



HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



Agenda Item K

Proposed Adoption of

Revisions to DEQ Regional Haze BART

Rules for PGE Boardman Power Plant

December 9, 2010

Brian Finneran and Mark Fisher

DEQ Staff



What we will be covering


- Background – how we got here
- Summary of proposed rulemaking
- Review of Public Comment Process
 - Our evaluation of over 8000 comments
- DEQ recommendation






1

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant


 **Background**

Air pollution can travel long distances and degrade visibility in pristine natural areas.



  

2

The diagram on the left, titled "Sources of Pollution", shows a factory with smokestacks and a highway with cars. Labels indicate "Organic Carbons" from the factory, "Sulfur Dioxide" and "Nitrogen Oxides" from both the factory and cars, and "Nitrogen Oxides" from the cars. An arrow points from this diagram to a photograph of a clear, snow-capped mountain range next to a lake, representing a pristine natural area.

 **Haze examples**

Crater Lake National Park

3

The two photographs show Crater Lake National Park. The left image shows a clear, bright view of the lake and surrounding forested hills. The right image shows the same scene but with a thick layer of haze or smog, significantly reducing visibility and obscuring the details of the landscape.

HANDOUT


Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant

 **Haze examples**


Grand Canyon National Park



4

 **Haze examples**

Columbia River Gorge NSA



5

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



Oregon's Class I Areas



Mt. Hood



Three Sisters



Eagle Cap



Mt. Jefferson



Mt. Washington



Strawberry Mtn.



Crater Lake




Mountain Lakes



Diamond Peak

6



How we got here

2009 June: EQC adopts BART/haze rules for Boardman.

2010 April: PGE petitions EQC for rule change, 2020 closure. Proposes “reduced sulfur coal” to meet BART.

June: EQC denies petition - directs DEQ evaluate wider range of emission control options.

July: DEQ develops *3 draft rule options* w/much public input. PGE submits a revised proposal

August: DEQ fiscal advisory committee.

