

Summary of Public Comments and Agency Responses

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

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Comment period	There were two public comment periods associated with this rulemaking. The first was from September 1, 2010, to October 1, 2010, with five public hearings. The second was from October 29, 2010, to November 15, 2010, with two additional public hearings.
Public hearings	<p>DEQ held the following public hearings:</p> <ul style="list-style-type: none"> • Sept. 21, 2010, 6 p.m. Metro Regional Center, Council Chambers 600 NE Grand Avenue Portland, OR 140 people attended the hearing; 42 people testified. • Sept. 23, 2010, 6 p.m. Eugene State Office Building, Willamette Conference Room 165 East 7th Avenue Eugene, OR 33 people attended the hearing; 15 people testified • Sept. 28, 2010, 6 p.m. Hermiston Conference Center 415 S. Hwy 395 Hermiston, OR 48 people attended the hearing; 22 people testified • Sept. 29, 2010, 6 p.m. DEQ Medford Office, Conference Room, Suite 201 221 Stewart Avenue Medford, OR 12 people attended the hearing; 9 people testified • 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 39 people attended the hearing; 21 people testified

	<ul style="list-style-type: none"> • Nov. 8, 2010, 6 p.m. Metro Regional Center Council Chambers 600 NE Grand Avenue Portland, OR 55 people attended the hearing; 41 people testified • Nov. 9, 2010, 6 p.m. River Front Room 2 Marine Drive Boardman, OR 32 people attended the hearing; 17 people testified <p>Total attendance at public hearings: 359 persons Total number providing verbal testimony: 167 persons</p>
<p>Organization of comments and responses</p>	<p>Summaries of the comments received and DEQ’s response are provided below. Comments are summarized by issue category. The full public record is available for review by the public at the Portland DEQ office (811 SW 6th Ave.). Copies are available upon request.</p>
<p>Explanation of acronyms used in this document</p>	<p>BART = Best Available Retrofit Technology DSI = Dry Sorbent Injection DEQ = Department of Environmental Quality EPA = Environmental Protection Agency EQC = Environmental Quality Commission LNB/MOFA = Low NOx Burner with Modified Overfire Air (control equipment) NOx = Nitrogen oxides PGE = Portland General Electric PM10 = Particulate Matter under 10 microns in size SO₂ = Sulfur dioxide SDFGD = Semi-dry Flue Gas Desulfurization (also called a “dry scrubber”) SNCR = Selective Non-Catalytic Reduction (control equipment) SIP = State Implementation Plan VOC = Volatile Organic Compounds</p>

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Overview of public comment process

DEQ presented this proposed rulemaking for public comment from Sept. 1, 2010 to Oct. 1, 2010, and from Oct. 29, 2010 to Nov. 15, 2010. Comments were received via email, in writing and orally. DEQ received the following types of comments:

- 1795 emails
- 91 written letters (by mail, at hearings or attached to emails)
- 5728 postcards
- 167 persons testified at the public hearings. (see DEQ’s Hearing Officer’s Report on Public Hearings, Attachment C)

Overall, DEQ received 8193 comments.

All comments received have been made part of the public record and have been reviewed by DEQ. In addition to this summary, the full record of individual comments will be made available to the Environmental Quality Commission. A copy of the full public comment record is available for the DEQ Headquarters, 811 SW 6th Ave. Portland. Photocopies of the record are available for a fee.

Overview of this comment and response document

Due to the large number public comments, this document is organized by type of comment, rather than name of commenter. Comments are grouped into six issue categories, as described below. DEQ responses correspond to the order of the comments listed in each issue category. In a few cases, there may be one DEQ response addressing several comments. Due to this format of grouping comments by issue category, most comments have been summarized or paraphrased.

The following describes the six sections in this document:

1. Comments related primarily to DEQ's proposed three emission reduction options. Subcategories in this section address various comments on each of the three options, the cost effectiveness threshold of \$7,300 per ton, DEQ's fiscal impact analysis, and miscellaneous related comments.
2. Comments related primarily to support of PGE's "BART III" 2020 plan. Subcategories in this section include the proposed pilot study for dry sorbent injection (DSI) controls, specific DSI feasibility comments, and the BART approvability of PGE's plan.
3. Comments primarily in support of other options or approaches to the proposed early closure of the Boardman plant by PGE. Subcategories include comments opposed to any plant closure, various comments supporting immediate closure, or prior to 2020, and comments in favor of postponing or taking no action.
4. Comments related primarily to PGE's revised 2020 proposal and DEQ's re-opening of the comment period. Subcategories include comments in favor or opposed to the proposal, and whether to add earlier closure options to the rules.
5. Other comments and issues related to this rulemaking, but not falling into any of the above sections. Subcategories include comments on impacts on air quality and public health, opposition to coal burning, and comments related to DEQ's BART analysis for the Boardman plant. In most cases these comments are beyond the scope of this rulemaking, but DEQ responses have been provided.
6. Miscellaneous comments, similar to Section 5, but beyond the scope of this rulemaking with no DEQ response. These are included as general issues and concerns being included for the record.

How to find your comments

Using the overview described above, go to the section that corresponds to the comment you provided to DEQ. DEQ made every effort to identify as many comments as possible, and has provided a response to each one. However, due to the extremely high number of comments, DEQ was not able to cross reference each comment to the person or organization providing the comment.

All persons who provided comments are listed at the back of this document, starting on page 28. This list is divided into (1) written letters, sent by mail, provided at a hearing or attached to an

email; (2) oral testimony provided at the public hearings; and (3) email comments.¹ Commenters are also listed by whether the comment was provided in the first or second public comment period. To avoid duplication, those who provided both oral and written comments, priority was given responding to comments provided in writing rather than oral testimony, based on time limitations on testimony that were necessary at the hearings. Also, many of the comments were provided via a form letter, either by email or a postcard. These names are listed separately in an attachment to this document, due the very high volume of names. See Attachment 1. Both this document and Attachment 1 are provided on DEQ's website at www.deq.state.or.us/aq/pge.htm.

General guide to comments

To assist in finding your comments, the following is a summary of the different groups that commented on this rulemaking, and notes where in this document the responses can be found. This is intended to be a general guide to finding most of the comments, but not all.

1. *Comments provided by EPA, National Park Service, and the U.S. Forest Service.* These comments focused on the technical and cost aspects of DEQ's three proposed emission reduction options, citing general support of them, but suggesting more stringency in some cases. These comments also did not support PGE's BART III 2020 proposal, citing technical and cost concerns.
2. *Comments from PGE, Industry, Business and Utility related groups, city and county governments, chambers of commerce, and Morrow County government.* The majority of these comments supported PGE's BART III 2020 proposal and PGE's revised 2020 proposal, and generally opposed DEQ's proposed three options, citing concerns primarily about the cost and timing of DEQ's options. There were also comments about potential impacts to the economy under any early closure scenario.
3. *Comments provided by environmental organizations.* This included the Oregon Environmental Council, Sierra Club, Northwest Environmental Defense Center, Friends of the Columbia Gorge, Columbia Riverkeeper, Hells Canyon Preservation Council, Environment Oregon, National Parks Conversation Association, Greenpeace, and others. These comments generally supported DEQ's proposed three options, but also suggested more stringency in some cases. They focused on the importance of an early closure of PGE Boardman plant, citing concerns about the plant's visibility impacts in Class I areas and the Columbia Gorge, on public health and the environment, and global warming. Some cited specific technical and cost reasons for more stringent emission limits prior to an early shutdown of the plant. Other comments focused on the need to end reliance on coal energy, avoid making additional major investments in the Boardman plant if it is closing, and instead invest in cleaner, lower-carbon energy resources.
4. *Comments from the general public.* These comments reflected the divergent opinions between support of PGE's two proposals, and those in favor of an earlier closure. Many of the latter comments supported a 2015 plant closure, such as DEQ's Option 3, or the earliest possible

¹ Those who submitted written letters with verbal testimony or attached to an email are listed under "written letters." This grouping of comments is based on ease of organization, and does not reflect any ranking or priority order based on type of comment provided to DEQ.

closure of the plant. Separate from these comments were some which did not support any early closure, and instead urged PGE to continue operating the plant until 2040 and beyond.

SUMMARY OF COMMENTS AND DEQ RESPONSES

I. Comments on DEQ's Proposed Three Emission Reductions Options 1, 2 and 3

<p>1. DEQ's Option 1 should consider selective catalytic reduction for NO_x</p>	<ul style="list-style-type: none"> a) In determining that selective catalytic reduction was not cost effective for Option 1, DEQ overestimated the cost of Option 1 controls, and underestimated the control effectiveness of selective catalytic reduction, which can achieve a 90 percent NO_x reduction. DEQ should consider selective catalytic reduction as BART for Option 1. b) Selective catalytic reduction can reduce emissions by 90 percent. The emission limit that is achievable for selective catalytic reduction is 0.02 lb/mmBtu heat input, not 0.07 lb/mmBtu, as currently in DEQ's rules. c) Using EPA's Cost Manual, if selective catalytic reduction is operated for at least five years, the cost meets the \$7,300/ton threshold used by DEQ.
<p>Response</p>	<ul style="list-style-type: none"> a) <i>DEQ evaluated the cost of selective catalytic reduction for the rules adopted in 2009. DEQ contracted with ERG to specifically evaluate the costs of selective catalytic reduction. ERG concluded that PGE's analysis is on the high end of the range of costs associated with selective catalytic reduction retrofits. DEQ accepted PGE's cost analysis due to the unique technical difficulties associated with retrofitting the Boardman plant with selective catalytic reduction. DEQ agrees that selective catalytic reduction on some units can achieve actual emissions at or below 0.05 lb/mmBtu, but setting an emission limit at those levels would be difficult to comply with at all times. The limit that would represent BART for selective catalytic reduction was chosen at a level that can be achieved at all times. The limit was then used to evaluate emission reductions due to selective catalytic reduction.</i> b) <i>DEQ does not agree that the Boardman Plant could consistently achieve 0.02 lb/mmBtu, if at all.</i> c) <i>DEQ's consultant, ERG, concluded that the actual cost of retrofits is higher than the estimates provided by CUE cost and EPA's Cost Manual. DEQ understands this is due to a very dramatic increase in labor and material costs in recent years.</i>
<p>2. DEQ's Option 1 is too costly.</p>	<ul style="list-style-type: none"> a) Cost information provided by the engineering company Sargent & Lundy indicates that the true cost of SDFGD is 30 percent higher than DEQ's estimate, and thus exceeds the \$7,300 cost-effective threshold, making Option 1 too costly. b) DEQ's Option 1 is just too expensive. Claiming this option cost \$177 million less than the existing rules makes no sense either, as both approaches are too expensive and unsound investments. c) DEQ's Option 1 imposes significant costs (\$300 million) with little or no

