gas plants may have become up to 18% more efficient since 2000. For these reasons, it is prudent for the Council, with the help of its staff and staff's consultation with a RAC, to conduct a thorough evaluation of the CO<sub>2</sub> standards at this time. The proposed evaluation is necessary to ensure EFSC rules are keeping pace with the improving efficiencies of power plants, thereby ensuring the Council's CO<sub>2</sub> standards continue to serve the two-fold purpose for which they were created.

### **Authority and Method to Update the Standards**

ORS 469.503(2)(a)<sup>5</sup> and OAR 345-024-0570<sup>6</sup> dictate how the emission standard for base load gas plants is set and authorize the Council to modify the standard for base load gas plants by a specified method. OAR 345-024-0610<sup>7</sup> and OAR 345-024-0640<sup>8</sup> authorize the Council to modify the standard for non-base load power plants and the standard for nongenerating energy facilities, but require both of these standards to remain equal to the standard for base load gas

plants. OAR 345-024-0510<sup>9</sup> requires the Council to consider and balance at least thirteen principles, set in rule, in adopting new CO<sub>2</sub> standards for *fossil-fueled power plants*<sup>10</sup>.

As part of the proposed rulemaking, staff will evaluate the CO<sub>2</sub> emission standards for base load gas plants, non-base load power plants, and nongenerating energy facilities. Based on the results of this evaluation, staff may make a recommendation to Council to update the three CO<sub>2</sub> emission standards. If staff makes a recommendation to update the three standards, its recommendation will conform to OAR 345-024-0610<sup>11</sup> and OAR 345-024-0640<sup>12</sup> by recommending a new standard for non-base load power plants and a new standard for nongenerating energy facilities that is equal to any new standard recommended for base load gas plants.

To accomplish this, staff proposes a four step process:

- 1) Research and identify the heat rate of the power plant it believes to be the most efficient natural gas-fired power plant that is commercially demonstrated and operating in the U.S.;
- 2) Conduct an analysis that considers and balances the thirteen principles listed under ORS 469.503(2)(b) and OAR 345-024-0510;
- 3) Vet the heat rate staff identified through a RAC. Staff will solicit RAC members for their input on the staff identified heat rate, and staff will consider any evidence presented of other heat rates of natural gas-fired power plants operating in the U.S. Staff will also solicit RAC input on staff's analysis, consideration and balancing of the listed 13 principles under ORS 469.503(b) and OAR 345-024-0510. After receiving input from the RAC, staff may identify a different heat rate than what was initially proposed to the RAC; and
- 4) Present the Council a summary of the results of staff's evaluation and a summary of the input from the RAC. Staff's summary may include a recommendation to the Council that the new CO<sub>2</sub> emissions standard for base load gas plants, non-base load power plants and nongenerating energy facilities should all be modified as described in this staff report and in accordance with Council's rules.

### **Approved Rulemaking Process:**

At its January 19, 2017 Council meeting, the Council approved a rulemaking process with early public participation for this rulemaking project. The rulemaking process the Council approved on January 19, 2017 is outlined below:

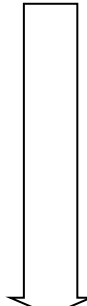
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EARLY PUBLIC PARTICIPATION

\* = EFSC Meeting

**bold** = optional

	Start	Council Approves Pub. Part. Process*	<input type="checkbox"/>
		<b>Rulemaking Advisory Committee (RAC)</b>	<input type="checkbox"/>
		Staff Draft of Proposed Language	<input type="checkbox"/>
		Council Authorization to File Notice*	<input type="checkbox"/>
		Staff Issues Notice	<input type="checkbox"/>
		Public Comment Period	<input type="checkbox"/>
		Rulemaking Hearing*	<input type="checkbox"/>
		<b>Hearing Officer Report</b>	<input type="checkbox"/>
		Council Adopts Final Rule Language*	<input type="checkbox"/>
	Finish	Staff Files Final Rule Language	<input type="checkbox"/>

**Estimated time 4 – 6 months**

Because the potential changes that may be proposed for this rulemaking require staff to complete a complex search to find the single most efficient natural-gas fired CCCT energy facility, the Council identified a need for early public participation in the form of a RAC. The RAC would be asked to review the results of staff's search, review staff's consideration and balancing of the listed 13 principles under ORS 469.503(b) and OAR 345-024-0510, and provide input to staff regarding staff's evaluation.

