State of Oregon
Department of Environmental Quality Memorandum

Date: December 8, 2006

To: Environmental Quality Commission

From: Stephanie Hallock, Director

Subject: Agenda Item L, Adoption of Clean Air Mercury Rule and Other Federal Air Quality Regulations; December 15, 2006 EQC Meeting

Why this is Important

Mercury is a persistent, toxic pollutant that accumulates in the food chain. Mercury pollution from the burning of coal can eventually reach water bodies and accumulate in fish tissue, which is the main way humans are exposed to mercury. Several Oregon rivers, lakes and reservoirs currently have fish advisories because of high mercury content. The Department's proposal to adopt regulations that are more stringent than the federal Clean Air Mercury Rule (CAMR) is an important way to reduce mercury emissions from coal-fired power plants in Oregon. Under the federal rule, a power plant could potentially avoid having to install controls for mercury pollution indefinitely.

In addition to the Mercury Rule, the other proposed federal rule adoptions in this rule package are important to keep Oregon's rules updated and consistent with the federal rules, helping ensure the Department maintains primary delegation authority.

Department Recommendation

The Department of Environmental Quality (Department) recommends that the Environmental Quality Commission (Commission) adopt proposed rule amendments in OAR chapter 340, divisions 228, 238, and 244, as presented in Appendix A.

Background and Need for Rulemaking

On March 15, 2005, the Environmental Protection Agency (EPA) adopted CAMR, which progressively decreases mercury pollution nationally from coal-fired power plants. A national cap is set and each state is allocated a portion of the cap based on the number and capacity of coal-fired power plants in the state. To meet its cap, a coal-fired power plant can choose to install pollution control equipment to decrease its mercury emissions, or it can meet its cap entirely or partially by purchasing credits from plants in other states. A power plant may earn credits by reducing its mercury emissions by more than is required under the federal rule.

EPA directs states to submit a plan that either adopts CAMR, or adopts a different mercury rule which must be at least as stringent as CAMR. The Department opted to develop its own rule and released for public comment a proposed rule package containing four potential rule options:

1. Opt-in to the national mercury cap-and-trade program. (This is the CAMR rule as adopted by EPA);

2. Opt-in to the national mercury cap-and-trade program, but require a mandatory level of mercury control by 2018. (This would modify CAMR by requiring some emission reductions in Oregon);

3. Opt-out of the national mercury cap-and-trade program, but retain the federal limits and timelines. (This would modify CAMR by requiring all emission reductions in Oregon, and not allowing trading); and

4. Adopt a model rule that requires 80% mercury capture by the end of 2008, or 90% mercury capture plus control of other pollutants by the end of 2012. This model rule, developed by the National Association of Clean Air Agencies (NACAA - formerly STAPPA/ALAPCO), would require all emission reductions in Oregon and would require deeper and faster emission reductions than CAMR. No trading is allowed under this option.

The Department initially recommended Option 2, but received significant public comment from environmental organizations and concerned citizens requesting greater and earlier mercury reductions. (See public comment section on page 6.) As a result, the Department extended the public comment period and proposed a fifth option. Option 5 is similar to the NACAA model rule described under Option 4, but contains a number of different mercury trading alternatives and different compliance dates (see Table 1 on page 14 for a comparison of the different rule options, and key issue #3 on page 9 for additional information about trading). The NACAA model rule does not allow any trading.

The Associated Oregon Industries (AOI), an industry group concerned about rate increases from this rule adoption, requested that the Department form a fiscal impact advisory committee to estimate the potential fiscal and economic impacts of the rule. The request made under the Oregon Administrative Procedures Act, ORS 183.310 et seq. (APA), was the first of its kind for any agency rulemaking in Oregon. (See stakeholder involvement section on page 6.)

After convening the Fiscal Impact Advisory Committee and receiving additional public comments, the Department recommends adoption of Option 5 with limited trading until 2018 and no trading after 2018 (see below for more information on the effect of Option 5).

