United States Department of the Interior

NATIONAL PARK SERVICE
Air Resources Division
P.O. Box 25287
Denver, CO 80225-0287

IN REPLY REFER TO:

N3615 (2350)

March 30, 2012

Chrissy Wolfersberger
Air Planning and Development Branch
U.S. Environmental Protection Agency, Region 7
901 N. 5th Street
Kansas City, Kansas 66101

EPA Docket ID: EPA-R07-OAR-2012-0158

Dear Ms. Wolfersberger:

The National Park Service (NPS) has reviewed the Environmental Protection Agency's (EPA's) proposed "Approval, Disapproval and Promulgation of Implementation Plans; Nebraska; Regional Haze State Implementation Plan." We are concerned that Nebraska Department of Environmental Quality (NDEQ) and EPA, in its review of Nebraska's Plan, have not been responsive to concerns that we raised in our January 2011 comments on Nebraska's draft Plan. EPA also has not been responsive to our February 2012 comments on EPA's proposal that the Transport Rule is better than source specific controls required for Best Available Retrofit Technology (BART) in which we specifically addressed emissions from Nebraska. Our comments are summarized below and detailed in the enclosed document.

We agree with EPA's proposed disapproval of the BART determination for sulfur dioxide (SO_2) controls for Gerald Gentleman Generating Station (GGS). GGS impairs visibility at Badlands, Wind Cave and Rocky Mountain National Parks and three other Class I areas administered by the U.S. Fish and Wildlife Service and the U.S. Forest Service. EPA's technical analysis demonstrated that dry scrubbers with an emissions limit of 0.06 lb/mmBtu for 30-day rolling average could reduce SO_2 emissions from GGS Units 1 and 2 by 28,166 tons at a cost $1,972 per ton. According to EPA, dry scrubbers would result in significant visibility improvement at Badlands National Park (NDEQ reported 0.8 deciview improvement for the presumptive BART emissions limit of 0.15 lb/mmBtu, the benefit at 0.06 lb/mmBtu was not modeled) and cumulatively (greater than 3.2 dv) across six parks and wilderness areas. Based on EPA's technical analysis, BART for SO_2 for GGS Units 1 and 2 should be a SO_2 limit of 0.06 lb/mmBtu on a 30-day rolling average.

We agree with EPA's proposed disapproval of Nebraska's Long Term Strategy. Presumptive BART SO_2 controls at GGS were included in the regional modeling that supports the reasonable progress goals for Class I areas in South Dakota, Colorado, Oklahoma, and Missouri that are impacted by GGS. Without SO_2 controls at GGS, these Class I areas are likely not to meet the reasonable progress goals proposed by the States and EPA. 40 CFR 51.308(d)(3) states that:

> Each State must submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I Federal area within the State and for each mandatory Class I Federal area located outside the State which may be affected by emissions from the State. The long term strategy must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals established by States having mandatory Class I Federal areas.

We strongly disagree with EPA's proposal that the Transport Rule provides greater visibility improvement than source specific BART controls at GGS. In fact, the Nebraska emission limits under the Transport Rule do not require any additional controls for electric generating units in Nebraska. Allowing GGS to avoid all controls is not better than 28,166 tons of SO_2 reductions under source specific BART. EPA's own technical analyses demonstrate that visibility at Badlands and Wind Cave National Parks will be poorer under the Transport Rule than under source specific BART.

Given EPA's disapproval of the BART determination for GGGS, we urge EPA to require source specific SO_2 controls at GGS under a Federal Implementation Plan. Other actions that EPA could undertake to remedy the visibility impairment due to GGS:

- propose a geographic enhancement to the Transport Rule as a Federal Implementation Plan as part of the action of the Nebraska Regional Haze Plan,
- propose a supplement to the Transport Rule to require lower emissions limits for Nebraska as a geographic enhancement (EPA has proposed two supplements to adjust state budgets since the Transport Rule was finalized in July 2011), or
- propose a supplement to the Better than BART proposal to remove Nebraska from the determination that the BART alternative is better than source specific BART controls in Nebraska.

