

Proposed Rulemaking Announcement

Revisions to DEQ Regional Haze BART rules for the PGE Boardman Power Plant

Background

Last year the Environmental Quality Commission adopted rules for the PGE Boardman coal-fired power plant, as part of a regional haze plan to improve visibility and reduce air pollution in Oregon's wilderness areas and national parks (Class I areas), as well as the Columbia River Gorge National Scenic Area. At an estimated cost of \$498 million, the controls required for the Boardman plant would reduce nitrogen oxide (NO_x) emissions by 46 percent in 2011, sulfur dioxide (SO₂) emissions by 80 percent in 2014, and further reduce NO_x emissions by an additional 36 percent in 2017.

On April 2, 2010, PGE submitted a petition to the Commission to revise the 2009 rules for the Boardman plant, based on a proposal to close the plant by December 2020. PGE based its plan on using low-sulfur coal in lieu of installing most of the pollution controls required under the rules. On June 17 2010, the Commission voted to deny PGE's petition, and directed DEQ to begin rulemaking and examine a wider range of pollution control options consistent with early closure than proposed by PGE in its petition.

Why are the rule changes needed?

DEQ is proposing to revise its 2009 regional haze rules to establish emission control options consistent with an early shutdown of the PGE Boardman facility that meet the requirements of the federal Regional Haze Rule. Federal law generally requires more stringent controls for facilities that run longer and can spread the cost of controls over more years, and generally requires less stringent controls for those that close early. This includes amending parts of the 2009 Oregon Regional Haze Plan regarding the possible early shutdown of the PGE Boardman plant. These rule and plan revisions would need to be submitted to the Environmental Protection Agency as a revision to the Oregon State Implementation Plan under OAR 340-200-0040.

Why did the Commission adopt the 2009 rules?

The federal Regional Haze Rule requires states to adopt plans to improve visibility in 156 Class I areas across the country. These plans must address Best Available Retrofit Technology (BART) for certain older industrial facilities built before 1977, by evaluating whether they cause significant visibility impacts in Class I

areas, and if so, requiring new pollution controls be installed within five years. The 2009 Oregon Regional Haze Plan included BART controls for the PGE Boardman plant. DEQ's analysis showed this plant to be the largest individual source of haze pollution in Oregon, causing significant visibility degradation and acid deposition in 14 national parks and wilderness areas in Oregon and Washington and the Columbia River Gorge National Scenic Area.

What does this rulemaking propose?

The current 2009 rules were adopted assuming the plant would continue operating at least until the year 2040. The current rule sets a NO_x limit in 2011 (based on low-NO_x burners), an SO₂ limit in 2014 (based on scrubbers) and a more stringent NO_x limit in 2017 (based on Selective Catalytic Reduction or SCR).

DEQ is seeking public comment on three early closure options, which each establish regional haze pollution reduction requirements that meet federal BART requirements considering the early shutdown dates in each of the three options. If adopted, these options would be added to the current regional haze rules that apply to the Boardman plant. DEQ is proposing to adopt all three options and allow PGE to select the option that matches the closure date the owners select for the plant. To use one of the early closure options, PGE would have to notify DEQ of its intent to do so before July 1, 2014, the date when SO₂ limits would otherwise go into effect under the current regional haze rules that were adopted in 2009. If PGE selects none of these early closure options, the current regional haze rules adopted in 2009 would apply. Those rules would allow PGE to run the plant indefinitely and do not contain any closure deadline.

DEQ followed EPA guidance for determining BART for each option. DEQ is seeking comment on its evaluation of the BART criteria, including but not limited to:

- The technical feasibility of control options
- The control effectiveness of each control option; and
- The cost effectiveness of each control option.

Additionally, DEQ is seeking comment on its use of \$7,300/ton for reducing emissions as a cost effectiveness threshold. This selected



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The Department and the EQC have the statutory authority to address this issue under ORS 468.020 and 468A.025. These rules implement ORS 468A.025

Alternative formats/ accommodations

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threshold is based on the high end of the range used by other states, based on significant visibility impacts in 14 national parks and wilderness areas (Class I areas) in Oregon and Washington from the PGE Boardman plant. Emission control options costing more than \$7,300/ton were not included in the proposal. Earlier closure dates increase the annualized cost per ton of emissions reduced for the same capital outlay, so options with earlier closure dates include less costly emission control options than options with later closure dates.

Option 1 - 2020 shutdown: This option would set the same NO_x limit (based on low-NO_x burners) in 2011 and the same SO₂ limit (based on scrubbers) as the 2009 rules. Given an early shutdown in 2020, the additional NO_x limit in 2017 (based on SCR) would be replaced with a NO_x limit in 2014 based on Selective Non-catalytic Reduction (SNCR). SNCR is much less expensive than SCR, and can reduce NO_x by 9 percent more than the limit based on the low-NO_x burners alone. This option would achieve the same 46 percent reduction in NO_x in 2011 and 80 percent reduction in SO₂ in 2014, an additional 9 percent reduction in NO_x in 2014, none of the additional NO_x reductions in 2017, and eliminate all emissions from the coal plant after 2020. The estimated cost of these pollution controls is approximately \$320 million, or \$177 million less than the 2009 controls.