**Scope, Purpose and Composition of a Rulemaking Advisory Committee (RAC)**

As part of the rulemaking process, staff recommends the Council appoint a RAC to review the results of staff's search for the most efficient natural gas-fired CCCT energy facility commercially demonstrated and operating in the U.S, review staff's consideration and balancing of the listed 13 principles under ORS 469.503(b) and OAR 345-024-0510, and provide input to staff regarding staff's evaluation. Staff recommends that RAC members be appointed from a pool of stakeholders representing the following interest groups: NGOs and Non-Profits; Private Industry and Investor Owned Utilities; Consumer Owned Utilities; and Local, State, and Regional Government. Staff recommends the number of RAC members be limited to the range of 10-15 entities.

Staff has compiled a recommended list of entities that have expressed an interest to staff in participating on a RAC for this rulemaking (see **Attachment A**). Staff recommends the Council consider appointing approximately 15 entities from this list to potentially serve on a RAC for this rulemaking project. When appointing members to the RAC, the Council could consider appointing entities or persons.

In making its appointments, the Council may add or subtract entities or persons from the attached list of staff's recommendations. When appointing entities or persons to potentially serve on the RAC, staff also requests that the Council appoint one or two Council members to serve on the RAC.

### **Next Steps**

Staff will reach out to the entities and persons the Council appoints and schedule a time for an introductory phone meeting. Staff anticipates the necessary input from the RAC can be received by convening the RAC for an introductory phone meeting and a subsequent meeting in-person. The meeting by phone could take place as early as mid-January, with the meeting in-person potentially occurring in mid-February. Staff believes a single meeting in person may be sufficient, however, due to the complexity of the subject matter of this rulemaking, a second RAC meeting may be necessary, potentially in March. The scope and purpose of the RAC meetings will be commensurate with the Council's direction.

After concluding its meetings with the RAC, staff would return to the Council with proposed rule language for the Council to review. After the Council reviews proposed rule language, the Council could deliberate and decide on whether to authorize staff to issue official public notice of this rulemaking project. If authorized to issue official public notice, staff would issue official public notice and schedule a rulemaking hearing to take place at a future Council meeting. The public would then have the opportunity to provide comments on this rulemaking, both in writing and orally at the rulemaking hearing.

## References

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<sup>1</sup> **ORS 469.503(2)(e)(B) “Base load gas plant”** means a generating facility that is fueled by natural gas, except for periods during which an alternative fuel may be used and when such alternative fuel use shall not exceed 10% of expected fuel use in Btu, higher heating value, on an average annual basis, and where the applicant requests and the council adopts no condition in the site certificate for the generating facility that would limit hours of operation other than restrictions on the use of alternative fuel. The council shall assume a 100% capacity factor for such plants and a 30-year life for the plants for purposes of determining gross carbon dioxide emissions.

<sup>2</sup> **OAR 345-001-0010(40) “Non-base load power plant”** means a fossil-fueled generating facility that is limited by the site certificate to an average number of hours of operation per year of not more than 6,600 hours. For a non-base load power plant designed to operate at variable loads, the facility’s annual hours of operation are determined by dividing the actual annual electric output of the facility in megawatt-hours by the facility’s nominal electric generating capacity in megawatts. The Council shall assume a 30-year life for the plants for purposes of determining gross carbon dioxide emissions, unless the applicant requests and the Council approves a shorter operational life in the site certificate. If the Council approves a shorter operational life, the certificate holder shall operate the facility for no longer than the approved operational life or, before the expiration of the approved operational life, shall request an amendment of the site certificate to extend the operational life.

<sup>3</sup> **ORS 469.503(2)(e)(K) “Nongenerating facility”** means those energy facilities that are defined in ORS 469.300 (11)(a)(C) and (E) to (I).

**ORS 469.300(11)(a) “Energy facility”** means any of the following:

(C) A high voltage transmission line...

(E) A pipeline...

(F) A synthetic fuel plant which converts a natural resource including, but not limited to, coal or oil to a gas, liquid or solid product intended to be used as a fuel and capable of being burned to produce the equivalent of two billion Btu of heat a day.

