

# **Appendix F**

## **Consultation**

# **Appendix F-1**

## **VISTAS state to VISTAS state Consultation**



**Appendix F-1a - ADEM Letter to FL DEP dated  
December 7, 2020**



Alabama Department of Environmental Management  
[adem.alabama.gov](http://adem.alabama.gov)

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

December 7, 2020

Mr. Hastings Read  
Florida Department of Environmental Protection  
Division of Air Resource Management  
2600 Blair Stone Rd MS 5500  
Tallahassee FL 32399-2400

Dear Mr. Read:

Pursuant to our recent telephone conversations concerning the Sanders Lead facility in Troy, Alabama, please find the following updated information concerning controls at the facility and the revised impacts at the St. Marks Class 1 Area for the 2021 Regional Haze SIP update.

As we have discussed, the VISTAS modeling for the 2028 Regional Haze review includes Sanders Lead in Troy, Alabama, which projects an impact of 1.15% for the St Marks Class 1 area from this source on the 20% most impaired days in 2028. This impact was based on the average actual SO<sub>2</sub> emissions prior to 2018 of 7951 TPY.

However, since these projected emissions were included in the data for the VISTAS assessment, Sanders has been required to install an SO<sub>2</sub> scrubber at the facility. This scrubber became operational in late 2019. The use of the scrubber changes emissions and impacts significantly:

1. The allowed emissions are now 315 lb/hour, or 1380 TPY.
2. This 1380 TPY of allowed emissions rates is 82% less than what was put into the RH model. Therefore, the relevant impact level would drop from 1.15% to 0.2%.
3. The allowed emission rate of 315 lb/hour is based on a 3-hour rolling average, with the emissions being measured by a continuous SO<sub>2</sub> monitor. This enables long-term emission levels to be totalized.
4. Actual emissions in the 12-month period from November, 2019, to October, 2020, were 605 tons.

As you can see, given the marginal impacts predicted and the significant reductions which have already been required at this facility, an analysis of the current emissions would result in insignificant impacts at the St. Marks area. Thus, a four-factor analysis of this facility is not needed.



Thank you for considering this information early in the consultation process.

If you have any further questions regarding this issue, please call me at 334-271-7868.

Sincerely,

A handwritten signature in black ink, appearing to read "Ronald W. Gore". The signature is fluid and cursive, with a large initial "R" and a stylized "G".

Ronald W. Gore, Chief  
Air Division  
ADEM

RWG:lw b

## **Appendix F-2**

### **VISTAS state to Non-VISTAS state Consultation**

## **Appendix F-2a**

### **VISTAS Consultation with IN Office of Air Quality**

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**Correspondence Record**

<b>Date</b>	<b>From</b>	<b>To</b>	<b>Description</b>
June 22, 2020	VISTAS	IN Office of Air Quality	Request for Regional Haze Reasonable Progress Analysis for Indiana Sources Impacting VISTAS Class I Area
February 12, 2021	IN Office of Air Quality	VISTAS	Email correspondence between IN Office of Air Quality and VISTAS



## Visibility Improvement State and Tribal Association of the Southeast

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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<sup>1</sup> (VISTAS) and its contractors conducted technical analyses to help states identify

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<sup>1</sup> 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<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) 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<sub>2</sub> and NO<sub>x</sub> 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<sub>2</sub> and NO<sub>x</sub> 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.

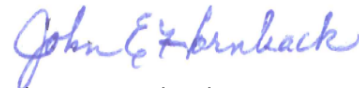
In developing projected 2028 emissions for these sources, VISTAS utilized ERTAC\_16.1 emissions projections with additional input from LADCO. Please review these projections to

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](mailto: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](mailto: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<sub>2</sub> and NO<sub>x</sub> Emissions and VISTAS Class I Area Impacts

**Table 1.** Indianapolis Power & Light Petersburg (18125-7362411)

Modeled SO<sub>2</sub> = 9,422.1 tpy, Modeled NO<sub>x</sub> = 5,355.6 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	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<sub>2</sub> = 12,999.6 tpy, Modeled NO<sub>x</sub> = 8,620.0 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	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<sub>2</sub> = 10,779.0 tpy, Modeled NO<sub>x</sub> = 8,475.1 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	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%

**From:** [Chad LaFontaine](#)  
**To:** [McLeod, Doris \(DEO\)](#); [Strait, Randy P](#); [James Johnston](#); [Boylan, James](#)  
**Subject:** [External] FW: VISTAS Interstate Consultation Letters  
**Date:** Thursday, February 25, 2021 3:12:14 PM

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**CAUTION:** External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

See the Indiana responses below.

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**From:** DELONEY, SCOTT <[SDELONEY@idem.IN.gov](mailto:SDELONEY@idem.IN.gov)>  
**Sent:** Friday, February 12, 2021 2:30 PM  
**To:** Chad LaFontaine <[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)>  
**Cc:** STUCKEY, MATT <[MSTUCKEY@idem.IN.gov](mailto:MSTUCKEY@idem.IN.gov)>  
**Subject:** Re: VISTAS Interstate Consultation Letters

Hi Chad. LADCO is had to rerun the model and we do not expect to have final results for a few more weeks. We have been working on a detailed response to your request, but having the final results in hand is important for us to properly characterize the impacts of the EGUs identified. We really appreciate your patience on this matter. Right now it looks like early March for a detailed response.

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**From:** Chad LaFontaine <[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)>  
**Sent:** Friday, February 12, 2021 3:23 PM  
**To:** DELONEY, SCOTT <[SDELONEY@idem.IN.gov](mailto:SDELONEY@idem.IN.gov)>  
**Cc:** STUCKEY, MATT <[MSTUCKEY@idem.IN.gov](mailto:MSTUCKEY@idem.IN.gov)>  
**Subject:** RE: VISTAS Interstate Consultation Letters

\*\*\*\* This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. \*\*\*\*

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I hope you all are well. I'm following up on the email below at the request of the VISTAS states. Some of the states have gotten far along in their SIP development and are being asked by EPA about their consultation information and whether they have followed up appropriately. Please provide any update on the information you indicated below. Let me know if you need additional information from me.

Thank you,

Chad LaFontaine, P.E.  
Executive Director  
Metro 4/SESARM  
1252 W Government St. Unit 1375  
Brandon, MS 39043  
(cel) 601-624-6015  
[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)

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**From:** DELONEY, SCOTT <[SDELONEY@idem.IN.gov](mailto:SDELONEY@idem.IN.gov)>

**Sent:** Thursday, October 22, 2020 12:45 PM

**To:** Chad LaFontaine <[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)>

**Cc:** Baugues, Keith <[KBaugues@idem.IN.gov](mailto:KBaugues@idem.IN.gov)>; STUCKEY, MATT <[MSTUCKEY@idem.IN.gov](mailto:MSTUCKEY@idem.IN.gov)>

**Subject:** Re: VISTAS Interstate Consultation Letters

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**Mr. LaFontaine, I am responding on behalf of Assistant Commissioner Keith Baugues and Deputy Assistant Commissioner Matt Stuckey to provide an update on where Indiana is with regard to your request. We are working closely with LADCO to identify and complete a detailed analysis of sources within the region that contribute to Class 1 areas throughout the country, including those within the VISTAS region. This work includes modeling, source and sector tagging, and 4-factor analyses for affected sources.**

**Unfortunately, we are not going to have our technical work complete within a timeframe that allows us to adequately respond to your request by 10/30/2020. However, we do expect to have everything complete and quality assured well ahead of the Regional Haze SIP deadline. We will be responding to your request via formal letter with technical support documentation in early 2021.**

**Please be advised that Keith is retiring, effective 10/30/2020. Matt will be the primary contact for Indiana in the interim. If you would like additional information or clarification concerning this matter, feel free to contact me or Matt. Thank you.**

### **COVID-19 Resources:**

- **Indiana State Dept. of Health (ISDH) COVID-19 Call Center:** Call 877-826-0011 (available 8:00 am- 5:00pm daily).
- **Anthem NurseLine:** Call 800-337-4770 or visit the [Anthem NurseLine](#) online for a FREE symptom screening. Available to anyone with an Anthem health plan (this includes State of IN employees)
- **Anthem Employee Assistance Program (EAP):** Available to full-time state employees and their household members regardless of health plan participation. Call 800-223-7723 or visit [anthemeap.com](http://anthemeap.com) (enter State of Indiana) for crisis counseling, help finding child/elder care, legal/financial consultation and much more.

Scott Deloney, Chief

Air Programs Branch  
IDEM-OAQ

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**From:** Chad LaFontaine <[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)>

**Sent:** Thursday, October 15, 2020 3:17 PM

**To:** [Montgomery@adeq.state.ar.us](mailto:Montgomery@adeq.state.ar.us) <[Montgomery@adeq.state.ar.us](mailto:Montgomery@adeq.state.ar.us)>; Bybee, Darcy <[darcy.bybee@dnr.mo.gov](mailto:darcy.bybee@dnr.mo.gov)>; Baugues, Keith <[KBaugues@idem.IN.gov](mailto:KBaugues@idem.IN.gov)>; STUCKEY, MATT <[MSTUCKEY@idem.IN.gov](mailto:MSTUCKEY@idem.IN.gov)>; [bhodaibosi@epa.state.oh.us](mailto:bhodaibosi@epa.state.oh.us) <[bhodaibosi@epa.state.oh.us](mailto:bhodaibosi@epa.state.oh.us)>; [vtrivedi@pa.gov](mailto:vtrivedi@pa.gov) <[vtrivedi@pa.gov](mailto:vtrivedi@pa.gov)>

**Subject:** VISTAS Interstate Consultation Letters

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Directors,

I hope you all are well. On June 22, 2020, the former Executive Director of Metro 4/SESARM sent you a letter on behalf of the VISTAS states asking that one or more major point sources in your state undergo a reasonable progress analysis and a four-factor analysis if warranted. I've been asked to provide you with a reminder of the information request date of October 30, and to provide you with updated contact information for any deliverable. If you have any questions or need to discuss further, please let me know.

I am the new Metro 4/SESARM Executive Director replacing John Hornback. I have worked with many of you as the former Air Director for Mississippi. Please direct responses to me at the contact information below. I look forward to receiving your information and thank you for your efforts.

Chad LaFontaine, P.E.  
Executive Director  
Metro 4/SESARM  
1252 W Government St. Unit 1375  
Brandon, MS 39043  
(cel) 601-624-6015  
[clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)

## **Appendix F-2b**

### **VISTAS Consultation with MO Air Pollution Control Program**

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**Correspondence Record**

<b>Date</b>	<b>From</b>	<b>To</b>	<b>Description</b>
June 22, 2020	VISTAS	MO APC	Request for Regional Haze Reasonable Progress Analysis for Missouri Source Impacting VISTAS Class I Areas
October 19, 2020	MO APC	VISTAS	Initial Response to June 22, 2020 Letter from VISTAS Requesting Regional Haze Reasonable Progress Analysis for Missouri Source Impacting VISTAS Class I Areas



## Visibility Improvement State and Tribal Association of the Southeast

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June 22, 2020

Darcy A. Bybee, Director  
Missouri Air Pollution Control Program  
PO Box 176  
Jefferson City, Missouri 65102-0176

RE: Request for Regional Haze Reasonable  
Progress Analysis for Missouri Source  
Impacting VISTAS Class I Areas

Dear Ms. Bybee:

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<sup>1</sup> (VISTAS) and its contractors conducted technical analyses to help states identify

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<sup>1</sup> 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<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) 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<sub>2</sub> and NO<sub>x</sub> 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 source in Missouri that meets this criterion:

- New Madrid Power Plant-Marston (29143-5363811)

Information regarding projected 2028 SO<sub>2</sub> and NO<sub>x</sub> emissions and visibility impacts on VISTAS Class I areas is shown in the table attached to this letter (Attachment 1).

As required in 40 CFR § 51.308(d)(1)(i)(A), VISTAS, on behalf of Alabama, Kentucky, and North Carolina, requests that Missouri conduct, or require that the source in question initiate, and share when completed, the results of a reasonable progress analysis for the 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 analysis 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 the reasonable progress analysis 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 the identified source, please provide the rationale for this determination by the requested date.

In developing projected 2028 emissions for the source, VISTAS utilized ERTAC\_16.0 emissions projections and granted Missouri an opportunity for updates in February 2020. VISTAS is now giving another opportunity for review these projections to verify that they are reasonable.

Should you be aware of significantly different emission projections for 2028 for the source 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 a reasonable progress analysis is 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 analysis for the requested source, and any necessary ongoing communications should be sent via email to [vistas@metro4-sesarm.org](mailto: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](mailto:hornback@metro4-sesarm.org).

Sincerely,



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

Attachment

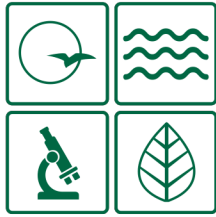
Copies:      Ron Gore, Alabama Air Division  
                 Melissa Duff, Kentucky Division for Air Quality  
                 Mike Abraczinskas, North Carolina Division of Air Quality  
                 Michael Vince, Central States Air Resource Agencies

## Attachment 1: Projected 2028 SO<sub>2</sub> and NO<sub>x</sub> Emissions and VISTAS Class I Area Impacts

**Table 1.** New Madrid Power Plant-Marston (29143-5363811)

Modeled SO<sub>2</sub> = 11,158.3 tpy, Modeled NO<sub>x</sub> = 4,054 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non- EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Sipsey Wilderness Area	0.220	0.012	16.370	1.34%	0.07%
Shining Rock Wilderness Area	0.158	0.001	12.313	1.28%	0.01%
Mammoth Cave National Park	0.289	0.022	25.289	1.14%	0.09%
Linville Gorge Wilderness Area	0.134	0.000	12.884	1.04%	0.00%



Missouri Department of dnr.mo.gov  
**NATURAL RESOURCES**  
Michael L. Parson, Governor Carol S. Comer, Director

October 19, 2020

Chad LaFontaine  
Executive Director  
Metro 4/SESARM/VISTAS  
Email: [clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org)

Sent Via Electronic Mail

RE: Initial Response to June 22, 2020 Letter from VISTAS Requesting Regional Haze Reasonable Progress Analysis for Missouri Source Impacting VISTAS Class I Areas

Dear Chad LaFontaine

This letter serves as the Missouri Department of Natural Resources' Air Pollution Control Program's (Air Program's) initial response to a letter from John Hornbeck with VISTAS dated June 22, 2020. In the letter, VISTAS indicated that projected emissions in 2028 from the New Madrid Power Plant located in New Madrid County Missouri were anticipated to impact visibility at federal Class I areas located in Alabama, Kentucky, and North Carolina. As such, VISTAS requested that Missouri conduct, or require that the New Madrid Power Plant initiate, and share with VISTAS when completed, the results of a reasonable progress analysis pursuant to the federal Regional Haze Rule. The VISTAS letter requested that we submit this information to VISTAS by October 30, 2020.

On July 29, 2020, the Air Program sent a letter to the New Madrid Power Plant requesting the information needed to conduct a reasonable progress analysis for the source pursuant to the Regional Haze Rule. In our letter, we requested that New Madrid submit the information by September 1, 2020; however, the source requested and was granted an extension to submit the information. We can provide the information we receive once we have it and have reviewed it. We anticipate that results of our analysis will be available to share with VISTAS by the end of the 2020 calendar year.