We also urge EPA to re-consider the BART determination for NO_x controls at GGS. In our enclosed comments we demonstrate that Selective Catalytic Reduction (SCR) is cost effective to control NO_x at GGS. The emissions limits for Nebraska under the Transport Rule do not require additional NO_x emissions controls. We believe that the visibility improvements estimated from the use of SCR warrant additional controls.

We appreciate the opportunity to work closely with the Nebraska Department of Environmental Quality and EPA to make progress toward achieving natural visibility conditions at our National Parks and Wilderness Areas. For further information regarding our comments, please contact Pat Brewer at (303) 969-2153.

Sincerely,

Susan Johnson
Chief, Policy, Planning and Permit Review Branch

Enclosure

cc:
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Comments on Proposed BART for Nebraska Public Power District (NPPD)
Gerald Gentleman Station (GGS) Units 1 and 2

March 30, 2012

Nebraska Public Power District (NPPD) operates the Gerald Gentleman Station (GGS), which includes two Electric Generating Units (EGUs), near Sutherland, NE that are subject to Best Available Retrofit Technology (BART). The two boilers burn pulverized Powder River Basin sub-bituminous coal (8,576 Btu/lb; 0.30 % sulfur; 4.69% ash in 2001). EPA's Clean Air Markets (CAM) database shows that, in 2011, GGS ranked #32 (of 1,237 facilities) in SO_2 emissions at 29,113 tons, and ranked #28 in NO_X emissions at 13,117 tons. The useful remaining life of GGS Units 1 and 2 is greater than 20 years under the current NPPD energy resource plan. Therefore the remaining useful life has no impact on the annualized estimated control technology cost at this time.

The plant is located within 400 km of three Class I areas (Badlands, Wind Cave, and Rocky Mountain National Parks) which are administered by the National Park Service. Modeling analyses have shown that GGS causes visibility impairment in the Badlands National Park (NP) (2.9 deciviews (dV) three-year average 98th percentile impact), Wind Cave NP (2.4 dV), and Rocky Mountain NP (1.1 dV). GGS also contributes to visibility impairment at the Wichita Mountains (1.2 dV), Hercules Glades (0.7 dV) and Mingo (0.5 dV) Class I Wilderness areas. The cumulative impact of GGS on visibility at six Class I areas is 9.3 dV.[1]

Unit 1 is a dry-bottom, wall-fired boiler rated at 665 MW (net), equipped with a fabric filter to control particulate matter (PM_{10}). It appears that Low-NO_x Burners (LNB) and Over-Fire Air (OFA) were installed 2005 – 2006 to reduce nitrogen oxides (NO_x) from about 0.45 pounds per million Btu (lb/mmBtu) and 12,000 – 14,000 tons per year (tpy) to about 0.22 lb/mmBtu and about 5,000 - 6,000 tpy.[2] There are no controls for sulfur dioxide (SO_2), which typically is emitted at 0.6 lb/mmBtu and 14,000 – 16,000 tpy. CAM data show that, in 2011, GGS Unit 1 ranked #87 (of 3,621 units) in SO_2 emissions at 13,171 tons, and ranked #96 in NO_X emissions at 4,295 tons.

Unit 2 is a dry-bottom, wall-fired boiler rated at 700 MW (net). Unit 2 is equipped with a fabric filter to control particulate matter (PM_{10}). There are no controls for SO_2, which typically is emitted at 0.6 lb/mmBtu and 15,000 – 17,000 tpy. There are no controls for NO_x, which typically is emitted at 0.30 – 0.35 lb/mmBtu and 8,000 – 10,000 tpy. CAM data show that, in 2011, GGS Unit 2 ranked #55 (of 3,621 units) in SO_2 emissions at 15,942 tons, and ranked #13 in NO_X emissions at 8,822 tons.