	<p>environmental benefit, and just doesn't make sense.</p> <p>d) DEQ's Option 1 cost \$217 million more than Option 2. That is significant, and the money would be better spent on securing the cleanest and most reliable power by 2020.</p>
Response	<p>a) <i>DEQ is not relying on the cost estimates provided by Sargent & Lundy because the analysis did not include any supporting documentation.</i></p> <p>b) <i>Option 1 was based on PGE's BART proposal in April, which did not include consideration of dry sorbent injection (DSI). Without DSI as a consideration for a 2020 closure, DEQ determined that semi-dry flue gas desulfurization is a cost effective control for a 2020 closure. DEQ concluded that selective catalytic reduction is not a cost effective control for a 2020 closure. In comparison to the rules adopted in 2009, Option 1 would save \$191 million dollars in capital investment for selective catalytic reduction. DEQ concluded that the suite of controls associated with the 2009 rules were cost effective considering the plant could operate indefinitely.</i></p> <p>c) <i>Option 1 provided significant environmental benefit: SO₂ reduction of 11,988 tons/yr and visibility improvement of 3 dv in the Mt. Hood Wilderness area, not to mention the visibility improvement in 13 other Class I areas.</i></p> <p>d) <i>PGE could decide to close the plant in 2018 and use the \$217 million to develop replacement power.</i></p>
3. DEQ Option 2 should not have been proposed	<p>a) DEQ should not propose an option that anticipates a 2018 closure, since PGE has not offered such a closure date, and DEQ lacks legal authority to require it.</p>
Response	<p>a) <i>DEQ's Option 2 was not being proposed as a required closure date. This decision is to be made by PGE. DEQ's Option 2 was a choice for PGE, should it desire an earlier date than 2020. Option 2 represents an alternative for meeting BART that has a significantly lower cost associated with it, due to different SO₂ controls being proposed than DEQ's Option 3.</i></p>
4. DEQ Options 1 and 2 need modeling	<p>a) DEQ failed to conduct a complete modeling analysis for Options 1 and 2.</p>
	<p>a) <i>DEQ evaluated the impacts in 6 of the 14 Class I areas, as well as the Columbia River Gorge. Total impacts for all Class I areas was estimated by interpolation of the existing modeling data. Since the rules were proposed, DEQ has completed modeling of all Class I areas. The results are provided in an addendum to DEQ's BART report.</i></p>
5. DEQ's Option 2 should consider SDFGD for SO ₂	<p>a) In determining that Semi-dry flue gas desulfurization (SDFGD) was not cost effective for Option 2, the cost of SDFGD was overestimated and its effectiveness was underestimated. DEQ should consider SDFGD as BART for Option 2.</p> <p>b) SDFGD can reduce emissions by 95 percent. A permit recently issued to a plant in Nevada set an emission limit of 0.09 lb/mmBtu heat input, based on a 24-hr rolling average, and not 0.07 lb/mmBtu, as currently in DEQ's rules.</p> <p>d) Using EPA's Cost Manual, if SDFGD is operated for three years, the cost meets the \$7,300/ton threshold used by DEQ.</p>

<p>Response</p>	<p>a) <i>Based on DEQ’s evaluation of PGE’s cost analysis of selective catalytic reduction, as discussed above, DEQ concluded that PGE’s cost analysis for SDFGD was acceptable. DEQ evaluated the performance of SDFGD at other plants and concluded that a limit of 0.12 lb/mmBtu could be achieved at all times and represents BART. Lower limits may not be achievable at all times for a retrofit installation.</i></p> <p>b) <i>95 percent reduction depends on the uncontrolled SO2 limits. The higher the uncontrolled emissions, the more emission reduction is possible. The federal New Source Performance Standards take this into consideration, so it is reasonable to also consider it for BART. The Boardman Plant’s uncontrolled emissions are relatively low due to the use of low-sulfur coal. New plants are expected to meet lower limits because they can be specifically designed to meet the lower limits.</i></p> <p>c) <i>Please see the response to (a).</i></p>
<p>6. DEQ’s Option 2 DSI controls can achieve much higher efficiency</p>	<p>a) DEQ has assumed that Dry Sorbent Injection (DSI) can only achieve a 35 percent SO₂ emission reduction, when 90 percent efficiency can be achieved. DEQ should require the lowest emission limit possible.</p>
<p>Response</p>	<p>a) <i>DEQ is not aware of a DSI system such as proposed for the Boardman Plant to have been installed on a similar sized unit. DSI has been used on smaller units that also included fabric filters, which both contribute to improved efficiency of the DSI system. DEQ’s proposal relies on the existing ESP and does not include the installation of a fabric filter, which would cost over \$100 million. In addition, the ducts between the air heater and the ESP are much larger at the Boardman Plant. It is more difficult to adequately disperse the sorbent reagent in larger ducts and still maintain enough residence time for the sorbent to react with the SO2. 35 percent efficiency is probably a little conservative, but a BART limit should be achievable at all times.</i></p>
<p>7. DSI controls should be installed sooner rather than later</p>	<p>a) The DSI controls being proposed as part of this rulemaking should be installed as expeditiously as possible, in according with BART requirements.</p>
<p>Response</p>	<p>a) <i>The BART rules allow controls to be installed up to 5 years after EPA approves revisions to the state implementation plan (SIP). EPA may approve the SIP revision as early as May 2011, so the absolute latest the controls could be installed would be May 2016. DEQ recommends the DSI controls be installed by 7/1/14, nearly two years before the BART rules would require. The proposed compliance date allows PGE three years to design the system and conduct the pilot study, which may involve evaluation of several types of sorbent materials and injection locations, along with particulate matter stack testing. Given the extent of the pilot study, three years to install the controls is considered “as expeditiously as possible.”</i></p>
<p>8. DEQ’s Option 2 emission limit enforceability</p>	<p>a) If DEQ agrees to PGE’s proposal for a DSI pilot study to evaluate the feasibility of DSI technology, DEQ rules will need to ensure that the emission limit found to be achievable is also enforceable.</p>

Response	a) <i>DEQ agrees. The revised rules include provisions for establishing the alternative limit in the Oregon Title V Operating permit to ensure that the limit is federally enforceable.</i>
9. DEQ's Option 2 should extend to 2020.	<p>a) Since there is some question about DSI equipment on facilities as large as Boardman, technology, a reasonable compromise may be to extend DEQ's Option 2 to 2020, but include more stringent emission limits of 0.35 lb/mmBtu in 2019, and 0.30 lb/mmBtu in 2020.</p> <p>b) Allow the Boardman plant to operate until 2020, but for the last 3 years (2017-2020), limit the plant's emissions by two-thirds, so that total emissions during this time would be the same as DEQ's Option 2, which has a 2018 closure date.</p> <p>c) Pursue a compliance agreement that combines Option 2 and PGE's BART III, and achieves the optimum pollution control at a reasonable cost to PGE, based on reduced hours of plant operations during the final two to three years of plant operation.</p> <p>d) DEQ's Option 2 should extend to 2020, provided PGE take immediate steps to develop replacement power to offset the early closure. PGE's proposed 2020 shutdown is reasonable because it is only two years beyond the 2018 date in DEQ's Option 2, and is technically similar.</p>
Response	<p>a) <i>DEQ agrees this approach may be a reasonable compromise, subject to conducting a pilot study of DSI to determine the feasibility of this technology, as proposed by PGE. DEQ is recommending a limit of 0.40 lb/mmBtu in 2014 and 0.30 lb/mmBtu in 2018, contingent on the results of the pilot studies.</i></p> <p>b) <i>DEQ evaluated lowering the limit to accommodate 2 additional years of operation and determined that limits in 2014 and 2018 are reasonable considering the time it will take to conduct the pilot studies.</i></p> <p>c) <i>DEQ believes that limits on hours of operation would have to be proposed by PGE, much the same as a commitment to closing the plant. DEQ does not have the authority to close a plant or limit hours of operation, unless specifically requested by the owner of the facility.</i></p> <p>d) <i>DEQ has no authority over the development of replacement power. DEQ must ensure that the BART requirements are met for the existing unit during the time that it is operating.</i></p>
10. DEQ's Option 2 cost is uncertain	<p>a) DEQ's analysis suggests Option 2 will cost \$103 million. However, if the DSI controls increase particulate emissions and triggers the need for a baghouse, the cost could double. This would make Option 2 no longer cost effective.</p> <p>b) Cost of the controls under this option won't be determined until this equipment is installed. This option does not make sense.</p>
Response	<p>a) <i>DEQ agrees. DEQ's analysis of DSI did not include a fabric filter. DEQ has revised the proposed rule to include a pilot study to ensure that a fabric filter will not be required.</i></p> <p>b) <i>DEQ's cost estimate is based on vendor data, but the cost may be overstated because it is not clear whether the vendor would include a fabric filter or not. PGE provided a cost estimate that does not include a fabric filter. PGE's cost estimate is less than DEQ's estimate by about \$28 million.</i></p>

11. DEQ's Option 3 should consider DSI for SO ₂	a) Under BART, the five-year requirement to install BART says "as expeditiously as practicable." It is possible that DSI could meet DEQ's cost-effectiveness threshold if only used for a few years, and therefore should be required under Option 3.
Response	a) <i>DEQ has agreed to a pilot study to ensure that the DSI limit will not result in a requirement to install a fabric filter. PGE will probably not initiate the study until the rules are approved by EPA in 2011. This allows PGE about 3 years to conduct the pilot study and make any permit revisions necessary to install and operate the DSI system. A compliance date of 7/1/14 will require installation of the DSI system as expeditiously as practicable.</i>
12. DEQ's Option 3 should include SNCR	a) In addition to Low NOx burners and Over-fire air system, Option 3 should include Selective Non-Catalytic Reduction, as it meets DEQ's \$7,300 cost effectiveness threshold.
Response	a) <i>DEQ included SNCR in Options 1 and 2, but no longer recommends SNCR because it will only provide 0.18 dv improvement and there are concerns with the ammonia slip contributing to fine particulate matter emissions. DEQ does not believe it is cost effective for Option 3, which will result in closure of the plant 5 years sooner than the 2020 option.</i>
13. DEQ's Option 3 closure date	a) The closure date under Option 3 needs further clarification, as it is tied to EPA approval of the Oregon SIP within 5 years. In case approval is delayed, the following language should be added: "but in no event later than May 16, 2016."
Response	a) <i>DEQ does not agree. The whole concept of Option 3 is tied to EPA's approval of the SIP as specified in the BART requirements.</i>
14. DEQ's Option 3 should be adopted.	a) The PGE Boardman plant is Oregon's largest source of smog, acid rain, haze, and carbon dioxide. DEQ's Option 3 2015 closure is the best alternative. b) Option 3 represents the best balance between the environment, public health, and electricity rates.
Response	<ul style="list-style-type: none"> • <i>DEQ appreciates the support for Option 3.</i>
15. Support 2015 closure	a) Support ending coal burning by 2015 and transitioning to cleaner energy sources, in order to reduce haze, acid rain, and mercury contamination, especially in Columbia Gorge. b) Closing the Boardman plant in 2015 gives PGE enough time to develop alternatives and cleaner energy. c) The pollution from the PGE Boardman plant poses a major risk to public health and global warming, and the cheapest and environmentally responsible option is to close the plant by 2015.
Response	<ul style="list-style-type: none"> • <i>DEQ believes the proposed Option 3 is the best approach to a plant closure in 2015, should PGE choose this option.</i>
16. DEQ's 3 options should be adopted.	a) DEQ's 3 proposed options should be adopted as proposed. They provide the greatest practicable protection of visibility in the Columbia Gorge, when considering technical feasibility, costs, and other important socio-economic values. b) DEQ's three early closure options should not be watered down.

Response	<ul style="list-style-type: none"> • <i>DEQ appreciates the support for the three options being proposed.</i>
17. DEQ's cost effectiveness threshold of \$7,300	<ul style="list-style-type: none"> a) DEQ's cost effectiveness threshold is too high, as other BART analyses across the country are much less. DEQ used the highest cost it could find, citing a proposed BART determination in another state that has not yet been officially approved. b) DEQ's cost effectiveness threshold is too high and too expensive. c) DEQ's cost effectiveness threshold does not take into account the benefits associated with early closure, and should be lower. d) DEQ's approach to cost effectiveness is problematic, in that it is much different than the PUC's view of cost effectiveness. It should be more flexible. e) DEQ should not be proposing one of the highest thresholds of \$7,300, but rather a reasonable lower cost way to meet federal requirements. DEQ should be trying to make this affordable for customers, not the most expensive. f) Using DEQ's \$7,300 per ton cost threshold, installing selective catalytic reduction controls for the remaining useful life of 5 years under this threshold, and should be considered under DEQ's Option 1. g) Using DEQ's \$7,300 per ton cost threshold, installing SDFGD controls for the remaining useful life of 3 years falls under this threshold, and should be considered under DEQ's Option 2. h) Using DEQ's \$7,300 per ton cost threshold, installing SNCR controls for the remaining useful life of 2 years is under this threshold, and should be considered under DEQ's Option 3.
Response	<ul style="list-style-type: none"> a) <i>BART is based on several factors. No single factor can determine BART. DEQ considers \$7,300 to be cost effective considering the number of Class I areas impacted and the magnitude of the impacts. Plant closure will provide significant visibility improvement in the long term, but not for the short term. BART must address both short and long term impacts. The remaining useful life of the plant is a significant factor for determining the cost effectiveness of a control option. DEQ has included the remaining useful life of the plant in its analysis.</i> b) <i>See response (a).</i> c) <i>See response (a).</i> d) <i>DEQ is unable to respond to this comment.</i> e) <i>DEQ is aware of the potential cost to rate payers. The modified 2020 proposal does not include SDFGD or selective catalytic reduction, which are the most expensive control options.</i> f) <i>DEQ does not agree that selective catalytic reduction is cost effective for 5 years. The incremental cost as compared to LNB is greater than \$10,000/ton if selective catalytic reduction is installed on 7/14, which is 6.5 years of operation. The incremental cost would be even higher for 5 years of operation.</i> g) <i>According to DEQ's analysis, the cost effectiveness of SDFGD is approximately \$7,300/ton, which is the threshold for cost effectiveness. That is why SDFGD is not included in option 2. The incremental cost as compared to DSI is approximately \$7,200/ton if the plant runs until 12/31/20. Therefore, DEQ does not consider SDFGD cost effective for a 2020 closure, as well.</i> h) <i>DEQ agrees that SNCR is cost effective, but SNCR will only achieve .018 dv further visibility improvement as compared to LNB. Considering the negligible</i>