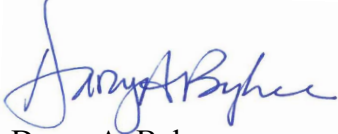


Chad LaFontaine  
Page Two

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](mailto:emily.wilbur@dnr.mo.gov)) or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Darcy A. Bybee  
Director

DAB:abc

Enclosure: New Madrid Power Plant Response to the Air Program's July 2020 Information Request Pursuant to the Regional Haze Rule

## **Appendix F-2c**

### **VISTAS Consultation with OH Division of Air Pollution Control**



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**Correspondence Record**

<b>Date</b>	<b>From</b>	<b>To</b>	<b>Description</b>
June 22, 2020	VISTAS	OH DAPC	Request for Regional Haze Reasonable Progress Analyses for Ohio Sources Impacting VISTAS Class I Areas
October 29, 2020	OH DAPC	VISTAS	Response to VISTAS Request for Regional Haze Reasonable Progress Analyses for Ohio Sources Impacting VISTAS Class I Areas



## Visibility Improvement State and Tribal Association of the Southeast

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June 22, 2020

Robert F. Hodanbosi, Chief  
Ohio Division of Air Pollution Control  
122 South Front Street  
Columbus, Ohio 43215-3425

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

Dear Mr. Hodanbosi:

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<sup>1</sup> (VISTAS) and its contractors conducted technical analyses to help states identify

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<sup>1</sup> 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<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) 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<sub>2</sub> and NO<sub>x</sub> 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 Ohio that meet this criterion:

- Ohio Valley Electric Corp., Kyger Creek Station (39053-7983011)
- Cardinal Power Plant - Cardinal Operating Company (39081-8115711)
- General James M. Gavin Power Plant (39053-8148511)
- Duke Energy Ohio, Wm. H. Zimmer Station (39025-8294311)

Information regarding projected 2028 SO<sub>2</sub> and NO<sub>x</sub> 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, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia, requests that Ohio 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](mailto: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](mailto: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  
Mike Abraczinskas, North Carolina Division of Air Quality  
Rhonda Thompson, South Carolina Bureau of Air Quality  
Michelle Walker Owenby, Tennessee Division of Air Pollution Control  
Mike Dowd, Virginia Air and Renewable Energy Division  
Laura Crowder, West Virginia Division of Air Quality  
Zac Adelman, Lake Michigan Air Directors Consortium

## Attachment 1: Projected 2028 SO<sub>2</sub> and NO<sub>x</sub> Emissions and VISTAS Class I Area Impacts

**Table 1.** Ohio Valley Electric Corp., Kyger Creek Station (39053-7983011)

Modeled SO<sub>2</sub> = 4,278.0 tpy, Modeled NO<sub>x</sub> = 6,267.3 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Otter Creek Wilderness	0.242	0.004	19.077	1.27%	0.02%
Dolly Sods Wilderness	0.229	0.003	19.349	1.18%	0.02%
James River Face Wilderness	0.170	0.006	14.404	1.18%	0.04%
Shenandoah NP	0.155	0.009	15.375	1.01%	0.06%

**Table 2.** Cardinal Power Plant - Cardinal Operating Company (39081-8115711)

Modeled SO<sub>2</sub> = 9,891.9 tpy, Modeled NO<sub>x</sub> = 4,044.8 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Shenandoah NP	0.692	0.018	15.375	4.50%	0.12%
Dolly Sods Wilderness	0.778	0.007	19.349	4.02%	0.03%
Otter Creek Wilderness	0.727	0.008	19.077	3.81%	0.04%
James River Face Wilderness	0.520	0.008	14.404	3.61%	0.06%
Swanquarter Wilderness Area	0.203	0.007	10.894	1.86%	0.06%

**Table 3.** General James M. Gavin Power Plant (39053-8148511)

Modeled SO<sub>2</sub> = 21,838.6 tpy, Modeled NO<sub>x</sub> = 7,982.6 tpy

Impacted VISTAS Class I Areas	Sulfate PSAT (Mm <sup>-1</sup> )	Nitrate PSAT (Mm <sup>-1</sup> )	Total EGU & non-EGU Sulfate + Nitrate (Mm <sup>-1</sup> )	Sulfate PSAT % Impact	Nitrate PSAT % Impact
Otter Creek Wilderness	1.001	0.011	19.077	5.25%	0.06%
Dolly Sods Wilderness	0.945	0.009	19.349	4.88%	0.05%
James River Face Wilderness	0.582	0.016	14.404	4.04%	0.11%
Shenandoah NP	0.576	0.022	15.375	3.75%	0.14%
Great Smoky Mountains NP	0.520	0.003	13.916	3.73%	0.02%
Linville Gorge Wilderness Area	0.446	0.002	12.884	3.46%	0.02%
Joyce Kilmer-Slickrock Wilderness	0.473	0.002	13.694	3.45%	0.01%
Cohutta Wilderness Area	0.322	0.009	13.229	2.44%	0.07%
Shining Rock Wilderness Area	0.297	0.001	12.313	2.41%	0.01%
Cape Romain Wilderness	0.305	0.005	14.028	2.17%	0.04%
Swanquarter Wilderness Area	0.219	0.005	10.894	2.01%	0.05%
Sipsey Wilderness Area	0.327	0.021	16.370	1.99%	0.13%
Wolf Island Wilderness	0.224	0.003	12.957	1.73%	0.02%
Okefenokee Wilderness Area	0.203	0.002	13.400	1.51%	0.01%

**Table 4.** Duke Energy Ohio, Wm. H. Zimmer Station (39025-8294311)  
Modeled SO<sub>2</sub> = 10,346.3 tpy, Modeled NO<sub>x</sub> = 5,864.1 tpy

<b>Impacted VISTAS Class I Areas</b>	<b>Sulfate PSAT (Mm<sup>-1</sup>)</b>	<b>Nitrate PSAT (Mm<sup>-1</sup>)</b>	<b>Total EGU &amp; non- EGU Sulfate + Nitrate (Mm<sup>-1</sup>)</b>	<b>Sulfate PSAT % Impact</b>	<b>Nitrate PSAT % Impact</b>
Otter Creek Wilderness	0.302	0.012	19.077	1.58%	0.06%
Dolly Sods Wilderness	0.288	0.010	19.349	1.49%	0.05%
Cohutta Wilderness Area	0.173	0.005	13.229	1.31%	0.04%
Shining Rock Wilderness Area	0.129	0.002	12.313	1.05%	0.01%
Joyce Kilmer-Slickrock Wilderness	0.137	0.002	13.694	1.00%	0.01%



Mike DeWine, Governor  
Jon Husted, Lt. Governor  
Laurie A. Stevenson, Director

October 29, 2020

Chad LaFontaine  
Executive Director  
Metro 4/SESARM  
1252 W Government St Unit 1375  
Brandon MS 39043-6054

**Re: Response to VISTAS Request for Regional Haze Reasonable Progress Analyses for Ohio Sources Impacting VISTAS Class I Areas**

Dear Mr. LaFontaine:

On June 22, 2020, the Visibility Improvement State and Tribal Association of the Southeast (VISTAS), on behalf of Alabama, Georgia, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia, requested that Ohio conduct a reasonable progress analysis for four Ohio sources that were identified by VISTAS to have an impact on visibility in Class I areas located in VISTAS' states: Kyger Creek Station, Cardinal Power Plant, General James M. Gavin Power Plant and Zimmer Power Station. In this letter, it was also requested that if it is determined that a four-factor analysis is not warranted for one or more of the identified sources, rationale for this determination be provided.

Ohio's analysis for each of the sources identified by VISTAS is provided in detail below. In summary:

- Kyger Creek Station – effectively controlled for SO<sub>2</sub> and NO<sub>x</sub>
- Cardinal Power Plant – effectively controlled for SO<sub>2</sub> and NO<sub>x</sub>
- Gavin Power Plant – four-factor analysis for SO<sub>2</sub> requested; effectively controlled for NO<sub>x</sub>
- Zimmer Power Station – recently announced a planned shut down in 2027; currently in discussions regarding an enforceable commitment for the shutdown such that a four-factor analysis is not warranted.

U.S. EPA's Regional Haze Guidance provides example scenarios for sources that would be considered "effectively controlled" in which U.S. EPA believes it may be reasonable for a state not to select a particular source for further analysis. One of the example scenarios provided by U.S. EPA which Ohio finds most pertinent is:

"For the purposes of SO<sub>2</sub> and NO<sub>x</sub> control measures, a combustion source (e.g., an EGU or industrial boiler or process heater) that, during the first implementation period, installed a **FGD system that operates year-round with an effectiveness of at least 90 percent** or by the installation of a **selective catalytic reduction system that operates year-round with an overall effectiveness of at least 90 percent** (in both cases calculating the effectiveness as



the total for the system, including any bypassed flue gas), on a pollutant-specific basis.” A pair of footnotes add that “For purposes of this consideration, the first regional haze implementation period started when SIPs were due on December 17, 2007.” and “While a 90 percent control effectiveness is used in this example, we expect that any FGD system installed to meet CAA requirements since 2007 would have an effectiveness of 95 percent or higher. This does not apply to a source that has recently achieved a higher level of control efficiency without the installation of a control system, for example if it has merely increased the flow rate of a reagent. In such a situation, the four factors should be fully considered. The outcome may still be that the current level of control is the measure that is necessary to make reasonable progress. (Emphasis added)

For ease of reference, this example will be referred to as “FGD/SCR with at least 90% effectiveness”.

However, U.S. EPA’s Regional Haze Guidance clearly indicates that the examples are meant to be illustrative but not exhaustive. Using the general principle established in the Regional Haze Guidance that a source may be excluded from four-factor analysis where it is “reasonable to assume for the purposes of efficiency and prioritization that a full four-factor analysis would likely result in the conclusion that no further controls are necessary”, Ohio interprets the “FGD/SCR with at least 90% effectiveness” example slightly broader than written in the Regional Haze Guidance.

Specifically, although the example only references controls installed in the first implementation period (i.e. after December 17, 2007), Ohio does not believe the installation date is pertinent to whether the source is effectively controlled, so long as the device is getting sufficient removal. Ohio believes that conducting a four-factor analysis on a source with an FGD or SCR with 90% control efficiency, regardless of the date installed, would likely result in the conclusion that no further controls are necessary. Therefore, Ohio considered control devices installed prior to the first implementation period to meet our interpretation of this example.

#### Kyger Creek Station

Kyger Creek Station (Facility ID 0627000003) operates five coal-fired boilers (B001, B002, B003, B004 and B005), which are considered effectively controlled for SO<sub>2</sub> and NO<sub>x</sub> in accordance with the “FGD/SCR with at least 90% effectiveness” example in the Regional Haze Guidance.

FGDs with 98% control efficiency were installed March 19, 2012 on B001 and B002, and November 4, 2011 on B003, B004 and B005. Each of these controls operate year-round. Each of the five units have a federally enforceable SO<sub>2</sub> emissions limits of 1.2 lb/MMBtu based on a rolling, 30-day average (permit no. P0104412, effective 02/17/2011). As shown in Table 1, recent SO<sub>2</sub> emission rates are 0.16 lb/MMBtu or less.

SCRs with 90% control efficiency were installed October 1, 2002 on B001, December 1, 2002 on B002, February 1, 2003 on B003, April 1, 2003 on B004 and June 1, 2003 on B005. Each of these controls operate year-round. As shown in Table 1, recent NO<sub>x</sub> emission rates are 0.24 lb/MMBtu or less.

Table 1. Kyger Creek B001, B002, B003, B004 and B005 emissions (2016 to 2019)

Unit ID	Year	SO <sub>2</sub> (tons)	SO <sub>2</sub> rate (lb/MMBtu)	NO <sub>x</sub> (tons)	NO <sub>x</sub> Rate (lb/MMBtu)	PM <sub>2.5</sub> -PRI (tons)	NH <sub>3</sub> (tons)
B001	2016	755	0.14	1,197	0.22	112	0
	2017	1,025	0.15	970	0.15	141	0
	2018	1,157	0.16	1,385	0.20	144	1
	2019	675	0.12	997	0.19	112	0
B002	2016	700	0.14	1,109	0.24	104	0
	2017	844	0.15	687	0.13	113	0
	2018	1,144	0.16	1,404	0.20	142	0
	2019	718	0.11	1,245	0.20	128	0
B003	2016	853	0.15	1,848	0.23	120	0
	2017	867	0.15	729	0.13	127	0
	2018	914	0.15	1,100	0.18	129	0
	2019	744	0.13	1,043	0.18	127	0
B004	2016	828	0.16	1,793	0.22	117	0
	2017	982	0.15	968	0.15	144	0
	2018	880	0.15	1,102	0.19	124	0
	2019	823	0.13	1,086	0.17	140	0
B005	2016	845	0.15	1,831	0.22	120	0
	2017	964	0.15	885	0.14	142	0
	2018	876	0.15	1,001	0.18	125	0
	2019	787	0.13	1,003	0.17	130	0

None of the units are significant sources of PM<sub>2.5</sub> or ammonia.

#### Cardinal Power Plant

Cardinal Power Plant (Facility ID 0641050002) operates three coal-fired boilers (B001, B002 and B009), each of which is considered effectively controlled for SO<sub>2</sub> and NO<sub>x</sub> in accordance with the “FGD/SCR with at least 90% effectiveness” example in the Regional Haze Guidance.

FGDs with 95% control efficiency were installed March 1, 2008 on B001, December 1, 2007 on B002, and December 30, 2011 on B009. The FGDs must be continuously operated on and after December 31, 2008 for B001 and B002, and December 31, 2012 for B009, in accordance with the requirements of a federal Consent Decree in *United States, et al. v. American Electric Power Service Corp., et al.*, Civil Action Nos. C2-99-1182 and C2-99-1250 and *United States, et al. v. American Electric Power Service Corp., et al.*, Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree).

B001 and B002 each have federally enforceable SO<sub>2</sub> emissions limits of 1.056 lb/MMBtu based on a rolling, 30-day average (permit no. P0104412, effective February 17, 2011). B003 has a federally enforceable SO<sub>2</sub> emissions limit of 0.66 lb/MMBtu based on a rolling, 30-day average (permit no. P0104411, effective February 17, 2011). As shown in Table 2, recent SO<sub>2</sub> emission rates are 0.27 lb/MMBtu or less.

SCRs with 90% control efficiency were installed June 1, 2003 on B001, and May 1, 2003 on B002 and B009. The SCRs must be continuously operated on and after January 1, 2009 in accordance with the requirements of the Consent Decree. As shown in Table 2, recent NOx emission rates are below 0.1 lb/MMBtu.

Table 2. Cardinal Power Plant B001, B002 and B009 emissions (2016 to 2019)

Unit ID	Year	SO <sub>2</sub> (tons)	SO <sub>2</sub> rate (lb/MMBtu)	NOx (tons)	NOx Rate (lb/MMBtu)	PM25-PRI (tons)	NH3 (tons)
B001	2016	3,885	0.22	1,497	0.09	54	1
	2017	3,796	0.24	1,166	0.08	50	1
	2018	3,794	0.22	1,348	0.08	74	1
	2019	3,685	0.18	1,479	0.08	92	1
B002	2016	3,986	0.27	1,146	0.08	73	1
	2017	5,205	0.25	1,446	0.07	247	0
	2018	3,103	0.22	1,024	0.08	38	1
	2019	3,714	0.23	1,242	0.08	43	1
B009	2016	1,325	0.10	1,112	0.09	969	1
	2017	2,256	0.13	1,272	0.08	88	1
	2018	2,807	0.14	1,468	0.08	166	1
	2019	2,053	0.15	1,157	0.09	118	1

B001 and B002 are not significant sources of PM<sub>2.5</sub>. Although B009 is reported to have emitted 969 tons of PM<sub>2.5</sub> in 2016, emissions have dropped substantially in more recent years. This decrease may likely be due in part to more recent stack testing, along with new requirements for condensable stack testing under U.S. EPA's Method 202 established in March 2016<sup>1</sup>, which forms the basis of the emissions estimates for the condensable fraction of PM. Further, B009 is equipped with an Electrostatic Precipitator (ESP) with 99.5% control efficiency installed September 1, 1977.

None of the units are significant sources of ammonia.

#### General James M. Gavin Power Plant

General James M. Gavin Power Plant (Facility ID 0627010056) operates two coal-fired boilers (B003 and B004).

FGDs with 95% control efficiency were installed December 1, 1994 on B003 and March 1, 1995 on B004. The FGDs must be continuously operated in accordance with the requirements of a federal Consent Decree in *United States of America and the State of New York, et. al and Ohio Citizen Action et al. v. American Electric Power Service Corp. et al*, (S.D. Ohio Case No. 2:99-CV-01182), lodged on October 9, 2007 and entered on December 10, 2007, as amended on April 5, 2010, December 28, 2010, May 14, 2013, and January 23, 2017 (hereinafter "Consent Decree").

<sup>1</sup> <https://www.epa.gov/emc/method-202-condensable-particulate-matter>

B003 and B004 each have federally enforceable SO<sub>2</sub> emissions limits of 7.41 lb/MMBtu (permit no. P0089258, effective April 15, 2020). As shown in Table 3, recent SO<sub>2</sub> emissions rates are 0.39 lb/MMBtu or less. Although the FGDs operate year-round with a 95% control efficiency, Ohio has requested a four-factor analysis with respect to SO<sub>2</sub>.

B003 and B004 are considered effectively controlled for NO<sub>x</sub> in accordance with the with the “FGD/SCR with at least 90% effectiveness” example in the Regional Haze Guidance. SCRs with 90% control efficiency were installed May 1, 2001 on B003 and B004. The SCRs must be continuously operated in accordance with the requirements of the Consent Decree. As shown in Table 3, recent NO<sub>x</sub> emission rates are 0.11 lb/MMBtu or less.

Table 3. Gavin Power Plant B003 and B004 emissions (2016 to 2019)

Unit ID	Year	SO <sub>2</sub> (tons)	SO <sub>2</sub> rate (lb/MMBtu)	NO <sub>x</sub> (tons)	NO <sub>x</sub> Rate (lb/MMBtu)	PM <sub>2.5</sub> -PRI (tons)	NH <sub>3</sub> (tons)
B003	2016	9,039	0.27	3,572	0.11	608	1
	2017	13,785	0.32	4,441	0.10	650	1
	2018	13,172	0.38	3,495	0.10	567	1
	2019	12,161	0.37	3,485	0.11	219	1
B004	2016	10,990	0.29	3,757	0.10	1,007	1
	2017	11,640	0.36	3,382	0.11	518	1
	2018	14,420	0.34	4,553	0.11	644	1
	2019	14,313	0.39	3,857	0.11	403	1

Although B003 and B004 are reported to have emitted higher emissions of PM<sub>2.5</sub> in 2016, as shown in Table 3, emissions have dropped substantially in more recent years. These differences are due to updated stack testing in 2017 which forms the basis of the emissions estimates for the condensable fraction of PM<sub>2.5</sub>. Thus, the recent emissions based on more recent data are expected to more accurately reflect current conditions. Ohio EPA does not consider B003 or B004 to be a significant source of PM<sub>2.5</sub> based on recent reported emissions.

In addition, B003 and B004 each are equipped with an Electrostatic Precipitator (ESP) for particulate control with greater than 99% control efficiency of particulates. B003 and B004 each have federally enforceable particulate emissions limits of 0.1 lb/MMBtu (permit no. P0089258, effective 04/15/2020).

Neither unit is a significant source of ammonia.

#### Zimmer Power Station

Zimmer Power Station (1413090154) operates one coal-fired boiler (B006). Zimmer recently announced a planned shut down in 2027. Ohio and Zimmer are currently in discussions regarding an enforceable commitment for the shutdown such that a four-factor analysis is not warranted.

<sup>2</sup> The 2016 and 2017 emissions are based on stack testing conducted 02/26/09, whereas the 2018 and 2019 emissions are based on a stack test conducted on 08/23/2017.

If you have questions, please contact Jennifer Van Vlerah in our Division of Air Pollution Control at (614) 644-3696.

