

**Date:** October 6, 2008

**To:** Environmental Quality Commission

**From:** Dick Pedersen, Director

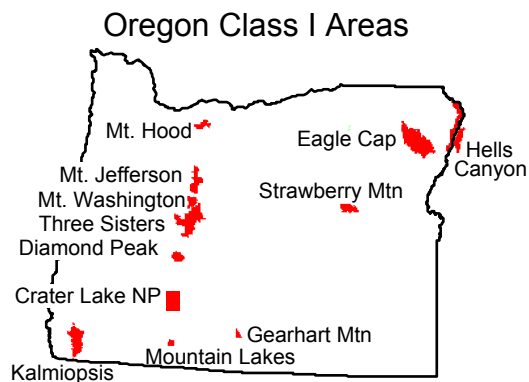
**Subject:** Agenda Item K, Informational Item: Proposal for PGE Boardman BART and overview of 2008 Oregon Regional Haze Plan  
October 23, 2008 EQC Meeting

**Purpose of Item** The purpose of this informational item is to inform the Environmental Quality Commission about an upcoming rulemaking regarding the proposed 2008 Oregon Regional Haze Plan, including the Department of Environmental Quality’s rule proposal for emission controls on the PGE Boardman electric generating facility.

**Background What is regional haze?**

Regional haze is air pollution that travels long distances and reduces visibility. Haze is composed of small particles that absorb and scatter light, affecting the clarity and color of what we see. The main haze-forming pollutants are organic and elemental carbon (i.e. smoke and soot), sulfate and nitrate particles, and fine dust.

In 1977, Congress designated certain national parks and wilderness areas as “mandatory federal Class I areas.” These Class I areas are to receive special visibility protection under the Clean Air Act. There are 156 Class I areas in the country and 12 Class I areas in Oregon, including Crater Lake National Park. While the Columbia River Gorge National Scenic Area is not a federal Class I area, it will benefit from efforts to reduce haze in nearby Class I areas.



Visibility in Oregon’s Class I areas is fairly good compared to the rest of the country. On a good day, visibility is 150 to 200 miles. On a bad day, visibility can be only 25 to 50 miles. The haze that affects visibility in Oregon comes from both local and distant

sources; such as: motor vehicles; power plants; industrial and manufacturing processes; forestry; and agricultural and other open burning. Haze can also come from natural sources such as wildfires and windblown dust.

### **What is the Regional Haze Rule?**

The Clean Air Act contains a national goal of improving visibility in all Class I areas. In July 1999, the Environmental Protection Agency adopted the Regional Haze Rule to meet this goal. The objective of this rule is to improve and protect Class I area visibility over the next 60 years to reach “natural conditions” by 2064. The rule requires states to adopt regional haze plans with short and long-range strategies to incrementally improve visibility on the haziest days (the worst 20 percent) and maintain the clearest days (the best 20 percent). These haze plans must be updated every five years, and revised every ten years, to show that “reasonable progress” is being made in improving visibility on the worst days, consistent with the objective of reaching natural conditions by 2064.

### **What is BART?**

Best Available Retrofit Technology is a key part of the federal Regional Haze Rule, and the central focus of the 2008 regional haze plans being developed by states. BART applies to certain facilities built between 1962 and 1977 that have potential emissions greater than 250 tons per year and belong to one of 26 specific industrial source categories. These older facilities must be evaluated for their visibility impacts on Class I areas. If their visibility impacts are over a certain level, the State is required to evaluate these facilities for new pollution controls, and controls must be installed within five years.

### **The Oregon Regional Haze Plan**

To meet the requirements of the federal Regional Haze Rule, DEQ has developed a draft 2008 Regional Haze Plan. Originally due in 2007, the preparation of this plan has been delayed, primarily due to the complexity of the BART requirements. DEQ is ahead of other western states’ completion schedules, and has been working closely with EPA on an acceptable timetable for completion and adoption. DEQ plans to propose rules in early December 2008, with hearings in early January 2009. The purpose of this informational item is to review the key elements of the plan, describe the process for developing the plan, and highlight any key issues that are expected to arise.