	<i>improvement and the potential PM issues associated with ammonia slip, DEQ does not recommend SNCR.</i>
18. DEQ's cost per deciview	a) DEQ used a cost per deciview of \$10 million/dv as a factor in determining BART. This is below the national average of \$14-\$18 million/dv.
Response	a) <i>Cost effectiveness in terms of deciviews is not a well established parameter. DEQ has tried to incorporate the parameter into its BART analysis using information from several, but not all BART evaluations. DEQ appreciates the additional information.</i>
19. DEQ's use of incremental cost	a) According to EPA's BART Guidelines, incremental cost should be used in combination with the average cost effectiveness in determining BART. To use incremental cost correctly, it must be compared to other similar situations. DEQ did not provide comparisons of incremental cost used by other states for BART. b) DEQ should clarify that the \$7,300/ton threshold applies to both the annualized cost effectiveness and the incremental cost effectiveness.
Response	• <i>DEQ used incremental cost in addition to average cost effectiveness in its analysis. The same threshold is used for incremental cost as is used for the average cost effectiveness.</i>
20. Emission reductions after closure	a) DEQ's proposed rulemaking fails to fully consider or recognize the impact of an early closure, in terms of the elimination of all emissions.
	a) <i>DEQ acknowledges that plant closure will eliminate 25,700 tons of visibility impairing pollutant emissions from the coal-fired power plant and will eliminate its impact on the visibility in Class I areas. This is a significant factor for meeting the reasonable progress goals of the regional haze program. However, DEQ must also satisfy the BART requirements in the near term.</i>
21. Determining compliance with NOx limits	a) As currently proposed, DEQ's rules allow PGE an entire year to demonstrate compliance with the 30-day rolling average NOx emission limit. This amount of time is unnecessary, and should be changed to 30 days after the emission limit goes into effect.
	a) <i>DEQ recommends changing the evaluation period to 180 days based on a 30-day rolling average. This will provide PGE time to fine tune the low NOx burners.</i>
22. Startup/shutdown emissions not addressed	a) DEQ's proposed BART rules improperly exclude emissions during periods of startup and shutdown, related to the emission limits proposed for NOx, SO2, and PM. The rules need to account for the frequency and duration of these periods, the quantity of emissions, and the visibility impacts during these periods in Class I areas.
	a) <i>DEQ does not necessarily agree that BART was intended to establish emission limits and controls for startup and shutdown periods. The BART guidelines specifically state that emissions during startup and shutdown should not be used in the visibility analysis used to determine if a source is subject to BART.</i>

	<p><i>(Guidelines III.A.2.Option 1) This analysis is not only used to establish whether a source is subject to BART, but also establishes the baseline for evaluating the visibility improvement due to various control technology options. Without determining the visibility impacts during periods of startup and shutdown in the baseline period, it is not possible to evaluate the visibility improvement of retrofit control technologies during periods of startup and shutdown. However, to minimize the emissions during periods of startup and shutdown, DEQ recommends making the current NSPS limits for SO₂ and NO_x applicable at all times. For PM, DEQ recommends adding a reference to DEQ's excess emission rules that require approved startup/shutdown plans for minimizing emissions to the extent practicable, including minimizing the duration of startups. (see OAR 340-214-0310)</i></p>
<p>23. DEQ's Fiscal Impact Statement</p>	<ul style="list-style-type: none"> a) DEQ's Fiscal and Economic Impact Statement was flawed, in that it failed to consider the cost of replacement power associated the with Boardman plant closure. b) The cost of any BART option that includes mandatory or premature plant closure must include cost of replacement power. c) In identifying increases in electricity rates, DEQ did not consider factors such as the timing of these rate impacts and whether they might affect different customer classes disproportionately. d) DEQ's Fiscal and Economic Impact Statement should have included an analysis of the benefits of greenhouse gas reductions associated with early plant closure. e) DEQ's Fiscal and Economic Impact Statement did not adequately consider the impact of plant closure on the economy, such as loss of employment and tax revenue.
<p>Response</p>	<ul style="list-style-type: none"> a) <i>DEQ is required to conduct a fiscal and economic impact analysis on the costs related to the rulemaking it proposes. This rulemaking would require the installation of pollution control equipment, or other changes at the Boardman plant to meet emission limits based on DEQ's BART determination. As a result, the costs identified in the fiscal and economic impact statement address the costs of purchasing, installing, and operating the pollution controls. It should also be noted that the proposed rules provide PGE with the option of closing or continuing to operate to 2040 and beyond, under the existing rules. DEQ is not requiring early closure, nor has the authority to do so. Decisions that PGE may make in the future about replacement power, should Boardman close, is part of the Integrated Resource Planning process that involves PGE and the Public Utilities Commission, and therefore beyond the scope of this rulemaking. Having said this, DEQ did include did include information provided by PGE on likely rate impact increases if PGE decides to close the plant, that included potential cost of replacement power, and cost associated with decommissioning the plant.</i> b) <i>See response (a).</i> c) <i>DEQ's Fiscal and Economic Impact Statement did include estimates of electricity rate increases on different customer classes, such as residential, small business, local government, and others, based on the three options being proposed, and in comparison to the rate impacts under the current 2009</i>

	<p><i>rules. The estimates of rate increases did vary between these customer classes, showing how the potential impacts could be disproportional between these classes.</i></p> <p>d) <i>DEQ's Fiscal and Economic Impact Statement did not an analysis of the greenhouse gas emission reduction benefits. As noted above, this rulemaking addresses regional haze/BART requirements, not carbon regulation. An analysis of these benefits is beyond the scope of this rulemaking.</i></p> <p>e) <i>DEQ did include a preliminary assessment of the potential economic impacts on employment and local government tax revenues, even though these costs are not a direct result of the proposed rules, but rather the result of a decision made by the PGE and owners of the Boardman plant to close early.</i></p>
<p>24. Miscellaneous</p>	<p>a) DEQ should add to its proposed rules additional time for compliance, if DEQ cannot act on a permit application to install controls in a reasonable timeframe.</p> <p>b) Remove the reference in the rules to the "Foster-Wheeler boiler" at the Boardman plant. DEQ should strike this name, and replace it with "any coal-fired boiler", so that no other coal-fired boiler could be installed.</p> <p>c) The enforceability of DEQ's three options is not strong enough. The rules should void the operating permit for the plant if PGE fails to comply with the selected closure deadline. Also, the rules should state that non-compliance would result in the state, EPA, and citizens are able to apply for both injunctive and civil penalty relief.</p> <p>d) DEQ should correct its definition of deciview in Section 340-223-0020 to: $(dv) = 10 \ln(b_{ext}/10 \text{ Mm}^{-1})$</p> <p>e) In Section 340-223-0040, please specify the averaging period for the 0.070 lb/mmBtu NOx emission limit.</p> <p>f) Please specify the control technologies assumed to be implemented to achieve the emission rates in each rule section on DEQ's three options.</p> <p>g) As currently proposed, the rule allows PGE an entire year to demonstrate compliance with the 30-day rolling average NOx emission limit. Rather than a year, the rule should say "within 30-days after the emission limit goes into effect."</p> <p>h) Section 340-223-0080 in (2)(b)(A) has a typo. It says the emission limit is 0.40 lb/mmBtu, but it should be 0.12 lb/mmBtu.</p> <p>i) DEQ should work openly and collaboratively with the Oregon PUC and utilities to find a workable solution.</p> <p>j) DEQ's proposed rules, when combined with many other federal regulations, such as greenhouse gas emissions and hazardous air pollutants, impose such significant costs that they are essentially regulating the plant out of business.</p>
<p>Response</p>	<p>a) <i>DEQ has added provisions for extending the compliance date in the event the DEQ does not issue a timely permit revision, but the extension is limited to no more than 5 years from the date EPA approves the SIP revision.</i></p> <p>b) <i>DEQ has revised the rules to "cease firing coal" instead of requiring shutdown of the Foster Wheeler boiler.</i></p> <p>c) <i>DEQ believes that the rules for ceasing to fire coal are enforceable by the state and will be federally enforceable once EPA approves the revision to the SIP.</i></p> <p>d) <i>The proposed rules have been revised as requested.</i></p> <p>e) <i>DEQ will add a 30-day rolling average to the limit.</i></p>

	<p>f) <i>Option1 and 2 are now combined. The control technologies are low NOx burners with over-fire air on 7/1/11, SNCR contingency by 7/1/13 if 0.23 lb/mmBtu can't be met by 7/1/11 with the low NOx burners, dry sorbent injection on 7/1/14 with a limit of 0.40 lb/mmBtu and dry sorbent injection with a limit of 0.30 lb/mmBtu by 7/1/18.</i></p> <p>g) <i>DEQ agrees. The evaluation period has been shortened to 180 days.</i></p> <p>h) <i>DEQ has made the correction.</i></p> <p>i) <i>The PUC is considered a significant stakeholder for DEQ's rulemaking.</i></p> <p>j) <i>DEQ agrees there are many uncertainties associated with future regulations and the viability of the plant.</i></p>
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II. Comments on PGE's BART III 2020 Proposal alternative to DEQ's three options

A. Comments in Support

<p>1. 2020 closure is reasonable</p>	<p>a) PGE's BART III proposal meets federal requirements, is cost effective, and is the best approach for the economy in meeting PGE's objective for an early closure.</p> <p>b) PGE's BART III proposal should be supported as it is reasonable approach for closing the plant 20 years earlier than planned.</p> <p>c) PGE's BART III proposal is the least expensive to customers and provides environmental benefits.</p> <p>d) PGE's BART III proposal is a reasonable, cost-effective step to improve air quality in the near term, while providing even greater improvements over the long term.</p> <p>e) PGE's BART III proposal for a 2020 shutdown is reasonable, in that it provides enough transition time to buy or build affordable replacement power.</p> <p>f) PGE's BART III proposal for a 2020 shutdown is reasonable, in that it would lessen the economic impact, and allow workers at the plant and nearby communities to make transition and adjust to this shutdown.</p> <p>g) With 110 full-time employees, 30 contractor positions, and 225 seasonal workers, the Boardman plant is a critical employment source in the region. PGE's BART III proposal is the best approach to address early closure and loss of these jobs.</p> <p>h) Prefer the plant operate until 2040, given the impact early closure would have on jobs and the economy. But if early closure must happen, support PGE's BART III proposal.</p> <p>i) While I'm not convinced the plant should be closed in 2020, PGE has made a generous offer that should be considered.</p> <p>j) Closing the plant too early could have significant impact on low-income families. For them, low cost power is essential.</p> <p>k) PGE's BART III plan gives enough time to develop renewable energy.</p> <p>l) Global warming is a real problem. But we need to find environmentally sound business solutions to meet all of our needs. PGE's proposal is the kind of compromise that can be an example for the rest of the country.</p>
<p>Response</p>	<ul style="list-style-type: none"> • <i>DEQ appreciates these comments and understands the concerns about the economic impact of PGE's decision for early closure, the need for time to</i>