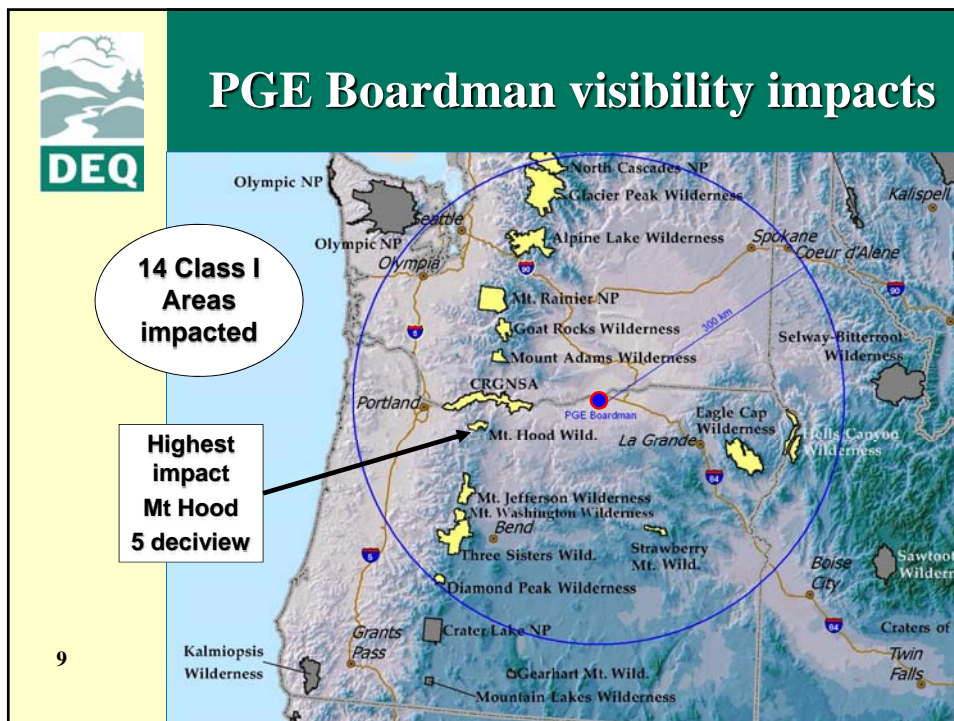
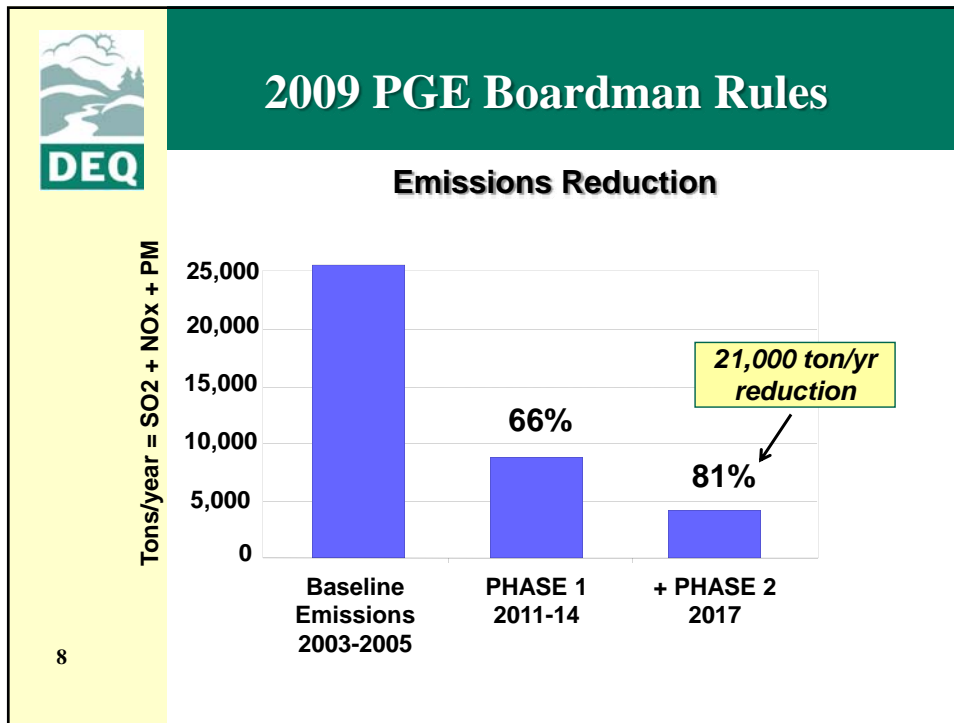
September: 1st public comment period.

End October: 2nd comment period.

7


HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



2009 Rules


Phase 1:

- **2011 - Low NO_x burners** with Modified Over-Fire Air (LNB/MOFA) with selective non-catalytic reduction (SNCR) contingency in 2014.
- **2014 - SO₂ Scrubbers** (semi-dry flue gas desulfurization).

Phase 2:

