Appendix A

Consultation Letters

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Visibility Improvement State and Tribal Association of the Southeast

June 22, 2020

Keith Baugues, Assistant Commissioner
Indiana Office of Air Quality
100 North Senate Avenue, IGCN 1003
Indianapolis, Indiana 46204

RE: Request for Regional Haze Reasonable Progress Analyses for Indiana Sources Impacting VISTAS Class I Areas

Dear Mr. Baugues:

The Regional Haze Regulation 40 CFR § 51.308(d) requires each state to "address regional haze in each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State." 40 CFR § 51.308(f) requires states to submit a regional haze implementation plan revision by July 31, 2021. As part of the plan revision, states must establish a reasonable progress goal that provides for reasonable progress towards achieving natural visibility conditions for each mandatory Class I Federal area (Class I area) within their state. 40 CFR § 51.308(d)(1) requires that reasonable progress goals "must provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period."

In establishing reasonable progress goals, states must consider the four factors specified in § 169A of the Federal Clean Air Act and in 40 CFR § 51.308(f)(2)(i). The four factors are: 1) the cost of compliance, 2) the time necessary for compliance, 3) the energy and non-air quality environmental impacts of compliance, and 4) the remaining useful life of any potentially affected sources. Consideration of these four factors is frequently referenced as the "four-factor analysis."

To assist its member states, the Visibility Improvement State and Tribal Association of the Southeast[1] (VISTAS) and its contractors conducted technical analyses to help states identify

[1] The VISTAS states are Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

sources that significantly impact visibility impairment for Class I areas within and outside of the VISTAS region. VISTAS initially used an Area of Influence (AoI) analysis to identify the areas and sources most likely contributing to poor visibility in Class I areas. This AoI analysis involved running the HYSPLIT Trajectory Model to determine the origin of the air parcels affecting visibility within each Class I area. This information was then spatially combined with emissions data to determine the pollutants, sectors, and individual sources that are most likely contributing to the visibility impairment at each Class I area. This information indicated that the pollutants and sector with the largest impact on visibility impairment were sulfur dioxide (SO_2) and nitrogen oxides (NO_x) from point sources. Next, VISTAS states used the results of the AoI analysis to identify sources to "tag" for PM (Particulate Matter) Source Apportionment Technology (PSAT) modeling. PSAT modeling uses "reactive tracers" to apportion particulate matter among different sources, source categories, and regions. PSAT was implemented with the Comprehensive Air Quality Model with extensions photochemical model (CAMx Model) to determine visibility impairment due to individual sources. PSAT results showed that in 2028 the majority of visibility impairment at VISTAS Class I areas will continue to be from point source SO_2 and NO_x emissions. Using the PSAT data, VISTAS states identified, for reasonable progress analysis, sources shown to have a sulfate or nitrate impact on one or more Class I areas greater than or equal to 1.00 percent of the total sulfate plus nitrate point source visibility impairment on the 20 percent most impaired days for each Class I area. This analysis has identified the following sources in Indiana that meet this criterion:

- Indianapolis Power & Light Petersburg (18125-7362411)
- Gibson (18051-7363111)
- Indiana Michigan Power DBA AEP Rockport (18147-8017211)

Information regarding projected 2028 SO_2 and NO_x emissions and visibility impacts on VISTAS Class I areas is shown in the tables attached to this letter (Attachment 1).

As required in 40 CFR § 51.308(d)(1)(i)(A), VISTAS, on behalf of Alabama, Georgia, Kentucky, North Carolina, Tennessee, and West Virginia, requests that Indiana conduct, or require that the sources in question initiate, and share when completed, the results of a reasonable progress analysis for each noted source with VISTAS. This will be helpful to the VISTAS states as they begin the formal Federal Land Manager consultation process for their individual draft Regional Haze Plans in early 2021. So that the VISTAS states can include the results of your state's reasonable progress analyses in developing the long-term strategies for Class I areas in their states, we request that you submit this information to VISTAS no later than October 30, 2020. If any reasonable progress analyses cannot be completed by this date, please provide, no later than this date, notice of an attainable date for completion of the analysis. If you determine that a four-factor analysis is not warranted for one or more of the identified sources, please provide the rationale for this determination by the requested date.