	<i>develop replacement power and transition to a new technology, the importance of providing reliable, affordable, and renewable energy to PGE customers, and the others concerns expressed above.</i>
2. DSI Pilot Study	<p>a) If the pilot study that PGE is proposing demonstrates that the 0.4 lb/mmBtu SO2 limit cannot be reached, DEQ will need to set an alternate limit that PGE can meet without affecting the performance of mercury controls or triggering PSD for PM2.5.</p> <p>b) The DSI pilot studies need to focus on technical issues and not cost.</p>
Response	<p>a) <i>DEQ has restructured the rules to add provisions for conducting a pilot study and establishing alternative emission limits.</i></p> <p>b) <i>The proposed rules specifically state that alternative limits for DSI would be considered if it is demonstrated that DSI would either reduce the efficiency of the mercury controls or increase fine particulate matter that would result in ambient concentrations above the significant impact level. DEQ believes it is very important that the mercury emissions be reduced by 90 percent if at all possible. DEQ did not intend for the DSI system to include a fabric filter in place of the existing ESP. Adding a fabric filter would increase the efficiency of the DSI system, but would not be cost effective considering the capital cost of a fabric filter is approximately \$100 million. DEQ proposes a limit of 0.40 lb/mmBtu for the DSI system specifically to avoid a requirement to install a fabric filter. The pilot study will further evaluate whether the limit can be met without affecting the mercury controls and/or increase PM ambient concentrations above the significance level. The pilot study is not intended to further evaluate the cost effectiveness of a fabric filter.</i></p>
B. Support Opposed	
3. Not protective enough	a) PGE's BART III plan will not protect Oregon's special places, air quality, or the health of our families and should be rejected.
Response	a) <i>DEQ's proposed three options would provide more emission reductions and visibility improvement than PGE's BART III plan. However, all approaches include a shutdown of the plant, which eliminates all emissions, and therefore would have significant benefits to visibility, as well as result in improvements in air quality.</i>
4. Disagree with PGE on SDFGD being BART in 2020	a) DEQ's Option 1 states that SDFGD is BART in 2020. PGE submitted costs that SDFGD is 30 percent over its previous estimates, but has not provided sufficient information to support this claim.
Response	a) <i>DEQ agrees. DEQ is not relying on PGE's revised cost analysis. DEQ believes SDFGD is still cost effective if the plant operates through 2020 based on the average cost effectiveness of the controls. However, with DSI included in the rules, the incremental cost of SDFGD is nearly \$7,300/ton. Therefore, DEQ does not believe SDFGD is cost effective if the plant closes down on 12/31/20 and DSI is installed on 7/1/14.</i>
5. PGE's claim DSI is infeasible is	a) Just because no DSI system has been demonstrated on a boiler exactly the same the Boardman plant does not mean the technology is infeasible. DSI

without merit	<p>technology is feasible for this plant. (23)(49)</p> <p>b) In looking at other similar plants in the country, the PPL Montour power plant in Washingtonville PA is currently installing DSI on two 750 MM coal-fired boilers.</p>
Response	<ul style="list-style-type: none"> As stated in DEQ's BART Report for PGE Boardman Plant, DEQ has determined that DSI is BART for this facility, even though this technology has been only demonstrated on smaller boilers than the one at the Boardman plant. DEQ sees no reason why DSI would not be feasible for the Boardman boiler. The proposed pilot study to test the effectiveness of DSI will allow the control effectiveness of this technology to be fully evaluated.
6. DSI would trigger PSD is without merit	<p>a) PGE's claim that DSI would increase particulate emissions and trigger pollution controls such as a baghouse is premature and without merit, unless further documentation, such as modeling, can be provided and verified.</p>
Response	<p>a) DEQ acknowledges that the use of sorbent injection will increase particulate emissions, but not to the point of triggering additional pollution controls. This will be confirmed by further evaluation through the pilot study being proposed as part of these rule changes. The pilot study will include an evaluation of available sorbent materials, the effect of the sorbent materials on the existing particulate matter control system and mercury control system, and finally, air dispersion modeling will be conducted if necessary to determine if PM emissions will have an adverse impact on air quality.</p>
7. PGE's BART III fails to satisfy BART	<p>a) If interim controls such as DSI are not feasible, PGE proposes to use low-sulfur coal, which would reduce SO2 emission by less than 2 percent from the baseline emission rate. A 2 percent reduction for a facility that continues to operate five years after EPA's approval of the SIP is not BART, and would not be approvable by EPA.</p>
Response	<p>a) DEQ believes DSI is feasible and will achieve emission reductions in the range of 20 to 35 percent initially.</p>
8. PGE's BART cost analysis needs more evaluation	<p>a) PGE's cost analysis for its' BART III proposal needs to be reviewed to determine if it was done in accordance with EPA's OAQPS Cost Manual. PGE should not have included the cost of replacement power in its' BART analysis.</p>
Response	<p>a) The cost analysis performed by PGE was not in strict adherence to EPA's OAQPS Cost Manual. PGE's estimates more closely reflect real world cost due to higher than normal escalation of costs in recent years. PGE did not include the cost of replacement power in its BART analysis. The cost of replacement power is a concern, but the cost was not included in the BART analysis.</p>
9. Miscellaneous	<p>a) The heat input rates in PGE's proposal are unclear. DEQ should clarify the appropriate heat input from which to measure the emission reductions that are claimed by PGE, and how these calculations were done.</p> <p>a) DEQ should also ensure that the calculations of annual pollution under BART are correct given PGE Boardman's maximum capacity to emit for purposes of setting the PSEL.</p>

Response	<p>a) <i>The heat inputs for each pollutant represent the highest 12-month heat input associated with the highest 24-hour emissions during calendar years 2003 through 2005. This information is provided in Table 5-1 of PGE's report. The values are 48,630,688 mmBtu/yr for NO_x, 48,571,330 mmBtu/yr for SO₂, and 49,093,487 mmBtu/yr for PM. These values were also used to calculate the projected actual emissions after installing the BART controls.</i></p> <p>b) <i>The heat inputs were used to calculate the projected annual emissions after the BART controls are installed for the purpose of determining emission reductions and visibility analysis. The Plant Site Emission Limits will be based on the capacity of the facility using the BART control limits.</i></p>
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III. Comments in support of other options related to an early closure of the PGE Boardman plant.

1. Do not allow Boardman plant to continue operation to 2040	<p>a) The PGE Boardman plant should not be allowed the option of continuing to operate until 2040 and beyond, due to the amount of air pollution it produces. The existing rules should be eliminated.</p> <p>b) The PGE Boardman plant should not be allowed to continue to operate through 2040 due to its mercury emissions, and the resulting impact on water quality and fish.</p> <p>c) Keeping the PGE Boardman plant running until 2040 is ludicrous, and the plant should be shutdown in 2020.</p> <p>d) Most important goal is to avoid making a large investment in coal that results in Boardman operating thru 2040, and find a single closure option that is reasonable, and meets both DEQ and PGE needs.</p> <p>e) DEQ's existing rules will cost the PGE Boardman plant over \$500 million. Investing this amount of money in coal power is not in the best interests of Oregon.</p>
Response	<ul style="list-style-type: none"> <i>PGE's revised 2020 proposal would eliminate the 2009 rules adopted for the PGE Boardman plant, which allowed the plant to continue to operate indefinitely, and would instead establish a firm closure date of Dec. 31, 2020. The control technologies identified as BART with a 2020 closure were chosen taking into consideration the remaining useful life of the plant. The revised recommendation does not require selective catalytic reduction or SDFGD, but would require the less expensive DSI system.</i>
2. Find a middle ground between Option 2 and PGE's 2020 proposal	<p>a) Efforts should be made to finding an agreeable result between DEQ's Option 2 and PGE's BART III 2020 proposal, with adjustments to avoid triggering additional pollution controls, and then closing the plant. Both approaches involve the same DSI technology, and only two years apart, which could be a time to find cleaner replacement power.</p> <p>b) Since there is some question about DSI equipment on facilities as large as Boardman, technology, a reasonable compromise may be to extend DEQ's Option 2 to 2020, but include more stringent emission limits of 0.35 lb/mmBtu in 2019, and 0.30 lb/mmBtu in 2020.</p> <p>c) Allow the Boardman plant to operate until 2020, but for the last 3 years (2017-2020), limit the plant's emissions by two-thirds, so that total emissions during</p>

	<p>this time would be the same as DEQ's Option 2, which has a 2018 closure date.</p> <p>d) Pursue a compliance agreement that achieves optimum pollution control at a reasonable cost to PGE, based on reduced hours of plant operations during the final two to three years of plant operation.</p> <p>e) Keeping the PGE Boardman plant running until 2040 is ludicrous, and the plant should be shutdown in 2020.</p> <p>f) DEQ should remove the 2040 option and work with PGE and other stakeholders to find practical options for closure no later than 2020.</p> <p>g) PGE has voluntarily offered to cut the plant's useful lifespan by 20 years. DEQ needs to find a practicable approach to balancing the environmental and economic issues.</p> <p>h) Give PGE the time it needs to develop replacement power that is affordable.</p>
Response	<ul style="list-style-type: none"> • <i>PGE's revised 2020 proposal does represent a middle ground between their BART III proposal and DEQ's 2018 Option 2. First, it removes the 2040 option, and establishes a firm 2020 closure date. Second, after 2018, it establishes a lower SO₂ emission limit for the two years prior to 2020 closure</i>
3. Close the plant earlier than 2015	a) Close the PGE Boardman plant in 2014, rather than 2020, and transition to cleaner energy sources.
Response	a) <i>DEQ's Option 3 includes a closure date of 2015-16, which is based on the federal requirement to install BART in five of EPA approval of the Oregon Regional Haze Plan. Under this option, PGE may choose to close the plant at that time, and not install any BART controls, beyond those required in 2011 for NOx. As noted below, DEQ does not have authority to require an earlier shutdown (or any shutdown other than those established by rule as an option for PGE).</i>
4. Close the plant as soon as possible	a) The PGE Boardman plant should be closed at the earliest date possible, to end reliance on coal, and transition to cleaner energy sources.
Response	a) <i>DEQ lacks the authority under its current regulations to simply close the PGE Boardman plant. This facility currently operates under an approved air quality permit, and therefore cannot be shutdown, unless there is regulatory authority to do so. DEQ has proposed three options to meet federal BART requirements that allow PGE to close the plant early. Should PGE choose one of these options, the date for plant closure under that option would be mandatory and enforceable. Outside of this regulatory authority, there is no other means to require plant closure.</i>
5. Postpone this rulemaking	a) DEQ should postpone any decision on this rulemaking. Shutting down the PGE Boardman plant is unnecessary. The economic impact would be too severe, and now is not the time to be considering this action.
Response	a) <i>DEQ is required under the federal Regional Haze Rules to meet BART regulations that apply to facilities like PGE Boardman. In 2009, the EQC adopted the Oregon Regional Haze Plan that included rules to meet federal BART requirements, and then submitted this plan to EPA for approval. The plan included a provision that allowed PGE to make a formal request for a rule</i>

	<p><i>change to the newly adopted BART rules, should PGE wish to close the plant early. This rulemaking is in response to such a request from PGE. Postponing this rulemaking would require PGE to rescind their request, and continue under the 2009 rules. Over the last six months, PGE has made it clear to DEQ, the PUC, and their stakeholders that they seek rule changes to allow for an early closure of the plant.</i></p>
6. More collaboration and less regulation	<ul style="list-style-type: none"> a) DEQ should take a balanced, reasonable approach to this rulemaking with PGE, which focuses more on collaboration than regulation. b) DEQ should work openly and collaboratively with the Oregon PUC and utilities to find a workable solution. c) DEQ should adopt a proposal that inflicts the least cost on Oregon's ailing economy and minimizes further job losses. d) First approach should be to develop comprehensive energy plan, which involves collaboration between PUC, EFSC, and DEQ. Need an impact analysis on jobs and economy if plant were to shutdown.
Response	<ul style="list-style-type: none"> • <i>As noted above, this rulemaking was triggered by a formal request from PGE for a rule change. Upon receiving this request, DEQ has taken a collaborative approach in working with PGE to develop regulatory options to address PGE's stated objective for an early closure of the plant. This has included seeking public comment on two proposals developed by PGE, as part of this rulemaking effort.</i>
7. Set 2011 as decision date	<ul style="list-style-type: none"> a) Set 2011 as the decision point to either close Boardman or make PGE comply with new rules on an accelerated schedule.
Response	<ul style="list-style-type: none"> a) <i>In essence, PGE will be required to decide what option to take in 2011 because of the lead time to procure and install the control equipment. The decision date in the rule merely requires PGE to confirm what option they have chosen before the compliance dates in Options 1 and 2.</i>
<p>IV. Comments related to the new PGE BART proposal on 2020 closure, associated with the re-opening of the comment period.</p>	
1. Support the revised proposal	<ul style="list-style-type: none"> a) PGE's new BART proposal is a reasonable approach that sets one date, eliminates the existing rules and ability to operate until 2040, and is a good compromise with DEQ's Option 2. b) In addition to the revised proposal, also still support PGE's BART III proposal. c) Would prefer the plant to continue operating until 2040, but if early closure must happen, support PGE's revised 2020 proposal.
Response	<ul style="list-style-type: none"> • <i>DEQ agrees with PGE's proposal to close the plant in 2020. By presenting the 2020 proposal, PGE has decided not to run the plant beyond 12/31/20.</i>
2. Do not add early closure options to the rules	<ul style="list-style-type: none"> a) Support PGE's new 2020 proposal, and do not add any earlier closure date options to the rules, such as 2018 or 2015-16. Rules should just have one closure date.