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[1] EPA Table 5 incorrectly shows impacts at Hercules Glades, Mingo, and Wichita Mountains @ <0.05 dv.
[2] According to NDEQ, "On January 4, 2006, the Department received a PSD Construction Permit application for the replacement of Unit 1's burner equipment system including an overfire air port system. NPPD installed new Low NOx Burners (LNB) on Unit 1 because the existing burners were near the end of their useful life and to be pro-active in installing expected Best Available Retrofit Technology (BART) controls. A PSD construction permit was issued to GGS for the installation of the LNB on Unit 1 on August 18, 2006. A PSD permit was required for the modification due to the expected increase in carbon monoxide emissions as a result of the LNB installation."

BART for Nitrogen Oxides (NO_X)

In January 2011 we filed comments on Nebraska's draft Regional Haze State Implementation Plan (SIP) regarding NPPD's BART analyses. We are updating our comments to reflect new information obtained since 2011, as well as providing some general comments on cost calculations.

Cost-Effectiveness Metrics

Cost-effectiveness is one of five factors to be considered in a BART analysis, and thus a BART determination is not necessarily the most cost-effective choice. A BART analysis involves a broad consideration of technical, economic, energy, and environmental (including visibility improvement) factors. We believe that visibility improvement must be a critical factor in any program designed to improve visibility. In the draft SIP, Nebraska Department of Environmental Quality (NDEQ) says that it used a $40 million/yr/dv threshold for determining what would be considered reasonable investment for visibility improvement. We concur with the NDEQ approach, but note that, in its January 21, 2011 letter to the NDEQ, the Environmental Protection Agency (EPA) stated that "a $/dv analysis is likely to be less meaningful if the analysis does not take into account the visibility impacts at *multiple* Class I areas or ignores the *total improvement* (i.e., the frequency, magnitude, and duration of the modeled changes in visibility) (emphasis added).

Cost Estimation Methods

The BART Guidelines recommend use of the EPA OAQPS Control Cost Manual CCM):

> The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the OAQPS Control Cost Manual, Fifth Edition, February 1996, 453/B-96-001). In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible. The Control Cost Manual addresses most control technologies in sufficient detail for a BART analysis. The cost analysis should also take into account any site-specific design or other conditions identified above that affect the cost of a particular BART technology option.

There are several methods for estimating costs, but no one method is perfect and all—whether strict adherence to the CCM or another justified method—need to be tempered by real-world data. The cost estimates submitted by NPPD are not supported by adequate information. And, while NDEQ states that "NPPD used vendor quotes for the majority of the analysis," we found no documented actual vendor quotes in the materials made available for our review.[3]

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[3] The NPPD BART analysis contained such general statements as "Equipment costs were developed based on vendor budgetary quotes" and "Major equipment costs were based on vendor budgetary quotes." NDEQ

Cost Escalation

NPPD included an escalation component in its cost estimates. Regarding the use of escalation factors to calculate the levelized cost of each technology, Larry Sorrels, an economist at EPA's Office of Air Quality Planning and Standards (OAQPS), stated that "estimating real annual costs means no use of escalation factors..."[4] We agree that it is not appropriate to escalate costs into the future and compare them against current cost thresholds.

Inflation and the Allowance for Funds During Construction (AFUDC):

NPPD included several million dollars of AFUDC costs. Mr. Sorrels also commented on this issue:

> On cost indexes, I prefer the CEPCI (Chemical Engineering Plant Cost Index) for escalating/deescalating costs for chemical plant and utility processes since this index specifically covers cost items that's pertinent to pollution control equipment (materials, construction labor, structural support, engineering & supervision, etc.). The Marshall & Swift cost index is useful for industry-level cost estimation, but is not as accurate at a disaggregated level when compared to the CEPCI. Thus, I recommend use of the CEPCI as a cost index where possible.[5]
>
> I agree with including AFUDC in a capital cost estimate if this is already included in the base case as per a utility commission decision. Otherwise, I do not agree with its inclusion.