- **2017 - Selective Catalytic Reduction (SCR) controls.**

10



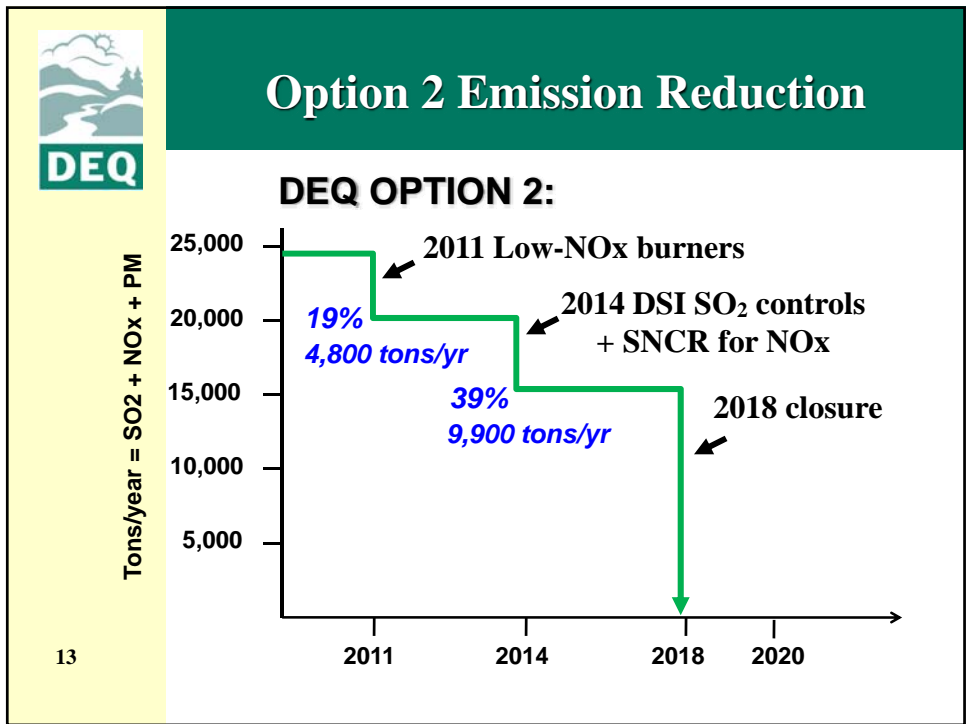
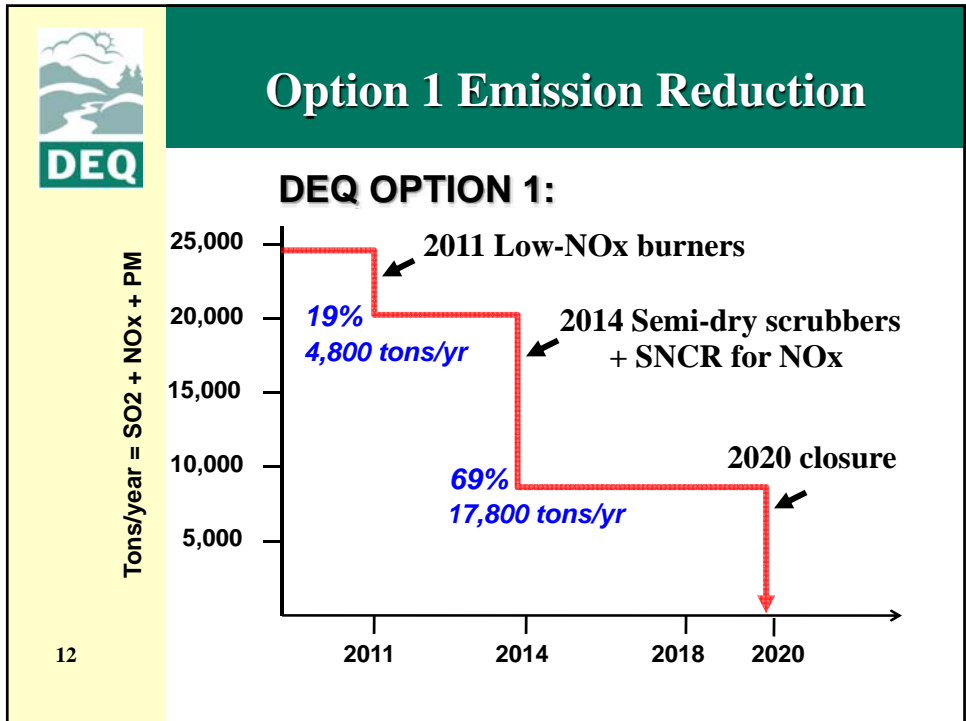
DEQ Emission Reduction Options

- **2020 Option 1** – Same as 2009 Phase 1 rules, added SNCR in 2014, but no Phase 2 SCR controls for nitrogen oxides.
- **2018 Option 2** – Replaces “semi-dry scrubbers” with Dry Sorbent Injection (DSI) for sulfur dioxide. Added SNCR in 2014.
- **2015-16 Option 3** – Based on 5-year deadline to install BART. Only Low-NO_x burners for nitrogen oxides.