Response	a) <i>DEQ appreciates these comments, but believes there is still merit in retaining the 2015/2016 closure option. If PGE chooses to close the plant within 5 years of the date EPA approves the SIP, the cost savings from not purchasing and installing the dry sorbent injection system could offset the costs of replacement power. The 2015/2016 option may also be useful in responding to future regulatory requirements, such as the National Emission Standard for Hazardous Air Pollutant Standard scheduled for adoption in 2011 and carbon regulations.</i>
3. Add early closure date options	b) Both the 2015/16 and 2018 closure options should be added to the rules.
Response	b) <i>As noted above, DEQ recommends adding the 2015/16 closure option, within 5 years after EPA approves the SIP revision. The Boardman plant would have to comply with NO_x limits in 2011, but not the SO₂ limits in 2014. DEQ does not recommend including BART requirements for a 2018 closure because it would not be substantively different than the BART requirements for the 2020 closure.</i>
4. Opposed to the revised proposal	a) The new proposal from PGE is not much different than the prior proposal, and is therefore not much of an improvement, or supportable. b) Still support early closure in 2015 or sooner. c) Still support closure as soon as possible.
Response	<ul style="list-style-type: none"> • <i>The revised proposal from PGE is different than their prior BART III proposal, in that it proposes to eliminate the current rules and the 2040 option and set a firm closure date of 2020, and also establishes a lower SO₂ emission limit for the two year period from 2018 to 2020 closure.</i>
5. 2020 closure must be federally enforceable	a) Under PGE's new BART proposal, any rule requirement for permanent closure in 2020 must be federally enforceable.
Response	a) <i>The requirement to cease burning coal by 12/31/20 will be federally enforceable if the requirement is approved by EPA as a revision to DEQ's state implementation plan. Failure to comply with the requirement would result in enforcement action (civil or criminal).</i>
6. Repowering the plant after closure	a) The plant can't be repowered without permitting it as if it were a new source.
Response	a) <i>The proposed rules require PGE to cease burning coal in the Foster-Wheeler boiler by 12/31/20. Since the Foster-Wheeler boiler is currently designed to burn only coal, other than during short periods of startup, the requirement to cease burning coal will eliminate the netting basis for the Foster-Wheeler boiler in accordance with the definition of "netting basis" in OAR 340-200-0020. If there are future modifications to the boiler, such as re-powering using fuels other than coal, the requested emissions associated with the modification will be compared to the netting basis in accordance with the definition of "major modification" in OAR 340-200-0020. If the requested emissions due to</i>

	<p><i>the modification are equal to or greater than a significant emission rate above the netting basis, the modification would be subject to PSD because the source will still be a federal major source by virtue of the co-located Carty Plant (permit pending). It would be physically impossible to re-power a boiler the size of the Foster-Wheeler boiler with any type of fuel without at least one criteria pollutant emissions greater than a significant emission rate. Therefore, repowering would be subject to PSD.</i></p>
7. Opposed to any plant closure	<p>a) Opposed to this rulemaking, and to any early closure of the plant. b) Coal burning is still a viable option and should not be eliminated</p>
Response	<ul style="list-style-type: none"> As noted above, this rulemaking was triggered by a request from PGE for a rule change to reflect their desire for an early plant closure. This decision is being made by PGE and other co-owners of the plant, and will be subject to review by the Public Utilities Commission.

V. Other Comments and Issues Raised during this proposed rulemaking

1. PGE Boardman plant is health threat	<p>a) PGE Boardman is a large source of mercury, toxic air pollutants, and other dangerous pollutants, which represent a serious threat to public health. DEQ should be addressing this as well as regional haze. It's time to move beyond coal and transition to cleaner energy source.</p>
Response	<p>a) <i>DEQ recognizes these concerns. While the Boardman plant is a major source of air pollutants, it is a permitted source, and as such is required to operate in compliance with established air quality health standards, which DEQ is responsible to enforce. The purpose of this rulemaking is to meet the requirements of the federal Regional Haze Rule, related to improving visibility in Class I areas. DEQ's Air Quality Division conducts other rulemakings directed at protecting public health and meeting the requirements of the Clean Air Act. It should be noted that if PGE does decide to close the plant early by a certain date, this will eliminate all of the plant's emissions, which will have public health benefits, and reduce acid deposition, greenhouse gases, and other air pollutants.</i></p>
2. Comments on DEQ's existing 2009 rules for PGE Boardman	<p>a) DEQ should significantly strengthen the rules involving the "no closure option" (i.e., the existing 2009 rules). The NOx, SO2, and PM emission limits set forth in these rules do not reflect the best demonstrated system of continuous emission reduction that can be achieved at Boardman, and thus do not meet BART.</p>
Response	<p>a) <i>DEQ's existing regional haze rules that were adopted for the PGE Boardman plant in 2009 are not part of this rulemaking, and therefore DEQ is not seeking comment on these rules. Additionally, these comments were previously submitted by the commenter during the 2009 rulemaking (on Jan. 30, 2009) and were specifically addressed by DEQ at that time.</i></p>
3. PGE Boardman plant is out of	<p>a) DEQ needs to take action to remedy the violation of the Clean Air Act, related to the failure to comply with New Source Performance Standards and</p>

compliance	Prevention of Significant Deterioration requirements, including a Notice of Violation recently issued by EPA against the PGE Boardman plant
Response	<p>a) <i>The recent action taken by EPA involving the issuance of a Notice of Violation against the PGE Boardman plant is not related to this rulemaking.</i></p> <p>b) <i>DEQ acknowledges that there is a pending law suit with allegations that PGE has not complied with PSD and NSPS requirements that were applicable to the facility due to physical modifications in the past. More recently, EPA issued a Notice of Violation for not complying with the NSPS requirements due to physical changes in 1998 through 2004. Given the complexity of the factual and legal issues involved in resolving whether the Boardman facility undertook a modification or a series of modifications which triggered NSPS requirements, and given that these issues are being litigated in the case of Sierra Club, et al. v. PGE, Federal District Court for the District of Oregon, Case No. CV 08-1136 HA, DEQ declines to make a specific finding of non-applicability of any NSPS modification requirements.</i></p> <p><i>The issuance of an NOV by EPA is not, by itself, sufficient to demonstrate that the Boardman Plant is not in compliance with the Clean Air Act, pursuant to section 502(b)(2) of the Act. An NOV is an early step in the process for determining whether a violation has occurred, and is not a final EPA determination that a violation occurred. Likewise, as a legal matter it is not final agency action subject to judicial review. DEQ understands that EPA is still in the process of obtaining further information from PGE about whether a violation occurred. Therefore, DEQ lacks sufficient information at this point to reach a conclusion about whether PGE violated NSPS requirements. Like EPA, DEQ will consider additional information from PGE before reaching a conclusion.</i></p>
4. Adopt CO2 rules now	a) Climate change and greenhouse gases are the most important issue that DEQ should be addressing.
Response	a) <i>This rulemaking is not being proposed to adopt greenhouse gas limits or requirements for the Boardman plant, but rather meet federal requirements for BART.</i>
5. DEQ should not aggregate PGE Boardman impacts.	a) By stating that PGE Boardman impacts 14 Class I areas, DEQ is aggregating these impacts, which distorts and exaggerates the true impact on these areas.
Response	a) <i>DEQ does not intend to exaggerate the impacts of the Boardman Plant, but it is important to recognize that the Boardman Plant impacts numerous Class I areas. The purpose of the regional haze rules is to reduce the visibility impacts in all Class I areas, not just the one closest to a plant.</i>
6. Only DEQ has authority to determine BART.	a) Legally, DEQ not EPA has the authority to determine BART. EPA has a limited role.

Response	a) <i>EPA must take action on DEQ's regional haze plan, which must include a BART determination for affected facilities. EPA can disapprove the plan if it does not meet the requirements of the Clean Air Act.</i>
7. Issues with DEQ's BART analysis for the Boardman plant	<ul style="list-style-type: none"> a) Costs associated with the BART control options have been overstated. b) The BART control options can achieve lower emission limits. c) DEQ's BART analysis fails to account for the cost of replacement power, should the plant close early. d) DSI is an unproven technology that has not been demonstrated for a plant with a boiler the size of the one at PGE Boardman. For that reason, it is neither technically feasible nor cost effective for BART. Also, it is reasonable to expect that the sorbent injection will trigger PSD for PM2.5, requiring additional controls. e) Using Indonesian coal to reduce SO2 emissions is neither technically feasible nor cost-effective for BART. f) DEQ's BART analysis failed to take into account the rate of progress at the 14 Class I areas within 300 kilometers of the Boardman plant. g) In the modeling, if SDFGD controls are compared to DSI, the visibility improvement is below 0.5 deciviews, which is not a perceptible change. h) DEQ's modeling of the PGE Boardman plant's visibility impacts is highly questionable. The modeling results are not credible. i) The visibility improvement needs to be documented for all the affected Class I areas.
Response	<ul style="list-style-type: none"> a) <i>DEQ disagrees. DEQ was concerned with PGE's cost estimates when evaluating their BART analysis for the rules adopted in 2009 because PGE concluded that selective catalytic reduction was not cost effective for BART. As a result, DEQ contracted with ERG to evaluate the cost of selective catalytic reduction. ERG concluded that the tools usually used to estimate costs (e.g., CUE Cost and EPA's Cost Manual) underestimated real world costs. ERG further concluded that PGE's cost estimates were within the range of real world costs, albeit at the high end of the range. Although DEQ did not request ERG to specifically evaluate PGE's cost estimates for SDFGD, DEQ assumed that the real world costs for SDFGD would also be higher than estimates obtained from the usual cost estimation tools. The overall cost estimate using ERG's estimates was about 11 percent less than PGE's cost estimate. Due to the uncertainties associated with the cost estimates, DEQ decided to use PGE's cost estimates. The cost estimates for the 2009 rules were based on 2007 dollars. PGE adjusted the costs to 2010 dollars using a factor of 9.2 percent for the three year period. DEQ received a comment that the adjustment factor should only be 5.9 percent. DEQ acknowledges this discrepancy, but does not believe that a correction of 3.3 percent would change the BART conclusions.</i> b) <i>As noted in Section 1 of this document, DEQ received several comments that selective catalytic reduction and SDFGD can achieve lower emission rates than proposed by DEQ. If the control effectiveness were based on lower limits, there would be more emission reductions and the controls might be considered cost effective even if the plant were to shutdown on 12/31/20. The requests for using lower limits for the control technologies (~0.05 vs. 0.07</i>

lb/mmBtu for selective catalytic reduction and ~0.09 vs. 0.12 lb/mmBtu for SDFGD) are based on actual emissions data from other coal-fired plants, as well as permit limits in recently issued permits for new sources. DEQ agrees that in some cases the controls can achieve lower emissions than the limits used in the BART analysis. In fact, DEQ expects that the actual emissions will be less than the limits because the source would otherwise be out of compliance. DEQ does not believe that the actual emissions of other plants justifies establishing lower limits considering normal process and control device variables. DEQ believes that it is important to establish a limit that will require at least the type of control being considered in the BART analysis, but can be met at all times provided the controls are operated properly. DEQ does not believe a limit should be established that can be met only part of the time under ideal conditions. DEQ also believes it is not appropriate to use emission limits established for new sources for retrofit technologies; especially if it has not been demonstrated that the sources can actually meet the limit. Controls for new sources are an integral part of the design and should be able to achieve slightly lower limits.