NPPD has not shown that AFUDC costs are "already included in the base case as per a utility commission decision."

BART Analysis

NDEQ/EPA combined the Unit 1 and Unit 2 boilers for its BART analysis, even though NO_x emissions from these boilers differ substantially. We continue to believe that separate analyses are necessary. NDEQ/EPA proposed LNB and OFA as NO_x controls to meet the presumptive BART limit of 0.23 lb/mmBtu for these wall-fired boilers burning sub-bituminous coal. (These controls have already been installed on Unit 1). EPA has proposed to approve NDEQ's determination.

NDEQ/EPA eliminated Selective Non-Catalytic Reduction (SNCR) from consideration on the basis that it is not technically feasible because of high temperatures measured in a

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refers to the "2008 S&L NPPD Study" but we were not provided a copy. EPA states that, " In addition, we were hampered by the absence of some information that would have resulted in a more comprehensive analysis, such as the vendor quotes GGS apparently relied upon for its capital costs, and most design information (e.g., water, lime, electricity)."

[4] E-mail dated September 7, 2010 to Don Shepherd of NPS.

[5] 7/21/10 e-mail to Don Shepherd

similar boiler. NPS does not believe sufficient justification was provided for eliminating SNCR from consideration. The Oregon Department of Environmental Quality (OR DEQ) recently spoke to this issue concerning the Boardman power plant operated by Portland General Electric (PGE):

> Unit 1 at the Gerald Gentleman Station (GGS #1) in Nebraska is nearly identical to the unit at the Boardman Plant.[6]
>
> During a meeting at B&V [Black & Veatch] offices in Kansas on April 24, 2008, B&V indicated that they have had Fuel Tech (a leading SNCR vendor) conduct further examination of the Boardman unit. Fuel Tech confirmed that there was an appropriate injection location (in the upper backpass, rather than the usual upper furnace location), and that 25 percent reduction is feasible.[7]

NPS believes there is sufficient evidence to justify evaluating the technical feasibility of SNCR at GGS.

We also question NDEQ/EPA's conclusion that it can eliminate SNCR on the assumption that the two boilers at GGS are so similar that they can be evaluated in combination, not individually. In response to our previous comment on this issue,[8] NDEQ replied that "The temperature issue was discussed with NPPD. The two units are different and could not be evaluated in combination." Nevertheless, NDEQ/EPA made no distinction between GGS#1 and GGS#2 in their BART analyses:

> However, there are situations where SNCR has limited applicability, such as in the case of GGS Units 1 and 2. Due to the high temperatures experienced at the furnace exit, ammonia injection would have to occur far down stream in the convection section when combustion gases have cooled more. In addition, the location of the appropriate temperature zone would fluctuate with levels of fouling, unit load, and other conditions, requiring multiple injection points with a dynamic determination of the appropriate injection point. This would mean significantly lower residence time in the appropriate temperature window, high ammonia "slip," and non-sufficient NOx control by this method. Due to the reasons discussed above, SNCR has been determined to be infeasible at this time.[9]

NDEQ/EPA should evaluate SNCR with data specific to each of the GGS boilers.

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[6] Oregon DEQ BART Report for the Boardman Power Plant, Updated December 19 2008

[7] Technical Memorandum #2, To: David Collier, Brian Finneran, and Mark Fisher, Oregon Department of Environmental Quality, From: Roger Christman, Roy Oommen, and Paula Fields, ERG, Subject: Estimation of Costs and Impacts of NOx Control Technologies Applied to the PGE Boardman Plant, Date: June 26, 2008

[8] In our 8/29/08 comments to NDEQ we stated, "NPPD has combined these two boilers for its analysis, even though NO_x emissions from these boilers differ substantially. Separate analyses are preferable."

