

# STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor

Allen Biaggi, Director

Leo M. Drozdoff, P.E., Administrator

November 18, 2009

Laura Yoshii  
Acting Regional Administrator  
OAR-1, USEPA Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

**RE: SUBMITTAL OF NEVADA'S REGIONAL HAZE STATE IMPLEMENTATION PLAN**

Dear Ms. Yoshii:

On behalf of Governor Gibbons, as his appointed designee, this letter transmits to you two hard copies of the *Nevada Regional Haze State Implementation Plan* (RH SIP or SIP) and one compact disc. Additionally, the RH SIP may be viewed on the Nevada Division of Environmental Protection's (NDEP) website at <http://ndep.nv.gov/baqp/planmodeling/rhaze.html>. The SIP is submitted pursuant to 40 CFR 51 section 308, "Regional haze program requirements." NDEP requests approval of the RH SIP into the Nevada State implementation plan.

The RH SIP satisfies the criteria of 40 CFR § 51.308. The SIP was properly noticed and presented at the Public Hearing on May 20, 2009, conducted by NDEP. Under the authority in Nevada Revised Statutes 445B.205 and Nevada Administrative Code 445B.053, the Administrator of NDEP has the authority to adopt and submit state implementation plans to the U.S. Environmental Protection Agency (USEPA) (see Appendix D, section 1.4).

Evidence of compliance with the consultation and public review processes required for the RH SIP is presented in Appendix A, *Nevada BART Regulation*, Appendix C, *Federal Land Management Agency Comments and Nevada's Response* and Appendix D, *Evidence of Public Participation; Public Comments and Nevada's Responses*. Copies of all formal comments on the SIP received by NDEP and NDEP's response to those comments appear in Appendices C and D.

We would like to point out that the SIP is based on data and analyses that existed as of January 5, 2009, when we provided the federal land managers with their consultation review draft of the SIP, with one exception. The exception is that we used more recent data in support of lowering the SO<sub>2</sub> best available retrofit technology (BART) emission limits at NV Energy's Reid Gardner Generating Station. The re-evaluation of the BART requirements at Reid Gardner was done in response to public comments received during the public review period. (See NDEP's response to USEPA comment 2 in Appendix D for details.) This change to the BART limits requires a regulatory amendment, which NDEP has drafted and forwarded to the State Environmental Commission for presentation at their December 9, 2009 Hearing. A copy of the amendment is included in Appendix A. NDEP will submit the adopted regulation to USEPA when it becomes effective.



NDEP is aware that an update of the 2018 modeling scenarios for regional haze planning in the Western Regional Air Partnership (WRAP) region was completed in July 2009, after the cut off date for incorporating new information into Nevada's SIP. NDEP has reviewed this most recent WRAP modeling effort and notes that it supports the conclusions and recommendations presented in the SIP.

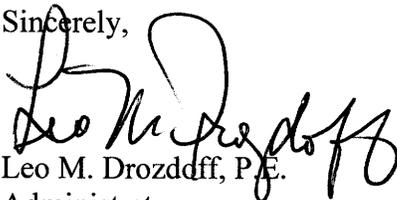
In conjunction with Nevada's RH SIP submittal, NDEP is providing a summary of comments received during the public comment period (attached). In the summary, NDEP has included statements and/or discussion of general or recurring commenter concerns from Nevada's viewpoint, including:

- Nevada's perspective;
- No increase in SO<sub>2</sub> emissions from Reid Gardner;
- Nevada's progress toward the national visibility goal;
- The relationship between BART and the regional haze rule;
- Philosophical differences;
- FLM comments regarding costs and control efficiencies;
- FLM emphasis on visibility improvement in BART process; and
- FLM emphasis on \$/dv measure of cost effectiveness.

The enclosed RH SIP presents Nevada's reasonable progress goals, calculations of baseline and natural visibility conditions, Nevada's long-term strategy for regional haze, monitoring strategy and other implementation plan requirements and BART requirements for addressing regional haze visibility impairment in accordance with the requirements of 40 CFR § 51.308. NDEP urges USEPA to provide timely review and approval of Nevada's RH SIP taking into account the significant progress toward meeting the national visibility goals that Nevada's SIP demonstrates.