11

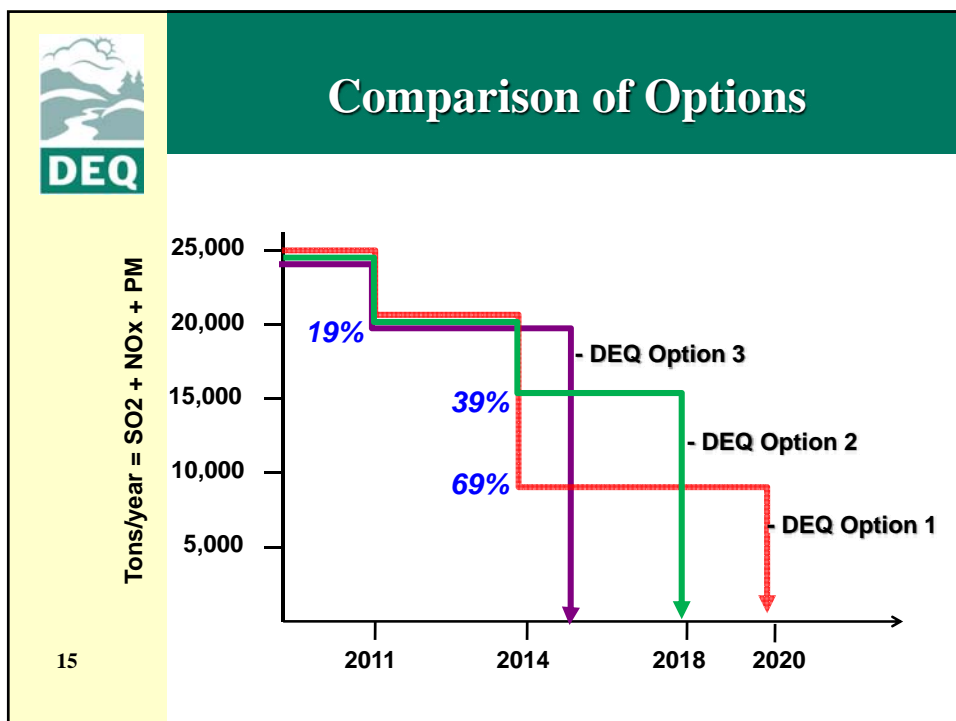
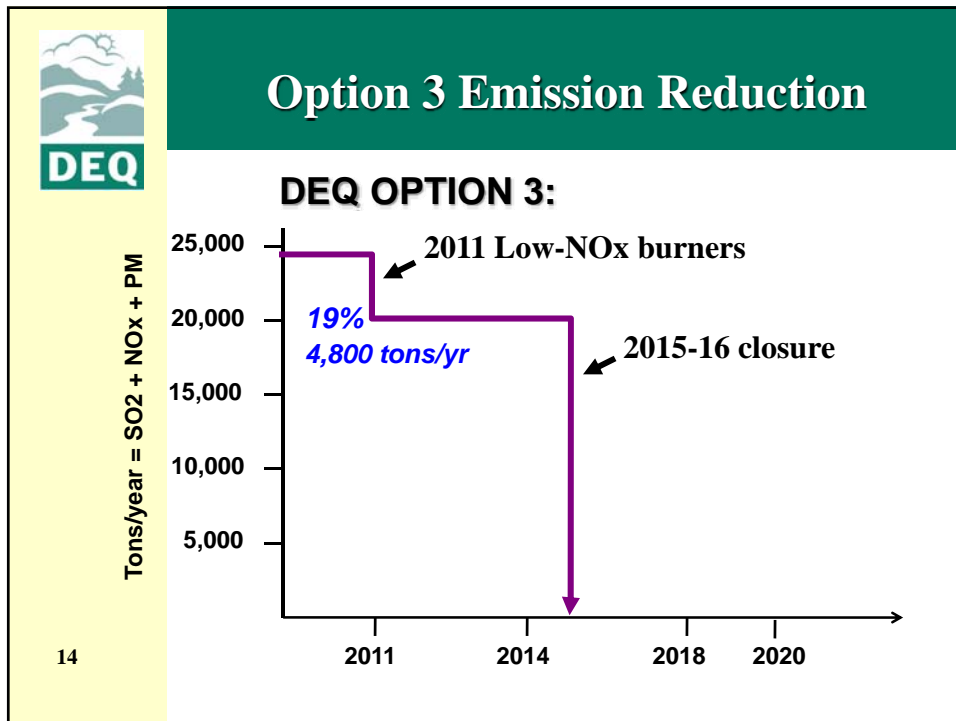
HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant




HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant




DEQ Emission Reduction Options

Comparison to 2009 rules

	Closure Date	Controls/Installation Date			Cost (million \$)
		2011 (NO _x)	2014 (SO ₂)	2017 (NO _x)	
2009 Rules	None	Low-NOx burners	Semi-dry Scrubbers	SCR	\$498
Option 1	2020	Low-NOx burners/SNCR	Semi-dry Scrubbers	-	\$321
Option 2	2018	Low-NOx burners/SNCR	DSI	-	\$103
Option 3	2015/16	Low-NOx burners	-	-	\$36

16




PGE's July "BART III" proposal

- Hybrid of DEQ Options 1&2 – DSI controls, but extra two years (2020 closure).
- Includes "Pilot Study" – evaluate DSI controls to ensure it **would not**:
 - Affect compliance w/mercury rules
 - Cause significant PM increase & trigger need for additional pollution controls.

17

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant




First public comment period

What we asked for comments on...

- DEQ 3 emission reduction options
- PGE's BART III 2020 proposal
- Other ideas, options, or approaches

18



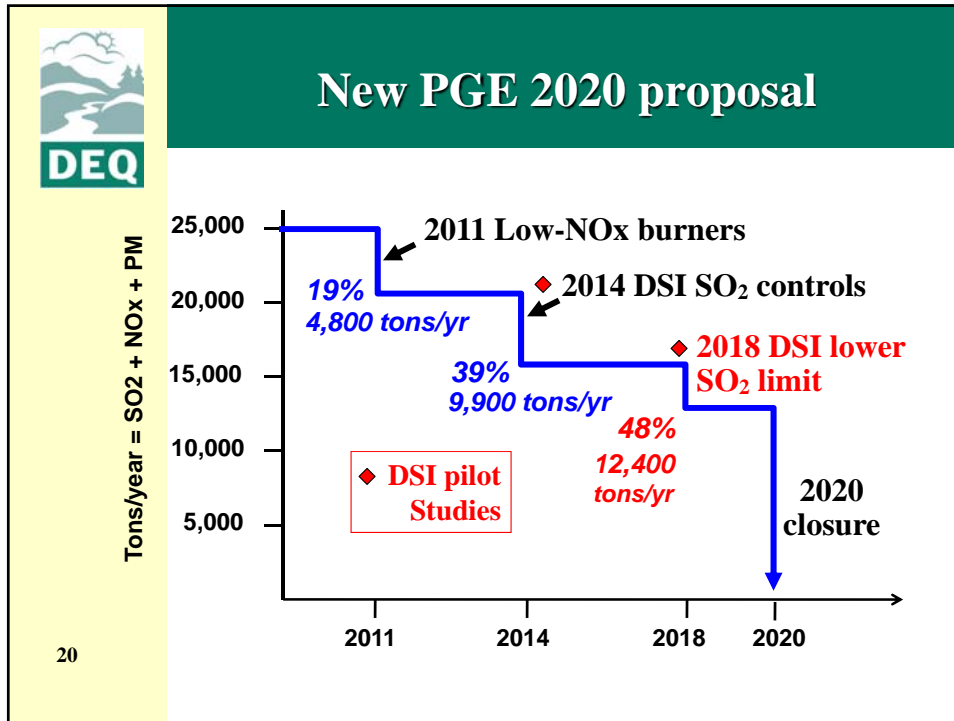
Second public comment period

- Late Oct. request from PGE and several public interest groups to re-open comment period.
- **New PGE proposal:**
 1. Guaranteed plant closure in 2020.
 2. More stringent SO₂ limits 2018-2020
- DSI pilot study:
 - addressed DEQ concerns on how to establish alternate emission limits, set backup SO₂ limit of 0.55 lb/mmBtu.