### **What are the basic elements of the draft Oregon Regional Haze Plan?**

The Oregon Regional Haze Plan consists of the following:

1. A comprehensive technical assessment of visibility conditions in each of Oregon’s 12 Class I areas, showing major pollutants and source categories in Oregon and other states causing haze, and a projection of visibility by a required milestone date of 2018;

2. Summary of the ten BART-eligible sources that DEQ evaluated, and actions taken at four facilities to reduce emissions below the required significance level;
3. A separate detailed report on the DEQ's PGE Boardman BART analysis and proposed rule for emission controls;
4. A description of the Reasonable Progress Goals established for each Class I area, and whether these goals will achieve the 2018 milestone;
5. A long-term strategy that describes what major sources of haze will be addressed in the next ten years, as well as commitments for future plan updates and revisions; and
6. A summary of the consultation and coordination process with other neighboring states, Tribes, and federal land managers.

**Key Issues** Key issues anticipated with this proposed rulemaking are:

- DEQ-proposed emission controls on the PGE Boardman power plant;
- Evaluation of BART-eligible sources other than PGE Boardman;
- The Reasonable Progress Goals established for Oregon; and
- Long-term strategy commitments to evaluate non-BART sources and forestry burning in the future.

These issues are summarized below.

**DEQ-proposed emission controls on the PGE Boardman power plant.**

The PGE Boardman coal-fired power plant is located in Boardman, Oregon, about 150 miles east of Portland. The plant is Oregon's largest electrical generating facility and serves approximately 793,000 industrial, commercial and residential customers in 52 Oregon cities. The facility has typical annual emissions of about 26,700 tons per year of combined sulfur dioxide, nitrogen oxides and particulate emissions.

Of the ten BART-eligible sources evaluated by DEQ under the Regional Haze Rule, the PGE Boardman facility had by far the greatest impact on visibility, representing about 70 percent of total emissions from all BART-eligible sources in Oregon. These impacts are seen as far away as 250 miles, affecting fourteen Class I areas in Oregon and Washington. The impacts are roughly four to five times higher than any other Oregon BART-eligible source. The facility also has a significant visibility impact on the Columbia River Gorge National Scenic Area, and contributes to acid deposition.

To minimize air pollution and visibility impacts from the Boardman power plant, DEQ is proposing a two-phase process for installing pollution controls at this facility. The first

phase would require the installation of controls for sulfur dioxide and nitrogen oxides that would reduce emissions by about 66 percent by 2014, at an estimated cost of about \$280 million. The second phase would add more advanced controls for nitrogen oxides in order to reduce emissions by about 80 percent by 2018, at an estimated additional cost of \$190 million. The total emissions reduced from both phases is approximately 20,800 tons per year, which will provide significant visibility benefits in 14 Class I areas in Oregon and Washington, as well as the Columbia Gorge National Scenic Area.

When evaluating BART controls for any facility, including Boardman, DEQ must take into account factors such as the technical feasibility of retrofitting existing equipment, the cost effectiveness, the remaining life of equipment, and the overall benefit to visibility. PGE submitted a report to DEQ in November 2007, which included the company's recommendations for BART controls. Shortly afterwards, DEQ hired an independent contractor with specific expertise in coal-fired power plants to assist in the review of this report. Eastern Research Group conducted a thorough evaluation of the various control technology options and costs for PGE Boardman, focusing primarily on more advanced nitrogen oxides controls.

In developing its proposal, DEQ considered information from PGE's report as well as findings from Eastern Research Group, a technical and cost/benefit analysis by staff, and information submitted by other stakeholders. DEQ also evaluated emission controls that have been required for similar facilities in other states. Overall, DEQ agreed with PGE's proposal for SO<sub>2</sub> controls, but is proposing more stringent controls for NO<sub>x</sub> in phase two based on the need to achieve greater visibility improvement to meet Regional Haze requirements, and to better protect the Columbia Gorge National Scenic Area.

The total estimated cost of DEQ's rule proposal to the owners of the Boardman power plant is about \$470 million dollars. Assuming that these costs are passed on to the rate payers, electricity rates could increase by about 3 percent. Future rate increases will be subject to the rate setting process governed by the Public Utility Commission, and will be contingent on PUC approval of a PGE rate request.

In October 2008, DEQ will convene a fiscal advisory committee to help ensure that DEQ has reasonably identified the costs and benefits of the proposed controls, and the likely increases in electricity rates to customers served by the Boardman facility.

The key issues associated with DEQ's proposal for PGE Boardman are likely to be:

- 1) Does the environmental benefit of Phase 2 justify the significant cost to the owners of the Boardman power plant;
- 2) What is the fiscal impact on ratepayers;
- 3) Should the phased emission control schedule be dropped in favor of requiring advanced NO<sub>x</sub> controls sooner; and

- 4) To what extent should visibility and deposition on the Columbia Gorge (a non-Class I area) be considered in establishing the emission limits in this proposal?

