

Attachment 2.c.

Nebraska Responses to Federal Land Manager (FLM) Comments on Nebraska's Draft Regional Haze (RH) Progress Report for the Second Implementation Period (2018-2028)

FLM Comments are summarized below in black print – please see Attachments 1.b. 1.b.1., and 1.b.2. for the complete comments and supporting documentation received from Federal Land Managers. Nebraska Department of Water, Energy, and Environment (DWEE) responses are in blue italics.

1 Overview

National Park Service (NPS) comments are summarized in this section. These comments addressed Nebraska contributions to visibility at six Class I areas, recommending that emission reductions are necessary for reasonable progress, and included updated emission control cost estimates for three emission sources in Nebraska. NPS also states, "...GGS is by far the single most significant emission source affecting visibility at both Wind Cave and Badlands National Parks in South Dakota."

Regarding NPS' assertion that GGS is the single most significant emission source affecting visibility at both the South Dakota (SD) Class I areas, it's prudent to note that this statement is based on a surrogate metric for source visibility contribution, specifically, source emissions (Q) divided by the distance (d) between the source and the Class I area. This metric is a less reliable indicator of actual visibility impact from a source than trajectory analyses or photochemical modeling, and does not consider transport direction, air dispersion and photochemical reactions. For these reasons, EPA recommends¹ that its use "be limited to source selection for the purpose of developing a list of sources" that a state may evaluate for potential emission controls using the four-factor analysis.

In its second period RH SIP², SD initially conducted a Q/d analysis to identify sources in other states that may contribute more significantly to visibility impairment at SD Class I areas than its own state sources. It also relied on more detailed analyses such as Extinction Weighted Residence Time (EWRT) plots and Weighted Emission Potential (WEP)/Area of Influence (AOI) analysis to further identify sources and estimate

¹ EPA's *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period* (p13), https://www.epa.gov/sites/default/files/2019-08/documents/8-20-2019_-_regional_haze_guidance_final_guidance.pdf

² South Dakota Second Round State Implement Plan, section 3.2.2. <https://danr.sd.gov/Environment/AirQuality/RegionalHaze/default.aspx>

contribution to visibility impairment at Badlands and Wind Cave National Parks. The EWRT analysis considers the trajectories of air parcels and the measured light extinction (visibility impairment) attributed to those air parcels due to sulfate, nitrate, elemental carbon, or organic aerosol. WEP/AOI analysis combines the EWRT with Q/d and the resulting plots visually represent the geographic areas and source(s) with the highest probability of contributing to visibility impairment at a given Class I Area.

In these plots (SD RH SIP, Figures 3-29 through 3-38), the color and corresponding numeric value range assigned to the area around GGS was equal to or less than some sources in other states, including SD. This is also the case for additional plots (Figures 3-39 through 3-46) generated for Class I areas in other western states. These analyses indicate that GGS is not the single most significant source affecting these areas.

Additional comments in this section are addressed in more detail in Items 2 and 3.

2 Updated Emission Control Estimates

NPS provided updated emission control cost estimates with its comments on the Nebraska Regional Haze Progress Report; it had previously provided cost estimates when providing consultation on Nebraska's RH State Implementation Plan (SIP) revision in January 2023. The updated cost estimates reflect current economic factors and newly proposed EPA guidance for Dry Sorbent Injection (DSI) sulfur dioxide (SO₂) cost estimates. They also included estimates for controls at an additional emission source (OPPD North Omaha Station) which was not selected for evaluation and four factor analysis in the most recent SIP revision.

Control cost estimates describe “costs of compliance”, one of the four factors that must be considered by states when evaluating emission reduction measures necessary to make reasonable progress during the respective implementation period. This evaluation is conducted when developing the long-term strategy for a RH SIP Revision. The periodic RH progress reports, however, require evaluation of progress towards the reasonable progress goals (RPGs) for each mandatory Class I area located within the State (Nebraska has none) and in each mandatory Class I Federal area located outside the State affected by emissions from within the State. This report must contain the elements outlined in 40 CFR 51.308(g)(1) through (8), which do not include a four factor analysis or emission control cost estimation.