Sincerely,

A handwritten signature in blue ink, reading "Robert F. Hodanbosi". The signature is written in a cursive style with a large, stylized "R" and "H".

Robert F. Hodanbosi  
Chief, Division of Air Pollution Control, Ohio EPA

## **Appendix F-3**

### **EPA/FLM/Stakeholder Outreach and Presentations**

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## **Appendix F-3a - Consultation Record**



VISTAS  
FLM/EPA Consultation Record  
As of October 26, 2020

1. December 5-7, 2017 – Denver, national RH meeting, various presentations – FLMs, EPA OAQPS, Region 3, Region 4, RPOs, various VISTAS agency attendees
2. January 31, 2018 – teleconference, presentation – FLMs, EPA Region 4, CC/TAWG
3. August 1, 2018 – teleconference, presentation – FLMs, EPA OAQPS, Region 3, Region 4, CC/TAWG
4. September 5, 2018 – teleconference, presentation – MJOs
5. June 3, 2019 – teleconference, presentation – FLMs, EPA OAQPS, Region 3, Region 4, CC/TAWG
6. October 28-30, 2019 – St Louis national RH meeting, various presentations – FLMs, EPA OAQPS, Region 3, Region 4, RPOs, various VISTAS agency attendees
7. April 2, 2020 – teleconference, presentation – FLMS, EPA OAQPS, Region 3, Region 4, CC/TAWG
8. April 21, 2020 – teleconference, presentation – MJOs
9. May 11, 2020 – teleconference, presentation – FLMs, EPA OAQPS, Region 3, Region 4, CC/TAWG
10. May 20, 2020 – webinar, presentation – stakeholders, FLMs, EPA OAQPS, Region 3, Region 4, RPOs and member states, STAD, CC/TAWG
11. July 30, 2020 – webinar, presentation – EPA Region 3, Region 4, and OAQPS
12. August 4, 2020 – webinar, presentation, FLMs, EPA OAQPS, Region 3, Region 4, RPOs and member states, CC/TAWG
13. October 26, 2020 – webinar, presentation, EPA Region 3, Region 4 during the Fall 2020 air directors' meeting

**Appendix F-3b - National Regional Haze Meeting Denver,  
Colorado December 5-7, 2017**

# Georgia's Approach for Estimating Reasonable Progress in Round 1

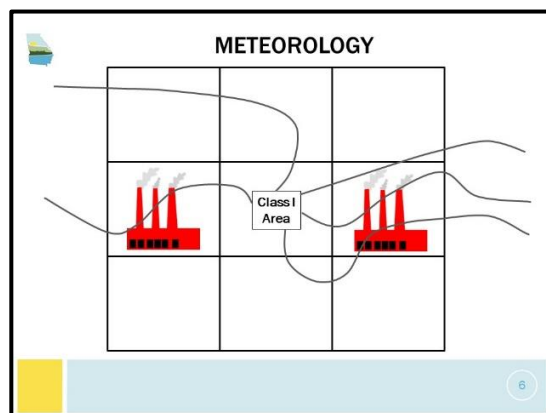
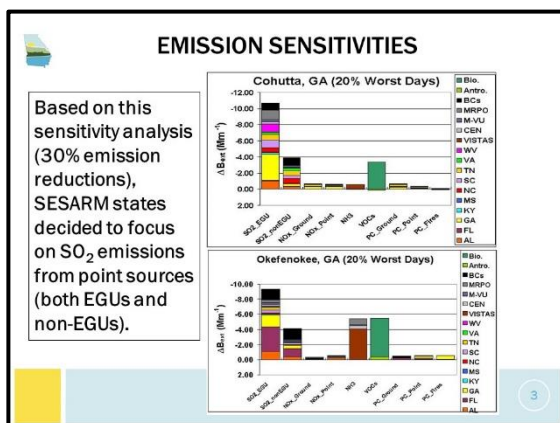
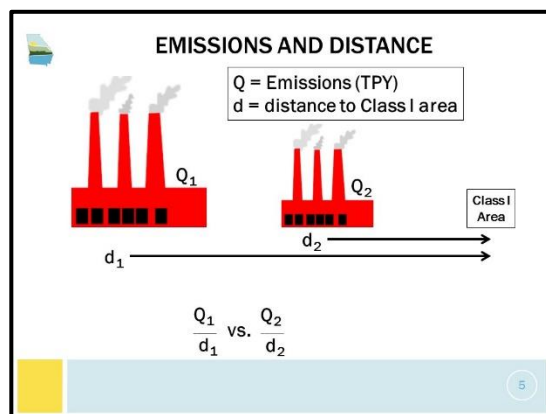
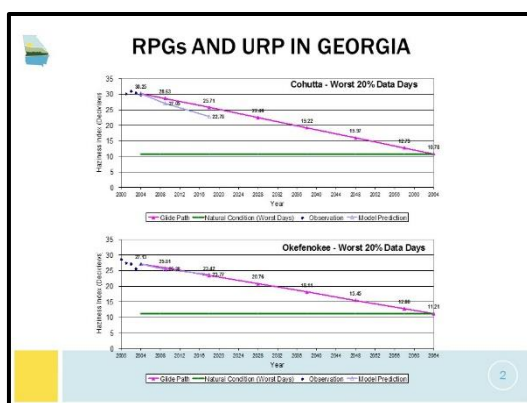
**Jim Boylan**  
 Manager, Planning & Support Program  
 Georgia EPD - Air Protection Branch

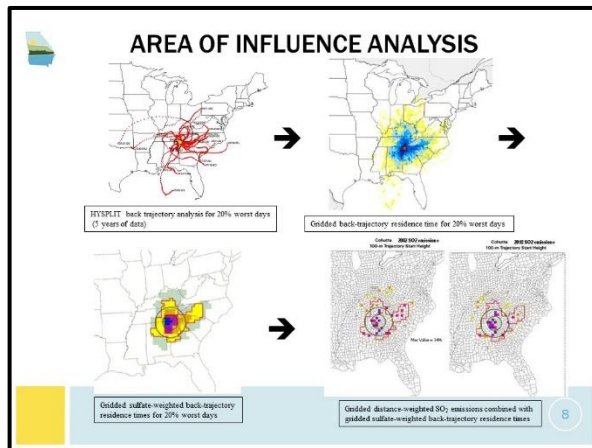
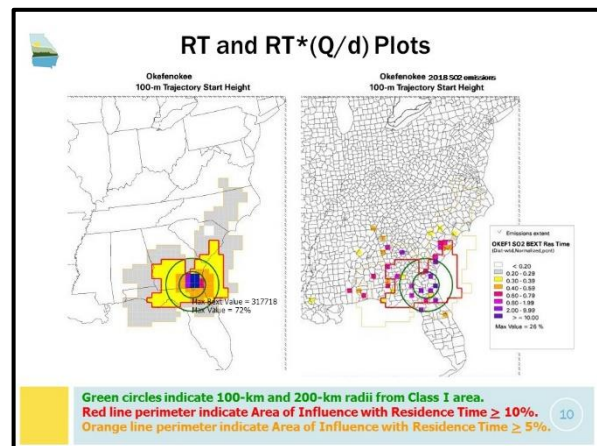
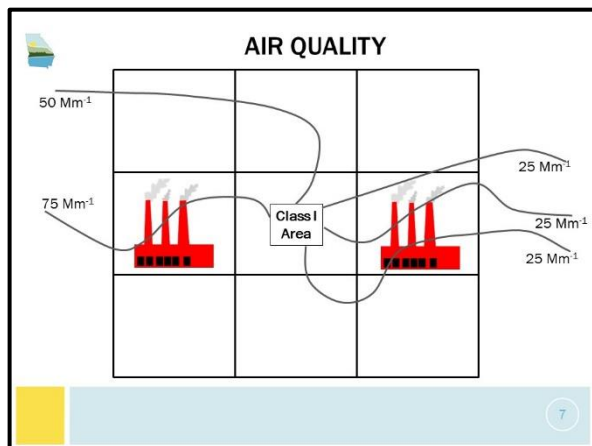
**Round 2 Regional Haze Planning Workshop**  
 Denver, CO  
 December 5, 2017

## REASONABLE PROGRESS (RP)

- Area of Influence ( $Q/d \cdot RT$ ) analysis with 2002 and 2018 emissions
  - This work was performed by SESARM contractors
  - Can be used to screen sources for 4-factor analysis
    - 2018 emissions are more appropriate than 2002 since we are looking at additional controls beyond "on-the-books"
- 4-Factor Analysis
  - This work was performed by the individual SESARM states and was very time consuming (similar to BACT analysis)
    - Cost of compliance (GA EPD included visibility impacts)
    - Time necessary for compliance
    - Energy and non-air quality impacts
    - Remaining useful life of source

4





### SOURCE CONTRIBUTION AT OKEF

Plant	ID	SO <sub>2</sub> Tons (2002 G) (2018 G)	CE	d (km)	Q(d)	RT	RT*Q(d)	RT*Q(d) Fraction
FL SAINT JOHN'S RIVER	17	10,185	7,420	90	55.12	113.95	65.70	0.5671
FL SAINT JOHN'S RIVER	16	11,078	5,862	90	55.12	60.33	65.70	0.5671
FL JEFFERSON SMURFIT CORPORATION (US)	15	3,242	3,639	4	64.58	56.30	71.58	0.0000
FL CEDAR BAY GENERATING COMPANY L.P.	GEN1	0	2,227	90	51.17	36.41	65.70	0.0534
GA GEORGIA PACIFIC BRUNSWICK OPERATIONS	BR1	1,642	1,842	4	75.42	24.41	77.47	0.0389
FL RAYONIER PERFORMANCE FIBERS LLC	6	1,075	1,256	0	53.34	10.83	71.58	0.0017
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	1	10,912	6,779	95	121.83	55.64	22.84	0.0285
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	2	12,775	6,568	95	121.83	53.42	22.84	0.0274
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR03	1,423	1,597	4	106.27	15.03	71.58	0.0040
FL WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	66	1,140	1,496	0	69.66	21.39	48.81	0.0035
FL WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	67	396	1,368	0	69.66	18.69	48.81	0.0024
FL IFF CHEMICAL HOLDINGS, INC.	3	624	723	0	56.66	12.94	65.70	0.0190
FL GEORGIA PACIFIC CORP - PULP/PAPER MILL	15	3,703	4,329	0	125.55	34.48	22.84	0.0177
GA INTERSTATE PAPER SAVANNAH MILL	IP13	1,643	1,316	4	119.34	47.76	15.53	0.0166
FL MILLENNIUM SPECIALTY CHEMICALS	8	505	590	0	50.48	9.76	65.70	0.0143
GA SAVANNAH ELECTRIC MONTOSH STEAM - ELEC	SG01	7,080	7,015	0	201.59	34.80	15.51	0.0120
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR02	1,466	1,621	4	106.37	1.87	71.58	0.0094
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R.	2	20,228	15,241	0	205.89	74.06	5.47	0.0090
GA SAVANNAH ELECTRIC KRAFT STEAM - ELECTRIC	SG03	3,992	4,474	0	182.45	24.52	15.53	0.0085
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R.	1	19,998	13,537	0	205.89	65.76	5.47	0.0080
GA GEORGIA PACIFIC CORP. MITCHELL STEAM-EL	SG05	4,173	4,930	0	206.79	23.94	14.43	0.0077
FL JEFFERSON SMURFIT CORPORATION (US)	6	287	300	0	84.42	4.66	71.58	0.0074
SC SCE&C CANADAYS	001	6,214	5,203	0	206.53	17.62	16.79	0.0064
FL MILLENNIUM SPECIALTY CHEMICALS	5	237	269	0	50.48	4.45	65.70	0.0065
SC SCE&C CANADAYS	002	6,580	5,144	0	206.35	17.42	16.79	0.0065
FL GEORGIA PACIFIC CORP - PULP/PAPER MILL	1	1,354	1,161	4	125.35	12.59	22.84	0.0064
FL ANCHOR GLASS CONTAINER CORPORATION	4	161	212	0	59.64	3.90	65.70	0.0053
FL ANCHOR GLASS CONTAINER CORPORATION	3	156	206	0	59.64	3.40	65.70	0.0051
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR14	1,266	1,334	0	105.68	3.15	71.58	0.0050
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR01	280	333	0	106.22	3.14	71.58	0.0050

- ### GEORGIA'S RP APPROACH
- Determined Area of Influence (AoI) based on normalized sulfate weighted residence times (RT)
    - If  $RT \geq 5\% \rightarrow$  included in AoI
  - Calculated percent contribution caused by sulfates at Class I areas from sources located in the AoI
    - Based on RT\*(Q/d) Excel spreadsheets created by VISTAS
      - Q = 2018 SO<sub>2</sub> emissions
    - If contribution  $\geq 0.5\% \rightarrow$  added to RP list
      - Class I areas near Northern GA
        - COHU, GRSM, SHRO, etc. (meeting glide slope)
        - Removed EGUs from the list (CAIR = Reasonable Progress)
      - Class I areas near Southern GA
        - OKEF, WOLF, SAMA, etc. (NOT meeting glide slope)
        - Considered EGUs and non-EGUs
  - Analysis done on each individual emissions unit
- 9

### SOURCE CONTRIBUTION AT WOLF

Plant	ID	SO <sub>2</sub> Tons (2002 G) (2018 G)	CE	d (km)	Q(d)	RT	RT*Q(d)	RT*Q(d) Fraction
GA GEORGIA PACIFIC BRUNSWICK OPERATIONS	BR1	1,642	1,842	4	75.42	24.41	77.47	0.0389
FL SAINT JOHN'S RIVER	17	10,185	7,420	90	55.12	113.95	65.70	0.5671
FL SAINT JOHN'S RIVER	16	11,078	5,862	90	55.12	60.33	65.70	0.5671
FL JEFFERSON SMURFIT CORPORATION (US)	15	3,242	3,639	4	64.58	56.30	71.58	0.0000
FL CEDAR BAY GENERATING COMPANY L.P.	GEN1	0	2,227	90	51.17	36.41	65.70	0.0534
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FL RAYONIER PERFORMANCE FIBERS LLC	6	1,075	1,256	0	53.34	10.83	71.58	0.0017
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	1	10,912	6,779	95	121.83	55.64	22.84	0.0285
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	2	12,775	6,568	95	121.83	53.42	22.84	0.0274
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FL WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	67	396	1,368	0	69.66	18.69	48.81	0.0024
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FL GEORGIA PACIFIC CORP - PULP/PAPER MILL	15	3,703	4,329	0	125.55	34.48	22.84	0.0177
GA INTERSTATE PAPER SAVANNAH MILL	IP13	1,643	1,316	4	119.34	47.76	15.53	0.0166
FL MILLENNIUM SPECIALTY CHEMICALS	8	505	590	0	50.48	9.76	65.70	0.0143
GA SAVANNAH ELECTRIC MONTOSH STEAM - ELEC	SG01	7,080	7,015	0	201.59	34.80	15.51	0.0120
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR02	1,466	1,621	4	106.37	1.87	71.58	0.0094
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R.	2	20,228	15,241	0	205.89	74.06	5.47	0.0090
GA SAVANNAH ELECTRIC KRAFT STEAM - ELECTRIC	SG03	3,992	4,474	0	182.45	24.52	15.53	0.0085
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FL JEFFERSON SMURFIT CORPORATION (US)	6	287	300	0	84.42	4.66	71.58	0.0074
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SC SCE&C CANADAYS	002	6,580	5,144	0	206.35	17.42	16.79	0.0065
FL GEORGIA PACIFIC CORP - PULP/PAPER MILL	1	1,354	1,161	4	125.35	12.59	22.84	0.0064
FL ANCHOR GLASS CONTAINER CORPORATION	4	161	212	0	59.64	3.90	65.70	0.0053
FL ANCHOR GLASS CONTAINER CORPORATION	3	156	206	0	59.64	3.40	65.70	0.0051
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR14	1,266	1,334	0	105.68	3.15	71.58	0.0050
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	BR01	280	333	0	106.22	3.14	71.58	0.0050