If you should have any questions about this submittal or require additional clarification, you may contact Greg Remer, Chief, Bureau of Air Quality Planning at (775) 687-9359.

Sincerely,

  
Leo M. Drozdoff, P.E.  
Administrator

Enclosures

cc: Robin Reedy, Chief of Staff, Office of the Governor  
Allen Biaggi, Director, DCNR  
Colleen Cripps, Deputy Administrator, NDEP  
Greg Remer, Chief, Bureau of Air Quality Planning, NDEP  
Michael Elges, Chief, Bureau of Air Pollution Control, NDEP  
Tom Webb, Air Division, EPA Region IX AIR-2  
Eleanor Kaplan, Air Division, EPA Region IX AIR-2  
Dennis Ransel, Chief, Planning Manager, Clark County DAQEM  
Andrew Goodrich, Director, Air Quality Management Division, Washoe County DHD

Sent via FedEx

## NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP)

### **Staff Summary and Discussion of Public Comments on the *Nevada Regional Haze State Implementation Plan***

A summary of the comments received by NDEP together with a discussion of NDEP's position on some major, recurring comments follows. The issues discussed include:

- Nevada's perspective;
- No increase in SO<sub>2</sub> emissions from Reid Gardner;
- Nevada's progress toward the national visibility goal;
- The relationship between Best Available Retrofit Technology (BART) and the regional haze rule;
- Philosophical differences;
- FLM comments regarding costs and control efficiencies;
- FLM emphasis on visibility improvement in BART process; and
- FLM emphasis on \$/dv measure of cost effectiveness.

NDEP received USEPA Region IX's written comments on Nevada's RH SIP via fax on May 20, 2009. NDEP appreciates USEPA's conference call with our staff on May 19, 2009 to discuss some of the issues that were later identified in your written comments. USEPA's only expressed concerns or questions at this time are with regard to NDEP's BART determination for the Reid Gardner Generating Station and specifically the BART SO<sub>2</sub> emission limitations. USEPA's comments mirror some of the same concerns expressed in the Federal Land Manager (FLM) comments. In response to these concerns, Nevada is lowering the BART SO<sub>2</sub> emission limits at the Reid Gardner facility, although not to the level sought by the FLMs. (See NDEP's response to USEPA comment 2 in Appendix D for details.)

NDEP is hopeful that this one area of disagreement will not jeopardize USEPA approval of Nevada's RH SIP in light of the significant progress Nevada has demonstrated toward meeting the national visibility goals. Nevada discusses the significance of this area of disagreement later in this letter.

Note that the data and analyses supporting this SIP were those available before January 5, 2009, when the draft SIP was provided to the FLMs for their review, with the exception of the more recent data in support of lowering the Reid Gardner BART SO<sub>2</sub> emission limit. NDEP notes also that the most recent WRAP modeling completed in July 2009, utilizing the PRP18b emission inventory, supports the conclusions and recommendations presented in this SIP.

NDEP received numerous comments from the FLMs regarding Nevada's draft SIP during the FLM review period, including the National Park Service (NPS), U.S. Fish and Wildlife Service (FWS) and U.S. Forest Service (USFS). NDEP received additional written "follow-up" comments from the NPS during the public review period, as well as written comments on NDEP's *BART Determination Reviews of NV Energy BART Analyses* via email and May 20, 2009 letter. The NPS comments focus on the BART process including: the degree of emphasis

placed on visibility improvement, the use of dollars per deciview as a cost-effectiveness metric, inflation of control costs by the facilities, and specific BART emission limits. NPS also made ancillary comments on other topics.

Many of the NPS follow-up comments reflect the emphasis the FLM community has placed on maximizing visibility improvement that may result from the implementation of BART and the use of dollars per deciview (\$/dv) as the preferred cost effectiveness measure. There are basic philosophical differences between the FLMs and NDEP, as well as differences regarding how much emphasis should be placed on visibility improvement in the BART determination process. These differences are discussed in more detail later in this letter. Due to lack of guidance regarding the use of \$/dv as a cost effectiveness measure and the inherent uncertainties in its use, NDEP does not support the use of \$/dv in the BART process.