- c) DEQ agrees. The BART determination includes an analysis of the cost of compliance, energy impacts, non-air quality environmental impacts, and the remaining useful life of the plant. The BART guidelines specify that “the analysis should focus on the direct impact of the control alternative.” [BART guidelines III.Step 4]*
- d) DEQ disagrees. DSI is a proven technology that is feasible for the Boardman plant. DEQ agrees that there are potential side effects that need to be evaluated before establishing a firm limit for DSI.*
- e) DEQ agrees that using Indonesian coal may not be feasible at this time. However, it is possible that coal from the western US may be shipped to other countries from western ports in the future. If the infrastructure is developed to ship coal out of the country, it is possible that coal could be shipped into the country using the same infrastructure.*
- f) The rate of progress in the Mt. Hood Wilderness area as a result of the proposed BART requirements for the Boardman plant will be approximately 1.44 dv on 7/1/11, 2.41 dv on 7/14, 2.75 dv on 7/1/18, and 4.98 dv on 12/31/20.*
- g) DEQ agrees that SDFGD only provides about 0.4 dv improvement over DSI in 2014, assuming that the DSI system can meet a limit of 0.40 lb/mmBtu. In addition, DEQ has determined that the incremental cost of SDFGD over DSI is nearly \$7,300/ton. For these reasons, DEQ does not believe SDFGD is BART if the plant closes on 12/31/2020 and DSI is installed and operated from 7/1/14 through 12/31/20.*
- h) DEQ and PGE conducted modeling in accordance with a modeling protocol developed and approved in corroboration with EPA, the National Park System, US Forest Service, Washington DOE, and Idaho DEQ. Air dispersion modeling is a tool for estimating the impacts of sources and tends to be conservative. The model uses actual meteorological data from the period of 2003 through 2005. Haze in the Columbia River Gorge and Class I areas has been documented with actual monitoring data.*
- i) DEQ has conducted additional modeling. The results of the modeling for each Class I area are provided in Table 10.5.1-2 under Section 10.5.1, Chapter 10,*

	<i>of DEQ's revised 2009 Oregon Regional Haze Plan.</i>
8. BART is not "all or nothing"	a) The regional haze BART requirements was never intended to be an all-or-nothing approach forcing plant closures or intended to apply control technology considerations similar to MACT.
Response	a) <i>DEQ agrees. BART requirements are intended to achieve emission reductions and visibility improvement based on an analysis of available controls. They were not intended to close down a plant. However, PGE has requested that the remaining useful life of the plant be considered in the BART determination process. For this to be possible, the remaining useful life of the plant must be federally enforceable. PGE has decided to close the plant, not DEQ. The rules adopted in 2009 did not include a closure date for the plant.</i>
9. Hold local meeting before adopting rules.	a) It is vital that meetings be held in both Morrow and Umatilla Counties before a final decision is made. It is important to understand the impact in these areas.
Response	a) <i>DEQ agrees on the importance of holding local meetings, and for that reason held two of the public hearings in this area – one in Hermiston, and one in Boardman. These hearings allowed local citizens to voice their concerns about the possible closure of PGE Boardman plant, and DEQ's proposed rule options related to this decision by PGE. At the beginning of each hearing, DEQ presented information on this proposed rulemaking, and participated in a question and answer discussion prior to accepting public testimony. The comments DEQ received at these public hearings expressed many of the concerns of local residents about the impact of this rulemaking. DEQ is carefully considering all of the comments submitted in making its final recommendation on this rulemaking to the EQC.</i>
10. Keep the plant open through 2040	a) PGE Boardman provides cheap electrical power and jobs. Do not close the plant by 2020. It should be kept open until at least 2040. b) Given the current economy, please do not impose expensive and burdensome regulations on PGE. This especially affects the jobless, elderly, and the poor.
Response	• <i>DEQ agrees that the Boardman plant currently provides cheap and reliable power. A decision to close the plant can only be made by PGE, not DEQ. Consistent with this, DEQ has proposed rule changes with less expensive controls, which contain early closure date options for PGE. PGE could also continue to operate the plant if they so choose.</i>
11. DEQ's reasonable progress demonstration	a) In the Oregon 2009 Regional Haze Plan, DEQ's reasonable progress demonstration shows a slower rate of progress than what is needed to attain natural conditions in 2064. Under federal rules, DEQ needs to show that the 2064 target is not reasonable.
	a) <i>Oregon's haze plan does not assert the 2064 glideslope or target is "not reasonable." In fact, DEQ maintains that rate of progress identified in the plan to attain natural conditions in 2064 is reasonable. DEQ notes that it would be</i>

	<p><i>premature to reject or replace the 2064 glideslope to reach natural conditions just because initial projections for the worst 20 percent days in the first haze plan were less than the 2018 milestone. The next plan update in 2013 will contain several work products that are likely to provide additional emission reductions needed for reasonable progress. In addition, revisions to Oregon's regional haze plan based on this rulemaking do acknowledge the PGE Boardman emission reductions after 2018, which could be considerable, as part of the reasonable progress demonstration in the plan.</i></p>
12. Comments on coal burning	<ul style="list-style-type: none"> a) Coal contributes to four of the five leading causes of mortality in the US – heart disease, cancer, stroke, and COPD. DEQ should consult regularly with the Center for Research on Occupational and Environmental Toxicology at OHSU and the Department of Environmental and Molecular Toxicology at OSU. b) Oregon should be coal-free. c) Clean coal does not exist. d) Coal is plentiful and very economical compared to other fuels, and is reliable for base load applications. Emissions from coal burning can be effectively controlled.
Response	<ul style="list-style-type: none"> • <i>DEQ agrees there are other cleaner sources of electricity than coal, such as natural gas, wind, and solar energy. Decisions regarding the future of coal use, or the continued operation of the PGE Boardman plant, are beyond the scope of this rulemaking.</i>

VI. Miscellaneous Comments

<ul style="list-style-type: none"> • There is no credible evidence that regional haze is a problem, or that the Boardman plant is causing haze problems.
<ul style="list-style-type: none"> • Replacing the Boardman coal plant with biomass combustion is just as bad as coal, in terms of carbon emissions and contributing to global warming.
<ul style="list-style-type: none"> • The 2020 closure date allows sufficient time to evaluate a different fuel source such as biomass.
<ul style="list-style-type: none"> • DEQ should conduct more monitoring of priority pollutants, visibility, and mercury, so that data can be properly shared and analyzed.
<ul style="list-style-type: none"> • PGE Boardman has been operating for far too long without any pollution controls, and causing impacts on public health. Enough is enough. The plant should be closed as soon as possible.
<ul style="list-style-type: none"> • Aggressive action is needed to pursue energy conservation and energy efficiency programs.
<ul style="list-style-type: none"> • Replacing the Boardman coal plant with a natural gas plant just replaces one type of pollution with another.
<ul style="list-style-type: none"> • Electricity costs are going up because of regulations like this. Nuclear power and increased use of hydroelectric power should be pursued.
<ul style="list-style-type: none"> • DEQ is not adequately considering the well-being of the state's manufacturing sector in requiring unnecessary controls which will drive up operational costs for the state's remaining manufacturing base. DEQ should adopt rules that inflict the least cost to Oregon's ailing economy and minimizes further job loss.
<ul style="list-style-type: none"> • Further investment in coal will prevent us from meeting state climate goals

- Regulations on climate change are currently being developed, and reducing Boardman plant's greenhouse gas emissions is therefore important.
- PGE should develop a plan for closing the Boardman plant as soon as possible, and develop a long-range master plan for transitioning into more energy conservation and renewable energy.
- The PGE Boardman plant is a critical base load facility, and as such is a key source of reliable energy. It is important to provide enough time to replace such energy generation for overall grid reliability, especially as we transition to more renewable generation sources.
- I believe in global liberation

List of People and Organizations Submitting Comments

Public Comments from first Comment Period 9/1/10 to 10/1/10

Letters

Letters include written comments received by mail, at public hearings, and attached to emails. Does not include attachments (see footnote ²)

No.	Name	Location	Affiliation or Organization	Submit Date
1.	Arya Behbehani ² Manager, Environmental Services	Portland	Portland General Electric Company	9/08/2010 10/01/2010
2.	Catherine Collins	Gresham		9/11/2010
3.	Keith Mays, Mayor	Sherwood	City of Sherwood	9/14/2010
4.	Andy Duyck Washington County Commissioner, District 4	Hillsboro	Washington County Board of County Commissioners	9/15/2010
5.	Denny Doyle, Mayor	Beaverton	City of Beaverton	9/15/2010
6.	Steve and Patricia Mosbacher	Beaverton		9/15/2010
7.	Craig E. Dirksen, Mayor	Tigard	City of Tigard	9/16/2010
8.	Pat Shaw Gilliam County Judge	Condon	Gilliam County	9/20/2010
9.	Martin Donohoe, MD	Portland		9/21/2010
10.	Jonathan Schlueter Executive Director	Tigard	Westside Economic Alliance	9/21/2010
11.	Elizabeth B. Kaplan	Portland		9/21/2010
12.	Bernie Bottomly	Portland	Portland Business Alliance	9/21/2010
13.	Maye Thompson	Portland	OR Physicians for Social Responsibility	9/21/2010
14.	Borden Beck	Portland		9/21/2010
15.	Caitlin Piserchia	Portland		9/21/2010
16.	Louise Waitt	Portland		9/21/2010
17.	Andrew Sherman	Vancouver		9/21/2010
18.	Tom Stodd	Portland		9/22/2010
19.	Stephen M. Amy Robin Bloomgarden	Beaverton		9/22/2010

20.	Casey Gifford	Eugene		9/23/2010
21.	Katie Taylor	Eugene		9/23/2010
22.	Enid Griffin	Portland		9/24/2010
23.	Mary Wagner ² Regional Forester	Portland	U.S. Forest Service Pacific Northwest Region	9/27/2010
24.	Joanne Delmonico	Portland		9/27/2010
25.	Lorraine Heller Sandy Sieglinger	Portland		9/27/2010
26.	David Sykes, President	Heppner	Willow Creek Valley Economic Development Group	9/27/2010
27.	Claire Sponseller Lisanne Currin Sheryll Bates	Heppner	Heppner Chamber of Commerce	9/27/2010
28.	Elwood Patawa, Chairman	Pendleton	Confederated Tribes of the Umatilla Indian Reservation	9/28/2010
29.	Rodney B. Mruk Reverend	Hermiston Pendleton	Trinity Evangelical Lutheran Church Faith Lutheran Church	9/28/2010
30.	Beth Anderson	Molalla		9/28/2010
31.	anonymous	n/a		9/28/2010
32.	W. Lawrence Givens, Commissioner Terry K. Tallman, Judge	Pendleton Heppner	Umatilla County Morrow County	9/28/2010
33.	Terry K. Tallman, Judge	Heppner	Morrow County	9/28/2010
34.	Barry C. Beyeler, Community Development Director	Boardman	City of Boardman	9/28/2010
35.	Pamela Barrow	Portland	Northwest Food Processors Association	9/29/2010
36.	Lou Ogden, Mayor	Tualatin	City of Tualatin	9/29/2010
37.	Gary Thompson, Sherman County Judge	Moro	Sherman County	9/29/2010
38.	Janet Taylor, Mayor	Salem	City of Salem	9/29/2010
39.	Ron Fox Executive Director	Medford	SOREDI (Southern Oregon Regional Economic Development, Inc.)	9/29/2010
40.	Chet Phillips, Mayor	Boardman	City of Boardman	9/29/2010
41.	Jurgen A. Hess	Hood River		9/30/2010
42.	Jill Arens Executive Director	White Salmon, WA	Columbia River Gorge Commission	9/30/2010
43.	Marcy Putman	Portland	International Brotherhood of Electrical Workers, Local 125	9/30/2010
44.	Jeanne E. Burch Wheeler County Judge	Fossil	Wheeler County	9/30/2010
45.	Corky Collier Executive Director	Portland	Columbia Corridor Association	9/30/2010
46.	Pam Gilmer President	Portland	The Mazamas	9/30/2010
47.	Sam Adams, Mayor	Portland	City of Portland	9/30/2010
48.	John Ledger Vice President	Salem	Associated Oregon Industries	9/30/2010
49.	Brian Pasko Michael Lang Mark Riskedahl Lauren Goldberg Brian Kelly Brock Howell	Portland, other	Sierra Club, Oregon Chapter Friends of the Columbia Gorge Northwest Environmental Defense Center Columbia Riverkeeper Hells Canyon Preservation Council Environment Oregon	10/01/2010
50.	Andrea Durbin	Portland	Oregon Environmental Council	10/01/2010