Nebraska's SIP revision submittal to EPA in August 2024 addressed the comments and previous cost estimates provided by NPS; with regard to the updated cost estimates provided during consultation for this report, Nebraska's conclusions with respect to

the “cost of compliance” factor remain consistent with its long-term strategy presented in the August 2024 SIP revision for the second period.

2.1 Gerald Gentleman Station (GGS)

NPS recommends DSI for Units 1 and 2 as minimum SO₂ controls, and supports EPA’s August 1, 2024 proposed federal implementation plan (FIP) that imposes a 0.06 lb SO₂/mmBtu emission limit (30-day rolling average).

NPS recommends NO_x control efficiency improvements and that NDEE evaluate the potential for NO_x emission reductions using SCR and SNCR controls by requiring four-factor analyses.

As presented in the response to Item 2., control cost estimates describe “costs of compliance”, one of the four factors that must be considered by states when evaluating emission reduction measures necessary to make reasonable progress during the respective implementation period. This evaluation is conducted when developing the long-term strategy for a RH SIP Revision. The periodic RH progress reports, however, require evaluation of progress towards the reasonable progress goals (RPGs) for each mandatory Class I area located within the State (Nebraska has none) and in each mandatory Class I Federal area located outside the State affected by emissions from within the State. This report must contain the elements outlined in 40 CFR 51.308(g)(1) through (8), which do not include a four factor analysis or emission control cost estimation.

Nebraska’s SIP revision submittal to EPA in August 2024 addressed the comments and previous cost estimates provided by NPS; with regard to the updated cost estimates provided during consultation for this report, Nebraska’s conclusions with respect to the “cost of compliance” factor remain consistent with its long-term strategy presented in the August 2024 SIP revision for the second period.

2.2 Nebraska City Station (NCS)

NPS recommends DSI with milled trona as a minimum level of SO₂ control for NCS Unit 1. For NCS Unit 2, NPS recommends evaluation of an upgrade to the existing scrubber on Unit 2 to achieve an emission rate of at least 0.06 lb/mmBtu.

NPS recommends evaluation of an upgrade to the existing SCR system on Unit 2 to achieve additional NO_x emission reductions.

As presented in the response to Item 2., control costs estimates describe “costs of compliance”, one of the four factors that must be considered by states when

evaluating emission reduction measures necessary to make reasonable progress during the respective implementation period. This evaluation is conducted when developing the long-term strategy for a RH SIP Revision. The periodic RH progress reports, however, require evaluation of progress towards the reasonable progress goals (RPGs) for each mandatory Class I area located within the State (Nebraska has none) and in each mandatory Class I Federal area located outside the State affected by emissions from within the State. This report must contain the elements outlined in 40 CFR 51.308(g)(1) through (8), which do not include a four factor analysis or emission control cost estimation.

Nebraska's SIP revision submittal to EPA in August 2024 addressed the comments and previous cost estimates provided by NPS; with regard to the updated cost estimates provided during consultation for this report, Nebraska's conclusions with respect to the "cost of compliance" factor remain consistent with its long-term strategy presented in the August 2024 SIP revision for the second period.

2.3 North Omaha Station (NOS)

NPS recommends that NDEE require full four-factor review of both SO₂ and NO_x emission reduction opportunities for Units 4 and 5 at NOS. Specifically, for both units, it recommends spray dry absorption (SDA) or wet flue gas desulfurization (WFGD) as the most-stringent SO₂ emission control, and selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) for NO_x emission control.

NOS did not meet the source selection criteria used for Nebraska's second round RH SIP revision, and was not subject to the four factor analysis. Emissions from this source have decreased significantly³ due to the conversion of Units 1, 2, and 3 from coal-fired to natural gas units in 2016. Conversion of Units 4 and 5 to natural gas was planned for completion in 2026 but was extended⁴ due to challenges with the federally-regulated generation interconnection process, supply chain, and other construction-related impacts on its two new natural gas plants (Turtle Creek Station and Standing Bear Lake Station), which are essential to ensure electrical service reliability in the Omaha area. OPPD announced that Turtle Creek Station was officially operational⁵ in

³ When compared to 2015 (the year prior to the conversion of Units 1, 2, and 3), emissions reductions as of 2024 are 78.8% (SO₂) and 69.5% (NO_x).