It is NDEP's position that section 169A of the Clean Air Act (CAA) mandates a cost-benefit approach to the BART analysis rather than a technology analysis (e.g., a BACT-like analysis). NDEP also notes that NPS concurs with Nevada's BART determinations for three of its four subject-to-BART facilities. Further, Nevada contends that neither the regional haze rule (RHR) nor the BART guidelines prohibit an increase in emissions from BART facilities. It is the goal of the RHR to protect and improve visibility at mandatory Class I areas, not to prohibit emissions increases at every individual BART facility per se. Nevertheless, Nevada is meeting the glidepath at its Class I area for the first planning period of the RHR.

NDEP received a letter of written comments via email and fax from a group of conservation or non-governmental organizations (NGOs) regarding Nevada's draft regional haze SIP on May 20, 2009. Attached to the NGO letter and included in the comments by reference is a report by D. Howard Gebhart of Air Resources Specialists, Inc. prepared for the Western Resource Advocates and National Parks Conservation Association titled, *Technical Review of Draft Nevada State Implementation Plan for Regional Haze (April 2009) Expert Report* (Tech Review). The Tech Review is a support document for issues summarized in the NGO comment letter.

The NGO comments focus on 5 main areas: the FLM consultation process, the projected 2018 emission inventory, the BART determination for Reid Gardner Generating Station, reasonable progress for Class I areas in adjacent states and inclusion of specific sources in the projected 2018 emission inventory. The NGO comments appear to reflect a limited understanding of the regional haze process and the BART guidance/process by the NGOs and Mr. Gebhart, especially as related to the concepts of baseline period, development of emission inventories, and post-BART versus regional visibility modeling. In addition, the NGO comments propose emission inventory methodologies that are internally inconsistent (e.g., the NGOs suggest removing some facilities with valid permits from the inventories, while including facilities that are not yet holding valid operating permits).

Nevada has fully participated in the regional planning process through our involvement with WRAP forums and workgroups which provided much of the regional technical analyses that are the basis for developing strategies to meet the RHR requirements, including compilation of emissions inventories, air quality modeling and ambient monitoring and data analysis. This regionally consistent and comparable body of technical data and analysis tools has been invaluable in addressing regional haze in the West. The emissions inventories relied upon by the

WRAP and member states were developed by consultants under the direction of WRAP through a consensus-based process and are deemed by most observers to be the most robust and accurate available.

As such, Nevada is especially concerned with the NGO statement, “The RH SIP’s failure to accurately account for haze forming emissions results in an inaccurate conclusion that Nevada is on the ‘glide path’ to achieving its regional haze goals[,]” by failing “. . . to accurately account for at least three proposed coal fired-power plants . . .” and “. . .incorrectly takes future credit for reduction in emissions from the Mohave power plant despite the fact that the plant has not been operational since 2005.” This statement seems to dismiss the activities of the USEPA-funded regional planning organizations without an understanding of that process.

NDEP has specifically addressed all comments received during the 30-day public comment period in Appendix D of Nevada’s RH SIP.

### Nevada’s Perspective

Nevada is among the first states (after California, Oregon and Utah) in the WRAP region to provide a complete 308 regional haze SIP for USEPA review. Nevada’s SIP identifies significant reductions in statewide emissions of SO<sub>2</sub> and NO<sub>x</sub> totaling 33 percent and 17 percent, respectively, from the baseline period (represented by the year 2002 and the Plan02d emission inventory) to 2018 (represented by the PRP18a emission inventory). When projected reductions from the installation of Nevada-specific BART controls are included, these percentages jump to 44 percent for SO<sub>2</sub> and 33 percent for NO<sub>x</sub>.

In addition, the projected PRP18a emission inventory includes the Mohave Generating Station’s NO<sub>x</sub> and PM<sub>10</sub> emissions and presumptive BART SO<sub>2</sub> emissions. The owners of this facility recently announced the decision to decommission the station and remove the generating facility from the site<sup>1</sup>. This inventory also includes a Future Coal EGU (White Pine Energy Associates/LS Power), shown in Table 3-5 of Nevada’s RH SIP, for which the applicant has publically announced it is indefinitely postponing construction<sup>2</sup>. These two actions will further reduce visibility impairing emissions from Nevada sources by 23,500 tpy NO<sub>x</sub>, 13,000 tpy SO<sub>2</sub> and 2,100 tpy PM<sub>10</sub>.