	Executive Director			
51.	Eric Chung	Portland	PacifiCorp	10/01/2010
52.	Bob Jenks Executive Director	Portland	Citizens Utility Board of Oregon	10/01/2010
53.	Kevin Lynch ² Stephanie Kodish	Boulder, CO Knoxville, TN	Environmental Defense Fund National Parks Conservation Association	10/01/2010
54.	John Bunyak ² Acting Chief, Air Resources Division	Denver, CO	National Park Service	10/01/2010
55.	Richard Albright Director	Seattle, WA	EPA Region 10	10/01/2010
56.	Mike McArthur Executive Director	Salem	Association of Oregon Counties	10/01/2010
57.	Kathleen F. Martin	The Dalles		10/01/2010
58.	Mary J. Repar	Stevenson, WA		10/01/2010
59.	Tom Ivancie	Portland	Energy Action Northwest	10/01/2010
60.	Steven Weiss	Seattle, WA	NW Energy Coalition	10/01/2010
61.	Rachel Shimshak Executive Director	Portland	Renewable Northwest Project	10/01/2010
62.	William L. Kovacs	Washington D.C.	Chamber of Commerce of the United States of America	10/01/2010
63.	Angus Duncan, Chair	Salem	Oregon Global Warming Commission	10/01/2010
64.	Kathryn VanNatta	Mercer Island, WA	Northwest Pulp & Paper Association	10/01/2010
65.	Manuel Castaneda President	Hillsboro	Washington County Business Council	10/01/2010
66.	Terry K. Tallman, Judge Ken A. Grieb, Commissioner Leann Rea, Commissioner	Heppner	Morrow County	10/01/2010
67.	Joan Barton	Portland		10/01/2010
68.	Form Letter 1 (189) ³	n/a	Sierra Club members	9/21/2010
69.	Form Letter 2 (36) ³	n/a		9/27/2010
70.	Form Letter 3 (25) ³	n/a	Sierra Club members	10/01/2010
71.	Form Letter 4 (38) ³		Misc. local government, chambers of commerce, and businesses	10/01/2010
72.	Form Letter/postcard 1 (2396) ³	n/a		9/01/2010 to 10/01/2010
73.	Form Letter/postcard 2 (155) ³	n/a		9/01/2010 to 10/01/2010

Oral Testimony

Location represents the site of the public hearing. Those who provided written comments are noted with *. To avoid duplication, those who provided both oral and written comments, priority was given referencing the written comments, rather than the oral testimony. Those who testified are more than one hearing are noted with +. For additional information, see Attachment C "DEQ Hearing Officer's Report on Public Hearings."

74.	Arya Behbehani * +	Portland	Portland General Electric Company	9/21/2010
75.	Jay Dudley * +	Portland	Portland General Electric Company	9/21/2010
76.	Dave Robertson * +	Portland	Portland General Electric Company	9/21/2010
77.	Wilda Parks	Portland	N.Clackamas Co. Chamber of Commerce	9/21/2010
78.	Nick Engelfried +	Portland	private citizen	9/21/2010
79.	John Maloney	Portland	private citizen	9/21/2010
80.	Margo Bryant	Portland	Portland General Electric Company	9/21/2010

81.	Larry Givens * +	Portland	Umatilla County Commissioner	9/21/2010
82.	Nancy Hatch	Portland	private citizen	9/21/2010
83.	Bernie Bottomly *	Portland	Portland Business Alliance	9/21/2010
84.	Corky Collier *	Portland	Columbia Corridor Association	9/21/2010
85.	Travis Stovall	Portland	East Metro Economic Alliance	9/21/2010
86.	Jason Brandt	Portland	Salem Chamber of Commerce	9/21/2010
87.	Joe Esmonde	Portland	IBEW Local 48	9/21/2010
88.	John Mohlis	Portland	Columbia Pacific Building Trades Council	9/21/2010
89.	Jonathon Schlueter *	Portland	Westside Economic Alliance	9/21/2010
90.	Debbie Kitchen	Portland	Inter Works	9/21/2010
91.	Mike Holcomb	Portland	small business owner	9/21/2010
92.	Denzel Scheller	Portland	Hillsboro Chamber of Commerce	9/21/2010
93.	Manuel Castaneda	Portland	small business owner	9/21/2010
94.	Tom Wood	Portland	Associated Oregon Industries	9/21/2010
95.	Wayne Lei	Portland	private citizen	9/21/2010
96.	Andree Yost	Portland	Portland General Electric Company	9/21/2010
97.	Elizabeth Kaplan *	Portland	private citizen	9/21/2010
98.	Rodger Winn	Portland	Sierra Club	9/21/2010
99.	Vern Groves	Portland	private citizen	9/21/2010
100.	Roger Cole	Portland	Sierra Club	9/21/2010
101.	Robin Everett	Portland	Sierra Club	9/21/2010
102.	Robin Fahy	Portland	student	9/21/2010
103.	Katie Kann	Portland	student	9/21/2010
104.	Tyler Gerlach	Portland	student	9/21/2010
105.	Geoff Guillory	Portland	student	9/21/2010
106.	Maye Thompson *	Portland	OR Physicians for Social Responsibility	9/21/2010
107.	Antonio Samora	Portland	private citizen	9/21/2010
108.	Erika Winters	Portland	Greenpeace	9/21/2010
109.	Alyssa Ransbury	Portland	Greenpeace	9/21/2010
110.	Christopher Froman	Portland	Greenpeace	9/21/2010
111.	Anna Sotia Gidlund	Portland	Greenpeace	9/21/2010
112.	David Pfosr	Portland	Sierra Club	9/21/2010
113.	Wesley Kempler	Portland	Sierra Club	9/21/2010
114.	Cesia Kearns	Portland	private citizen	9/21/2010
115.	Fred Heutte	Portland	Sierra Club & small business owner	9/21/2010
116.	John Steele	Eugene	Friends of Dorena Dam Habitat	9/23/2010
117.	Katie Taylor *	Eugene	OSPIRG	9/23/2010
118.	Casey Gifford *	Eugene	Climate Justice League	9/23/2010
119.	Emma Newman	Eugene	Climate Justice League	9/23/2010
120.	Dave Hauser	Eugene	Oregon State Chamber of Commerce	9/23/2010
121.	Kathy Ging	Eugene	private citizen	9/23/2010
122.	Arya Behbehani +	Eugene	Portland General Electric Company	9/23/2010
123.	Amy Krol	Eugene	student	9/23/2010
124.	Chet Phillips +	Eugene	Mayor, City of Boardman	9/23/2010
125.	Ariel McCoy	Eugene	OSPIRG	9/23/2010
126.	Sania Radcliffe	Eugene	Portland General Electric Company	9/23/2010
127.	Catherine Thomasson	Eugene	OR Physicians for Social Responsibility	9/23/2010
128.	Kylie Halloran	Eugene	Sierra Club	9/23/2010
129.	Nick Engelfried +	Eugene	private citizen	9/23/2010
130.	David Besonon	Eugene	small business owner	9/23/2010
131.	David Nelson	Hermiston	State Senator, District 29	9/28/2010
132.	Bob Jenson	Hermiston	State Representative, District 58	9/28/2010
133.	Terry Tallman * +	Hermiston	Morrow County Judge	9/28/2010

134.	Larry Givens * +	Hermiston	Umatilla County Commissioner	9/28/2010
135.	Chet Phillips * +	Hermiston	Mayor, City of Boardman	9/28/2010
136.	Karen Wolff	Hermiston	Morrow County resident	9/28/2010
137.	Arya Behbehani +	Hermiston	Portland General Electric Company	9/28/2010
138.	Bill Nicholson	Hermiston	Portland General Electric Company	9/28/2010
139.	Diane Wolfe	Hermiston	Boardman Chamber of Commerce	9/28/2010
140.	Rick Main	Hermiston	IBEW Local 125	9/28/2010
141.	Sheryll Bates	Hermiston	Heppner Chamber of Commerce	9/28/2010
142.	Karen Pettigrew	Hermiston	City of Boardman	9/28/2010
143.	Steve Eldrige	Hermiston	Umatilla Electrical Cooperative	9/28/2010
144.	Chuck Little +	Hermiston	Pendleton Building Trades	9/28/2010
145.	Randy Yates	Hermiston	private citizen	9/28/2010
146.	Rod Osgood	Hermiston	IUOE Local 701	9/28/2010
147.	John Edmundson	Hermiston	Heppner Chamber of Commerce	9/28/2010
148.	Gary Neal	Hermiston	Port of Morrow	9/28/2010
149.	Debbie Pedro	Hermiston	Hermiston Chamber of Commerce	9/28/2010
150.	Tamra Mabbott	Hermiston	Umatilla County Planning Dept.	9/28/2010
151.	Don Anderson	Hermiston	NAES Power Contractors	9/28/2010
152.	David Richards	Hermiston	Boardman resident	9/28/2010
153.	Bill Hoke	Medford	City of Medford	9/29/2010
154.	Ray Hendricks * +	Medford	Portland General Electric Company	9/29/2010
155.	Ron Fox *	Medford	SORED I	9/29/2010
156.	Monte Mendenhall	Medford	Pacific Power	9/29/2010
157.	Deane Funk	Medford	Portland General Electric Company	9/29/2010
158.	Sarah Westover	Medford	Beyond Coal Campaign	9/29/2010
159.	Meryl Six	Medford	Cascade Climate Network/Beyond Coal	9/29/2010
160.	Steve Vincent	Medford	Avista Utilities	9/29/2010
161.	Benji Nagel	Medford	student	9/29/2010
162.	Ted Ferrioli	The Dalles	State Senator, District 30	9/30/2010
163.	John Huffman	The Dalles	State Representative, District 59	9/30/2010
164.	Terry Tallman * +	The Dalles	Morrow County Judge	9/30/2010
165.	Larry Givens * +	The Dalles	Umatilla County Commissioner	9/30/2010
166.	Ray Hendricks * +	The Dalles	Portland General Electric Company	9/30/2010
167.	Jay Dudley +	The Dalles	Portland General Electric Company	9/30/2010
168.	Dave Robertson +	The Dalles	Portland General Electric Company	9/30/2010
169.	Dale Coyle	The Dalles	Portland General Electric Company	9/30/2010
170.	John McClain	The Dalles	Portland General Electric Company	9/30/2010
171.	Chuck Little +	The Dalles	Pendleton Building Trades	9/30/2010
172.	Barry Beyeler *	The Dalles	City of Boardman	9/30/2010
173.	Daniel Spatz	The Dalles	Columbia Gorge Community College	9/30/2010
174.	Paul Woodin	The Dalles	Community Renewable Energy Assoc.	9/30/2010
175.	Peter Cornelison	The Dalles	Friends of the Columbia Gorge	9/30/2010
176.	John Wood	The Dalles	private citizen	9/30/2010
177.	Mary Repar *	The Dalles	private citizen	9/30/2010
178.	Tom Wood	The Dalles	private citizen	9/30/2010
179.	John Nelson	The Dalles	private citizen	9/30/2010
180.	Tom Ivancie *	The Dalles	Energy Action NW	9/30/2010
181.	Jurgen Hess *	The Dalles	private citizen	9/30/2010
182.	Dave Berger	The Dalles	private citizen	9/30/2010

Emails

Those who provided written testimony along with an email are listed above under letters.