**Evaluation of BART-eligible sources other than PGE Boardman.**

As described above, the BART evaluation is a multi-step process. State air quality agencies begin by using computer modeling to determine if any BART-eligible facility exceeds a specific significance level for visibility impact at any Class I area within a radius of 300 kilometers. If it does, the facility has two options: evaluate the feasibility and cost of installing BART controls (i.e. retrofitting); or reduce its actual emissions to a level that ensures the visibility impact is below the significance level and accept a permit condition to ensure that the reduction is state and federally enforceable.

DEQ evaluated a total of ten BART-eligible sources. Five were found to have a visibility impact over the significance level. The PGE Boardman power plant had by far the greatest visibility impact, and was evaluated for BART controls. The other four sources had much lower visibility impacts, just over the significance level. Three of these sources have chosen to reduce their emissions through an enforceable permit limit, as described above. The fourth source is still under evaluation, but is also expected to take an enforceable permit limit.

The four sources currently considering an enforceable permit limit are:

1. PGE Beaver power plant: This is a 558 megawatt electrical generating plant located in Clatskanie, Oregon. The facility is proposing to reduce its actual emissions by using a cleaner ultra-low sulfur diesel fuel blend in its steam turbine, and by limiting the amount of diesel fuel it burns in any given day. The result will lower emissions and ensure the visibility impact is below the significance level.
2. International Paper (formerly Weyerhaeuser): This is a containerboard plant located in Springfield, Oregon. The plant will soon begin work on repairs that will significantly reduce its emissions. This work may take four to five years. In the interim, limits on fuel usage and operation, which have the effect of limiting emissions, will be added to their air quality permit. These limits are designed to keep the facility's visibility impacts below significance level. Once the repairs are completed, this permit limit will no longer be necessary.
3. Amalgamated Sugar: This is a sugar beet processing plant located in Nyssa, Oregon, near the Idaho border. This plant is currently shut down. However, since its air quality permit is still active, this facility has identified an emission limit that will be added to its current permit. The permit limit, which would become effective should the facility resume operation in the future, will ensure that the facility's visibility impact is below the significance level.

4. Georgia Pacific, Wauna Mill: This is a pulp and paper manufacturing plant located in Clatskanie, Oregon. Although the final details have not been completed, this enforceable permit limit will likely involve limits on fuel usage and a construction project to lower emissions that will ensure the visibility impact is below the significance level.

Sources that take an enforceable permit limit are not subject to further evaluation for BART controls. However, as BART-eligible sources, these facilities can be evaluated again in the future as part of a more comprehensive look at industrial emissions under the regional haze reasonable progress requirements for visibility improvements.

The key issue associated with DEQ's evaluation of other BART-eligible sources is whether sources that had visibility impacts over the significance level should be allowed to take an enforceable permit limit and thereby avoid having to conduct a BART control evaluation.

#### **The Reasonable Progress Goals established for Oregon**

The Regional Haze Rule has a 60-year goal of making visibility improvements to reach natural conditions. 2018 is a milestone year for making a demonstration of reasonable progress. The regional haze plan must contain a Reasonable Progress Goal for each Class I area.

In establishing RPGs, Oregon must calculate a rate of progress needed to meet the 2018 milestone. RPGs are developed considering the improvement needed by 2018, projections of the emission reductions expected from BART, other "on-the-books" regulations and emission growth forecasts for all major sources of air pollution both natural and anthropogenic.

In cases where RPGs show a slower rate of visibility improvement than the 2018 milestone, the state must explain the reasons for the slower progress and what future actions will be taken to make greater progress. The regional haze plan must contain a reasonable progress demonstration that justifies the RPGs selected, and it must identify future measures in the long-term strategy.

Most of Class I areas in Oregon and across the west are showing a slower rate of progress than the 2018 milestone. Much of this is due to the contribution of natural sources such as wildfire and windblown dust. The proposed Oregon Regional Haze plan contains RPGs and a reasonable progress demonstration that documents the contribution of natural sources, and shows major reductions in anthropogenic pollutants (primarily SO<sub>2</sub> and NO<sub>x</sub>) by 2018 from on-the-books regulations for mobile sources, implementation of BART, and other key reductions from anthropogenic sources. The plan also identifies new measures that will be implemented under the long-term strategy that will address non-BART sources and forestry burning (see below) to provide additional visibility benefits before 2018.