⁴ OPPD Resolution 6518 (August 16, 2022), Extension to North Omaha Station Retirement

<https://www.oppd.com/media/318375/2022-8-august-resolution-6518-nos-current-state-extension.pdf>

⁵ OPPD News Release (June 19, 2025), <https://www.oppd.com/news-resources/news-releases/2025/june/turtle-creek-station-is-officially-operational/>.

June 2025, and in November 2025⁶ that Standing Bear Lake Station began commercial operation; interconnection agreements are pending.

An updated resolution⁷ was approved at the December 2025 OPPD Board of Directors meeting which authorized the facility to continue operating in its current configuration, and directs additional actions within 30 days of receipt of all required and approved Southwest Power Pool (SPP) generation interconnection agreements for the new natural gas plants. In a recent update⁸ on its website, OPPD described the recent Board Resolution and revised schedule for the conversion project.

As noted in the response to Item 2., “cost of compliance” is not a required element of the progress report. Moreover, requiring a facility to install controls when a fuel-conversion project is in progress is impractical and unnecessary. Therefore, Nebraska’s conclusions with regard to emission controls at North Omaha station remain consistent with its long-term strategy presented in the August 2024 SIP revision for the second period.

3 Progress Report Questions & Feedback

3.1 Section I.A – Status of implementation measures included in the SIP

In Nebraska’s draft Progress Report (p3) it states,

“Measures described in Nebraska’s RH SIPs for both the first and second planning periods have been implemented and are described in the following pages.”

Does this mean that the most recent Nebraska regional haze SIP includes these permit limits as required measures? The NPS review team did not see these included as part of the FLM review draft for the second implementation period SIP but has not reviewed the final submission to EPA.

Yes, these permit limits are included in the SIP revision submitted to EPA on August 22, 2024 (pages 15-17) and a copy of this SIP revision has been provided to the FLMs. Nebraska found these existing emission limits to be necessary for reasonable progress at affected Class I areas.

⁶ OPPD *The Wire* (November 13, 2025), https://oppdthewire.com/oppds-standing-bear-lake-station-begins-commercial-operation/#xd_co_f=N2U2MGVhMzMtYjM1MC00ZDhkLTk1ZGQtNTY3M2MwOWUzYWw5~

⁷ OPPD Resolution 6744 (December 12, 2025), Modification of Resolution No. 6518 Regarding North Omaha Station Operations, <https://www.oppd.com/media/321255/2025-12-dec-resolution-6744-modification-of-resolution-no-6518-regarding-north-omaha-station-operations.pdf>, and Meeting Minutes, <https://www.oppd.com/media/321296/2025-12-dec-board-minutes.pdf>

⁸ OPPD Community Connect (December 18, 2025), <https://www.oppdcommunityconnect.com/north-omaha-station-nos-update>

If so, will these limits result in changes from recent actual emission levels from these facilities?

These existing emission limits and control measures for these facilities were deemed necessary to continue reasonable progress, and have been in place since the first implementation period, with additional limits added in more recent permit revisions. No additional emission reductions were found to be necessary to achieve reasonable progress for the second period, therefore the limits have not been revised to achieve additional reductions.

Since 2019, SO₂ and NO_x emission reductions at these facilities have ranged from 12.4% to 49.3% (SO₂) and 20.9% to 46.8% (NO_x).