(G) A plant which converts biomass to a gas, liquid or solid product, or combination of such products, intended to be used as a fuel and if any one of such products is capable of being burned to produce the equivalent of six billion Btu of heat a day.

(H) A storage facility for liquefied natural gas constructed after September 29, 1991, that is designed to hold at least 70,000 gallons.

(I) A surface facility related to an underground gas storage reservoir that, at design injection or withdrawal rates, will receive or deliver more than 50 million cubic feet of natural or synthetic gas per day, or require more than 4,000 horsepower of natural gas compression to operate, but excluding:

(i) The underground storage reservoir;

(ii) The injection, withdrawal or monitoring wells and individual wellhead equipment; and

(iii) An underground gas storage reservoir into which gas is injected solely for testing or reservoir maintenance purposes or to facilitate the secondary recovery of oil or other hydrocarbons.

<sup>4</sup> Base load gas plants and non-base load power plants within EFSC jurisdiction are responsible for reducing their CO<sub>2</sub> emissions to meet a 0.675 lb. CO<sub>2</sub>/kWh emissions standard; nongenerating facilities within EFSC jurisdiction are responsible for reducing their CO<sub>2</sub> emissions to meet a 0.504 lb. CO<sub>2</sub>/hph emissions standard (the horsepower-hour equivalent to 0.675 lb. CO<sub>2</sub>/kWh).

<sup>5</sup> **ORS 469.503(2)** If the energy facility is a fossil-fueled power plant, the energy facility complies with any applicable carbon dioxide emissions standard adopted by the council or enacted by statute. Base load gas plants shall comply with the standard set forth in subsection (2)(a) of this section. Other fossil-fueled power plants shall comply with any applicable standard adopted by the council by rule pursuant to subsection (2)(b) of this section. Subsections (2)(c) and (d) of this section prescribe the means by which an applicant may comply with the applicable standard.



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**Continued from ORS 469.503(2)**

(a) The net carbon dioxide emissions rate of the proposed base load gas plant shall not exceed 0.70 pounds of carbon dioxide emissions per kilowatt hour of net electric power output, with carbon dioxide emissions and net electric power output measured on a new and clean basis. **Notwithstanding the foregoing, the council may by rule modify the carbon dioxide emissions standard for base load gas plants if the council finds that the most efficient stand-alone combined cycle, combustion turbine, natural gas-fired energy facility that is commercially demonstrated and operating in the United States has a net heat rate of less than 7,200 Btu per kilowatt hour higher heating value adjusted to ISO conditions. In modifying the carbon dioxide emission standard, the council shall determine the rate of carbon dioxide emissions per kilowatt hour of net electric output of such energy facility, adjusted to ISO conditions, and reset the carbon dioxide emissions standard at 17 percent below this rate.**

(b) The council shall adopt carbon dioxide emissions standards for other types of fossil-fueled power plants. Such carbon dioxide emissions standards shall be promulgated by rule. In adopting or amending such carbon dioxide emissions standards, the council shall consider and balance at least the following principles, the findings on which shall be contained in the rulemaking record:

- (A) Promote facility fuel efficiency;
- (B) Promote efficiency in the resource mix;
- (C) Reduce net carbon dioxide emissions;
- (D) Promote cogeneration that reduces net carbon dioxide emissions;
- (E) Promote innovative technologies and creative approaches to mitigating, reducing or avoiding carbon dioxide emissions;
- (F) Minimize transaction costs;
- (G) Include an alternative process that separates decisions on the form and implementation of offsets from the final decision on granting a site certificate;
- (H) Allow either the applicant or third parties to implement offsets;
- (I) Be attainable and economically achievable for various types of power plants;
- (J) Promote public participation in the selection and review of offsets;
- (K) Promote prompt implementation of offset projects;
- (L) Provide for monitoring and evaluation of the performance of offsets; and
- (M) Promote reliability of the regional electric system.

**<sup>6</sup> OAR 345-024-0570 Modification of the Standard for Base Load Gas Plants:**

The Council may by rule modify the carbon dioxide emissions standard for base load gas plants in OAR 345-024-0550 if the Council finds that the most efficient stand-alone combined cycle, combustion turbine, natural gas-fired energy facility that is commercially demonstrated and operating in the United States has a net heat rate of less than 6,955 Btu per kilowatt hour higher heating value adjusted to ISO conditions. In modifying the carbon dioxide emission standard, the Council shall determine the rate of carbon dioxide emissions per kilowatt hour of net electric output of such energy facility, adjusted to ISO conditions and reset the carbon dioxide emissions standard at 17% below this rate.