19

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



New PGE 2020 proposal

DEQ


Emission reductions and visibility improvement

BART control technology	Compliance Date	Emission reduction tons/year (percent)	Mt. Hood Visibility Impacts (dv)	Visibility Improvement (dv)
Baseline	----	---	4.98	---
LNB/MOFA	7/1/11	4,800 (19%)	3.54	1.44
+ DSI-1	7/1/14	9,950 (39%)	2.57	2.41
+ DSI-2	7/1/18	12,400 (48%)	2.23	2.75
+ Plant Closure	12/31/20	25,500 (100%)	none	4.98

21

HANDOUT


Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



Other Issues affecting Boardman

- Upcoming 2011 EPA hazardous air pollutant rule.
- Current lawsuit against PGE by several environmental groups. Could take several years.
- EPA Notice of Violation of air quality regulations. DEQ evaluating this enforcement action.

22




Public Comment Process

- Over 8,000 total comments
- Two comment periods: 9/1-10/1 and 10/29-11/15.
- 7 public hearings:
 - Portland (2), Hermiston, Boardman, The Dalles, Eugene, Medford.
 - 359 persons attended, 167 testified
- DEQ prepared 37-page Response to Comments summary (see Attachment B)

23

HANDOUT


Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



Public Hearing Comments

- **Portland, Eugene, Medford, and The Dalles:**
 - Comments fairly evenly split between support of PGE proposals, and earliest possible closure. Some support of DEQ Option 3.
- **Hermiston & Boardman:**
 - Considerable support for both PGE proposals.
 - Major concerns about local economic/job impacts.
 - Several opposed any closure - keep open to 2040.
 - In second hearings, opposition to adding earlier closure options to a firm 2020 closure date.

24




Public Comment Highlights

- **Support of PGE's proposed plans for 2020 closure:**
 - allows needed time to develop replacement power, including renewable options.
 - lessens economic impact – allows time to replace and transition to new jobs
 - lessens overall impact on electricity rates.
 - completely eliminates all emissions by 2020
 - meets BART at lower cost than DEQ options.
 - DEQ's \$7,300 cost threshold too high

25

HANDOUT


Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



Public Comment Highlights

- **Oppose PGE's BART 2020 closure plan.**
 - Close as soon as possible – concerns about public health, greenhouse gas emissions, mercury, air toxics, and haze.
 - Several supported DEQ's **Option 3** (2015-16 closure).
 - In second comment period, some environmental coalition support adding 2015 and 2018 options to the permanent 2020 closure date.

26




Key Questions

- **Earlier closure option**
 - Should rules include earlier closure dates, 2015 or 2018?
- **Enforceability**
 - Is the proposed 2020 closure date enforceable? Can PGE change their mind?
- **Repowering the plant**
 - What does "closure" mean? Can PGE repower with a different fuel besides coal?

27

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant




DEQ Recommendation

- 1. Revise rules to adopt New PGE proposal**
 - Guarantees closure by Dec. 31, 2020.
 - Establishes interim emission limits in 2011 and 2014. More stringent SO₂ limit in 2018.
 - SO₂ limits confirmed by DSI pilot studies.

DEQ Rationale:

- ✓ *Meets BART*
- ✓ *Eliminates plant's mercury and GHG emissions.*
- ✓ *48% emission reduction prior to 2020, 100% (25,500 tons) after 2020, + major visibility benefits.*

28



DEQ Recommendation

- 2. Repeal DEQ 2009 BART rules**
 - Upon EPA approval (expected early 2011)


DEQ Rationale:

- ✓ *Removes option for PGE to operate plant beyond 2020.*
- ✓ *With guaranteed closure, 2009 rules no longer needed*

29

HANDOUT

Presentation: Agenda Item K - Revisions to BART Rules for PGE Boardman Power Plant



DEQ Recommendation

3. Revise rules to adopt DEQ Option 3

- Gives PGE option for earlier closure in 2015-16.
- Requires NOx controls in 2011.
- Does not preclude PGE from closing at other times.

DEQ Rationale:

- ✓ *Meets BART.*
- ✓ *Establishes clear alternative if other issues lead PGE to opt for earlier closure*
- ✓ *Allows plant to operate full 5 years.*

30