SOURCE CONTRIBUTION AT SAMA										
Plant	ID	2002	2018	CE	d (km)	Q/d	RT	RT-Q	Fraction	
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	2	20 728	15 241	0	189.58	80.30	17.27	1388.4	0.0717	
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	1	13 969	13 537	0	189.58	7.40	17.27	1333.1	0.0637	
FL BUCKEYE FLORIDA LIMITED PARTNERSHIP	4	736	860	4	61.48	13.90	75.55	1057.1	0.0546	
FL BUCKEYE FLORIDA LIMITED PARTNERSHIP	7	521	726	0	61.48	11.80	75.55	891.6	0.0461	
FL BUCKEYE FLORIDA LIMITED PARTNERSHIP	6	354	547	0	61.48	10.53	75.55	785.6	0.0411	
FL BUCKEYE FLORIDA LIMITED PARTNERSHIP	2	449	524	0	61.48	8.93	75.55	644.1	0.0333	
FL IST MARKS POWER, INC. A GENERAL DYNAMIC	11	107	86	0	11.65	7.40	75.55	559.0	0.0289	
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	4	24 633	6 120	90	189.58	32.28	17.27	557.5	0.0288	
FL BUCKEYE FLORIDA LIMITED PARTNERSHIP	3	596	450	0	61.48	7.92	75.55	552.9	0.0286	
GA GEORGIA POWER COMPANY MITCHELL STEAM-ELE	SG003	4 173	4 930	0	150.49	32.76	10.16	520.4	0.0274	
FL GULF POWER COMPANY SCHOLZ ELECTRIC GENER	1	320	1 080	0	95.55	20.72	25.02	518.4	0.0268	
FL GULF POWER COMPANY SCHOLZ ELECTRIC GENER	1	744	1 441	0	140.89	5.39	28.59	512.2	0.0261	
AL EXXOMOBIL PRODUCTION COMPANY	014	15 420	14 695	0	325.51	45.14	10.91	492.5	0.0255	
FL GULF POWER COMPANY - CRIST	16	1 871	12 108	4	142.63	14.79	28.59	422.8	0.0218	
FL ISTOIR CONTAINER CORPORATION	003	4 048	7 303	0	258.39	28.48	12.50	356.0	0.0184	
AL SANDERS LEAD CO	003	3 948	7 121	0	258.39	27.78	12.50	347.2	0.0179	
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	3	28 238	3 634	90	189.58	10.17	17.27	331.1	0.0171	
GA LONGLEAF ENERGY STATION	BO14	0	3 327	0	154.62	20.48	10.80	292.5	0.0130	
GA LONGLEAF ENERGY STATION	BO15	0	3 292	0	154.62	20.60	10.60	292.9	0.0130	
GA GEORGIA PACIFIC CORPORATION CEDAR SPRIN	US001	2 257	2 533	0	149.70	15.92	12.89	218.1	0.0118	
FL FLORIDA CRUSHED STONE CO, INC.	16	2 865	2 884	4	237.91	12.15	17.27	209.3	0.0108	
GA GEORGIA PACIFIC CORPORATION CEDAR SPRIN	US000	2 164	2 228	4	149.70	15.22	12.89	209.1	0.0108	
FL GULF POWER COMPANY LANSING SMITH PLANT	2	6 742	1 062	0	149.23	7.12	28.59	203.5	0.0105	
AL ALABAMA POWER COMPANY - BARRY	004	7 817	9 120	0	149.23	7.21	29.01	192.2	0.0101	
FL SAINT JOHN'S RIVER	17	10 165	7 420	90	253.61	29.26	6.62	193.7	0.0100	
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	1	10 912	6 779	95	247.26	27.42	6.49	177.9	0.0092	
FL GULF POWER COMPANY LANSING SMITH PLANT	1	8 354	915	0	149.23	6.13	28.59	175.3	0.0091	
FL GULF POWER COMPANY - CRIST	7	21 548	4 648	90	298.97	15.05	11.11	172.0	0.0080	

SOURCE CONTRIBUTION AT COHU, P2										
Plant	ID	2002	2018	CE	d (km)	Q/d	RT	RT-Q	Fraction	
AL TVA - WIDOWS CREEK	006	4 455	4 707	0	103.54	45.46	20.39	907.0	0.0193	
AL TVA - WIDOWS CREEK	003	4 466	4 620	0	103.54	44.67	20.39	910.8	0.0191	
SC DUKE ENERGY LEE	007	4 699	4 650	0	103.54	43.95	20.39	896.1	0.0189	
AL TVA - WIDOWS CREEK	004	4 667	4 820	0	103.54	46.63	20.39	950.8	0.0186	
AL TVA - WIDOWS CREEK	002	4 031	4 821	0	103.54	46.56	20.39	940.4	0.0176	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
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GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG001	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	
GA GEORGIA POWER COMPANY YATES STEAM-ELECT	SG002	3 991	5 642	0	149.41	23.74	39.91	947.5	0.0160	</

### SOURCE CONTRIBUTION AT COHU

CAIR = Reasonable Progress for EGU's

Plant	CAIR	Reasonable Progress for EGU's	87145
TN INTERSTATE HOLDINGS, INC.	0.01	1.837	2.630
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG01	14.024	8.97
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG06	15.173	8.18
GA GEORGIA POWER COMPANY - BOWEN STEAM-ELECT.	SG04	43.634	5.147
GA GEORGIA POWER COMPANY - BOWEN STEAM-ELECT.	SG05	49.469	3.666
GA INLAND PAPERBOARD & PACKAGING, INC. - LN	F4	3.263	3.666
GA GEORGIA POWER COMPANY - HAMMORF STEAM-ELE	SG04	16.069	1.728
GA GEORGIA POWER COMPANY - BOWEN STEAM-ELECT.	SG01	33.650	2.418
AL TVA - WIDOWS CREEK	009	9.181	10.185
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG01	14.024	10.048
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG04	43.634	6.500
TN TVA BULL RUN Fossil PLANT	001	36.729	8.657
TN F-1 D POINT DE NEUVES AND COMPANY	0003	1.268	1.173
GA GEORGIA POWER COMPANY - SCHERER STEAM-ELE	SG03	16.149	1.007
GA GEORGIA POWER COMPANY - SCHERER STEAM-ELE	SG04	20.371	1.321
GA GEORGIA POWER COMPANY - SCHERER STEAM-ELE	SG01	15.285	1.173
GA GEORGIA POWER COMPANY - SCHERER STEAM-ELE	SG03	24.907	1.304
AL TVA - WIDOWS CREEK	009	8.568	6.712
AL A.E. STALEY MANUFACTURING COMPANY	005	3.005	2.982
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG01	14.024	3.919
GA INLAND PAPERBOARD & PACKAGING, INC. - LN	F2	1.023	1.148
GA MOUNT VERNON MILLS, INC. - APPAREL FABRIC	SG03	394	220
AL TVA - WIDOWS CREEK	005	4.122	4.839
AL TVA - WIDOWS CREEK	004	4.667	4.828
AL TVA - WIDOWS CREEK	002	4.031	4.821
GA GEORGIA POWER COMPANY - YATES STEAM-ELECT.	SG06	15.173	3.641

### GEORGIA'S RP SUMMARY

- 22 Emission Units at 12 Facilities
  - Performed single source photochemical grid modeling for each facility → \$/Mm<sup>-1</sup>
    - (\$/ton) x (ton/Mm<sup>-1</sup>) = \$/Mm<sup>-1</sup>
  - 6 emission units at 3 facilities took voluntary limits to reduce contribution to <0.5%
  - 1 emission unit subject to BART
- Four-Factor Analysis Conducted on 15 Emission Units
  - No additional controls for 11 emission units at 6 facilities
  - Additional controls for 4 emission units at 3 facilities

### SOURCE CONTRIBUTION AT COHU, P2

CAIR = Reasonable Progress for EGU's

Plant	CAIR	Reasonable Progress for EGU's	0.0123
AL TVA - WIDOWS CREEK	0.01	1.837	2.630
AL TVA - WIDOWS CREEK	0.01	1.837	2.630
SC DUKE ENERGY LLC	003	4.384	7.274
AL ALUMINUM COMPANY OF AMERICA - SOUTH PLANT	16	1.858	2.370
TN ALUMINUM COMPANY OF AMERICA - SOUTH PLANT	17	1.817	2.300
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG02	36.721	3.093
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG01	26.741	3.018
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG03	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG04	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG05	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG06	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG07	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG08	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG09	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG10	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG11	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG12	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG13	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG14	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG15	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG16	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG17	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG18	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG19	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG20	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG21	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG22	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG23	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG24	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG25	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG26	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG27	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG28	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG29	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG30	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG31	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG32	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG33	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG34	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG35	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG36	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG37	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG38	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG39	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG40	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG41	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG42	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG43	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG44	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG45	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG46	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG47	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG48	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG49	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG50	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG51	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG52	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG53	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG54	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG55	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG56	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG57	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG58	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG59	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG60	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG61	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG62	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG63	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG64	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG65	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG66	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG67	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG68	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG69	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG70	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG71	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG72	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG73	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG74	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG75	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG76	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG77	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG78	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG79	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG80	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG81	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG82	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG83	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG84	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG85	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG86	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG87	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG88	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG89	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG90	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG91	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG92	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG93	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG94	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG95	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG96	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG97	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG98	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG99	41.2	3.01
GA GEORGIA POWER COMPANY - WANSLEY STEAM-ELE	SG100	41.2	3.01

Facility	Emission Unit	Control Technology	Permit Limit (tpy of SO <sub>2</sub> , except as noted)	Estimated Tons Reduced
Georgia-Pacific				
Georgia-Pacific (Cellulose)	F1 Pwr. Boiler 4 (SO <sub>2</sub> emissions limited by TSP standard)	New FGD SO <sub>2</sub> max: 568 tpy, SO <sub>2</sub> < 35 (during 50 TSP standard)	Not more than 568 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2012	1074
Georgia-Pacific (Paper)				
GP-Pwr Cedar Springs	Power Boiler U500 (SO <sub>2</sub> emissions limited by TSP standard)	135 pound SO <sub>2</sub> per hour (same as BART exemption modeling limit)	1385	1385
GP-Pwr Cedar Springs	Power Boiler U501 (SO <sub>2</sub> emissions limited by TSP standard)	135 pound SO <sub>2</sub> per hour (same as BART exemption modeling limit)	1385	1385
International Paper				
IP-Savannah	Pwr. Boiler 13, including combustion of process organic emissions	Not more than 6758 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2016	2000	2000
Packaging Corp. of America				
PCA-Powder Mill	CE Power Boiler	Not more than 600 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2012	53	53
Rayonier Performance Fibers				
RF-Pwr Fibers	PB02 Pwr. Boiler 2	Not more than 318 tons SO <sub>2</sub> per 12 consecutive months, compliance date of June 4, 2008	306	306
RF-Pwr Fibers	PB03 Pwr. Boiler 3	Not more than 149 tons SO <sub>2</sub> per 12 consecutive months, compliance date of June 4, 2008	1448	1448
RF-Pwr Fibers	RF01 No. 5 Rec. Furn.	Not more than 192 tons SO <sub>2</sub> per 12 consecutive months, compliance date tied to facility modification	139	139
RF-Pwr Fibers	RF04 No. 6 Rec. Furn.	Not more than 307 tons SO <sub>2</sub> per 12 consecutive months, compliance date tied to facility modification	27	27
Southern States Phosphate and Fertilizer				
SSA-Powder Mill	SA02 Acid Plant 2	Not more than 582 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2014	228	228

### GEORGIA'S RP SOURCES

- GEORGIA PACIFIC CORPORATION, CEDARS PRIN - UNITS R402, U500, U501
- GEORGIA-PACIFIC BRUNSWICK OPERATIONS - UNITS F1 and M24
- GEORGIA-PACIFIC CORP SAVANNAH RIVER MILL - UNITS B001, B002, B003
- INLAND PAPERBOARD & PACKAGING, INC. - UNIT F4
- INTERNATIONAL PAPER - SAVANNAH MILL - UNIT PB13
- INTERSTATE PAPER LLC - UNIT F1
- JESUP MILL, RAYONIER PERFORMANCE FIBERS - UNITS PB02, PB03, RF01, RF04
- PACKAGING CORPORATION OF AMERICA - VALDO - UNIT 1017
- SOUTHERN STATES PHOSPHATE & FERTILIZER C - UNIT SA02
- GEORGIA POWER COMPANY, MITCHELL STEAM-EL - UNIT SG03
- SAVANNAH ELECTRIC: KRAFT STEAM - ELECTRI - UNITS SG01, SG02, SG03
- SAVANNAH ELECTRIC: MCINTOSH STEAM - ELEC - UNIT SG01

### REASONABLE PROGRESS CONTROLS

Facility	Emissions Unit	Permit Limit (tpy of SO <sub>2</sub> , except as noted)	Estimated Tons Reduced
GA Pacific - Brunswick Cellulose	F1 Pwr. Boiler 4	Not more than 568 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2012	1074
Georgia Pacific - Savannah Paper	Power Boiler U500	135 pound SO <sub>2</sub> per hour (same as BART exemption modeling limit)	1385
Georgia Pacific - Cedar Springs	Power Boiler U501	135 pound SO <sub>2</sub> per hour (same as BART exemption modeling limit)	1385
International Paper - Savannah	Pwr. Boiler 13, including combustion of process organic emissions	Not more than 6758 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2016	2000
Packaging Corp. of America	CE Power Boiler	Not more than 600 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2012	53
Rayonier Perf. Fibers	PB02 Pwr. Boiler 2	Not more than 318 tons SO <sub>2</sub> per 12 consecutive months, compliance date of June 4, 2008	306
	PB03 Pwr. Boiler 3	Not more than 149 tons SO <sub>2</sub> per 12 consecutive months, compliance date of June 4, 2008	1448
	RF01 No. 5 Rec. Furn.	Not more than 192 tons SO <sub>2</sub> per 12 consecutive months, compliance date tied to facility modification	139
	RF04 No. 6 Rec. Furn.	Not more than 307 tons SO <sub>2</sub> per 12 consecutive months, compliance date tied to facility modification	27
Southern States Phosphate and Fertilizer	SA02 Acid Plant 2	Not more than 582 tons SO <sub>2</sub> per 12 consecutive months, compliance date of January 1, 2014	228





## RPGs IN GEORGIA

- Adjusted future year visibility projections using facility-specific sensitivity results from the model to account for additional emission controls.
  - No need to rerun model for final RPGs.
  - Allows for multiple updates to final control limits

Facility Name	Unit	2018-2021	CO2E	GRSI	OKER	ROSLA	SAMA	SFS	WOLF
GEORGIA PACIFIC CORPORATION, CEDAR SPIN	R-002	1725.31	-0.0075	-0.0070	-0.0067	-0.0060	-0.0034	-0.0004	-0.0000
GEORGIA PACIFIC CORPORATION, CEDAR SPIN	U-006	2425.35	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC CORPORATION, CEDAR SPIN	U-001	2572.00	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC COMPANY, HILLBELL LUMBER	S-003	2522.74	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC, MILLWORK OPERATIONS	U-1	180.07	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC, MILLWORK OPERATIONS	M-1	400.00	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC CORP SAVANNAH PULP MILL	B-001	1814.24	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC CORP SAVANNAH PULP MILL	B-002	1415.14	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
GEORGIA PACIFIC CORP SAVANNAH PULP MILL	B-003	1252.68	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
INLAND PAPERBOARD & PACKAGING, INC. - JEN	J-1	1147.77	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
INLAND PAPERBOARD & PACKAGING, INC. - JEN	J-2	1006.12	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
INTERNATIONAL PAPER, SAVANNAH MILL	PH-1	875.56	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
INTERSTATE TAVERN LLC	T-1	187.66	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
REUPHILL, RAYMOND PERFORMANCE FIBERS	PH-2	259.69	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
REUPHILL, RAYMOND PERFORMANCE FIBERS	PH-3	331.28	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
REUPHILL, RAYMOND PERFORMANCE FIBERS	PH-4	333.47	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
PACKAGING CORPORATION OF AMERICA - VALD	V-1	101.77	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SAVANNAH ELECTRIC, KRAFT STEAM - ELECTRIC	S-001	990.72	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SAVANNAH ELECTRIC, KRAFT STEAM - ELECTRIC	S-002	760.48	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SAVANNAH ELECTRIC, KRAFT STEAM - ELECTRIC	S-003	474.17	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SAVANNAH ELECTRIC, MIAMI INTERNATIONAL LLC	S-004	705.13	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SAVANNAH STEAM DISTRICT	U-001	997.42	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
SOUTHERN STEEL INDUSTRIES & FERTILIZER CO	S-002	997.48	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000

23



## CONTACT INFORMATION

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**404-363-7014**

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**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES  
ENVIRONMENTAL PROTECTION DIVISION

# Georgia's Approach for Estimating Reasonable Progress in Round 2

**Jim Boylan**  
Manager, Planning & Support Program  
Georgia EPD - Air Protection Branch

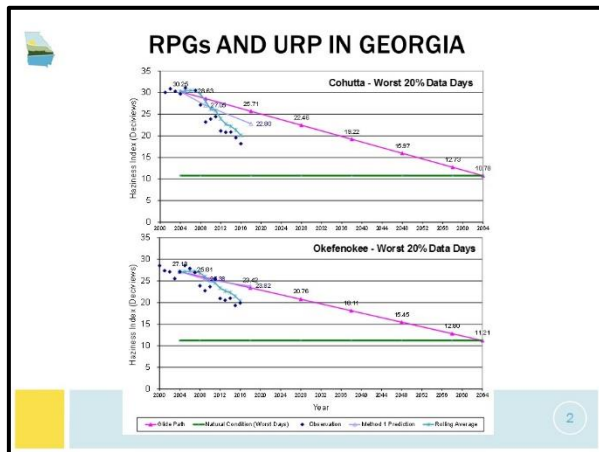
**Round 2 Regional Haze Planning Workshop**  
Denver, CO  
December 7, 2017

**EPA PSAT RESULTS**

Based on this analysis, SESARM states will likely focus on SO<sub>2</sub> emissions from point sources (both EGUs and non-EGUs).