Emissions reductions by Nevada sources will result in improved visibility at Class I areas not only in Nevada, but also those in adjacent states. BART is only one of the tools available for states to use in a long-term strategy to meet their 2018 reasonable progress goal. Nevada’s 2018 reasonable progress goal is better than the uniform rate of progress, even when evaluated without the additional emissions reductions resulting from the full implementation of BART, the decommissioning of the Mohave Generating Station and the indefinite postponement of a new coal-fired EGU. Additionally, Nevada’s emissions reductions are proportional to our contributions to visibility impairment at Class I areas in adjacent states. Nevada deems this progress as reasonable for the first planning period of the sixty-year planning process.

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<sup>1</sup> <http://www.edison.com/pressroom/pr.asp?bu=&year=0&id=7234>

<sup>2</sup> <http://lspower.com/News/newsArticle030509.htm>

No Increase in SO<sub>2</sub> Emissions from Reid Gardner

It is important for USEPA to understand Nevada’s BART regulations do not allow for an increase in permitted SO<sub>2</sub> emissions (see Table 1) from the Reid Gardner Generating Station. Both the 0.25 lb/MMBtu 24-hour average limit in the public review draft of the SIP and the 0.15 lb/MMBtu 24-hour average limit in the final submission are lower than either the permit or consent decree requirements.

**Table 1. Permitted SO<sub>2</sub> Emission Limits for Reid Gardner Generating Station**

Unit	Federally Enforceable PSD Permit Requirements (PSD Permit Issued 1/3/80) <i>3-hr Rolling Average</i>	Consent Decree Requirements <i>10-day Rolling Average</i>	Federally Enforceable New Source Performance Standard Requirement	BART Emission Limits <i>24-hr Average</i>
	<b>SO<sub>2</sub> Emission Limits in lb/MMBtu</b>			
Unit 1	0.55	0.40	--	0.15
Unit 2	0.55	0.40	--	0.15
Unit 3	0.55	0.40	1.2	0.15

Source: AP4911-0897 for Reid Gardner Generating Station

Nor are actual emissions likely to increase under the BART emission limit. NDEP expects NV Energy will operate the post-BART Reid Gardner Generating Station consistent with the highly efficient recent operational history of the facility which has achieved the low SO<sub>2</sub> emission rates noted by the FLMs.

Nevertheless, in order to quantify the significance of the difference between the BART SO<sub>2</sub> emission limits for Reid Gardner determined by Nevada and those suggested in public comments, NDEP analyzed the yearly SO<sub>2</sub> emissions for various emission limits. The FLMs have proposed an SO<sub>2</sub> BART limit of 0.06 lb/MMBtu on an annual basis, while the NGOs proposed a limit of 0.10 lb/MMBtu on a 30-day rolling average. Our analysis compares the annual SO<sub>2</sub> emissions based on emission limits of 0.06, 0.10, and 0.15 lb/MMBtu under maximum allowable annual heat input. The results are presented in Table 2 below. The analysis shows the difference in annual emissions between emission rates of 0.06 lb/MMBtu, as proposed by the FLMs, and 0.15 lbs/MMBtu, the NDEP BART limit, is approximately 1,450 tons. The 2018 statewide total SO<sub>2</sub> inventory for Nevada is 46,224 tons (Table 3-7, RH SIP). 1,450 tons represent 3.1 percent of the total statewide 2018 SO<sub>2</sub> inventory for Nevada.

Therefore, if all three Reid Gardner units operated at the maximum allowable BART emission limitation for a full year at maximum heat input, then the facility could potentially emit

approximately 1,500 tons per year more SO<sub>2</sub> than would be allowed by the most stringent emission limit proposed by the FLMs. However, NDEP fully anticipates Reid Gardner will operate much as it has historically and will achieve actual emission rates similar to historical operations. It is unlikely that the facility will have emissions as high as 0.15 lb/MMBtu for extended periods or operate at full capacity year round. These factors suggest that the differences in BART emission limits will be reduced significantly from a possible maximum of 1,450 tpy.