Option 2 - 2018 shutdown: This option includes the same NO_x limit (based on low-NO_x burners) in 2011 as the 2009 rules. Given an early shutdown in 2018, the 2014 SO₂ limit based on scrubbers would be replaced with an SO₂ limit based on Dry Sorbent Injection (DSI), at significantly less cost. Like Option 1, the more stringent NO_x limit in 2017 based on SCR would be replaced by a NO_x limit in 2014 based on SNCR. This option would achieve the same reduction in NO_x in 2011, but only half of the reduction in SO₂ in 2014, an additional 9 percent reduction in NO_x in 2014, none of the additional NO_x reduction in 2017, and eliminate all emissions from the coal plant after 2018. The estimated cost of these pollution controls is approximately \$103 million, or \$394 million less than 2009 controls.

Option 3 - 2015/2016 shutdown: This option would set a NO_x limit based on low NO_x burners in 2011, and no other emission limits. The shutdown date in this option is based on the requirement to install BART controls within five years of federal approval of a state regional haze plan. Since Oregon's 2009 Regional Haze Plan is

expected to be approved by the EPA in late 2010 or early 2011, this option establishes a shutdown date in five years, or by 2015 or 2016. This option would achieve the same reduction in NO_x in 2011, and eliminate all emissions from the coal plant after 2015/2016. The estimated cost of these pollution controls is approximately \$36 million, or \$462 million less than 2009 controls.

Summaries of the proposed emissions limits, visibility improvements, and costs for each option are provided in the three tables at the end of this notice.

Note: All three options would still require the Boardman plant to comply with DEQ's mercury rules in 2012.

The proposed early closure options would not preclude the owners of the plant from applying for a new permit to construct a new power plant at the Boardman site using an alternative fuel. The new plant could use equipment other than the Foster-Wheeler boiler from the existing plant, but it would need to be permitted as a new facility without relying on the emission reductions from the existing plant and in compliance with all applicable state and federal requirements.

DEQ is also seeking comment on an alternative proposed by PGE that would have the same limits as Option 2, but would allow the plant to operate until 2020. PGE also proposed a pilot study for the DSI controls to ensure that it can achieve the SO₂ reductions without increasing particulate emissions to the point where expensive additional particulate controls would be required. To approve this alternative to Option 1 or 2, the EQC would need to lower the cost-effectiveness threshold for BART from \$7,300 to \$5,500. For more information on this proposal, see PGE's July 30, 2010 letter "PGE Comments on DEQ's Proposed Revisions to its Regional Haze Rules" [DEQ's PGE Boardman website](#).

Who would be affected?

PGE and owners of the PGE Boardman plant would be subject to costs for pollution control. PGE's customers could experience rate increases. Persons who live and recreate in areas impacted by air pollution from the plant would benefit from reduced air pollution.

How was this proposal developed?

On Aug. 4, 2010, DEQ convened a fiscal advisory committee to review and comment on DEQ's draft fiscal and economic impact

analysis, including the costs and benefits of the proposed three options for PGE Boardman. The committee also assessed the impact of the proposed rulemaking on small businesses. While the rulemaking applies directly to large businesses (PGE and co-owners of the Boardman plant), the committee found that there would likely be an indirect impact from increased electricity rates to small businesses and other customers served by the Boardman facility. Complete results of this review are available in DEQ's fiscal impact statement, listed below.

Rulemaking Documents

The following rulemaking documents and related information are available online:

[DEQ's PGE Boardman site](#)

- [Proposed Revisions to DEQ Regional Haze BART rules for the PGE Boardman Power Plant](#)
- [Proposed amendments to DEQ's 2009 Oregon Regional Haze Plan](#)
- [DEQ's Fiscal and Economic Impact Statement](#)
- [Land Use Evaluation Statement](#)
- [Relationship to Federal Requirements](#)
- [Notice of Proposed Rulemaking Hearing](#)
- [DEQ's 2010 BART Report for PGE Boardman](#)
- DEQ's BART cost data and modeling results of PGE Boardman
 - [Attachment B](#)
 - [Attachment C](#)

How to Comment

Comments on the proposed rulemaking may be submitted in writing via mail, fax or [e-mail](#) any time prior to the comment deadline of 5 p.m. on Oct. 1, 2010, or at any of the public hearings specified below. It is not necessary to attend a hearing in order to comment. Written comments received prior to the deadline are treated equally with oral comments.