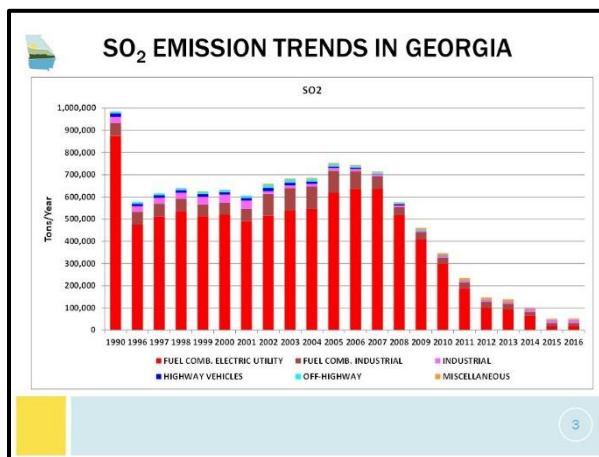
**Cohutta Wilderness, GA (COHU1)**

**Okefenokee, GA (OKEF1)**



**REASONABLE PROGRESS (RP)**

- Area of Influence (Q/d\*RT) analysis with 2011 and 2028 emissions
  - This work will be performed by SESARM contractor
  - Can be used to screen sources for 4-factor analysis
    - 2028 emissions are more appropriate than 2011 since we are looking at additional controls beyond "on-the-books"
    - If contribution > threshold → added to list for RP analysis
    - Thresholds for areas on or below the URP should be less restrictive than areas above the URP
    - Screening analysis done at facility-level (not unit-level)
- 4-Factor Analysis - performed by SESARM states
  - May include single-source sensitivity modeling or source apportionment to calculate visibility impacts (Mm<sup>-1</sup>/ton, \$/Mm<sup>-1</sup>)



**SCREENING EXAMPLES**


**Cohutta Wilderness Area**

Plant	Fraction	Total
1. TWIN WINDMILLS CREEK	0.00%	0.00%
2. BENTON RIVER	0.00%	0.00%
3. BENTON RIVER	0.00%	0.00%
4. BENTON RIVER	0.00%	0.00%
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7. BENTON RIVER	0.00%	0.00%
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48. BENTON RIVER	0.00%	0.00%
49. BENTON RIVER	0.00%	0.00%
50. BENTON RIVER	0.00%	0.00%

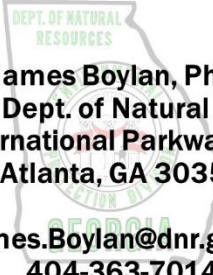
**Okefenokee National Wildlife Refuge**

Plant	Fraction	Total
1. BENTON RIVER	0.00%	0.00%
2. BENTON RIVER	0.00%	0.00%
3. BENTON RIVER	0.00%	0.00%
4. BENTON RIVER	0.00%	0.00%
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7. BENTON RIVER	0.00%	0.00%
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# Projecting Emissions to 2028 in the Southeast

**Jim Boylan**  
Manager, Planning & Support Program  
Georgia EPD - Air Protection Branch

**Round 2 Regional Haze Planning Workshop**  
Denver, CO  
December 6, 2017

## CONTACT INFORMATION


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## EPA PLATFORM

- SESARM plans to use EPA's 2011/2028 modeling platform (v6.3el)
  - SESARM will make adjustments to 2028 point sources
- Reasons for going with EPA's platform
  - Timing
    - Will not meet SIP deadline with any other option
  - Budget
    - Regional Haze budget significantly less in Round 2 compared to Round 1
  - Most of the sources sectors are reasonably represented in EPA's platform (i.e., SIP quality)



## POINT SOURCE ADJUSTMENTS

- SESARM plans to make adjustments to point sources in EPA's 2011/2028 modeling platform
- EGU Point Sources
  - EPA modeling used IPM and assumed CPP controls
    - Option 1 – Use ERTAC EGU 2028 SMOKE files to replace IPM
    - Option 2 – Scale the EPA 2028 hourly EGU emissions up/down based on ERTAC EGU annual emission and/or state feedback
- Non-EGU Point Sources
  - Scale the EPA 2028 hourly non-EGU emissions up/down based on feedback from SESARM states
    - Plan to look at 2016 NEI and EPA's non-EGU updates in most recent 2017 and 2023 transport modeling

## ERTAC EGU Projection Tool: Origin and Uses



Combined cycle facility under construction, slated to begin commercial operations in 2018

Doris McLeod <sup>1</sup>  
Julie McDill, PE <sup>2</sup>  
Byeong-Uk Kim, PhD <sup>3</sup>  
Jin-Sheng Lin, PhD <sup>1</sup>  
Joseph Jakuta <sup>4</sup>  
Mark Janssen <sup>5</sup>

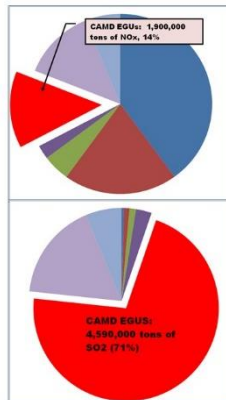
<sup>1</sup> Virginia Department of Environmental Quality  
<sup>2</sup> Mid-Atlantic Regional Air Management Association  
<sup>3</sup> Georgia Environmental Protection Division  
<sup>4</sup> Ozone Transport Commission  
<sup>5</sup> Lake Michigan Air Directors Consortium

## Attributes of ERTAC Model

- **Conservative** – no big swings in power generation.
- **Data intensive** – needs substantial state-supplied data.
- **Regional and fuel modularity.**
- **Calculates future hourly estimates based on base year activity.**
- **Test hourly reserve capacity.**
- **Quickly evaluates various scenarios;**
  - e.g., unit retirement, growth, and control

## CAMD EGU Data

- **Clean Air Markets Division**
- **High quality hourly data in electronic format reported under 40 CFR Part 75 for fossil fuel fired units > 25 MWs**
  - Activity (heat input, gross load)
  - Emissions (usually NO<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub>)
- **Emission contributions of the EGU sector**
  - **2011 CAMD data: ≈4,800 unique units**
  - 14% of the NO<sub>x</sub> inventory
  - 71% of the SO<sub>2</sub> inventory



\*Data from 2011 NEI v1

2

## Introduction to ERTAC EGU v2.7

State and planning organization collaboration to build a model to project future EGU emissions suited to state air quality planning

### Starting Points

- **Base Year (BY)** hourly continuous emissions monitor (CEM) data
  - BY & FY unit activity matches meteorology
  - More realistic for SIP modeling
- **Regional growth rates (GRs)** – EIA AEO2017 & NERC
- **Information Supplied By States as of Spring 2017**
  - New units, retirements,
  - Controls, fuel-switches, other

### ERTAC EGU Tool Generates Future Hourly Estimates

- **Regional unit capacity never exceeded**
- Unmet demand applied to other units
- Generation deficit units (GDUs) created if demand exceeds system capacity on an hourly basis



Hourly Emissions Converted to SMOKE Format for AQ Modeling

5

## Eastern Regional Technical Advisory Committee (ERTAC)

- **ERTAC EGU growth convened 2009**

**Goal:** Build a low-cost, stable/stiff, fast, and transparent model to project electric generating unit (EGU) emissions including reasonable temporal profiles for activity and emissions

**Uses:** Provide EGU inventories suitable for

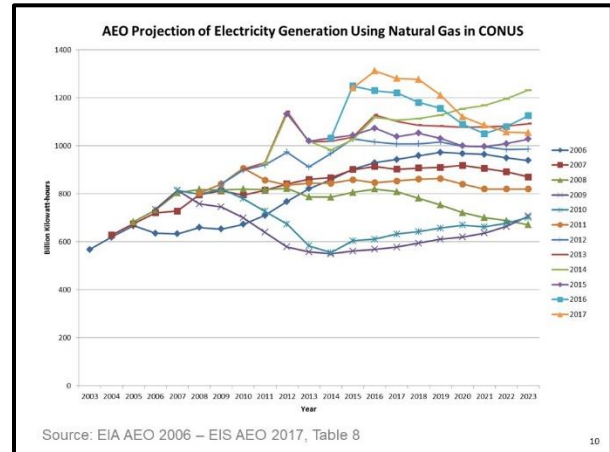
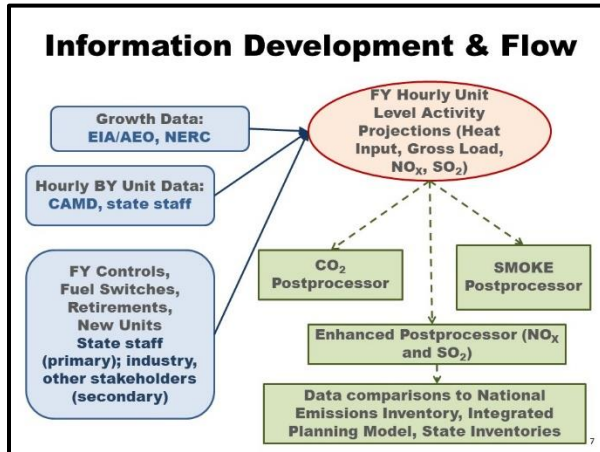
  - State Implementation Plan (SIP) submittals
  - Air quality modeling efforts

3

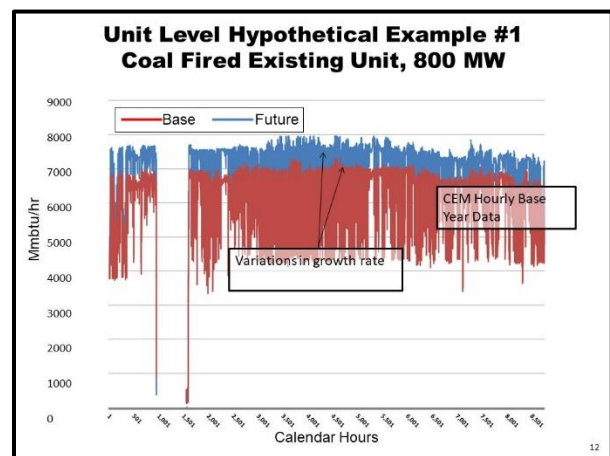
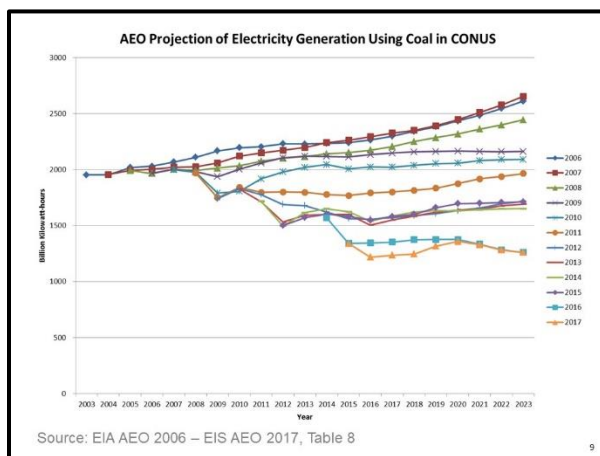
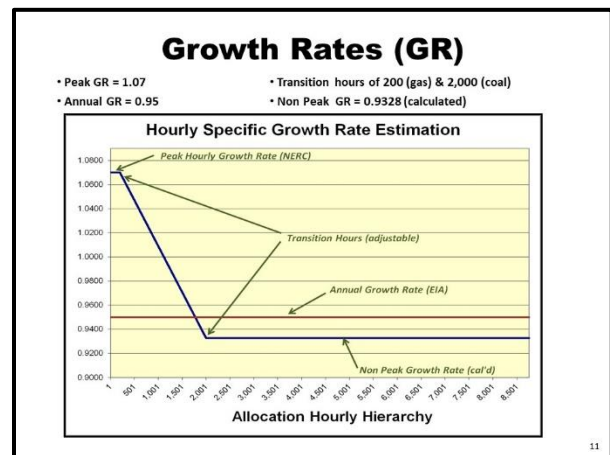
## How the Model Works

- **Unit-level inventory of EGUs** (capacity, fuel type, controls, hourly CEMs data for base year).
- **Apply EIA-AEO growth rates by region and fuel type** (model does not transfer generation between regions or between fuels).
- **Model matches available capacity to projected demand; creates "demand deficit" units if demand exceeds capacity.**
- **For units that exceed hourly or annual capacity limits, add generation to Excess Generation Pool.**
- **Empty Excess Generation Pool to other available units.**
- **Calculate emissions and convert to SMOKE and create reports** (model does not generate new controls).

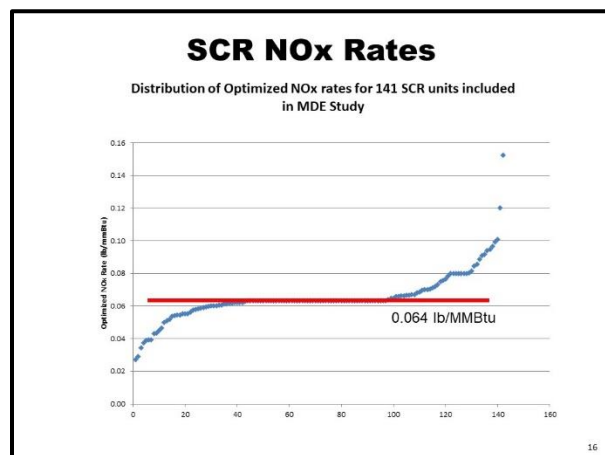
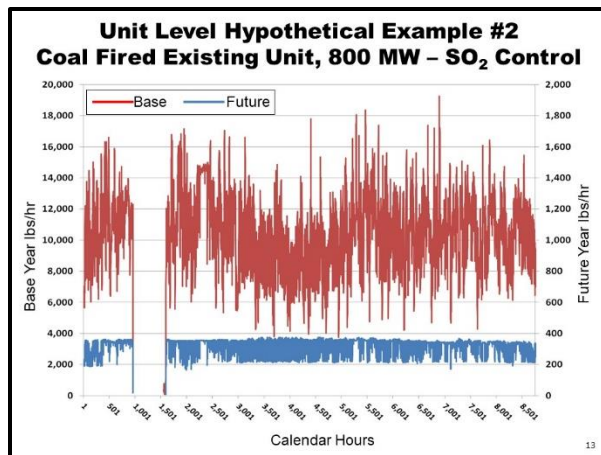
6



- ### The Five Basic Files
- **Unit Availability File (UAF)**
    - Backbone of the tool
    - Unit level data
    - Sources: CAMD, EIA, NEEDS, State Staff
  - **Controls File**
    - Unit level data for SO<sub>2</sub> and NO<sub>x</sub>
    - Emission rates or control efficiencies
    - May be supplemented with the Seasonal Controls File
  - **Growth Rates File**
    - Growth rates by region and fuel unit type
    - Annual based on EIA reference case
    - Peak based on NERC
  - **Input Variables File**
    - A variety of variables that can be changed for each region and fuel unit type
    - Many deal with new, planned units or GDUs
  - **CAMD Hourly Base Year Data**







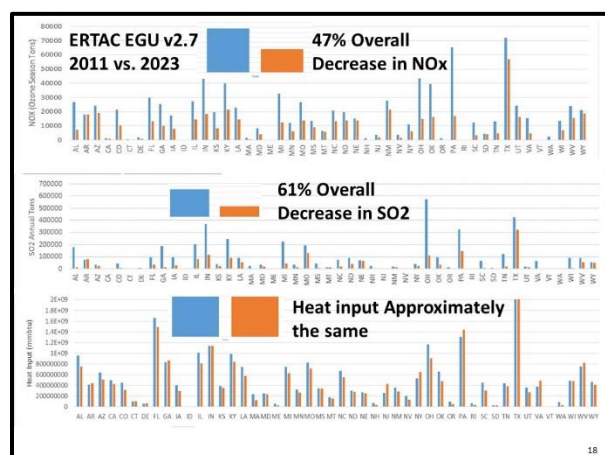
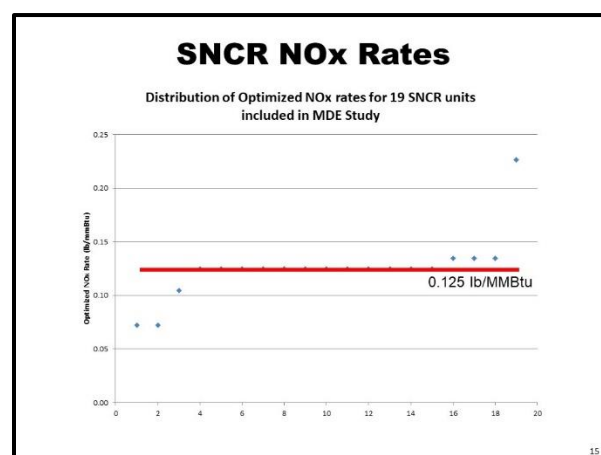
### ERTAC EGU v2.7

- **ERTAC v2.7 reference case (no CSAPR)**
  - AEO2017 (Annual Growth) & NERC (Peak Growth) with two exceptions
    - SRVC and NYCW use IRP derived growth factors
  - State updates as of Spring 2017
  - Generation transfers to alternate fuels to correct specific issues
    - Transfer of Indian Point nuclear power plant generation to combined cycle NG (for years after 2021)
    - Transfer of power in a few hours from coal to NG in RFCE (missing generation)
    - Transfer of power from coal to NG in FRCC/FL to alleviate coal GDU
    - Unit characteristic updates in SRDA to alleviate coal GDU (one unit at Big Cajun 2/LA)
    - Transfer of power from coal to NG in NEWWE to alleviate coal GDU (2017 only)
- **ERTAC v2.7 CSAPR2 Compliant Scenario includes**
  - Emission rate adjustments on facilities with SCR & SNCR in CSAPR states for ozone season only
    - Units with SNCR's reduced to 0.125 lb/MMBtu (EPA did not reduce SNCR in their Analytics approach)
    - Units with SCR's reduced to 0.064 lb/MMBtu (EPA used 0.1 lb/MMBtu)
    - Similar to MD study of "best rates"
  - Emission rate adjustments on some facilities without post-combustion controls in OK

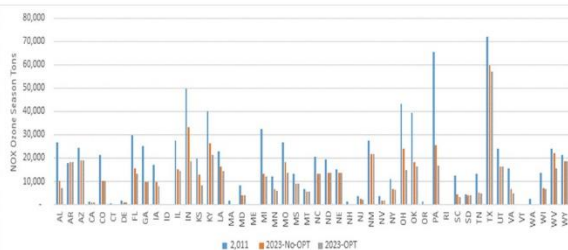
### AEO2017 no CPP w/controls - Analysis

Need a 3:1 ratio for emissions above assurance level

Region	State	Budget	Assurance Level	PT O&A (t)	Over Budget?	Over Assurance?
CENSARA	AR	12,048	14,578	18,119	6,071	3,541
CENSARA	LA	11,272	13,639	7,801	(3,471)	(5,838)
CENSARA	KS	8,027	9,713	8,307	280	(1,406)
CENSARA	LA	18,639	22,553	14,426	(4,213)	(8,127)
CENSARA	MO	15,780	19,094	13,764	(2,016)	(5,330)
CENSARA	OK	11,641	14,086	16,240	4,599	2,154
CENSARA	TX	52,301	63,284	57,026	4,725	(6,258)
IADCO	IL	13,601	16,457	14,443	842	(2,014)
IADCO	IN	23,388	28,197	18,459	(4,944)	(9,738)
IADCO	IN	17,023	20,598	12,342	(4,781)	(8,356)
IADCO	OH	19,522	23,622	14,707	(4,815)	(8,915)
IADCO	WI	7,915	9,577	6,883	(1,022)	(2,684)
MANE VU	MD	3,828	4,632	3,980	152	(652)
MANE VU	NI	2,062	2,495	1,969	(93)	(526)
MANE VU	NY	5,135	6,213	6,193	1,058	(20)
MANE VU	PA	17,952	21,722	16,840	(1,112)	(4,882)
SESARM	AL	13,211	15,985	7,148	(6,063)	(8,837)
SESARM	KY	21,115	25,549	21,259	214	(4,223)
SESARM	MS	6,315	7,641	9,077	2,762	1,436
SESARM	TN	7,736	9,361	4,806	(2,930)	(4,556)
SESARM	VA	9,223	11,160	4,765	(4,458)	(5,395)
SESARM	WV	17,815	21,556	15,667	(2,148)	(5,889)
<b>TOTAL</b>		<b>315,464</b>		<b>294,201</b>		<b>14,764.07</b>
<b>PENALTY</b>						<b>308,465</b>
<b>TOTAL W/PENALTY</b>		<b>315,464</b>				



## 2023 Optimized vs. Non-Optimized



Note: Some states in Western USA did not provide updates to ERTAC EGU for new units and controls. Examples include AZ, NM, WY. Their 2023 emissions might be lower than was estimated. Only CSAPR states were optimized.