[9] NDEQ FACT SHEET BART & PSD Analysis For the Nebraska Public Power District Gerald Gentleman Station 6089 South Highway 25 Sutherland, Nebraska 69165 May 11, 2010

NDEQ/EPA underestimated the ability of modern Selective Catalytic Reduction (SCR) systems to control NO_X. A significant reason for the higher cost-per-ton of this option estimated by NDEQ is the NO_X control efficiency assumed--76% - 83% (0.08 lb/mmBtu) when EPA and others have stated this technology should achieve 90% control.

We are including data for 20 coal-fired units with SCR meeting 0.05 lb/mmBtu or lower on an annual average in 2011. Regarding SCR as BART at the San Juan Generating Station, EPA recently said:

- We determined that the SCR could achieve an emission rate of 0.05 lb NO_X/mmBtu and included this emission rate in modeling the SCR control scenario.
- We propose that NO_X BART for all the units of the SJGS is SCR with a 30 day rolling average of 0.05 lbs/ mmBtu.
- We note the NO_X design basis was 0.05 lbs/mmBtu for the SCR retrofit for the nearby Navajo Generating Station, a facility of a similar age that burns a similar coal, with a more constrained site. As explained elsewhere in our response to comments, we present data that demonstrates that retrofit SCR installations are capable of achieving a NO_X limit of 0.05 lbs/mmBtu on a continuous basis. Therefore, we believe the statement that a retrofit SCR would only be capable of achieving 0.07 lb/mmBtu on a continuous basis, is factually incorrect.
- We agree with the NPS that PNM has underestimated the ability of SCR to reduce emissions. As discussed elsewhere in our response to comments, we are requiring that the units of the SJGS meet an emission limit of 0.05 lbs/mmBtu on the basis of a 30 day rolling average.[10]

Additionally, for its proposed Montana Federal Implementation Plan (FIP), EPA said it is "Assuming that an annual emission rate of 0.05 lb/mmBtu is achievable with SCR..."[11]

NPPD/EPA's SCR costs are overestimated. NPS continues to believe that NDEQ overestimated costs of SCR at GGS, and EPA did not evaluate those SCR costs with the same rigor that it applied to the evaluation of SO_2 control costs. In addition to the issues we raised in our 2011 comments, we have the following concerns with the SCR cost analysis:

- NDEQ has not shown why the outage to install the SCR could not be done during a routine outage; thus the $1million cost for taking a unit off-line is not justified.
- NDEQ included several costs (e.g., AFUDC, Escalation) specifically excluded by the CCM and not otherwise justified.
- The Total Capital Investment is 277% - 281% of the Direct Capital Cost estimate provided by NDEQ and exceeds 141% of the Direct Capital Cost as estimated by the CCM. The Total Capital Investment accepted by EPA in this action is

[10] EPA-R06-OAR-2010-0846 http://www.gpo.gov/fdsys/pkg/FR-2011-08-22/pdf/2011-20682.pdf
[11] EPA-R08-OAR-2011-0851

> $377/kW, which exceeds all known costs associated with any SCR installation. (Please see our January 2011 comments to NDEQ.)

In our 2011 comments, we provided a summary of SCR retrofit capital investment costs for BART-eligible boilers in the range of $80/kW to $270/kW. For these comments today, we used an approach similar to that used by EPA Region 8 in its evaluation of SCR on the Colstrip power plant—following is an excerpt from EPA's proposed Montana FIP:

> We relied on a number of resources to assess the cost of compliance for the control technologies under consideration. In accordance with the BART Guidelines (70 FR 39166), and in order to maintain and improve consistency, in all cases we sought to align our cost methodologies with the EPA CCM.[12] However, to ensure that our methods also reflect the most recent cost levels seen in the marketplace, we also relied on a set of cost calculations developed for the Integrated Planning Model (IPM) version 4.10.[13] These IPM cost calculations are based on databases of actual control project costs and account for project specifics such as coal type, boiler type, and reduction efficiency. The IPM cost calculations reflect the recent increase in costs in the five years proceeding 2009 that is largely attributed to international competition. Finally, our costs were also informed by cost analyses submitted by the sources, including in some cases vendor data.
>
> Annualization of capital investments was achieved using the CRF as described in the CCM.[14] Unless noted otherwise, the CRF was computed using an economic lifetime of 20 years and an annual interest rate of 7%.[15] All costs presented in this proposal have been adjusted to in 2010 dollars using the Chemical Engineering Plant Cost Index (CEPCI).[16]