The Department is also recommending adoption of several other federal rules[1] (not related to mercury) to allow the Department to:

- Implement new federal New Source Performance Standards (NSPS) for Other Solid Waste Incinerators;

- Incorporate changes EPA made to NSPS and National Emission Standards for Hazardous Air Pollutants (NESHAP) through July 1, 2006;

- Permanently exempt five categories (perchloroethylene dry cleaning, chromium electroplating and anodizing, halogenated solvent cleaning, ethylene oxide sterilization, and secondary aluminum productions) of non-major sources, subject to NESHAP standards, from the requirement to have a Title V permit. Since the beginning of the NESHAP program, these sources have been deferred from the requirement to obtain a Title V permit. These sources will still be subject to the emissions standards contained in the NESHAPs and with the exception of drycleaners are required by the Department to have an Air Contaminant Discharge Permit. The Department ensures NESHAP compliance for dry cleaners through the Land Quality Division's dry cleaner program. Adoption of these exemptions is consistent with the Department's current practices;

- Update the list of Hazardous Air Pollutants (HAP) by delisting methyl ethyl ketone (MEK). EPA found that, based on available information concerning the potential hazards of and projected exposures to MEK, emissions of MEK may not reasonably be anticipated to cause adverse effects to human health or adverse environmental effects (see key issue #4 on page 11).

Oregon sources must comply with federal NSPS and NESHAP requirements whether or not state rules are adopted. However, adoption would keep Oregon's rules updated and consistent with the federal rules which helps ensure that the Department maintains delegation of the NSPS and NESHAP programs, as well as Oregon's Title V Operating Permit program.

Effect of Rule

This proposed rule adoption will have the following effects:

1. <u>Adopt Utility Mercury Rule (Public Notice-Option 5).</u>
   Adoption will require coal-fired power plants in Oregon to comply with the following:

[1] New emission guidelines for Municipal Solid Waste (MSW) combustors originally proposed under this rulemaking were removed due to omissions in the draft notice document (brought to our attention by a commenter) and will be proposed at a later date.

- Mercury Reduction Plan and Monitoring Requirements:
  - Submit a Mercury Emission Reduction Plan to the Department for approval by 2009 or for new plants, 1 year prior to commencement of commercial operation.
  - Install continuous monitoring equipment by 2008 and receive certification of operation by 2009 or for new plants, upon commencement of commercial operation.
- Mandatory Emission Controls:
  - Achieve 90% mercury control or meet a mercury emission limitation of 0.6 pounds per trillion Btu (lbs/TBtu) by July 1, 2012 or upon commencement of commercial operation, whichever is later.
  - Allows up to a 1-year compliance extension if a coal-fired power plant demonstrates that it is not practical to install mercury control equipment by July 1, 2012 due to supply limitations or other extenuating circumstances.
  - If, after installing mercury control equipment to manufacturer's specifications, the technology fails to perform, allows the Department to grant a temporary alternative mercury emission limit while the coal-fired power plant works on system improvements. A public hearing would be held by the Department prior to establishing any temporary alternative limit.
  - If, after system improvements, the coal-fired power plant demonstrates that 90% mercury control or 0.60 lbs/TBtu is not achievable, allows the Department, after an extensive public process, to make the alternative mercury emission limit permanent. The permanent alternative mercury emission limit must require the highest level of mercury reduction technically possible.

This proposal would allow Portland General Electric's Boardman power plant to trade mercury credits with coal-fired power plants located in other states (interstate trading) starting in 2010. It would also limit interstate trading beginning in 2013, and would not allow interstate trading beginning in 2018. Mercury allocations for new coal fired plants would be limited. (See key issue #3 on page 9 and

Attachment A, OAR 340-228-0600 - 0678, pages 1-42.)

2. Update New Source Performance Standards (NSPS). The adoption would incorporate changes in NSPSs through July 1, 2006 including adoption of the NSPS for Other Solid Waste Incinerators (municipal solid waste combustors guidelines will be proposed at a later date). (Attachment A, OAR 340-238-0040(4), page 42-44; 340-238-0060(1), pages 44-47)

3. Update National Emission Standards for Hazardous Air Pollutants (NESHAP). This adoption would incorporate changes in NESHAPs through July 1, 2006. (Attachment A, OAR 340-244-0030(7), page 47-52)

4. Adopt Federal Exemption for Title V Categories. This adoption would permanently exempt five categories (perchloroethylene dry cleaning, chromium electroplating and anodizing, halogenated solvent cleaning, ethylene oxide sterilization, and secondary aluminum productions) of nonmajor sources that are subject to NESHAP standards. The Department ensures NESHAP compliance for all sources except dry cleaners through the Department's Air Contaminant Discharge Permit (ACDP) program. The Department ensures NESHAP compliance for dry cleaners through Land Quality Division's dry cleaner program. Adoption of these exemptions is consistent with the Department's current practices.