Table A1. SO₂ Emission Reductions (2019-2024)			
Year	GGG	NCS	NOS
2019	23,412	10,387	5,793
2020	18,176	11,480	5,447
2021	19,403	9,466	5,826
2022	21,228	10,200	5,479
2023	20,877	10,616	4,315
2024	20,517	7,698	2,935
Change 2019-2024	-12.4%	-25.9%	-49.3%
Avg Annual Change	-1.9%	-4.5%	-11.6%

Source: EPA Clean Air Markets Program Division (CAMPD) <https://campd.epa.gov/data>

Table A2. NO_x Emission Reductions (2019-2024)			
Year	GGG	NCS	NOS
2019	7,477	4,149	3,343
2020	6,288	5,317	3,176
2021	6,197	4,304	2,850
2022	6,634	4,599	2,933
2023	7,183	4,234	2,477
2024	5,914	3,633	1,779
Change 2019-2024	-20.9%	-12.4%	-46.8%
Avg Annual Change	-3.9%	-1.2%	-11.2%

Source: EPA Clean Air Markets Program Division (CAMPD) <https://campd.epa.gov/data>

3.2 Section I.B – Summary of emission reductions achieved through implementation of measures

In Nebraska’s draft Progress Report (p9) it states,

“Point source emission reductions of visibility-impairing pollutants achieved since the first planning period are largely attributed to implementation of emission reduction measures at key sources in the state.”

What are the specific emissions reduction measures and key sources the statement is referring to?

“Emission reduction measures” refers to those measures implemented during the first implementation period, and the existing emission limits found necessary to continue reasonable progress, which are described in the most recent SIP revision.

“Key sources” refer to the those named in the progress report Section I.A., specifically, Gerald Gentleman Station, Nebraska City Station, and North Omaha Station.

How much of the emissions changes shown in the tables are the result of required plan measures?

Emission reductions achieved in Nebraska since 2020 are outlined in the progress report and may be attributed to a number of factors. Quantifying those reductions specific to emission controls is challenging, but since no new emission reduction measures were selected for the second period we attribute reductions to a combination of measures which include those in the first and second period SIPs, reductions in gross load, and fluctuations in demand.

Nebraska’s RH SIP for the first period⁹ provided NO_x emission reduction estimates for the BART-subject units (NCS Unit 1 and GGS Units 1 and 2); reduction estimates, with the installation of BART controls on these units, were anticipated to be 16% (NCS) and 30.1% (GGS).

Low NO_x burners with overfire air (LNB/OFA) were installed in 2011 at GGS (Unit 1) and NCS (Unit 1) and in 2012 at GGS (Unit 2). Annual NO_x emissions in 2013 demonstrated reductions of 27.2 % (NCS) and 31.9% (GGS) when compared to 2010. Further reductions since 2019 for these facilities are included in Table A3.

⁹ Nebraska’s Regional Haze SIP for the first period <https://www.regulations.gov/docket/EPA-R07-OAR-2012-0158/document>

Table A3. NO_x Emission Reductions (2019-2024)		
Year	GGs	NCS
2019	7,477	4,149
2020	6,288	5,317
2021	6,197	4,304
2022	6,634	4,599
2023	7,183	4,234
2024	5,914	3,633
Change 2019-2024	-20.9%	-12.4%
Avg Annual Change	-3.9%	-1.2%

Source: EPA Clean Air Markets Program Division (CAMPD) <https://campd.epa.gov/data>

Although emission reductions thus far in the second planning period are not solely attributable to the NO_x controls, the long-term strategy includes measures necessary for reasonable progress, as required by 40 CFR 51.308(f)(2)(i).

3.3 Section I.E – Assessment of significant changes in anthropogenic emissions

40 CFR 51.308 (g)(5) requires an assessment of any significant changes in anthropogenic emissions in or outside the State and an explanation of whether these changes were anticipated in the report and whether these changes have limited progress in reducing emissions. In response, the progress report on page 15 says:

“Point source anthropogenic emissions in Nebraska have not changed significantly since the period addressed in Nebraska’s RH SIP for the second period (2020). Individual sources, specifically the top seven emitting EGUs, have individually experienced changes in some pollutant emissions that appear to be associated with varying demands for electricity, weather-related events, or changes in operations.”

Are there data showing how changes in electricity demands, weather events, and changes in operations have resulted in changes in emissions at the state’s EGUs?

Changes in emissions are due to a number of factors, some of which may be confidential in nature with regard to source operations. While some data may be publicly available, changes in point source anthropogenic emissions are not significant and don’t appear to have limited or impeded progress in reducing emissions and/or improvement to visibility.