In this case, for each boiler we used EPA's IPM model to estimate Direct Capital Cost (DCC) at $97 million, which is higher than the $90 million DCC we also estimated from NPPD data. We used the higher IPM estimate for DCC and then applied the CCM factors (141%) for Indirect Capital Cost to estimate a Total Capital Investment (TCI) of $137 million ($200/kW). Next, we applied the CCM methods for estimating Direct and Indirect Annual Costs to the TCI and arrived at a Total Annual Cost of $19 million for SCR with combustion control improvements. We concluded that combustion controls plus SCR for Units 1 and 2 would remove almost 20,000 tpy and cost between $1,600 - $2,500/ton.

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[12] EPA Control Cost Manual Sixth Edition, January 2002, EPA 452/B-02-001

[13] Documentation for EPA Base Case v.4.10 Using the Integrated Planning Model, August 2010, EPA #430R10010

[14] Section 1, Chapter 2, page 2-21.

[15] Office of Management and Budget, Circular A-4, Regulatory Analysis, http://www.whitehouse.gov/omb/circulars_a004_a-4/.

[16] Chemical Engineering Magazine, p. 56, August 2011. (*http://www.che.com*).

Combustion Controls + SCR Cost-benefit Analysis

GGS Unit	Unit #1	Unit #2
Uncontrolled Emissions (tpy)	13,408	8,894
Uncontrolled Emissions (lb/mmBtu)	0.47	0.33
Combustion Controls		
Controlled emissions (lb/mmBtu)	0.23	0.23
Controlled Emissions (tpy)	6,585	6,243
Annualized Cost	$ 1,480,000	$ 1,480,000
Cost-Effectiveness ($/ton)	$ 217	$ 558
SCR		
Control Efficiency	78%	78%
Emissions Reduction (tpy)	5,154	4,886
Capital Cost	$ 136,635,466	$ 136,635,466
Capital Cost ($/kW)	$ 205	$ 195
O&M Cost	$ 4,620,169	$ 4,532,246
Annualized Cost	$ 17,517,591	$ 17,429,667
Cost-Effectiveness ($/ton)	$ 3,399	$ 3,567
Combustion Controls + SCR		
Control Efficiency	89%	85%
Controlled emissions (lb/mmBtu)	0.05	0.05
Controlled Emissions (tpy)	1,432	1,357
Emissions Reduction (tpy)	11,977	7,537
Annualized Cost	$ 18,997,591	$ 18,909,667
Cost-Effectiveness ($/ton)	$ 1,586	$ 2,509

To put our cost estimate into perspective, EPA has recently said:

> Even if EPA had decided to accept APS's worst-case cost estimates of $4,887 – $6,170/ton of NOx removed, EPA considers that estimate to be cost effective for the purpose of proposing an 80% reduction in NOx, achievable by installing and operating SCR as BART at FCPP.[17]

EPA recently determined $4,491/ton to be reasonable for SCR in Montana:

> We have concluded that SOFA, SOFA+SNCR, and SOFA+SCR are all cost effective control technologies...SOFA+SCR is more expensive than SOFA or SOFA+SNCR, having a cost effectiveness value of $4,491 per ton of NOx emissions reduced. This is well within the range of values we have considered reasonable for BART and that states have considered reasonable for BART.[18]

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[17] ENVIRONMENTAL PROTECTION AGENCY 40 CFR Part 49 Source Specific Federal Implementation Plan for Implementing Best Available Retrofit Technology for Four Corners Power Plant: Navajo Nation AGENCY: Environmental Protection Agency (EPA). ACTION: Proposed rule. Federal Register / Vol. 75, No. 201 / Tuesday, October 19, 2010

[18] ENVIRONMENTAL PROTECTION AGENCY 40 CFR Part 52 EPA-R08-OAR-2011-0851, FRL-] Approval and Promulgation of Implementation Plans; State of Montana; State Implementation Plan and Regional Haze Federal Implementation Plan AGENCY: Environmental Protection Agency. ACTION: Proposed rule.