In developing projected 2028 emissions for these sources, VISTAS utilized ERTAC_16.1 emissions projections with additional input from LADCO. Please review these projections to

verify that they are reasonable. Should you be aware of significantly different emission projections for 2028 for any of the sources or pollutants, please provide revised estimates within thirty (30) days of the date of this letter. The applicable VISTAS states will review any revised emission estimates, determine if reasonable progress analyses are not needed to meet their regional haze obligations, and notify you accordingly.

Updated 2028 emission projections, if necessary, the results of your state's reasonable progress analyses for the requested sources, and any necessary ongoing communications should be sent via email to vistas@metro4-sesarm.org.

Should you have any questions concerning this request, please contact me through September 30, 2020, at 404-361-4000 or hornback@metro4-sesarm.org.

Sincerely,

John E. Hornback
Executive Director
Metro 4/SESARM/VISTAS

Attachment

Copies: Ron Gore, Alabama Air Division
Karen Hays, Georgia Air Protection Branch
Melissa Duff, Kentucky Division for Air Quality
Mike Abraczinskas, North Carolina Division of Air Quality
Michelle Walker Owenby, Tennessee Division of Air Pollution Control
Laura Crowder, West Virginia Division of Air Quality
Zac Adelman, Lake Michigan Air Directors Consortium

Attachment 1: Projected 2028 SO_2 and NO_x Emissions and VISTAS Class I Area Impacts

Table 1. Indianapolis Power & Light Petersburg (18125-7362411)
Modeled SO_2 = 9,422.1 tpy, Modeled NOx = 5,355.6 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm^{-1})	Nitrate PSAT (Mm^{-1})	Total EGU & non-EGU Sulfate + Nitrate (Mm^{-1})	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Sipsey Wilderness Area	0.258	0.026	16.370	1.57%	0.16%
Mammoth Cave National Park	0.264	0.068	25.289	1.04%	0.27%

Table 2. Gibson (18051-7363111)
Modeled SO_2 = 12,999.6 tpy, Modeled NOx = 8,620.0 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm^{-1})	Nitrate PSAT (Mm^{-1})	Total EGU & non-EGU Sulfate + Nitrate (Mm^{-1})	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Sipsey Wilderness Area	0.270	0.029	16.370	1.65%	0.18%
Mammoth Cave National Park	0.411	0.084	25.289	1.63%	0.33%
Shining Rock Wilderness Area	0.151	0.008	12.313	1.23%	0.07%
Linville Gorge Wilderness Area	0.138	0.008	12.884	1.07%	0.07%
Great Smoky Mountains NP	0.146	0.037	13.916	1.05%	0.27%
Cohutta Wilderness Area	0.137	0.002	13.229	1.03%	0.02%
Joyce Kilmer-Slickrock Wilderness	0.139	0.029	13.694	1.02%	0.21%
Otter Creek Wilderness	0.193	0.009	19.077	1.01%	0.05%

Table 3. Indiana Michigan Power DBA AEP Rockport (18147-8017211)
Modeled SO_2 = 10,779.0 tpy, Modeled NOx = 8,475.1 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm^{-1})	Nitrate PSAT (Mm^{-1})	Total EGU & non-EGU Sulfate + Nitrate (Mm^{-1})	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Sipsey Wilderness Area	0.327	0.050	16.370	1.99%	0.31%
Mammoth Cave National Park	0.426	0.085	25.289	1.68%	0.33%
Cohutta Wilderness Area	0.181	0.005	13.229	1.37%	0.04%
Shining Rock Wilderness Area	0.156	0.012	12.313	1.27%	0.09%
Great Smoky Mountains NP	0.166	0.035	13.916	1.19%	0.25%
Joyce Kilmer-Slickrock Wilderness	0.154	0.030	13.694	1.12%	0.22%
Linville Gorge Wilderness Area	0.142	0.012	12.884	1.10%	0.09%
Otter Creek Wilderness	0.191	0.007	19.077	1.00%	0.04%

ARKANSAS
ENERGY & ENVIRONMENT

March 1, 2021

Scott Deloney
Programs Branch Chief
Indiana Department of Environmental Management

Sent via electronic mail

Re: Notification of Opportunity for Consultation; Arkansas Regional Haze State Implementation Plan (SIP) for Planning Period II

Dear Mr. Deloney:

This letter serves to notify you that the Arkansas Department of Energy and Environment's Division of Environmental Quality (DEQ) has prepared two pre-proposal draft revisions to the Arkansas Regional Haze State Implementation Plan (SIP) to address requirements for Planning Period II. The first addresses Regional Haze Rule Requirements for Planning Period II with the exception of the control strategy for Entergy's Independence facility. The second addresses the control strategy for Independence.