5. Delist Methyl Ethyl Ketone (MEK). EPA found that, based on available information concerning the potential hazards of and projected exposures to MEK, emissions of MEK may not reasonably be anticipated to cause adverse effects to human health or adverse environmental effects. MEK will continue to be regulated as a volatile organic compound (VOC). (See key issue #4 on page 11 and Attachment A, OAR 340-244-0040, Table 1, Page 52-61.)

Commission Authority

The Commission has authority to take this action under ORS 468.020, 468A.025 and 468A.310.

Stakeholder Involvement

The Department sent information about the CAMR rule and offered to meet with various environmental, tribal and industry stakeholders prior to the public comment period for this rulemaking, but received little interest. The Department met only with those who responded including Portland General Electric and the Oregon Environmental Council. However, once the public comment period began, there was a great deal of stakeholder interest and the Department met with several environmental and industry groups to discuss the

proposed rule revisions.

Initially there was no advisory committee for this rulemaking. However, in a letter dated August 11, 2006, the Associated Oregon Industries (AOI) requested that the Department form a fiscal impact advisory committee to review the fiscal impacts of the proposed rules. The Department formed a fiscal impact advisory committee in accordance with the Oregon Administrative Procedures Act, ORS 183.310 et seq. (APA) and met on September 15, 2006 to estimate the potential fiscal and economic impacts of the proposed rules, and to receive recommendations from the committee.

Public Comment

Public hearings were held in Portland, the Dalles, Boardman, and a second time in Portland before three members of the Commission. The numbers of those testifying at these hearings were 9, 2, 1 and 12 respectively. The Department received approximately 2,000 comments on the proposed adoption of CAMR, 1 comment on the proposed update to the emission guidelines for municipal solid waste combustors, 1 comment on the proposed delisting of MEK, and 3 comments on the proposed update of the adoption of federal NESHAP and NSPS standards by reference.

- Clean Air Mercury Rule: CAMR comments ranged from brief e-mails to extensive technical discussions. An overwhelming majority of comments supported the most protective options for the implementation of the rule. Industrial sources and ratepayer groups expressed concern for the impact of the most protective options on electricity rates and the ability of businesses in Oregon to compete with businesses in other states. EPA provided comments on the proposed rule language. Changes were made as a result of the comments about CAMR.

- Emission guidelines for municipal solid waste (MSW) combustors: The commenter pointed out that the Department failed to include all changes made by EPA and requested that the Department postpone the adoption of the changes. The Department has removed the update to the emission guidelines for MSW combustors from this rulemaking and plans to propose the update at a later date.

- Delisting of MEK: The commenter asked the Department not to delist MEK until it is known whether MEK is carcinogenic and pointed out that Oregon is one of the highest emitting states of MEK. No changes were made as a result of this comment. (See key issue #4 on page 11)

- NESHAP and NSPSs: The commenters support the proposed adoption of updates to the federal NESHAP and NSPS standards by reference and requested that the update be separated from the adoption of CAMR in

case the CAMR rule is further delayed. No changes were made as a result of these comments.

The initial public comment period was May 18, 2006 through June 26, 2006. Because of significant public comment, the Department made revisions to the rule package and extended the public comment period from July 13, 2006 to August 25, 2006. Because of changes to the Statement of Need and Fiscal and Economic Impact from the Fiscal Impact Committee, the Department extended the public comment period again, from October 2, 2006 through October 23, 2006.

Key Issues

Key issues are as follows:

Proposed CAMR

1. Mandatory Mercury Controls

Environmental groups state that mercury controls are proven, available and cost-effective, and that mercury emissions from the Boardman plant are harming the environment and endangering public health. Industry and ratepayer associations state that mercury controls are unproven, not cost-effective, and are unnecessary because there will be little or no environmental benefit.

Department's response:

- The Department supports requiring installation of the best possible control technology in order to get the highest level of mercury reduction that is achievable at the Boardman Plant. Studies by the Department of Energy (DOE)'s National Energy Technology Laboratory (NETL) suggest that around 90% control is feasible with current technology. However, these studies are based only on short term testing.

- Since there is uncertainty about the long term performance of the control equipment under different operating conditions, the Department recommends some flexibility within the rules. The Department proposes to require 90% mercury control (or 0.60 lbs/TBtu), but allow for an alternative mercury emission limit if standards cannot be met after installing the appropriate control technologies. Mercury emissions from the Boardman plant currently range from 137 to 281 lbs per year. The Department estimates that mercury emissions from the Boardman plant will range from 18 to 35 lbs per year after installing controls. [2]

[2] These estimates are based on historical data for the mercury content of coal burned at the plant.