We also compared our estimates for cost-effectiveness to NDEQ's $40 million/dv threshold and found that combustion controls plus SCR would be cost-effective at $12 - $19 million/cumulative dv.[19]

Visibility analyses

GGS Unit	Unit #1	Unit #2
Visibility Impact before BART (dv at Max Class I)	1.41	0.89
Visibility Improvement (dv at Max Class I)	0.55	0.35
Cost-Effectiveness ($/98th % dv at Max Class I)	$ 34,380,345	$ 54,377,802
Visibility Impact before BART (dv at Summed Class I)	4.26	2.68
Visibility Improvement (dv at Summed Class I)	1.54	0.97
Cost-Effectiveness ($/98th % dv at Summed Class I)	$ 12,316,946	$ 19,481,144

We therefore recommend that EPA determine that an emission limit (e.g., 0.06 lb/mmBtu on a 30-day rolling average) equivalent to the application of combustion controls plus SCR is BART for NOx at GGS Units 1 and 2.

BART for Sulfur Dioxide (SO_2)

We commend EPA for its analysis and agree with EPA's Federal Register (FR) statements in this action:

> Using Nebraska's analysis, we agree that the cost per ton for [Flue Gas Desulfurization] FGD control is reasonable, and Nebraska's analysis shows significant visibility improvement, both at Badlands and on a cumulative basis. We also believe that Nebraska inappropriately ruled out [Dry Sorbent Injection] DSI. Costs for the control are reasonable at $2,058 per ton and visibility improvement at Badlands is significant at 0.86 dv. Furthermore, DSI does not consume as much water as does FGD.
>
> However, dry scrubbers [lime spray dryer] are capable of much greater control efficiencies than the 80 percent level that GGS assumes. Therefore, for the purpose of calculating the cost effectiveness of dry scrubbers at the GGS, we also analyzed an SO_2 emission limit of 0.06 lbs/MMBtu, which results in a scrubber efficiency of approximately 89.4%. Applying this level of control to our adjusted GGS baseline of 31,513 tons/yr would reduce it to 3,347 tons/yr, resulting in a reduction of 28,166 tons of SO_2 annually.
>
> We believe that the cost per ton of SO_2 controls ranging from $1,972 (our analysis) to $2,958 (Nebraska's analysis, plus water) is reasonable, and that the visibility benefits, whether considered just at Badlands or cumulatively, are significant. Finally, we believe that the State improperly rejected DSI as a

[19] EPA January 21, 2011 letter to the NDEQ, "a $/dv analysis is likely to be less meaningful if the analysis does not take into account the visibility impacts at multiple Class I areas or ignores the total improvement (i.e., the frequency, magnitude, and duration of the modeled changes in visibility)."

potential BART control. Therefore, EPA proposes to disapprove Nebraska's BART determination for SO_2 controls at GGS.

Given EPA's disapproval of NDEQ's BART determination for SO_2 controls at GGS, we expected EPA to require NDEQ to implement BART emissions limits equivalent to the control efficiency of dry scrubbers (lime spray dryer) for GGS Units 1 and 2. As stated above, this would result in a 28,166 ton reduction in SO_2 annually and substantially improve visibility at Badlands, Wind Cave, and Rocky Mountain National Parks and three other Class I areas. BART for SO_2 controls for GGS Units 1 and 2 should be a SO_2 limit of 0.06 lb/mmBtu on a 30-day rolling average.

We strongly disagree with EPA's proposal (cited below) that, as an alternative to BART, the Transport Rule (also called the Cross State Air Pollution Rule) will provide greater visibility improvement than applying BART controls for SO_2 to GGS.