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## ERTAC EGU Contacts

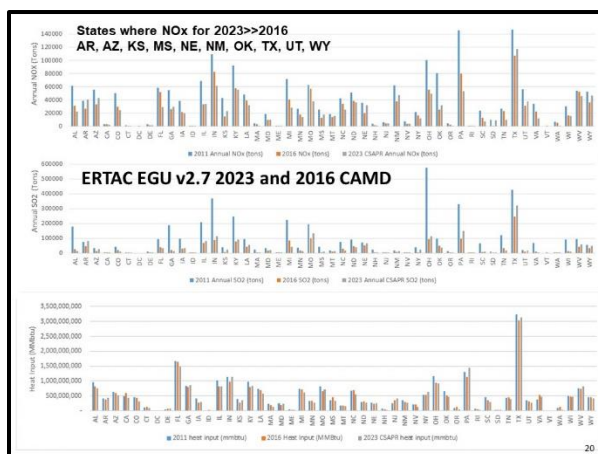
- States send comments to:
  - NE: Wendy Jacobs  
[Wendy.Jacobs@ct.gov](mailto:Wendy.Jacobs@ct.gov)
  - Southeast: John Hornback  
[Hornback@metro4-sesarm.org](mailto:Hornback@metro4-sesarm.org)
  - Midwest: John Welch  
[JWelch@idem.in.gov](mailto:JWelch@idem.in.gov)
  - CENRAP: Mark Janssen  
[Janssen@ladco.org](mailto:Janssen@ladco.org)  
[ertacegufeedback@gmail.com](mailto:ertacegufeedback@gmail.com)

22

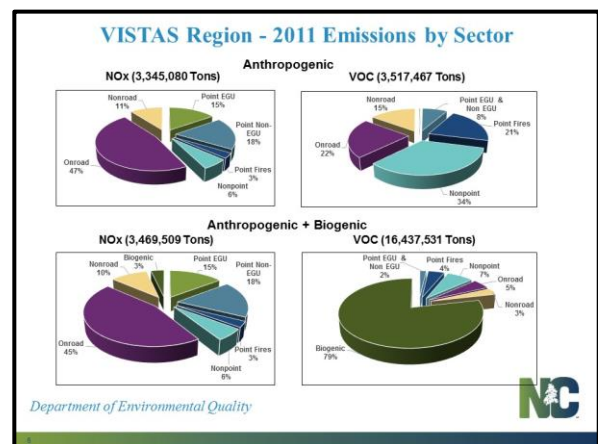
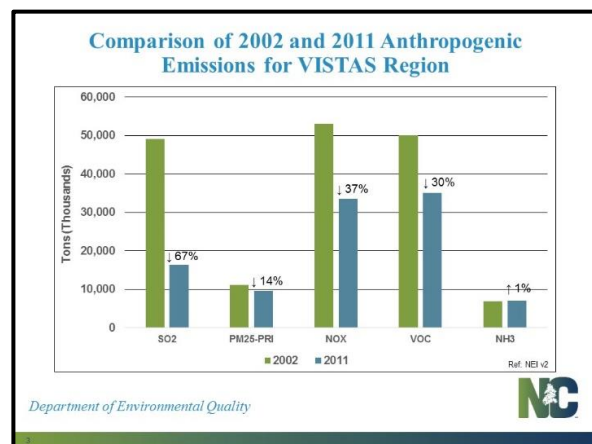
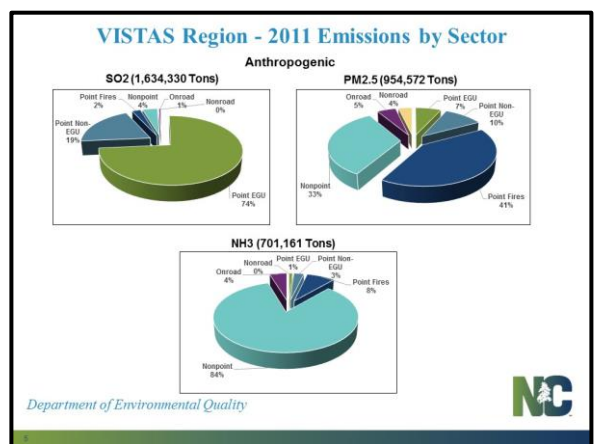
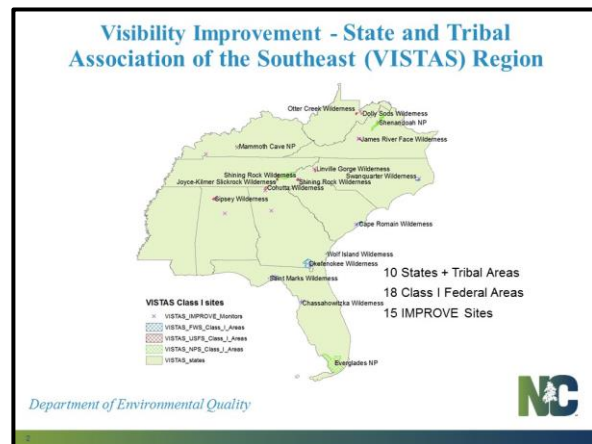
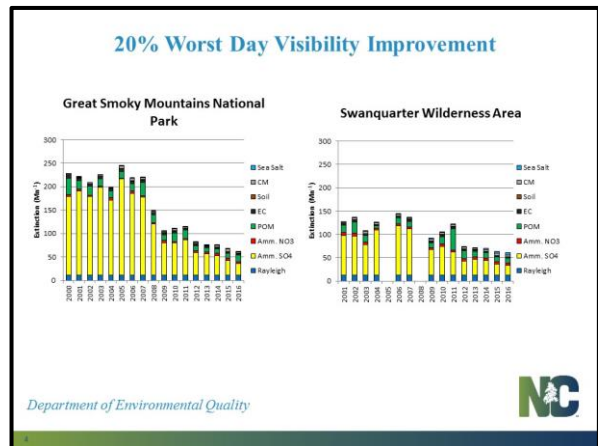
## Additional Information

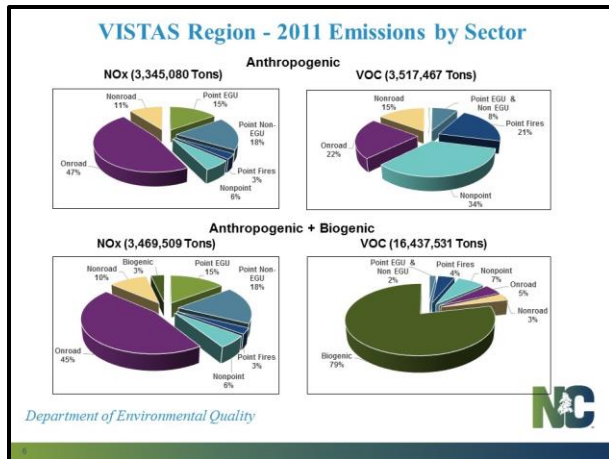
- ERTAC EGU files are located here:
  - <http://www.marama.org/2013-ertac-egu-forecasting-tool-documentation>
  - Currently the latest files on MARAMA webpage are v2.6
  - MARAMA expects to post v2.7 shortly
  - Also, 2028 ERTAC EGU files are available
- Other ERTAC materials are located here:
  - Sign In [URL:https://marama.sharefile.com/](https://marama.sharefile.com/)
  - Username:apaty@marama.org
  - Password:ERTACoutr3ach
- Next, will create a 2016 base year with new projections.

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### Conclusions

- EPA's 2011/2028v6.3el modeling platform is a good starting point
  - Although a bit long-in-the-tooth:




Denver Museum of Nature and Science

- 2011 base year is well established and bench-marked
- Focus on updating 2028 inventory and bench-marking of model
- Should be able to develop reasonably accurate 2028 inventory regardless of base year starting point

Department of Environmental Quality

Thank you!

Questions?



Randy Strait, [randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov)  
 Division of Air Quality  
 North Carolina Department of Environmental Quality



**Appendix F-3c - Presentation to FLMs, EPA Region 4  
CC/TAWG, January 31, 2018**



## VISTAS

FLM/EPA Discussion  
January 31, 2018

### Planned Approach (1)

- Similar to last regional haze planning effort
- About half of the time of the first project
- About 5% of the funding
- Will use EPA's 2011 base year and 2028 future year inventory and modeling platform
- Will provide slight adjustments to 2028 inventories for EGUs and some other major sources
- Will use EPA inventories for other categories



### Planned Approach (2)

- Intentions
  - assess where we are currently
  - assess 2028 expected visibility and glide slope
  - evaluate progress
  - evaluate impacts on VISTAS Class I areas
  - evaluate downwind receptor impacts
  - consult with surrounding regions
  - consult with FLMs
  - interact with EPA
  - communicate with stakeholders
  - support state SIP submittals by July 31, 2021 deadline

### VISTAS Organization

- STAD – State and Tribal Air Directors (policy)
- Coordinating Committee (operations)
- Technical Analysis Work Group
- Project Coordinator (John Hornback)
- EPA
- FLMs
- Stakeholders
- Other RPOs

### Procurement Process

- RFP released December 21
- Proposal submittal deadline January 26
- 3 proposals received
  - 1 sole bid
  - 2 team bids
- Selection Committee formed and operating
- Recommendation goal by February 15

### Contractor Arrangements

- Execute contract by March 1
- Develop concurrent work plan and QAPP
- Submit QAPP to EPA by March 15
- Receive QAPP approval from EPA by April 15
- Contractor queuing during April
- Technical work begins by May 1

### Technical Project Components (2)

- Air quality modeling
- Source apportionment tagging
- Model performance evaluation
- Future year model projections
- Data handling and sharing
- Optional tasks

### Technical Project Schedule

- States will begin preparing inventory updates after March 1
- Air quality modeling completed by December
- Other analysis and evaluation by next spring
- All deliverables including data and reports by June 20, 2019
- States begin developing their SIPs thereafter
- States submit SIPs by July 31, 2021

### Discussion

- Q&A
- Feedback
- Next steps

### Technical Project Components (1)


- Project management
- Emissions inventory updates
- Emissions processing
- Data acquisition and preparation
- Area of influence analysis

### Contact Information

- Project Coordinator: John Hornback
- Phone: 404-361-4000
- E-mail: [hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org)
- Web: [www.metro4-sesarm.org](http://www.metro4-sesarm.org)
  - Technical center tab
  - Contractor web site
  - Cloud?



## **Appendix F-3d - VISTAS Call with FLMs August 1, 2018**




**VISTAS**

Call with Federal Land Managers (FLMs)  
August 1, 2018

Jim Boylan, Georgia EPD  
John Hornback, Metro 4/SESARM


1



## VISTAS Technical Plan

- Similar to last regional haze planning effort
- EPA's 2011 el base year emissions (unchanged)
- EPA's 2028 el future year emissions with state specific adjustments for EGU and non-EGU point sources
- EPA's 2028 el inventories without adjustment for other categories
- CAMx v6.40 with PSAT

4



## Presentation Outline

- Introductory comments
- VISTAS contractors
- Completed, ongoing, and future work
- Collaboration/consultation
- State SIP development
- Response to National Park Service questions
- Additional Q&A
- Concluding comments


2



## VISTAS Contractors

- Contractor  
– Eastern Research Group
- Subcontractor  
– Alpine Geophysics


5



## VISTAS Tasks

- Determine current visibility
- Determine 2028 expected visibility and glide slopes
- Perform Area of Influence (AOI) analysis
- Perform source apportionment analysis (PSAT)
- Produce documentation
- Support state SIP submittals by July 31, 2021 deadline
- **NOTE: Individual VISTAS states will assess reasonable progress for sources in their own state**

3



## Progress Report (documents)

- December 21, 2017 – RFP released
- January 26, 2018 – Proposals received
- March 1, 2018 – Contract awarded
- April 4, 2018 – QAPP (approved by EPA Region 4)
- April 19, 2018 – Work plan approved
- June 27, 2018 – Modeling protocol approved \*

\*(review and input from EPA OAQPS and Region 4)

6



## Progress Report (completed/in process)



- Emission inventory updates – complete
- Emission inventory update report – nearing completion
- Emission processing/merging – complete
- 2028 simulation - running
- Benchmarking – complete (draft report rec'd)
- Base year modeling – initiated

7



## (Q/d)\*EWRT Calculations



Q/d			Q/d *EWRT			Q/d *EWRT (%)		
1	2	3	1	2	3	1	2	3
0	8.33	0	0	208.33	0	0%	18%	0%
25	Class 1	0	965.28	Class 1	0	82%	Class 1	0%
0	0	0	0	0	0	0%	0%	0%

Row (i)	Col (j)	ΣQ [tpy]	d [km]	Q/d [tpy km <sup>-1</sup> ]	Q/d*EWRT [tpy km <sup>-1</sup> Mm <sup>-1</sup> ]	Q/d*EWRT [%]
2	1	300	12	25	965.28	82%
1	2	100	12	8.33	208.33	18%

10



## Progress Report (remaining schedule)



- September 1, 2018 – base year modeling
- September 1, 2018 – area of influence analysis
- October 1, 2018 – model performance evaluation
- December 1, 2018 – future year modeling
- December 31, 2018 – future year projections
- April 19, 2019 – PSAT modeling
- May 3, 2019 – PSAT results
- July 1, 2019 – final report and project ends

8



## Consultation Plan



- Late 2017/early 2018 – initiated by MANE-VU
- December 5-7, 2017 – WESTAR Round 2 Regional Haze Planning Workshop
- January 31, 2018 – discussions with FLMs
- August 1, 2018 – discussions with FLMs
- Late summer 2018/spring 2019 – stakeholders
- Ongoing – EPA OAQPS and Regions 3 & 4
- Ongoing – FLMs – especially late-2018/early-2019
- 2019 – surrounding RPOs (to be initiated by VISTAS states)

11



## Extinction Weighted Residence Time Calculations



EWRT			EWRT (%)		
1	2	3	1	2	3
0.00	25.00	0.00	0%	39%	0%
38.61	Class 1	0.00	61%	Class 1	0%
0.00	0.00	0.00	0%	0%	0.00

Row (i)	Col (j)	# Trajectory hours	Trajectory (k)	Extinction (bext <sub>ik</sub> ) [Mm <sup>-1</sup> ]	τ <sub>ijk</sub> [hrs]	(bext <sub>ik</sub> )τ <sub>ijk</sub> [Mm <sup>-1</sup> hrs]	Στ <sub>ij</sub> [hrs]	Σ(bext <sub>ik</sub> )τ <sub>ijk</sub> [Mm <sup>-1</sup> hrs]	EWRT [Mm <sup>-1</sup> ]
2	1	5	1 (Red)	75	5	375	18	695	38.61
		4	2 (Orange)	80	4	320			
1	2	4	1 (Yellow)	50	4	200	18	450	25
		5	2 (Purple)	50	5	250			

9



## State SIP Development



- Underway via ...
  - Participation in VISTAS process
  - Collaboration and consultation with all interests
- State-specific considerations/analyses have begun and will continue as project deliverables are completed/distributed
- SIP submittals due – July 31, 2021

12





## Questions/Answers



- Using EPA 2011 and 2028 inventories and modeling platform with some upgrades
  - Yes
- 2011 and 2028 inventories
  - 2011 was not adjusted
  - 2028 EGU and non-EGU point updates completed June 30, 2018
  - Inventory update report – final due by mid-August

13



## Questions/Answers



- Will states be on their own to evaluate control strategies?
  - Each state is ultimately responsible for determinations of the content of their SIPs, as in the last round.
  - Yet, much collaboration will occur in this project leading up to determinations of sources to evaluate and evaluations of feasible controls.