**<sup>7</sup> OAR 345-024-0610 Modification of the Standard for Non-Base Load Power Plants:**

The Council may by rule modify the carbon dioxide emissions standard for non-base load gas plants in OAR 345-024-0590 so that the standard remains equivalent to the standard for the net carbon dioxide emissions rate of a base load gas plant, subject to the principles described in OAR 345-024-0510.

**<sup>8</sup> OAR 345-024-0640 Modification of the Standard for Nongenerating Energy Facilities:**

The Council may by rule modify the carbon dioxide emissions standard for nongenerating energy facilities in OAR 345-024-0620 so that it remains equivalent to the standard for the net carbon dioxide emissions rate of a base load power plant.

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<sup>9</sup> **OAR 345-024-0510 Principles for the Adoption of New Standards for Fossil-Fueled Power Plants:**

The council shall adopt carbon dioxide emissions standards for fossil fueled power plants by rule. In adopting or amending such carbon dioxide emissions standards, the Council shall consider and balance at least the following principles. In the rule-making record, the Council shall include findings on these principles:

- (1) Promote facility fuel efficiency;
- (2) Promote efficiency in the resource mix;
- (3) Reduce net carbon dioxide emissions;
- (4) Promote cogeneration that reduces net carbon dioxide emissions;
- (5) Promote innovative technologies and creative approaches to mitigating, reducing or avoiding carbon dioxide emissions;
- (6) Minimize transaction costs;
- (7) Include an alternative process that separates decisions on the form and implementation of offsets from the final decision on granting a site certificate;
- (8) Allow either the applicant or third parties to implement offsets;
- (9) Be attainable and economically achievable for various types of power plants;
- (10) Promote public participation in the selection and review of offsets;
- (11) Promote prompt implementation of offset projects;
- (12) Provide for monitoring and evaluation of the performance of offsets;
- (13) Promote reliability of the regional electric system.

<sup>10</sup> **ORS 469.503(2)(e)(B)(D) “Fossil-fueled power plant”** means a generating facility that produces electric power from natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived from such material.

<sup>11</sup> **OAR 345-024-0610 Modification of the Standard for Non-Base Load Power Plants:**

The Council may by rule modify the carbon dioxide emissions standard for non-base load gas plants in OAR 345-024-0590 so that the standard remains equivalent to the standard for the net carbon dioxide emissions rate of a base load gas plant, subject to the principles described in OAR 345-024-0510.

<sup>12</sup> **OAR 345-024-0640 Modification of the Standard for Nongenerating Energy Facilities:**

The Council may by rule modify the carbon dioxide emissions standard for non-base load gas plants in OAR 345-024-0620 so that the standard remains equivalent to the standard for the net carbon dioxide emissions rate of a base load gas plant.

## Oregon EFSC Rulemaking

### Phase 2 – Updates to Carbon Dioxide Stds. Rulemaking Advisory Committee (RAC)

List of entities interested in participating on a RAC for this rulemaking project.

<b>NGO/Non-Profit</b>	
1	Columbia Riverkeeper
2	Green Energy Institute (GEI)
3	Industrial Customers of NW Utilities (ICNU)
4	NW Energy Coalition (NVEC)
5	Sierra Club
<b>Private Industry/Investor Owned Utilities</b>	
6	Avangrid Renewables
7	Calpine Hermiston Power
8	NW & Intermountain Power Producers Coalition (NIPPC)
9	NW Natural
10	PacifiCorp
11	Portland General Electric (PGE)
<b>Tribal Government</b>	
12	Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
13	Confederated Tribes of Warm Springs
<b>Local/State/Regional Government</b>	
14	Association of Oregon Counties (AOC)
15	Northwest Power and Conservation Council (NWPPCC)
16	Oregon Department of Environmental Quality (DEQ)
17	Oregon Global Warming Commission (OGWC)

(A few EFSC members may also be present at RAC meetings, along with ODOE staff)