For additional information, contact [Brian Finneran](#) at DEQ Air Quality Division, 811 SW Sixth Ave. Portland, OR 97204, toll free in Oregon at 800-452-4011 or 503-229-6278.

Comments may be mailed to the above address, faxed to Brian Finneran at 503-229-5675, or submitted by email to NewBART4PGE@deq.state.or.us

Public hearings

Public hearings will be held at the five locations listed below. Each hearing will begin with a brief overview of the proposed rule changes, followed by an opportunity for public comment. DEQ will record and review all comments.

Sept. 21, 2010, 6 p.m.

Metro Regional Center
Council Chambers
600 NE Grand Avenue
Portland, OR

Sept. 23, 2010, 6 p.m.

Eugene State Office Building
Willamette Conference Room
165 East 7th Avenue
Eugene, OR

Sept. 28, 2010, 6 p.m.

Hermiston Conference Center
415 S. Hwy 395
Hermiston, OR

Sept. 29, 2010, 6 p.m.

DEQ Medford Office
Conference Room
Suite 201
221 Stewart Avenue
Medford, OR

Sept. 30, 2010, 6 p.m.

Columbia Gorge Community College
Health Sciences Building
Building Three, Room 3.203
400 E. Scenic Drive
The Dalles, OR

Comment deadline is Oct. 1, 2010

All comments are due to DEQ by 5 p.m., Friday, Oct. 1, 2010. DEQ cannot consider comments from any party received after the deadline for public comment.

How will rules be adopted?

DEQ will prepare a response to all comments received during the public hearing and comment period and may modify the proposed rules. A summary of the comments will be presented to the Commission for consideration prior to adoption. DEQ anticipates presenting this rulemaking to the Commission for adoption at their December 2010 meeting. DEQ will notify persons of the time and place for final Commission action if they submit comments during the hearing or comment period or request to be placed on DEQ's mailing list for this rulemaking. Sign up for notification online at [DEQ's PGE Boardman website](#).

Table 1: Summary of emission limits *

Visibility Impairing Pollutant	Compliance Date	Current Rule (no closure)	Option 1 (2020 closure)	Option 2 (2018 closure)	Option 3 (2015/2016 closure)
NO _x	Current limit	0.46	Same as current rule	Same as current rule	Same as current rule
	7/1/11	0.28			
		0.23**			
	7/1/14	0.19***	0.19	0.19	Same as above
	2015/2016****				
	7/1/17	0.070		0.0	0.0
	12/31/18				
12/31/20	0.0				
SO ₂	Current limit	1.2	1.2	1.2	1.2
	7/1/14	0.12	0.12	0.40	0.0
	2015/2016****				
	12/31/18			0.0	
	12/31/20		0.0		
PM	Current limit	0.040	0.040	0.040	0.040
	7/1/14	0.012	0.012	0.040	0.040
	2015/2016****				
	12/31/18			0.0	
	12/31/20		0.0		

*The units for all limits are pounds per million Btu heat input (lb/MMBtu). All limits are based on a 30-day rolling average, except for the 0.23 limit on 7/1/11 is a 12-month rolling average.

**12-month rolling average

***contingency limit if unable to comply with 7/1/11 limits with combustion controls (e.g., low NO_x burners)

****compliance date estimate is late 2015 or early 2016, 5 years from the date EPA approves the rules.

Table 2: Summary of visibility impacts (deciviews) in Mt. Hood Wilderness Area:

Compliance Date	Current Rule	Option 1 (2020 closure)	Option 2 (2018 closure)	Option 3 (2015/2016 closure)
Current limits	5.0	5.0	5.0	5.0
7/1/11	3.5	3.5	3.5	3.5
7/1/14	2.5	1.9	2.4	
2015/2016*				
7/1/17	1.0		0.0	
12/31/18				
12/31/20		0.0		

*compliance date estimate is late 2015 or early 2016, 5 years from the date EPA approves the rules

Table 3: Summary of costs:

Compliance Date	Current Rule	Option 1 (2020 closure)	Option 2 (2018 closure)	Option 3 (2015/2016 closure)
NO_x controls (\$/ton)	\$3,190	\$1,816	\$2,102	\$2,189
SO₂ controls (\$/ton)	\$3,285	\$5,535	\$3,245	\$0
Combined controls (\$/ton)	\$3,245	\$4,303	\$2,645	\$2,189
NO_x controls (\$/deciview*)	\$2,200,000	\$1,054,000	\$1,220,000	\$1,190,000
SO₂ controls (\$/deciview*)	\$3,708,000	\$6,248,000	\$2,402,000	\$0
Combined controls (\$/deciview*)	\$2,576,000	\$3,730,000	\$2,116,000	\$1,190,000

*total deciview improvement for all 14 Class I areas and National Parks