This notification is intended to provide your agency with an opportunity for a sixty-day consultation period on this SIP revision in accordance with 40 C.F.R. § 51.308(i). This consultation will give you the opportunity to discuss your assessment of the impact of the proposed revisions on federal Class I areas in a manner consistent with 40 C.F.R. § 51.308(i).

The pre-proposal draft of the SIP revision can be accessed at https://1drv.ms/f/s!AtaMFQw8GYddgWVKkz-quTL2xT6f. Please note that all documents are draft working documents and are subject to change prior to finalization for proposal. If changes are made between the date of this letter and proposal, DEQ will notify you of the changes.

DEQ requests that any comments on the pre-proposal copy of the SIP revision be provided to DEQ by no later than Friday April 30, 2021.

Should you wish to schedule a meeting or have any questions, please contact Tricia Treece at treecep@adeq.state.ar.us. We request that written comments be submitted electronically by emailing treecep@adeq.state.ar.us. You may also mail comments to Tricia Treece, Office of Air Quality, Division of Environmental Quality, Department of Energy and Environment, 5301 Northshore Drive, North Little Rock, AR 72118.

Sincerely,

William K. Montgomery
Associate Director, Office of Air Quality
Division of Environmental Quality
5301 Northshore Drive, North Little Rock, AR 72118

September 11, 2020

Keith Baugues
Assistant Commissioner
Office of Air Quality
Indiana Department of Environmental Management
Email: kbaugues@idem.in.gov

Sent Via Electronic Mail

Dear Keith Baugues

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) is in the process of developing Missouri's State Implementation Plan (SIP) for the Second Implementation Period under the Regional Haze Rule, which is due on July 31, 2021. The SIP must address reasonable progress in mitigating visibility impairment in federal Class I areas from air pollution sources. There are two federal Class I areas located in Missouri, including the Mingo National Wildlife Refuge (Mingo) and the Hercules-Glades Wilderness area (Hercules-Glades).

The key air pollutants from anthropogenic sources impairing visibility at Mingo and Hercules-Glades are ammonium sulfate and ammonium nitrate. Ammonium sulfate is formed by chemical reactions between ammonia and sulfur dioxide (SO_2) in the atmosphere. Ammonium nitrate is formed by chemical reactions between ammonia and nitrogen oxides (NO_x) in the atmosphere. U.S. Environmental Protection Agency (EPA) modeling projects that these two pollutants will continue to be the key pollutants contributing to visibility impairment at Missouri's Class I areas in 2028, which is the future year being evaluated in this Regional Haze SIP.

The states in the Central States Air Resources Agencies (CENSARA) organization, which includes Missouri, contracted with Ramboll US Corporation to produce a study examining the impact of point sources of NO_x and SO_2 on each Class I area in the central region of the United States and nearby states. For each Class I area, the study took into account light extinction-weighted wind trajectory residence times, 2016 sulfur dioxide and nitrogen oxides facility emissions, and distance from sources of nitrogen oxides and sulfur dioxide to Class I Areas. The study produced an area of influence (AOI) for each Class I area, which shows the geographic areas with a high probability of contributing to anthropogenic visibility impairment.

Based on the results of the AOI study, the Air Program performed a screening analysis to identify specific sources in Missouri and other states that warrant further analysis and evaluation

for potential emission controls. As discussed with your staff during a phone call on August 24, 2020, the Air Program's screening analysis identified the following sources in your state that are reasonably anticipated to impact visibility conditions at the Mingo Class I area.