G. Federal Implementation Plan (FIP) to Address SO_2 BART for GGS and LTS
As discussed above, we propose to disapprove Nebraska's BART determination for GGS. In addition, as discussed in section III.E. (Long Term Strategy), we propose to disapprove Nebraska's LTS insofar as it relied on the deficient BART determination for SO_2 at GGS. To address the deficiencies identified in these proposed disapprovals, we are also proposing a FIP.

The RHR allows for use of an alternative program in lieu of BART so long as the alternative program can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would BART. On December 30, 2011, EPA proposed to find that the trading programs in the Transport Rule would achieve greater reasonable progress towards the national goal than would BART in the States in which the Transport Rule applies, including Nebraska. 76 FR 82219. EPA also proposed to revise the RHR to allow States to meet the requirements of an alternative program in lieu of BART by participation in the trading programs under the Transport Rule. EPA has not taken final action on that rule.

We are proposing a partial FIP, relying on the Transport Rule as an alternative to BART for SO_2 emissions from the GGS units. This limited FIP would satisfy the SO_2 BART requirement for these units and remedy the deficiency in Nebraska's LTS. We noted that on December 30, 2011, the D.C. Circuit Court issued an order addressing the status of the Transport Rule and CAIR in response to motions filed by numerous parties seeking a stay of the Transport Rule pending judicial review. In that order, the D.C. Circuit Court stayed the Transport Rule pending the court's resolutions of the petitions for review of that rule in *EME Homer Generation, L.P. v. EPA* (No. 11–1302 and consolidated cases). The court also indicated that EPA is expected to continue to administer the CAIR in the interim until the court rules on the petitions for review of the Transport Rule. Under the Regional Haze Rule, an alternative to BART does not need to be fully implemented until 2018. As that is well after we expect the stay to be lifted, EPA believes it may still rely on the

> Transport Rule as an alternative to BART. Further, our proposed action would not impact the implementation of the Transport Rule or otherwise interfere with the stay.[20]

The emissions limits for Nebraska in the Transport Rule do not require installation of additional SO_2 controls for any EGU in Nebraska. We question the validity of an approach that appears to conclude that no SO_2 reduction is better than a BART reduction of over 28,000 tons per year. Further, as EPA recognizes above, the Transport Rule has been stayed by the D.C. Circuit Court while the Court is reviewing several petitions from states and industry. The outcome of the Court review is uncertain.

NPS and the U.S. Fish and Wildlife Service commented on EPA's December 2011 proposal[21] that the Transport Rule is better than BART for EGU in twenty-eight eastern states. We disagreed with EPA's methodology to average the visibility improvement across 60 Class I areas as a means to demonstrate that the BART alternative is better than BART. EPA's Technical Support Document[22] demonstrates that visibility will be poorer under the Transport Rule for Badlands and Wind Cave National Parks than in the case of source-specific BART controls. By averaging across all Class I areas, EPA is allowing states like Nebraska to benefit from controls in other states and to install less controls under the Transport Rule than would be required by source specific BART.

Given EPA's disapproval of the BART determination for GGGS, we urge EPA to require source specific SO_2 controls at GGS under a Federal Implementation Plan. Other actions that EPA could undertake to remedy the visibility impairment due to GGS:

- propose a geographic enhancement to the Transport Rule as a Federal Implementation Plan as part of the action of the Nebraska Regional Haze Plan,
- propose a supplement to the Transport Rule to require lower emissions limits for Nebraska as a geographic enhancement (EPA has proposed two supplements to adjust state budgets since the Transport Rule was finalized in July 2011), or
- propose a supplement to the Better than BART proposal to remove Nebraska from the determination that the BART alternative is better than source specific BART controls in Nebraska.

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[20] 77 FR 12781

[21] EPA-HQ-OAR-2011-0729

[22] Technical Support Document for Demonstration of the Transport Rule as a BART Alternative, Docket EPA-HQ-OAR-2011-0729.