- The Department estimates that the annual cost of the proposed rule would not exceed $11,200,000, and likely would be significantly less. Since PGE owns 65% of the Boardman plant, the Department estimates that the annual cost of the Department's proposal to PGE would be no more than $7,300,000. It is anticipated that these costs would be passed on to ratepayers. The Department estimates that the average PGE residential customer, using 1068 kWh of electricity per month, would pay no more than an additional $0.40 per month or $4.80 per year as a result of the rule.

- The Department estimates that the relative contribution of the Boardman plant to mercury deposition to be 26% within 6 miles, 9% within 19 miles, 4% within 31 miles, 2% within 62 miles, and 1% within 93 miles of the plant. Based on wind patterns, the Department estimates that approximately half of this deposition occurs northeast of the plant.

- According to Department estimates, the majority of mercury deposition near the Boardman plant comes from other sources; the plant's emissions, however, still pose a risk because of mercury's acute toxicity and ability to accumulate in the food chain.

2. Timing of Mercury Controls

Environmental groups recommend that controls for mercury be installed by 2009. PGE originally supported delaying control requirements until 2018, but has since accepted the Department's new proposal to require installation of mercury controls along with controls for other pollutants by 2012. PGE has stated that installation of multi-pollutant controls is not feasible in less than a five year time frame.

Department's Response:

- The Boardman plant will be installing equipment to control a number of different pollutants because it is subject to Best Available Retrofit Technology (BART) under the federal Regional Haze rules. The purpose of the Regional Haze rules is to reduce emissions of pollutants that cause or contribute to regional haze. Similar control systems installed at other plants have taken from 3 to 6 years. However, due to a number of new regulations, coal-fired power plants across the U.S. will be ordering the same pollution control equipment which could lead to delays caused by supply limitations.

- The Department supports the installation of controls for mercury at the same time as the BART controls for the following reasons:

- The Department is concerned with the pollutants (sulfur dioxide and nitrogen oxide) that will be controlled under BART as well as mercury.

- The type of control equipment selected for other pollutants will influence the selection and design of controls for mercury. Installing them simultaneously will prevent the need for redesign or reconstruction that could cause delays.

- Installing mercury equipment earlier than other controls could result in the generation of 80,000 tons of mercury contaminated fly ash. This fly ash, currently sold for beneficial reuse as filler in concrete, would need to be disposed of as a hazardous waste.

- The Department recommends that the Commission adopt mercury standards requiring the Boardman plant to install mercury controls by 2012, but allow for an extension of up to 1 year if circumstances outside of PGE's control delay installation.

3. *Trading*

Environmental groups recommend that there should be no trading because purchasing credits will delay installation of controls, and selling credits will allow plants in other states to delay installation of controls which can lead to mercury "hot spots." They are concerned that trading of toxics is not allowed under the federal Clean Air Act and that PGE can not legally earn credits since mercury reductions are mandatory. Furthermore, they believe mercury credits should not be allocated for a new plant because Oregon should not allow new coal-fired power plants.

PGE, industry and ratepayer associations recommend full trading. They state that the Boardman plant is being required to install costly and unproven controls and that the associated costs and risks of installing these controls ultimately will be borne by ratepayers, not PGE. They further assert that plants in other states will benefit from the Boardman plant's research and development (R&D) of new control technologies and should pay for a portion of this R&D. Selling credits, which is allowed under the federal trading program, will help offset the installation costs and will reduce the rate impact.

Department Response:

So that they can comply with federal law, the Department recommends

that PGE be allowed to purchase credits (63 lbs/yr on average) until controls are installed in 2012. After that, the Department recommends that PGE be allowed to sell a limited amount of credits for a limited period of time to balance the concerns expressed by commenters.

Trading in 2010-2012 is necessary to allow the Boardman plant to comply with the state's mercury cap by purchasing credits until they are able to install mercury controls. Limited trading in 2013-2017 will lessen the potential environmental impact of trading on other states by decreasing the amount of credits available for purchase and also reduce the costs of compliance which could be passed on to utility rate payers. The Department proposes to give the Boardman plant approximately half (80 of 152 lbs) of the allocation that they could receive under the federal program annually. The Boardman plant would need to retain approximately 18 to 35 lbs of credits for its own operation, so 45 to 62 lbs (53 lbs on average) of credits would be available to the Boardman plant for sale. Allowing the plant owners to sell these credits will not have a direct impact on Oregon's environment, but could have a small effect on the price of credits nationally. If there are more credits for sale the price may be slightly lower and that could influence decisions by coal-fired power plant owners in other parts of the country to purchase credits instead of installing controls. However, the effect of Oregon's credits on the price of credits is expected to be small because approximately 76,000 lbs of credits will be allocated to other states. The revenue generated for the Boardman plant from selling these credits could be as high as 1.2 million dollars per year, which would help offset some of the cost of installing controls. Table 2 shows the estimated value of mercury credits under different trading options considered by the Department.