Duke Energy Indiana LLC - Gibson Genera
Indiana Michigan Power DBA AEP - Rockport

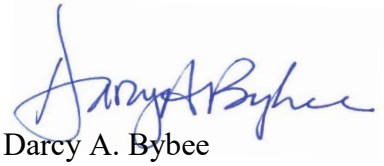
Therefore, the Air Program requests that Indiana consider whether performing a four-factor analysis is appropriate for each of these sources in accordance with 40 CFR 51.308(f)(2)(i) and, if so, whether any control measures for sulfur dioxide or nitrogen oxides are necessary to make reasonable progress towards natural visibility at Mingo during the second planning period.

We look forward to working with you on this important effort. We request that you share with the Air Program your determinations and reasoning for performing or not performing a four-factor analysis on each of the above-listed sources. For any of these sources in which Indiana performs a four-factor analysis, the Air Program requests that Indiana share the results of the analysis, including any technical supporting documentation, and provide an opportunity for consultation on the analysis, your state's long-term strategy, and the anticipated impact on visibility at Mingo.

Thank you for your attention to this matter. If you have any questions, please contact Emily Wilbur with the Missouri Department of Natural Resources' Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102, at (emily.wilbur@dnr.mo.gov) or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Darcy A. Bybee
Director

DAB:sdc

c: Jean Boling, Indiana Department of Environmental Management (jboling@idem.in.gov)

ARKANSAS
ENERGY & ENVIRONMENT

February 4, 2020

Scott Deloney
Programs Branch Chief
Office of Air Quality
Indiana Department of Environmental Management

Sent Via Electronic Mail

Dear Mr. Deloney:

The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), seeks consultation with Indiana Department of Environmental Management (IDEM) to develop a coordinated emission management strategy for Regional Haze State Implementation Plan (SIP) Revisions due on July 31, 2021 as required under 40 CFR 51.308(f)(2)(ii) for Upper Buffalo wilderness area.

The key pollutants from anthropogenic sources impairing visibility at Upper Buffalo are ammonium sulfate and ammonium nitrate.[1] Ammonium sulfate is formed by chemical reactions between ammonia and sulfur dioxide (SO_2) in the atmosphere. Ammonium nitrate is formed by chemical reactions between ammonia and nitrogen oxides (NOx) in the atmosphere. Environmental Protection Agency (EPA) modeling projects that these two pollutants will continue to be the key pollutants contributing to visibility impairment at Arkansas Class I areas in 2028.[2]

The states in the Central States Air Resources Agencies (CENSARA) organization, which includes Arkansas, contracted with Ramboll US Corporation (Ramboll) to produce a study examining the impact of stationary sources of NOx and SO_2 on each Class I area in the central region of the United States. For each Class I area, the study took into account light extinction-weighted wind trajectory residence times, 2016 sulfur dioxide and nitrogen oxides facility emissions, and distance from sources of nitrogen oxides and sulfur dioxide to Class I Areas. The study produced an area of influence (AOI) for each Class I area, which shows the geographic areas with a high probability of contributing to anthropogenic visibility impairment.

Based on the results of the AOI study, DEQ has identified the following sources in your state that are reasonably anticipated to impact visibility conditions at Upper Buffalo:

- Indiana Michigan Power DBA AEP Rockport

[1] http://vista.cira.colostate.edu/Improve/improve-data/
[2] https://www.epa.gov/visibility/visibility-guidance-documents

- Duke Energy Indiana LLC – Gibson Genera

Therefore, DEQ requests that IDEM consider whether performing a four-factor analysis is appropriate for each of these sources in accordance with 40 CFR 51.308(f)(2)(i) and, if so, whether any control measures for sulfur dioxide or nitrogen oxides are necessary to make reasonable progress towards natural visibility at Upper Buffalo during the 2021–2028 planning period.

We look forward to working with you on this important effort. We request that you share with DEQ the results of your analysis, including any technical supporting documentation, and provide an opportunity for consultation on the analysis and your state's long-term strategy early enough in the process for DEQ to provide feedback to IDEM and for DEQ to incorporate emission reductions anticipated from IDEM's long-term strategy affecting Upper Buffalo into DEQ's reasonable progress goals for Upper Buffalo.

Should you have any questions, please contact Tricia Treece at 501-682-0055 (treecep@adeq.state.ar.us) or David Clark at 501-682-0070 (clarkd@adeq.state.ar.us).

Sincerely,

William K. Montgomery
Interim Associate Director
Office of Air Quality