Key issues associated with RPGs established for Oregon Class I areas are whether DEQ's justification for the RPG demonstration is adequate, and whether additional measures should be adopted in the plan now rather than later through the long-term strategy.

**Long-term strategy commitments to evaluate non-BART sources and forestry burning in the future**

The two primary commitments DEQ has proposed in the Oregon Regional Haze Plan for the next five years are to evaluate the contribution to haze from industrial sources that were not subject to the BART requirements, and to analyze the impacts from forestry burning. These represent the two greatest areas where potentially significant visibility benefits could be realized.

Under the Regional Haze Rule there are no specific requirements or guidance for future evaluation of non-BART industrial sources. Starting in 2009, DEQ will work with EPA, federal land managers (such as the National Park service), industry representatives and other stakeholders to develop a comprehensive guidance and protocol for evaluating visibility impacts from non-BART industrial sources as part of the long-term strategy for future visibility improvements.

Forestry prescribed burning is a major contributor to regional haze. At certain times of the year, the extent of the contribution of prescribed burning to haze is difficult to distinguish from that of wildfires. Oregon's smoke management program for forestry burning, like most programs, focuses on protecting urban areas rather than Class I areas from smoke impacts. Under the long-term strategy, DEQ is proposing to conduct a detailed evaluation on the contribution of forestry burning to regional haze on the worst visibility days at each Class I area. DEQ plans to work with the Department of Forestry and U.S. Forest Service to adopt new smoke management controls for burning near Class I areas.

The key issues associated with these long-term strategy commitments include:

- (1) reaching agreements with all stakeholders on the guidance and protocol for evaluating non-BART industrial sources; and
- (2) whether additional smoke management controls to protect Class I areas will be seen by the forestry agencies as interfering with their objectives to restore forest health and reduce wildfires by limiting burning opportunities.

**Next Steps**

DEQ is scheduled to proceed with rulemaking on the Oregon Regional Haze Plan and related BART controls for PGE Boardman in December 2008. A 45-day public comment period is planned, ending January 16, 2009, with hearings anticipated for Portland, Eugene, Medford, Hermiston, and The Dalles. DEQ plans to bring the proposed rules to the EQC for possible adoption at the April 2009 meeting. DEQ will also issue permit modifications for the sources accepting federally-enforceable limits before adoption of the plan.

**EQC Involvement** This informational item is an opportunity for the EQC to learn more about regional haze and DEQ's proposal for the PGE Boardman facility and ask questions of staff and provide comments before the DEQ begins formal rulemaking. DEQ expects that there will be high public and media interest in the proposed PGE Boardman BART controls, and possibly other aspects of the Regional Haze Plan. One of the public hearings in January 2009 will take place before the EQC.

**Attachments and Available Online** Staff plans to provide copies of the following presentation materials in advance of the October 23, 2008 EQC meeting.

Attachment 1: Fact Sheet and Q&A on DEQ's rule proposal for the PGE Boardman power plant.

Attachment 2: Executive Summary from the draft Oregon Regional Haze Plan.

Available on-line at: <http://www.deq.state.or.us/aq/haze/pge.htm>

1. Summary Report - DEQ Modeling Analysis of Visibility and Acid Deposition Impacts and Benefits from DEQ's Rule Concept for the PGE Boardman Power Plant, August 20, 2008  
<http://www.deq.state.or.us/aq/haze/docs/modelingAnalysis.pdf>
2. DEQ Report on BART Recommendations for the Boardman Power Plant, August 20, 2008 <http://www.deq.state.or.us/aq/haze/docs/deqBartReport.pdf>
3. DEQ's Draft Fiscal Impact Advisory Committee Report, September 8, 2008  
<http://www.deq.state.or.us/aq/haze/pge.htm>
4. DEQ proposed Oregon Section 308 Regional Haze Plan (200 pages), September 10, 2008 <http://www.deq.state.or.us/aq/haze/pge.htm>

**Available Upon Request**

- Boardman BART Analysis, prepared by PGE, November 2, 2007
- Eastern Research Group Report to DEQ on NO<sub>x</sub> emission control options for the PGE Boardman power plant
- Proposed DEQ BART Rules

Approved:

Section: \_\_\_\_\_

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