If these are the causes of changes in emissions, how does this support the report’s earlier conclusion that “Point source emission reductions of visibility-impairing pollutants achieved

since the first planning period are largely attributed to implementation of emission reduction measures at key sources in the state”?

As noted in the response to Item 3.2., quantifying emissions reductions specific to emission controls is challenging, and since no new emission reduction measures were selected for the second period reductions we attribute reductions to a combination of measures which include those in the first and second period SIPs, reductions in gross load, and fluctuations in demand.

3.4 Section I.F – Assessment of whether current SIP elements and strategies are sufficient for states to meet established reasonable progress goals

Figures 2 and 3, which present deciview trends at Badlands and Wind Cave National Parks, show that deciview values on the most impaired days increased over the period 2020-2023. However, on page 18, the progress report concludes that:

“Based on this assessment, Nebraska determines that the current implementation plan elements and strategies are sufficient to enable South Dakota to meet its established RPGs for the second planning period at affected Class I areas in the state.”

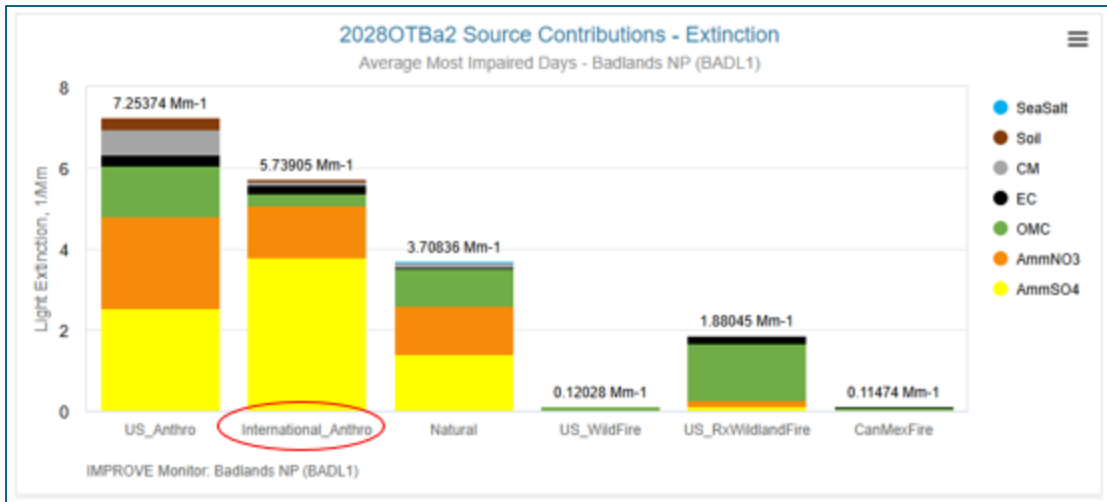
Given that the most recent four-year period shows deciview increases on the most impaired days, why does the report conclude that current plan elements and strategies are sufficient to enable South Dakota to meet its reasonable progress goals?

(NOTE: Various products generated by the Western Regional Air Partnership (WRAP) Technical Support System (TSS) are included and referenced below.)