**Table 2. Comparison of Annual SO<sub>2</sub> Emissions**

	Emission Rate (lb/MMBtu)	Annual Heat Input (MMBtu)	Total Annual Emissions (tons)
Unit 1	0.06	10,643,400	319
	0.10	10,643,400	532
	0.15	10,643,400	798
Unit 2	0.06	10,643,400	319
	0.10	10,643,400	532
	0.15	10,643,400	798
Unit 3	0.06	10,836,120	325
	0.10	10,836,120	542
	0.15	10,836,120	813

**Difference between 0.06 and 0.10 lb/MMBtu      642**  
**Difference between 0.10 and 0.15 lb/MMBtu      803**  
**Difference between 0.06 and 0.15 lb/MMBtu      1,446**

Nevada's Progress Toward the National Visibility Goal

Nevada has established, and is projected to meet, the 2018 reasonable progress goals needed to attain natural visibility conditions by the year 2064 at the Jarbidge Wilderness Area through the identification of long-term strategies and corresponding emission reduction measures. Nevada's long-term strategy addresses visibility impairment at the Jarbidge Wilderness Area and contains measures necessary to achieve the reasonable progress goals at this Class I area including emissions limitations and compliance schedules. Furthermore, Nevada's emissions reductions are also consistent with its contribution to visibility impairment at Class I areas in adjacent states.

It is noteworthy that neither the CAA nor the RHR mandate specific rates of progress, but call for reasonable progress toward the national visibility goal. Nevada has determined a rate of progress for remedying existing impairment that is reasonable, taking into consideration the statutory factors and input from stakeholders. Emissions reductions due to BART have aided

Nevada's achievement of its reasonable progress goal; Nevada deems this consistent with the intent of the RHR. Nevada's emissions reductions resulting from the installation of BART are consistent with our reasonable progress goal, and NDEP finds the FLMs insistence on the most stringent BART controls unreasonable at this time.

In the event that Nevada fails to meet its 2018 reasonable progress goals, then Nevada will either revise its SIP strategies for the next long-term planning period to meet its goals or revise its reasonable progress goals for the next planning period. All Nevada emission sources, including the BART facilities, will be subject to review if Nevada has to revise its long-term strategies to meet future uniform rate of progress goals.

### The Relationship between BART and the Regional Haze Rule

States are required to include in their RH SIPs emission limitations, schedules of compliance and other measures necessary to make reasonable progress toward meeting the national visibility goal. The BART provisions are one of the numerous emissions reduction measures included in Nevada's long-term strategy to meet the national visibility goal.

Nevada's RH SIP contains emission limitations representing BART for those eligible facilities that cause or contribute to visibility impairment at any Class I area. Our BART determinations considered the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source and the degree of improvement in visibility which may be reasonably anticipated to result from the use of such technology. BART provides a strategy for improving visibility impairment that may be caused by certain stationary sources built between 1962 and 1977. Nevada has incorporated the installation of BART as part of a long-term strategy to meet our reasonable progress goals.

BART is only one of the components of Nevada's long-term strategy to achieve our reasonable progress goal. Recall that Nevada's 2018 reasonable progress goal meets the uniform rate of progress to natural visibility conditions by 2064 for the Jarbidge Wilderness Area. Although the BART SO<sub>2</sub> emission limits for Reid Gardner have generated numerous comments, NDEP deems Nevada's long-term strategy and reasonable progress goals as reasonable for the first regional haze planning period, including the emissions reductions due to the installation of BART.

### Philosophical Differences

The FLM community has the responsibility of protecting and remediating existing air quality impairment at Class I areas, as demonstrated by the goals and mission statements below. The states, on the other hand, have the responsibility of managing their air resources while allowing for economic growth as shown by NDEP's mission statement below. NDEP's authority allows permitting emissions of air pollutants in a managed manner consistent with all applicable regulations. Although both agencies are charged with protecting the environment, the respective responsibilities are sometimes at odds. Nevada would be surprised if the FLM community didn't seek the most stringent emission controls and limits in their efforts to protect and remediate air quality in Class I areas.