16



## Questions/Answers



- Area of influence analysis and SO<sub>2</sub>/NO<sub>x</sub> rankings for 2011 and 2028
  - To be completed by September 1, 2018
- 2028 projections:
  - Modeling to be completed by December 1, 2018
  - Projections to be completed by December 31, 2018
- Nature of 2028 modeling
  - “on-the books / on the way” (required/enforceable)

14



## Questions/Answers



- How will states use data generated to screen sources for 4-factor analysis?
  - Specific approach(es) be determined.
  - FLM input will be considered.
  - Threshold options
    - Cumulative source contribution (e.g., 80%, 60%, 40%,...)
    - Individual contributions by unit or facility (e.g., 1%, 5%, 10%,...)

17



## Questions/Answers



- VISTAS states' usage of project deliverables
  - AOI review – September-December 2018
  - Will use AOI to rank and select sources
  - Start 4-factor analysis early 2019
    - Source apportionment will be part of 4-factor analysis and can be used to adjust reasonable progress goals (RPGs) if additional controls are required
    - May use CoST tool, EPA's Air Pollution Control Cost Manual, data obtained from facilities, etc.
    - Will consult with FLMs regarding screening and selection methodology and process for sources

15



## Questions/Answers



- Will a best-and-final run be conducted?
  - Not in contract at this time
  - PSAT can be used to adjust RPGs for new controls at individual facilities without another CAMx run
- Use of state-specific modeling domains?
  - Possible uses include brute force sensitivities, CAMx v6.5, fine grid modeling, best and final CAMx run, etc.

18



## Questions/Answers



- Opportunities for FLM input
  - Ongoing
  - AOI will be used for ranking sources.
  - Expect this to occur September-December 2018.
  - FLMs may provide thoughts at anytime
  - Early sharing of FLM concerns and reasons would be helpful

19



## For Further Information (Contact)







- Project Coordinator
  - John Hornback – Metro 4/SESARM [hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org)
- Coord Committee Chair
  - Jim Boylan – Georgia [james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov)
- Tech Analysis WG Co-chairs
  - Randy Strait – North Carolina [randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov)
  - Alanna Keller – West Virginia [alanna.j.keller@wv.gov](mailto:alanna.j.keller@wv.gov)
- Web site
  - <https://metro4-sesarm.org>
  - Selected information will be made available from the Technical Center dropdown on this web site.
  - Other information will be made available upon request.

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## **Appendix F-3e - VISTAS Presentation to other RPOs, September 5, 2018**


Call with MJOs  
September 5, 2018

John Hornback, Metro 4/SESARM

1




## VISTAS Technical Plan




- Similar to last regional haze planning effort
- EPA's 2011 el base year emissions (unchanged)
- EPA's 2028 el future year emissions with state specific adjustments for EGU and non-EGU point sources
- EPA's 2028 el inventories without adjustment for other categories
- CAMx v6.40 with PSAT

4



## Presentation Outline



- Introductory comments
- VISTAS contractors
- Completed, ongoing, and future work
- Collaboration/consultation
- State SIP development
- Response to National Park Service questions
- Additional Q&A
- Concluding comments

2




## VISTAS Contractors




- Contractor  
– Eastern Research Group
- Subcontractor  
– Alpine Geophysics




5




## VISTAS Tasks




- Determine current visibility
- Determine 2028 expected visibility and glide slopes
- Perform Area of Influence (AOI) analysis
- Perform source apportionment analysis (PSAT)
- Produce documentation
- Support state SIP submittals by July 31, 2021 deadline
- **NOTE: Individual VISTAS states will assess reasonable progress for sources in their own state**

3



## Progress Report (documents)



- December 21, 2017 – RFP released
- January 26, 2018 – Proposals received
- March 1, 2018 – Contract awarded
- April 4, 2018 – QAPP (approved by EPA Region 4)
- April 19, 2018 – Work plan approved
- June 27, 2018 – Modeling protocol approved \*

\*(review and input from EPA OAQPS and Region 4)

6



## Progress Report (completed/in process)



- 2028 emission inventory updates and report – complete
- Conversion of 2028 point source emission files – pre-processing – complete (report – nearing completion)
- 2028 emissions SMOKE modeling – ready to begin
- 2011 base year emissions modeling - complete
- Benchmarking – ongoing (1<sup>st</sup> three reports received – one approved)
- Model performance evaluation – initiated
- Area of influence analysis – nearing completion

7



## State SIP Development



- Underway via ...
  - Participation in VISTAS process
  - Collaboration and consultation with all interests
- State-specific considerations/analyses have begun and will continue as project deliverables are completed/distributed
- SIP submittals due – July 31, 2021

10



## Progress Report (remaining schedule)



- October 1, 2018 – model performance evaluation
- October 31, 2018 – AOI analysis & report
- December 1, 2018 – future year modeling (currently projected for early November)
- December 31, 2018 – future year projections
- April 19, 2019 – PSAT modeling
- May 3, 2019 – PSAT results
- July 1, 2019 – final report and project ends

8



## Questions/Answers



- Using EPA 2011 and 2028 inventories and modeling platform with some upgrades
  - Yes
- 2011 and 2028 inventories
  - 2011 was not adjusted
  - 2028 EGU and non-EGU point updates completed June 30, 2018
  - Inventory update report – final due by mid-August

11



## Consultation Plan



- Late 2017/early 2018 – initiated by MANE-VU
- December 5-7, 2017 – WESTAR Round 2 Regional Haze Planning Workshop
- January 31, 2018 – discussions with FLMs
- August 1, 2018 – discussions with FLMs
- October 2018 – initial discussions with CenSARA
- Fall 2018/spring 2019 – stakeholders
- Early/mid-2019 – surrounding RPOs (to be initiated by VISTAS states)
- Ongoing – EPA OAQPS and Regions 3 & 4
- Ongoing – FLMs – especially late-2018/early-2019

9



## Questions/Answers



- Area of influence analysis and SO<sub>2</sub>/NO<sub>x</sub> rankings for 2011 and 2028
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## Questions/Answers



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  - Start 4-factor analysis early 2019
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## For Further Information (Contact)



- Project Coordinator
  - John Hornback – Metro 4/SESARM [hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org)
- Coord Committee Chair
  - Jim Boylan – Georgia [james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov)
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  - Alanna Keller – West Virginia [alanna.j.keller@wv.gov](mailto:alanna.j.keller@wv.gov)
- Web site
  - <https://metro4-sesarm.org>
  - Selected information will be made available on the Technical Center page at this web site.
  - Other information will be made available upon request.

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## **Appendix F-3f - VISTAS Regional Haze Project Update, June 3, 2019**

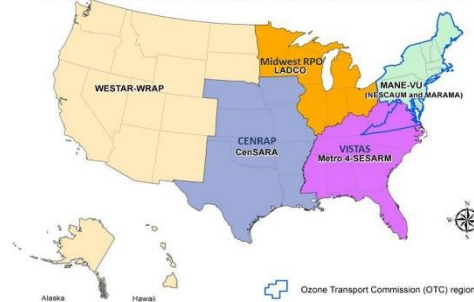
## VISTAS Regional Haze Project Update



**Jim Boylan (GA DNR), Randy Strait (NC DAQ),  
and John Hornback (Metro 4/SESARM)**

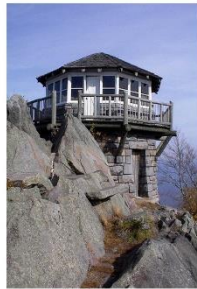
FLM and EPA Consultation Conference Call  
June 3, 2019

### REGIONAL PLANNING ORGANIZATIONS (RPOs) FOR REGIONAL HAZE



### Presentation Outline

- Background
- Key VISTAS project tasks
- VISTAS technical analysis status
- What we've learned
- Consultation and communications
- Remaining work and projected schedule



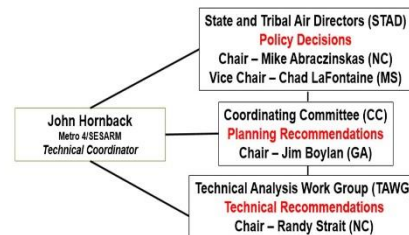
### Participating Agencies in VISTAS Project

- **Visibility Improvement State and Tribal Association of the Southeast (VISTAS)**
- 10 SESARM states
- Knox County, Tennessee local agency
  - Represents the 17 local agencies in the Southeast
- Eastern Band of Cherokee Indians
  - Represents the 6 federally-recognized tribes in the Southeast

### 1999/2017 Regional Haze Rule

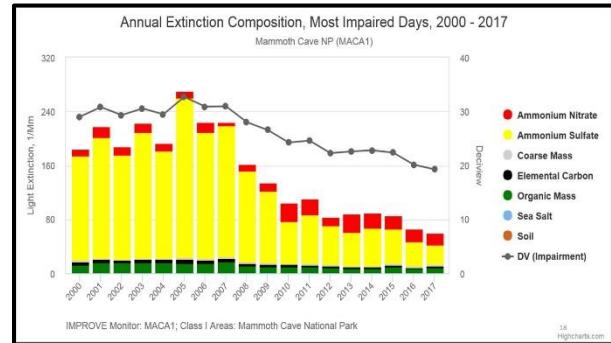
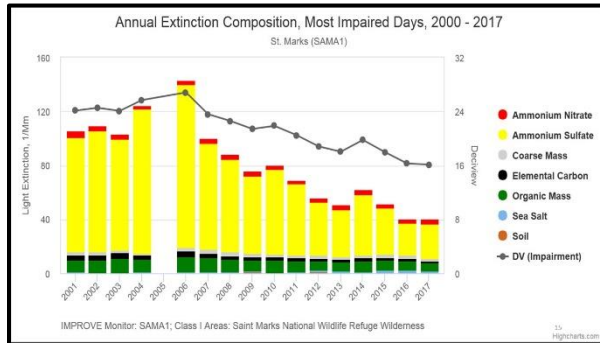
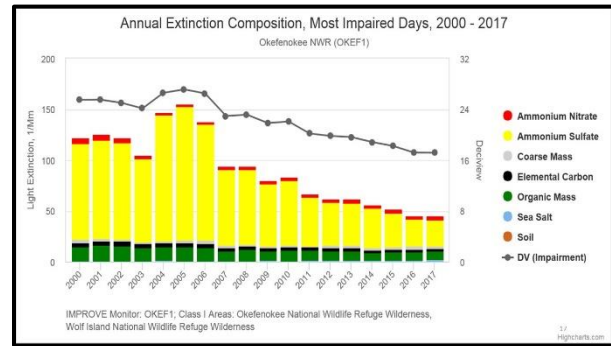
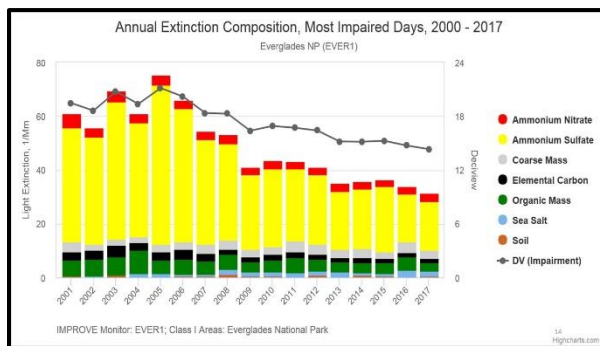
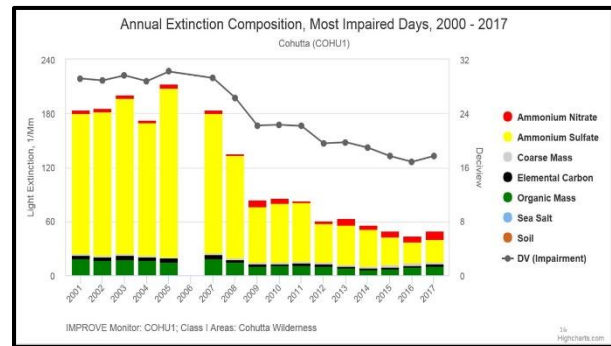
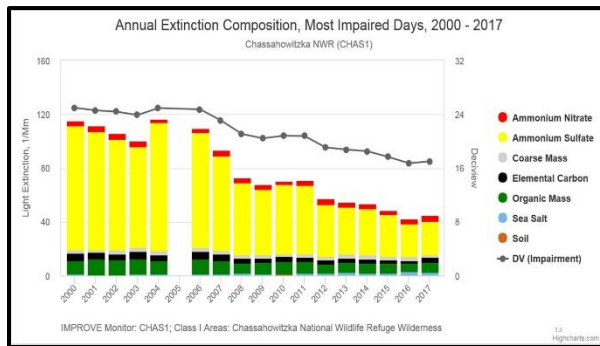
- Reduction of visibility impairment on the 20% "most impaired days" (anthropogenic impairment) in national park and wilderness (Class I) areas to natural conditions by 2064.
- No worsening of visibility on the 20% "clearest" days.
- Development of State Implementation Plans (SIPs) every 10 years to address emissions that contribute to regional haze.
- Round 2 SIP deadline extended to July 31, 2021

### VISTAS Project Management Team

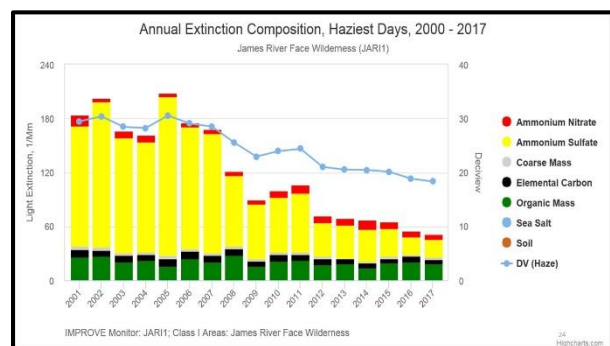
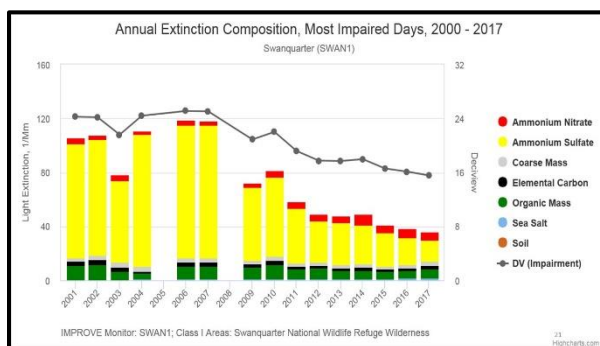
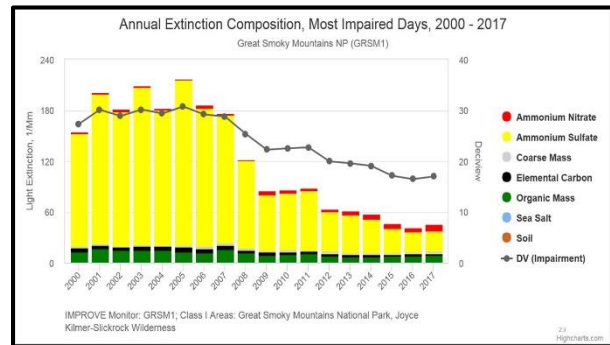
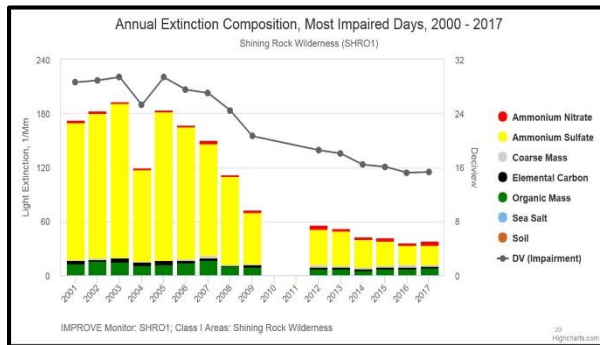
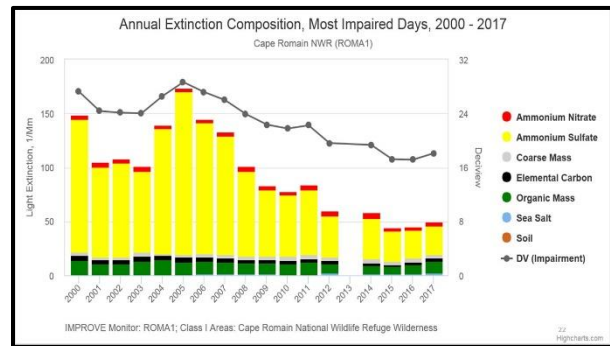
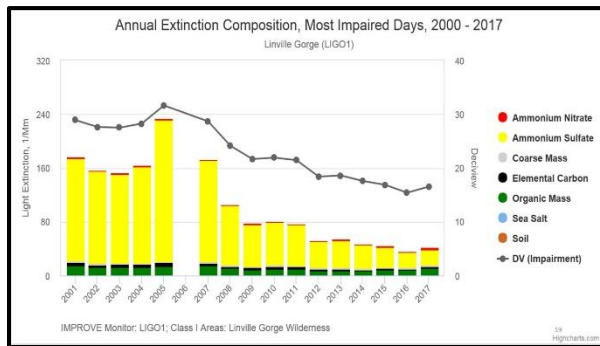