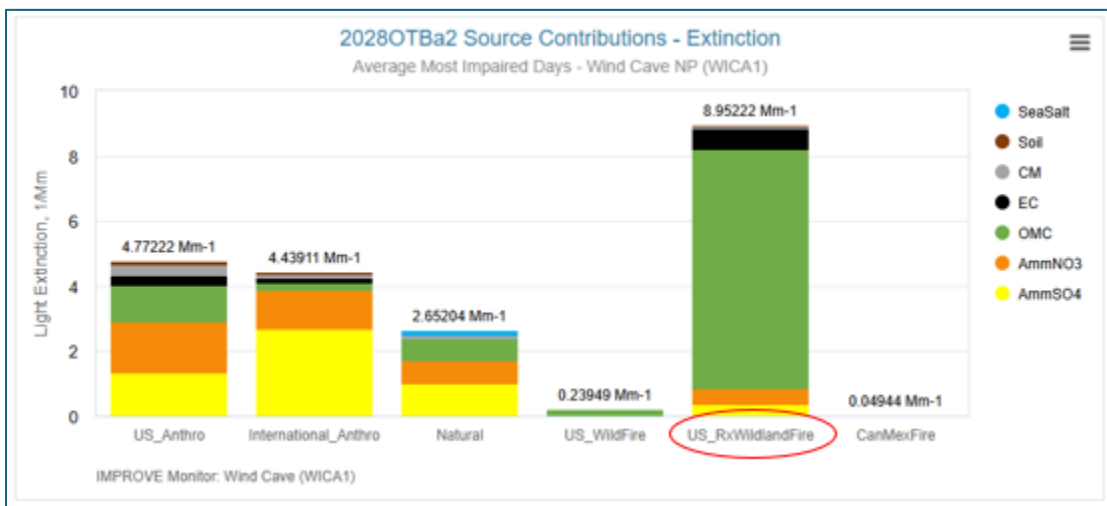
Despite recent deciview increases, visibility conditions remain below the adjusted glidepath used by South Dakota for the second period. The adjusted glidepath (2028OTBa2 EPA Projection w/international + wildland rx fire endpoint) accounts for international anthropogenic emissions and wildland prescribed fire; EPA has proposed¹⁰ to approve the State’s use of this glidepath.

When examining modeled impacts on visibility conditions at the SD Class I areas, significant visibility impacts are attributed to the International Anthropogenic and U.S. Wildland Prescribed Fire source categories.

¹⁰ Air Plan Approval; South Dakota; Regional Haze Plan for the Second Implementation Period (proposed rule), May 14, 2025 (90 FR 20425) <https://www.federalregister.gov/documents/2025/05/14/2025-08072/air-plan-approval-south-dakota-regional-haze-plan-for-the-second-implementation-period>



Source: WRAP TSS Modeled Data Analysis – Express Tools, Product #11, Regional Sources by Species



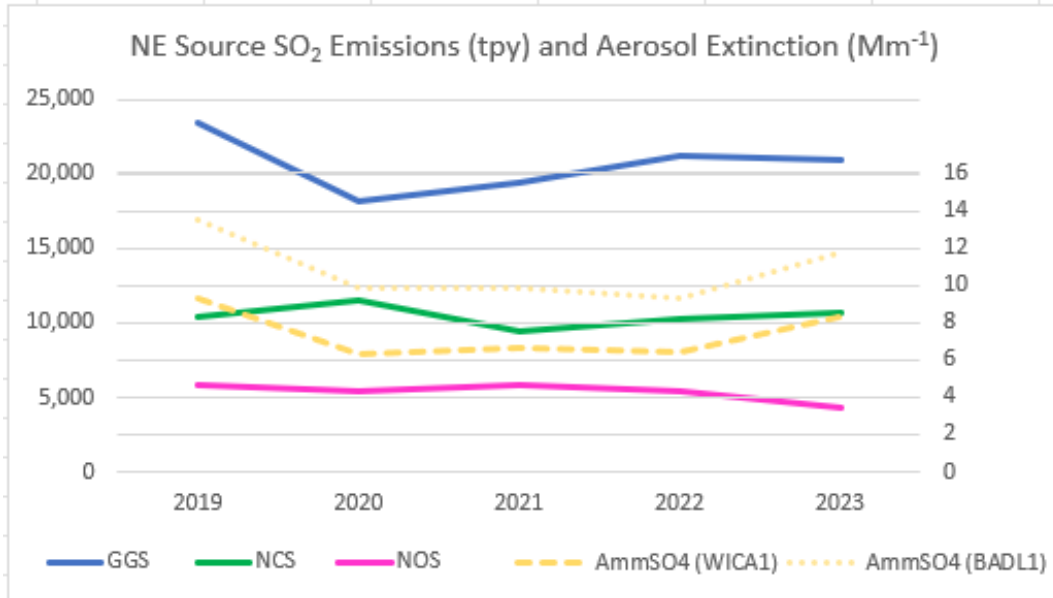
Source: WRAP TSS Modeled Data Analysis – Express Tools, Product #11, Regional Sources by Species

Moreover, the SO_2 and NO_x aerosol contributions to light extinction at SD Class I areas over the past 5 years don't consistently correlate with emissions from the three Nebraska sources discussed in this progress report (Figures 3A and 4A). For example, from 2022 to 2023, light extinction from sulfates increased significantly at both areas (Figure 3A) despite a decrease in emissions at GGS. It should also be noted that in 2023 that smoke from wildfires in Canada and the Pacific northwest states had a significant impact on particulate matter concentrations in South Dakota¹¹.