183.	Aaron Douglas		9/7/2010
184.	Andy Palmer		9/21/2010
185.	Anita Morrison		9/9/2010
186.	Audie Huber		9/28/2010
187.	Bill and Lucy Kimbro		9/2/2010
188.	Bill Lonerman		9/9/2010
189.	Chris Cook		9/4/2010
190.	Chuck Little		9/3/2010
191.	Craig Smith		9/17/2010
192.	Curtis Cutsforth		9/1/2010
193.	Dan Jaffee		9/1/2010
194.	Dave Vanderzanden		9/21/2010
195.	David and Patti Lane		9/23/2010
196.	David Shapiro		9/17/2010
197.	Denis Mososwski		9/2/2010
198.	Denise Steffenhagen		9/1/2010
199.	Diane Winn		9/22/2010
200.	Don Scholter		9/3/2010
201.	E. Marlow		9/6/2010
202.	Ed Berg		9/1/2010
203.	Ellyne Kutschera		9/17/2010
204.	Garey Kurtz		9/8/2010
205.	Gerald Waters		9/1/2010
206.	Greg Debros		9/21/2010
207.	Iriana Phillips		9/22/2010
208.	Harry Shaich		9/23/2010
209.	Jim Conroy		9/18/2010
210.	Jodi Miller		9/2/2010
211.	John Denton		9/1/2010
212.	Judi L. Baker		9/2/2010
213.	Keith and Karen Harding		9/18/2010
214.	Kevin Horan		9/29/2010
215.	Linda Cate		9/30/2010
216.	Lisa Caballery		9/28/2010
217.	L J Ross		9/29/2010
218.	Lowrey Brown		9/20/2010
219.	Margaret Davies		9/21/2010
220.	Marilyn Burke		9/1/2010
221.	Mike Litt		9/2/2010
222.	Nicholas Loos		9/22/2010
223.	Nicholas Page		9/7/2010
224.	Pam Barrow		9/29/2010
225.	Randall Webb		9/8/2010
226.	Sara W. Baker		9/11/2010
227.	Shane Dugherty		9/1/2010
228.	Shirley Cereghino		9/27/2010
229.	Stuart Phillips		9/1/2010
230.	Tanya Baikow-Smith		9/27/2010
231.	W. Badrick		9/1/2010
232.	Email form letter 1 - (244) ³		9/01/2010 to 10/01/2010
233.	Email form letter 2 - (5) ³		9/01/2010 to 10/01/2010

234.	Email form letter 3 - (63) ³			9/01/2010 to 10/01/2010
235.	Email form letter 4 - (140) ³			9/01/2010 to 10/01/2010
Public Comments from second Comment Period 10/29 to 11/15				
Letters				
Letters includes written comments received by mail, at public hearings, and attached to emails. Does not include attachments (see footnote ²)				
No.	Name	Location	Affiliation or Organization	Submit Date
236.	Nicole Forbes	Portland	Friends of the Columbia Gorge	11/8/2010
237.	Kyle Gorman	Milwaukie	Clackamas Fire District #1	11/8/2010
238.	Maye Thompson	Portland	OR Physicians for Social Responsibility	11/8/2010
239.	Stephen M. Amy	Beaverton		11/11/2010
240.	Steven Quennoz ² Vice President, Power Supply/Generation	Portland	Portland General Electric Company	11/15/2010
241.	Brian Pasko Mark Riskedahl Michael Lang Greg Dyson Maye Thompson Bret VandenHeuvel Steve Pedery Brent Fenty Josh Laughlin Mary Preveto Lisa Arkin	Portland, and other	Sierra Club, Oregon Chapter Northwest Environmental Defense Center Friends of the Columbia Gorge Hells Canyon Preservation Council OR Physicians for Social Responsibility Columbia Riverkeeper Oregon Wild Oregon Natural Desert Association Cascadia Wildlands Project Neighbors for Clean Air Oregon Toxics Alliance	11/15/2010
242.	Rick Till	Portland	Native Plant Society of Oregon	11/15/2010
243.	John Bunyak ² Acting Chief, Air Resources Division	Denver, CO	National Park Service	11/15/2010
244.	Arya Behbehani	Portland	Portland General Electric Company	11/15/2010
245.	Andrea Durbin Executive Director	Portland	Oregon Environmental Council	11/15/2010
246.	Keith Rose	Seattle WA	EPA Region 10	11/15/2010
247.	Terry K. Tallman, Judge Ken A. Grieb, Commissioner Leann Rea, Commissioner	Heppner	Morrow County	11/15/2010
248.	Janette K. Brimmer Aubrey Balwin		Earthjustice on behalf of Sierra Club Pacific Environmental Advocacy Center, on behalf of Sierra Club, Northwest Environmental Defense Center, Friends of the Columbia Gorge, Columbia Riverkeepers, and Hells Canyon Preservation Council	11/15/2010
249.	Lucy Roberts	n/a		11/15/2010
250.	Emily Tuchman	Portland		11/15/2010
251.	Lauren Reiterman	Portland		11/15/2010
252.	Hillary Patin	Portland		11/15/2010

253.	Miriam Coe	Portland		11/15/2010
254.	Tom Lang	Portland		11/15/2010
255.	Barbara Robinson	Mosier		11/15/2010
256.	Form Letter 1 ³ (118)	n/a		11/8/2010
257.	Form Letter/postcard 1 (238) ³	n/a		9/01/2010 to 10/01/2010
258.	Form Letter/postcard 2 (1928) ₃	n/a		9/01/2010 to 10/01/2010
259.	Form Letter/postcard 3 (11) ³	n/a		9/01/2010 to 10/01/2010

Oral Testimony

Location represents the site of the public hearing. Those who provided written comments are noted with *. To avoid duplication, those who provided both oral and written comments, priority was given referencing the written comments, rather than the oral testimony. Those who testified are more than one hearing are noted with +. For additional information, see Attachment C "DEQ Hearing Officer's Report on Public Hearings."

260.	Dave Robertson +	Portland	PGE	11/8/2010
261.	Wendi Eiland	Portland	Beverton Chamber of Commerce	11/8/2010
262.	Marcy Putman	Portland	IBEW Local 125	11/8/2010
263.	Kristan Sheeran, Phd	Portland	Economics for Equity and Environment Network	11/8/2010
264.	Erika Winters-Heilman	Portland	Private citizen	11/8/2010
265.	Kaician Kitko	Portland	Private citizen	11/8/2010
266.	Kyle Gorman *	Portland	Clackamas county Fire District #1	11/8/2010
267.	Linda Moholt	Portland	Tualatin Chamber of Commerce	11/8/2010
268.	Jay Halladay	Portland	Coaxis	11/8/2010
269.	Mark Clemons	Portland	Group MacKenzie	11/8/2010
270.	Samantha Cummings	Portland	Private citizen	11/8/2010
271.	Jon Pauletto	Portland	Private citizen	11/8/2010
272.	Adam Walters	Portland	Student	11/8/2010
273.	Trevor Griffith	Portland	Private citizen	11/8/2010
274.	Robin Everett	Portland	Sierra Club	11/8/2010
275.	Sofia Gidlund	Portland	Greenpeace	11/8/2010
276.	Elizabeth Kaplan	Portland	Private citizen	11/8/2010
277.	Geoff Guillory	Portland	Private citizen	11/8/2010
278.	Roger Cole	Portland	Sierra Club	11/8/2010
279.	Liam Doherty-Nicholson	Portland	Greenpeace	11/8/2010
280.	Bob Jenks *	Portland	Citizen Utility Board	11/8/2010
281.	Jason Lehne	Portland	Foundation Life Management	11/8/2010
282.	Angi Dilkes *	Portland	Oregon Business Association	11/8/2010
283.	Caitlin Piserchia	Portland	Private citizen	11/8/2010
284.	Cesia Kearns	Portland	Private citizen	11/8/2010
285.	Duncan Reid	Portland	Private citizen	11/8/2010
286.	Nathan Jones	Portland	Private citizen	11/8/2010
287.	Alden Moss	Portland	Private citizen	11/8/2010
288.	Jenny Bedell-Stiles	Portland	Private citizen	11/8/2010
289.	NickEngelfried	Portland	Private citizen	11/8/2010
290.	Maye Thompson	Portland	OR Physicians for Social Responsibility	11/8/2010
291.	Daniel Cobb	Portland	Private citizen	11/8/2010
292.	Nancy Hatch	Portland	Private citizen	11/8/2010
293.	Antonio Zamora	Portland	Greenpeace	11/8/2010
294.	Bill Bigelow	Portland	Private citizen	11/8/2010

295.	Borden Beck	Portland	PGE customer	11/8/2010
296.	Tom Wood	Portland	Associate Oregon Industries	11/8/2010
297.	Mathilde Mouw	Portland	Student	11/8/2010
298.	Joel Durr	Portland	Private citizen	11/8/2010
299.	Natasha Hultmann	Portland	Private citizen	11/8/2010
300.	Tom Ivancie	Portland	Energy Action Northwest	11/8/2010
301.	Terry Tallman	Boardman	Morrow County Judge	11/9/2010
302.	Chet Phillips	Boardman	Mayor, City of Boardman	11/9/2010
303.	Dave Robertson	Boardman	Portland General Electric Company	11/9/2010
304.	Barry Beyeler	Boardman	City of Boardman	11/9/2010
305.	Rick Main	Boardman	IBEW Local 125	11/9/2010
306.	Marcy Putman	Boardman	IBEW Local 125	11/9/2010
307.	Sheryll Bates	Boardman	Heppner Chamber of Commerce	11/9/2010
308.	Diane Wolfe	Boardman	Boardman Chamber of Commerce	11/9/2010
309.	Steve Doherty	Boardman	Private Citizen	11/9/2010
310.	Chuck Little	Boardman	Pendleton Building Trades	11/9/2010
311.	Dave De Mayo	Boardman	City of Heppner	11/9/2010
312.	Karen Pettigrew	Boardman	City of Boardman	11/9/2010
313.	Karen Wolff	Boardman	Morrow County resident	11/9/2010
314.	Randal Curtis	Boardman	Private Citizen	11/9/2010
315.	Don Russell	Boardman	Private Citizen	11/9/2010
316.	Gary Neal	Boardman	Port of Morrow	11/9/2010
317.	Jody Marston	Boardman	Private Citizen	11/9/2010

Emails

Those who provided written testimony along with an email are listed above under letters.

318.	Alyssa Ransbury			11/15/2010
319.	Andrew			11/6/2010
320.	Brad Mattison			11/10/2010
321.	Carol Crawford			11/13/2010
322.	Charles Little			n/a
323.	Cheryl McEvoy			11/15/2010
324.	Christa Sprinkle			11/12/2010
325.	Clay Spencer			10/31/2010
326.	Curtis French			11/14/2010
327.	Dan Huntington			11/15/2010
328.	Darryl Lloyd			11/13/2010
329.	Darvel Lloyd			11/12/2010
330.	Dave Mull			11/9/2010
331.	Deb Hupcey			11/12/2010
332.	Donn Chalfant			10/30/2010
333.	Ellen Cantwell			11/14/2010
334.	Gladys Biglor			11/6/2010
335.	Ineke Deruyter			11/8/2010
336.	James Adcock			11/15/2010
337.	Jay D. McIntosh			11/13/2010
338.	John Gear			11/13/2010
339.	Kelsey Ward			11/12/2010
340.	Kipp Coddington			11/11/2010
341.	Larry Read			n/a
342.	Laura Carver			11/11/2010
343.	Marcia Turnquist			n/a

344.	Marcus Lanskeyh		10/29/2010
345.	Mona Price		11/11/2010
346.	Neal s. Walker		11/15/2010
347.	Nicole		11/13/2010
348.	Patty Sittser		n/a
349.	Pixahm Cuj		11/14/2010
350.	Ramona Crocker		11/14/2010
351.	Robert Graham		11/7/2010
352.	Robert Kimbro		n/a
353.	Ron Mink		11/7/2010
354.	Ruth Phinney		11/15/2010
355.	Scott Mara		11/12/2010
356.	Scott & Tracey		11/9/2010
357.	Sue and Pat Harford		10/29/2010
358.	Ted Ernst		11/12/2010
359.	Tyler Grimes		11/10/2010
360.	Email form letter - (1255) ³		10/29/2010 - 11/15/2010

² Commenters who provided attachments (available upon request)

³ For the list of commenters in this group, see Attachment 1 (available upon request). Numbers in **bold** reflect multiple commenters (via form letter or email).