The NPS Air Resources Division website states, “Our goal is to preserve, protect, enhance, and understand air quality and other resources sensitive to air quality in the National Park System.”<sup>3</sup> The FWS Air Quality website states, “The Mission of the U.S. Fish and Wildlife Service’s Air Quality Program is to protect and enhance air quality in support of ecosystem management in the National Wildlife Refuge System. Our Vision is a Refuge System free of impacts from human-caused air pollution and is consistent with the Refuge System Improvement Act.”<sup>4</sup>

The mission statement of the NDEP, “. . . is to preserve and enhance the environment of the state in order to protect public health, sustain healthy ecosystems, and contribute to a vibrant economy.”<sup>5</sup>

An FLM letter<sup>6</sup> to NDEP states, “We share the common goal of improving visibility in all Class I areas throughout the United States, and we would like to use this planning process to maximize goal achievement.” In another communication, Don Shepherd, NPS, stated,<sup>7</sup> “While we are pleased that NDEP proposed lower emission limits than those proposed by NVE, as usual, we think that they can do better. (Wouldn’t you be disappointed if we did not think that?)” However, USFS comments<sup>8</sup> regarding Nevada’s RH SIP include the statement, “Since anthropogenic fire and prescribed burning constitute a very small component of haze, the Forest Service would like to ensure that these practices are not unnecessarily regulated.” These statements imply that the FLM community wants maximum flexibility in managing the Class I area air resources for its own purposes, while numerous FLM comments suggest restricting the state’s flexibility in managing their air resources. This situation clearly demonstrates the conflicts of the responsibilities and goals of the agencies.

#### FLM Comments Regarding Costs and Control Efficiencies

The FLM community has provided numerous comments on Nevada’s draft RH SIP both during the FLM review period and during the public comment period. Many of the comments are directed at Nevada’s BART process regarding costs and control efficiencies. NDEP notes that the NPS agrees with NDEP’s identification of BART technologies for the Tracy Generating Station and Fort Churchill Generating Station, as noted in the NPS follow-up comment to NDEP’s response to NPS-FWS Comment 7 on the FLM consultation draft of the SIP.

Several FLM comments concern the documentation of selective catalytic reduction costs and control efficiencies at Reid Gardner. As part of Nevada’s response to NPS comments, NDEP conducted alternative cost analyses. For these analyses, NDEP decreased costs by thirty percent and lowered the post-control emission rates to address FLM concerns. The alternative cost analyses confirmed NDEP’s determination of BART controls for Reid Gardner. The alternative cost analyses are presented in NDEP’s response to NPS comments under Comment 7 in Appendix D of the SIP.

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<sup>3</sup> <http://www.nature.nps.gov/air/>

<sup>4</sup> <http://www.fws.gov/refuges/AirQuality/index.html>

<sup>5</sup> <http://ndep.nv.gov/index.htm>

<sup>6</sup> Silva, Sandra V., FWS, and Shaver, Christine L., NPS. Letter entitled “Regional Haze Rule Consultation with Federal Land Management Agencies” to Ms. Jennifer Carr, Chief, Bureau of Air Quality Planning, 1 August 2006

<sup>7</sup> May 20, 2009 email from Don Shepherd to Adele Malone, NDEP, regarding Nevada’s BART determinations

<sup>8</sup> USFS comment letter to NDEP dated March 4, 2009; see Appendix C, page C-26.

### FLM Emphasis on Visibility Improvement in BART Process

The FLM community has placed great emphasis on maximizing visibility improvement as part of the BART process. This emphasis drives BART as a technology analysis to identify the most stringent control technology rather than as a cost-benefit analysis. The CAA mandates a cost-benefit analysis, where visibility improvement is one of five factors considered in the BART determination process. USEPA's BART guidance<sup>9</sup> states, "The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impact of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." The preamble to the BART guidance<sup>10</sup> also indicates that states are free to determine the weight and significance to be assigned to each statutory factor listed above.

### FLM Emphasis on \$/dv Measure of Cost Effectiveness

The FLM community is insistent on the use of cost in \$/dv improvement as an assessment of the cost effectiveness of industrial controls under the BART program. Nevada expressed our reservations with FLM comments regarding the use of \$/dv as a measure of cost effectiveness in Appendix C of the SIP (see NPS-NWS Comment 17 and NDEP response). Nevada notes that \$/dv is an optional measure of cost effectiveness as listed in the BART guidance<sup>11</sup> and that USEPA provides no guidance on the use of this metric in the selection of BART controls. As Don Shepherd, NPS, stated in an email<sup>12</sup> regarding NDEP's BART determinations, "It all boils down to how much emphasis is placed on \$/dv, especially with respect to cumulative impacts and benefits..."