Disallowing trading in 2018 and thereafter will reduce any environmental impact on other states that could result from trading.

New plants in Oregon would receive 15 lbs of mercury credits between 2010 and 2017 but could purchase additional credits if necessary to operate. Starting in 2018 the Department is proposing to opt out of the trading program. Oregon's total mercury emission cap will drop from 152 lbs per year to 60 lbs per year in 2018. The Boardman plant would be capped at 35 lbs per year, which is equal to the high end of emission estimates for the Boardman plant after achieving 90% mercury control or 0.60 lbs/TBtu. Any new plants in the state would have to utilize advanced coal-fired power plant technologies and would not be allowed to emit more than a total of 25 lbs per year. Additional mercury credits could not be purchased thereby restricting the number of new coal-fired power plants in Oregon. If Oregon wanted to allow additional coal-fired power

plants in the future it could potentially opt back into the trading program.

Although the Department is recommending that the Commission allow the Boardman Plant to sell a limited amount of credits until 2018 and then disallow trading, the Commission could decide to prohibit trading earlier or allow the Boardman plant to sell as many credits as possible. The Department however has only drafted rule language for adoption of the recommended option. Any changes suggested by the Commission would require Department re-drafting and adoption at a future EQC meeting.

If the Commission decides to disallow trading, the Department cautions against doing this before 2013, which is the final date by which mercury controls must be installed. Prior to that date the Boardman plant will likely need to purchase credits in order to operate.

If the Commission decides to allow the maximum amount of trading, the Department suggests that the Boardman plant receive up to 137 lbs of mercury allocation from 2010 until 2017. The remaining 15 lbs of the state's mercury allocation would be set aside for new plants. If no other plants existed in the state the Boardman plant would receive the full 152 lbs of the state's mercury allocation. The Department would further suggest that the Boardman plant receive up to 48 lbs of state's 60 lb mercury allocation in 2018 and thereafter. This would leave the remaining 12 lbs of the state's mercury allocation for new plants.

Other Federal Rules

4. *MEK Delisting*

Environmental groups want to keep MEK as a hazardous air pollutant (HAP) until it is known whether it is carcinogenic. They suggest that Oregon is one of the highest MEK emitting states in the country.

Department Response:

EPA included Oregon's MEK sources in their impact analysis which concluded that MEK may not reasonably be anticipated to cause adverse effects to human health or the environment. In addition, Oregon's Air Toxics Science Advisory Committee (ATSAC) determined that MEK is not a major concern for Oregon and didn't recommend a benchmark for MEK.

Oregon's largest MEK source, Eastman Kodak, is subject to stringent control requirements that will not be relaxed due to the delisting of MEK.

Because MEK is a volatile organic compound (VOC), MEK emissions from Eastman Kodak are well controlled and will continue to be well controlled using thermal oxidizers which were installed to comply with State VOC regulations. Delisting MEK will reduce some monitoring and reporting requirements.

Next Steps

- The Department will submit NSPS and NESHAP delegation requests to EPA in February, 2007;
- Title V and Air Contaminant Discharge Permits will be updated with new NSPS and NESHAPs, upon renewal;
- The Department will submit a State Plan to implement CAMR to EPA for approval.

Attachments

A. Proposed Rule Revisions
B. Summary of Public Comments and Agency Responses
C. Presiding Officer's Reports on Public Hearings
D. Statement of Need and Fiscal and Economic Impact

Available Upon Request

1. Legal Notice of Hearing
2. Fiscal Impact Advisory Committee's Report
3. Cover Memorandum from Public Notices
4. Relationship to Federal Requirements Questions
5. Land Use Evaluation Statement
6. Listing of NESHAP Amendments (July 1, 2005 through July 1, 2006)
7. Listing of NSPS Amendments (July 1, 2005 through July 1, 2006)
8. Background to CAMR Implementation Proposal
9. Written Comments Received
10. Rule Implementation Plan

Approved:

Section: _____

Division: _____

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Table 1: Comparison of 5 Proposed Options for Oregon to Implement the Federal Clean Air Mercury Rule.