¹¹ South Dakota Ambient Monitoring Annual Plan 2024

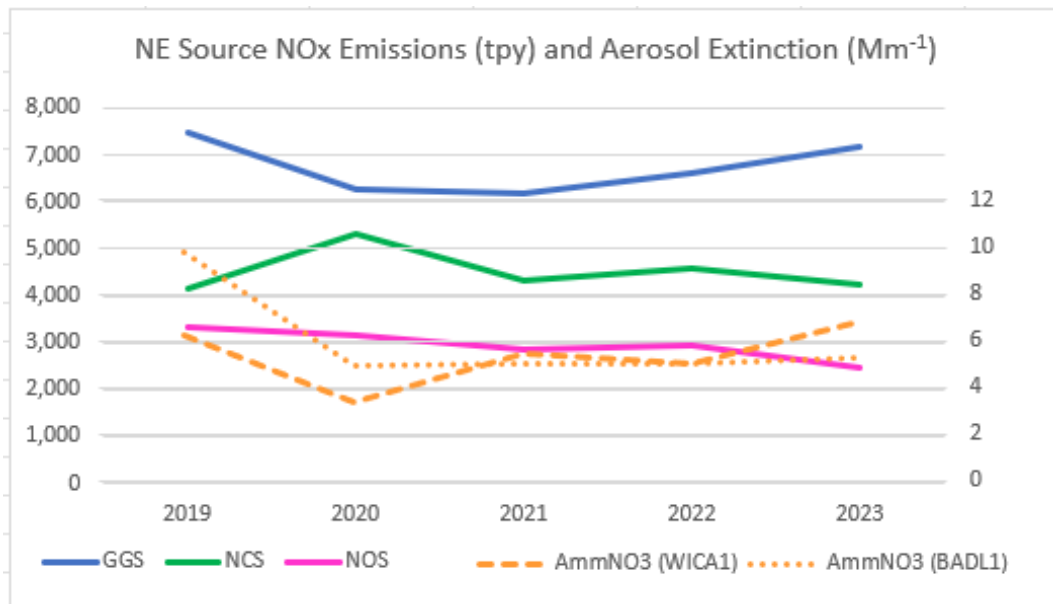
<https://danr.sd.gov/Environment/AirQuality/AirMonitoring/docs/Annual%20Plan%202024.pdf>

Figure 3A. Source SO₂ Emissions and Aerosol Extinction



Sources: WRAP Technical Support System Ambient Data Analysis – Express Tools, Product #2, Class I Area Annual Extinction Composition (sulfate extinction values) <https://views.cira.colostate.edu/tssv2/Express/AmbientDataAnalysisTools.aspx>
 EPA Clean Air Markets Program Division (CAMPD) annual SO₂ emissions <https://campd.epa.gov/data>

Figure 4A. Source NO_x Emissions and Aerosol Extinction



Sources: WRAP Technical Support System Ambient Data Analysis – Express Tools, Product #2, Class I Area Annual Extinction Composition (nitrate extinction values) <https://views.cira.colostate.edu/tssv2/Express/AmbientDataAnalysisTools.aspx>
 EPA Clean Air Markets Program Division (CAMPD) annual NO_x emissions <https://campd.epa.gov/data>

Nebraska stands by its conclusion that its current SIP revision elements and strategies are sufficient to enable South Dakota to meet its reasonable progress goals for the second period.

How will the current plan elements and strategies ensure that haze does not continue to increase on the most impaired days?

The second round SIP revision determined that emission reduction measures already in place were deemed necessary to ensure reasonable progress. This conclusion is supported by the findings made in this progress report and the information presented therein.