It is clear that other states have similar reservations, as noted by Oregon DEQ for the Boardman Power Plant<sup>13</sup>, which states:

"There are several different metrics that can be considered when evaluating the cost-benefit relationships of different emission control technologies. A commonly used metric is dollars per ton of pollution reduced (\$/ton). Another common metric is the incremental cost difference between one control option and another. The Department believes that the metrics of dollars per ton and incremental cost differences best express the relative value of various control options and are most comparable with other decision making processes used by state and federal air quality agencies to evaluate emission controls for major industry. As discussed in the next section, the Department has also evaluated the amount of visibility improvement gained in relation to cost in dollars per deciview improvement (\$/dv). Dollars per deciview can be informative and important to consider, however this type of metric is not commonly used to assess the cost effectiveness of industrial

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<sup>9</sup> 40 CFR Part 51 Appendix Y (IV) (A)

<sup>10</sup> 70 FR 39130

<sup>11</sup> 40 CFR Part 51, Appendix Y (IV)(E)(1)(4)

<sup>12</sup> May 20, 2009 email from Don Shepherd, NPS, to Adele Malone, NDEP

<sup>13</sup> DEP BART Report for the Boardman Power Plant, updated December 19, 2008, prepared by Oregon Department of Environmental Quality, page 23, <http://www.deq.state.or.us/aq/haze/docs/deqBartReport.pdf>

controls and has more inherent uncertainty in expressing the full visibility and environmental benefit of any given option. This uncertainty potentially makes this metric less helpful than \$/ton or incremental costs. “

Oregon DEQ’s cost evaluation for the Boardman facility provided data to evaluate the inherent uncertainty in use of the \$/dv metric. The annual cost of installing and operating NLNB/MOFA with SDFGD as BART controls for the Boardman facility is approximately \$40M. NDEP has used these costs and DEQ’s modeled post-BART visibility improvement at all 14 Class I areas within 300 km of the facility to calculate the cost effectiveness in millions of dollars per deciview improvement. The results were used to evaluate how the number and distribution of Class I areas affect this cost effectiveness metric. NDEP’s analysis is presented in Nevada’s response to NPS follow-up comment to Comment 7 in Appendix D section 2.

NDEP calculated the cost effectiveness in \$/dv for five different groupings of Class I areas with respect to the Boardman facility, as follows:

- All Class I areas within 300 km (Mt. Adams, Goat Rocks, Mt. Hood, Eagle Cap, Strawberry Mountain, Mt. Rainer, Mt. Jefferson, Alpine Lakes, Three Sisters, Mt. Washington, Hells Canyon, Glacier Peak, Diamond Peak, North Cascades),
- The 5 Class I areas closest to the Boardman facility (Mt. Adams, Goat Rocks, Mt. Hood, Eagle Cap, Strawberry Mountain),
- The 5 Class I areas in the middle distance (Mt. Rainer, Mt. Jefferson, Alpine Lakes, Three Sisters, Mt. Washington),
- The 2 closest and 3 most distant Class I areas (Mt. Adams, Goat Rocks, Glacier Peak, Diamond Peak, North Cascades), and
- The 5 most distant Class I areas (Mt. Washington, Hells Canyon, Glacier Peak, Diamond Peak, North Cascades).

The cost per deciview improvement shows costs ranging from \$2.32 million to \$8.71 million per deciview of visibility improvement depending on the number and location of the affected Class I areas. NDEP’s evaluation suggests the more distant the Class I areas the higher the cost of BART controls in \$/dv, while the closer the Class I areas the lower the cost in \$/dv. Note that the traditional measures of cost effectiveness, total annualized costs in dollars, cost effectiveness in dollars per ton, and incremental cost effectiveness in dollars per ton, remain constant. Only the number and location of the Class I areas were changed for this evaluation. See NDEP’s response to NPS follow-up to Comment 7 (Appendix D section 2.2.2) to view the tabulated results of this analysis.

The results clearly demonstrate how the location and number of Class I areas can influence the use of \$/dv as a cost effectiveness metric. NDEP remains unconvinced that \$/dv is a good measure of reasonable cost effectiveness as NPS contends. NDEP does not accept the use of \$/dv as an effective measure of cost effectiveness, especially as a benchmark as proposed by NPS.