Year	Option 1 Federal Rule (CAMR)	Option 2 (DEQ's Original Recommendation)	Option 3 (Cap w/o Trade)	Option 4 (NACAA)	Option 5 (DEQ's Added Option)
2008	Monitoring Equipment Installed	Monitoring Equipment Installed	Monitoring Equipment Installed	Monitoring Equipment Installed	Monitoring Equipment Installed
2009	Certify Monitoring Equipment	Certify Monitoring Equipment	Certify Monitoring Equipment	• Certify Monitoring Equipment • Reduce Hg to 53 lbs or commit to SOx/NOx/PM/Hg controls by 2013	• Certify Monitoring Equipment • Require SOx/NOx/PM controls by 2012-2013 through a separate rulemaking in 2007 • Require submittal of a Mercury Reduction Plan
2010	Reduce Hg to 152 lbs or buy 48 lbs	Reduce Hg to 144 lbs or buy 56 lbs	Reduce Hg to 137 lbs	Reduce Hg to 137 lbs if not reduced to 53 lbs in 2009	Reduce Hg to 137 lbs or buy 63 lbs
2012					Reduce Hg to 27 lbs (90% control) (266 lbs/yr x 0.10) w/provisions for extension until 2013 and alternative standards if proposed standards not achievable.
2013				Reduce Hg to 27 lbs	Option A (no trading) Option B (sell up to 8 lbs) Option C (sell up to 53 lbs) (*DEQ recommendation)* Option D (sell up to 125 lbs)
2014		Re-evaluate control level			
2018	Reduce Hg to 60 lbs or buy up to 140 lbs	Reduce Hg to 106 lbs and buy 49 lbs or reduce Hg to as low as 27 lbs and sell up to 30 lbs, depending on outcome of the re-evaluation	Reduce Hg to 48 lbs	Reduce Hg to 27 lbs	Option A (no trading) (*DEQ recommendation)* Option B (sell up to 8 lbs) Option C (sell up to 21 lbs) Option D (sell up to 33 lbs)

Table 2: Comparison of 4 Trading Options – Impact on Boardman Plant

	Trading Option A (no interstate trading)	Trading Option B (limited interstate trading)	Trading Option C (limited interstate trading)	Trading Option D (full trading)
2013 – 2017 (State Mercury Cap: 152 lbs/yr)				
Annual cost of controls	$11,186,101	$11,186,101	$11,186,101	$11,186,101
Mercury Allocations	35 pounds	35 pounds	80 pounds	152 pounds
Mercury Emissions	27 pounds	27 pounds	27 pounds	27 pounds
Mercury Credits	0 pounds	8 pounds	53 pounds	125 pounds
Value of mercury credits ($23,360/pound)	$0	$196,224	$1,247,424	$2,929,344
Annual cost minus value of mercury credits	$11,186,101	$10,989,877	$9,938,677	$8,256,757
PGE share of cost (65%)	$7,270,966	$7,143,420	$6,460,140	$5,372,742
Ave rate increase for PGE customers due to rule	0.45%	0.44%	0.39%	0.33%
2018 and Thereafter (State Mercury Cap: 60 lbs/yr)				
Annual cost of controls	$11,186,101	$11,186,101	$11,186,101	$11,186,101
Mercury Allocations (lbs)	35 pounds	35 pounds	48 pounds	60 pounds
Mercury Emissions (lbs)	27 pounds	27 pounds	27 pounds	27 pounds
Mercury Credits (lbs)	0 pounds	8 pounds	21 pounds	33 pounds
Value of mercury credits ($39,040/pound)	$0	$327,936	$835,456	$1,303,936
Annual cost minus value of mercury credits	$11,186,101	$10,858,165	$10,350,645	$9,882,165
PGE share of cost (65%)	$7,270,966	$7,057,807	$6,727,919	$6,423,407
Ave rate increase for PGE customers due to rule	0.45%	0.43%	0.41%	0.39%
Impacts				
	• Would not allow a plant located in another state to put off controls by purchasing credits from Boardman • Would limit new plants • Would not allow offset of costs	• Would allow but limit the offset of costs • Would not limit new plants • Could allow a plant located in another state to put off controls	• Would allow but limit the offset of costs • Would not limit new plants • Could allow a plant located in another state to put off controls	• Would allow and not limit the offset of costs • Would not limit new plants • Could allow a plant located in another state to put off controls