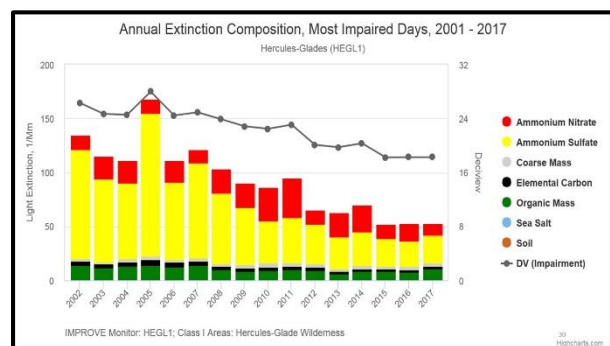
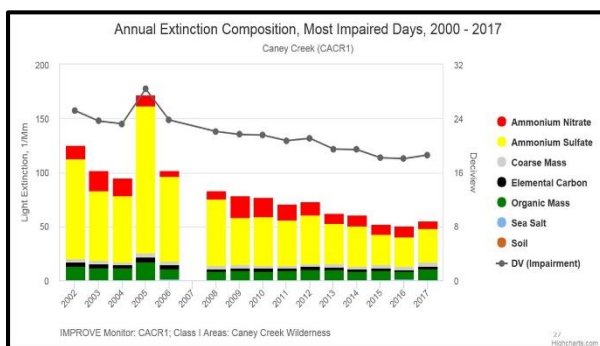
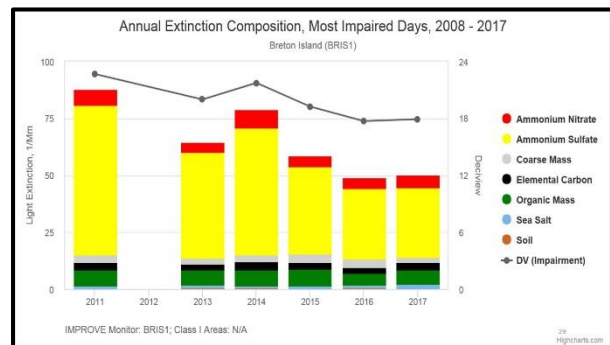
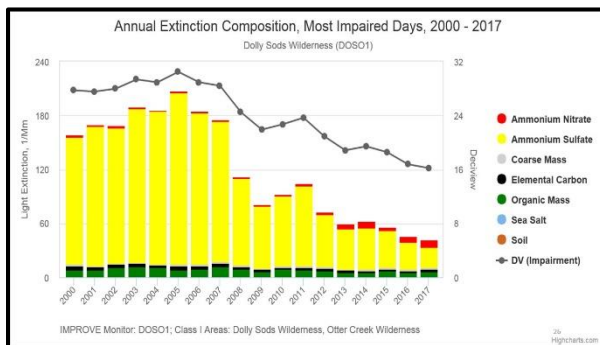
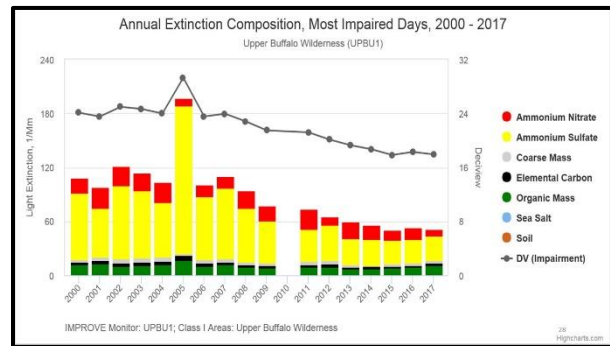
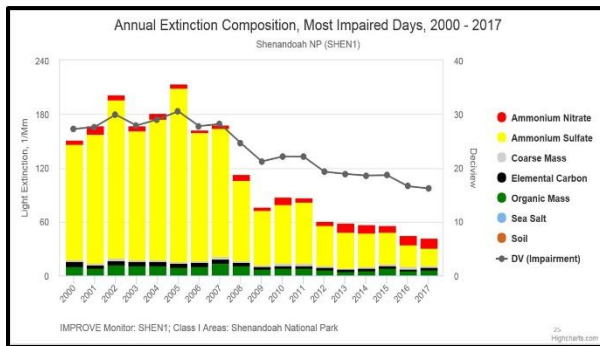


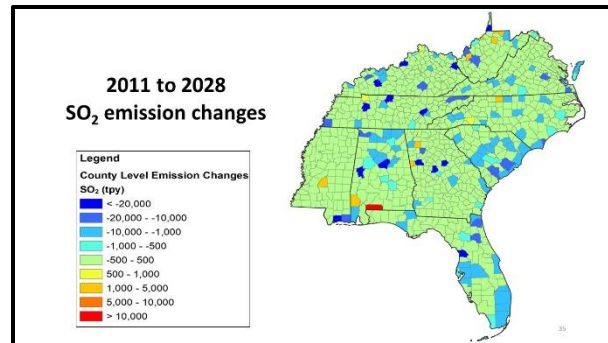
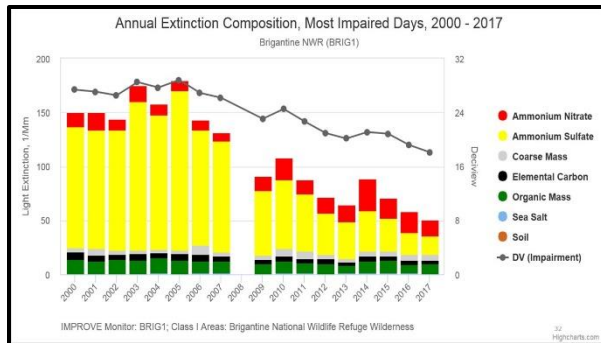
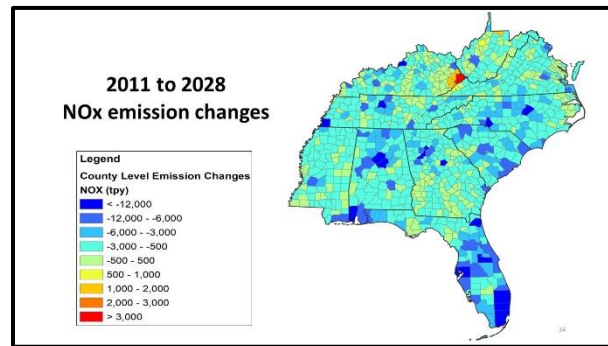
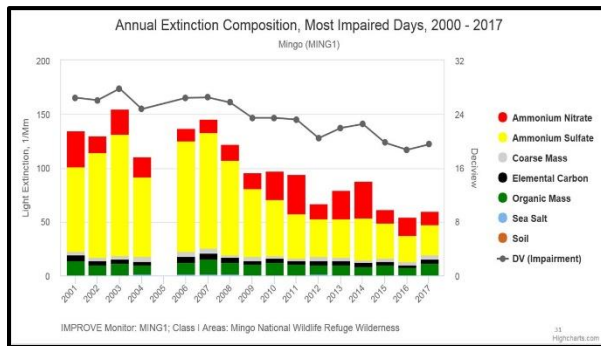












### Emissions Updates

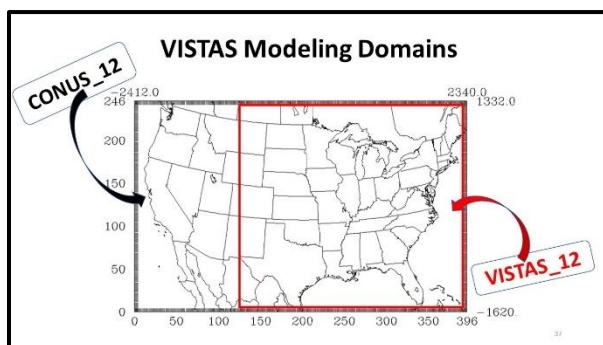
- Used EPA's 2011 base year emissions without change
- Updated EPA's 2028 projection year emissions
  - EGU and major non-EGU sources
  - Removed Clean Power Plan assumptions
  - Adjusted for changes in fuels and facility operating plans

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### VISTAS Air Quality Model

- Started with EPA's 2011/2028 modeling platform
  - Version 6.3el
  - CAMx v6.32
- Replaced CAMx v6.32 with CAMx v6.40
- Used 2011 meteorology
- Reasons for using EPA platform
  - Time limited
  - Budget limited
  - Most source sectors acceptably represented in EPA platform

35

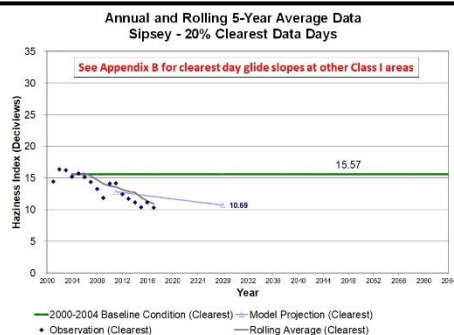


### VISTAS Future Year Model Projections

- Calculation of relative response factors (RRFs)
- Gives average percent change in pollutant or species concentrations due to emission changes between 2011 and 2028
- Produces design values for 2028

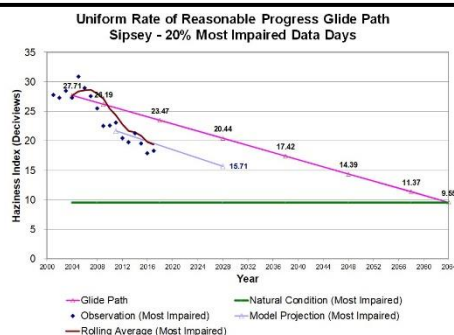
### Benchmark Comparisons

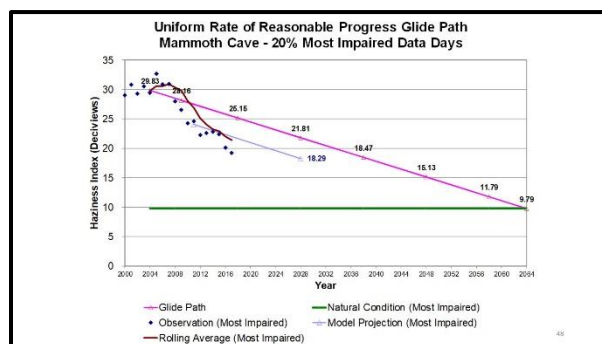
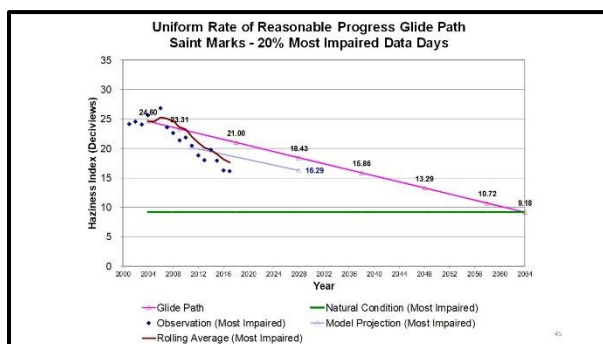
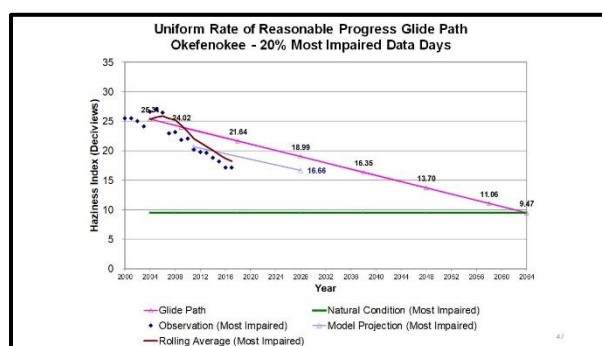
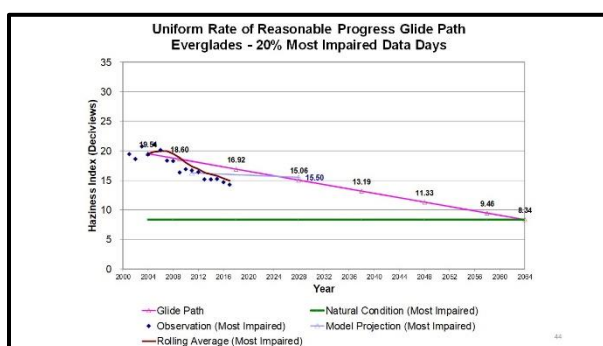
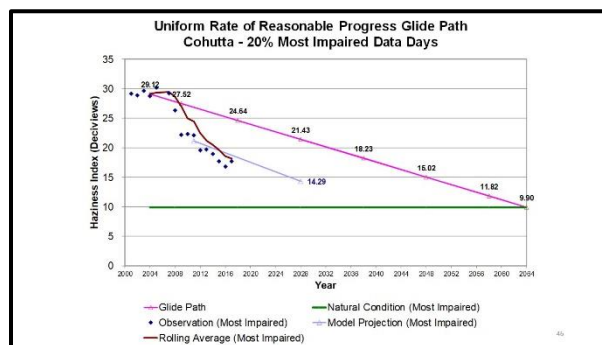
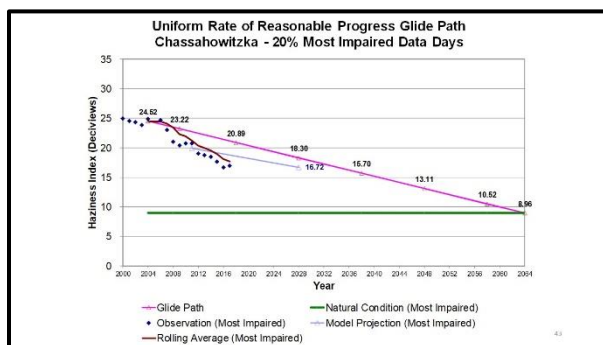
1. EPA 2011 with CAMx\_6.32 (CONUS) vs. Alpine 2011 with CAMx\_6.32 (CONUS)
2. Alpine 2011 with CAMx\_6.32 (CONUS) vs. Alpine 2011 with CAMx\_6.40 (CONUS)
3. Alpine 2011 with CAMx\_6.40 (CONUS) vs. **Alpine 2011 with CAMx\_6.40 (VISTAS)**
4. EPA 2028 with CAMx\_6.32 (CONUS) vs. Alpine 2028 with CAMx\_6.40 (CONUS)
5. Alpine 2028 with CAMx\_6.40 (CONUS) vs. **Alpine 2028 with CAMx\_6.40 (VISTAS)**

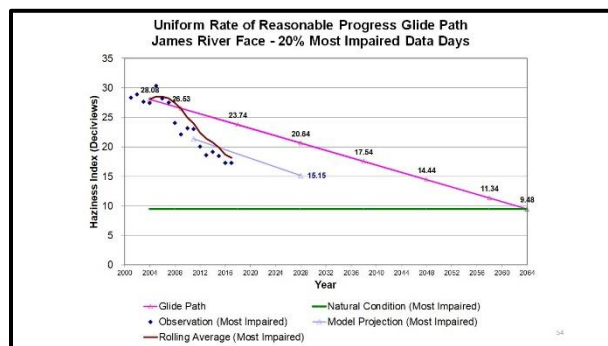
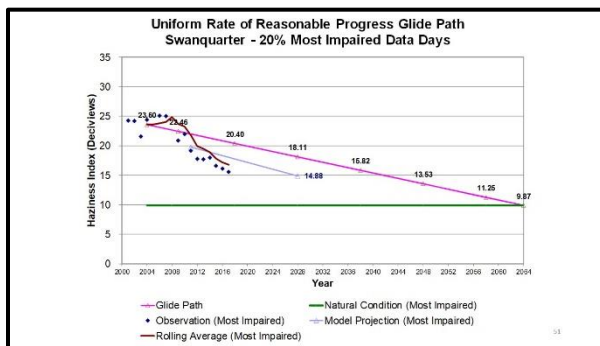
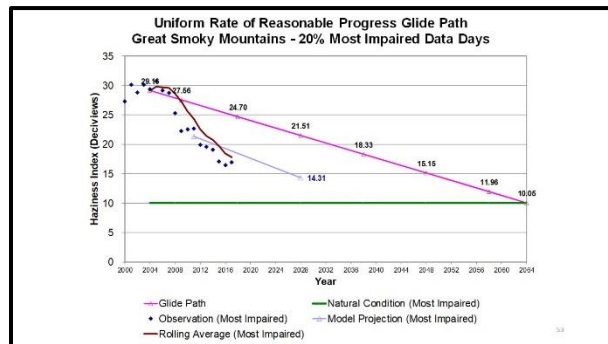
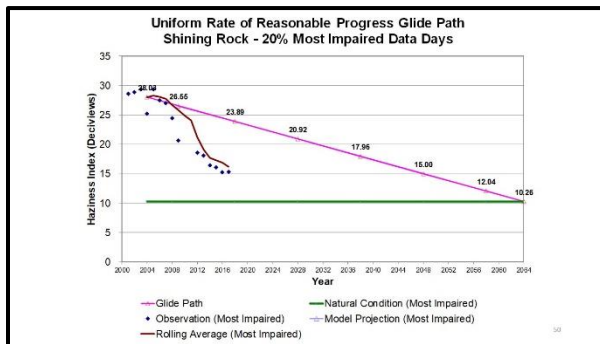
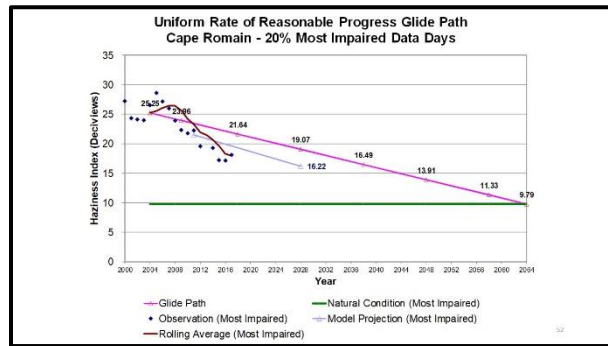
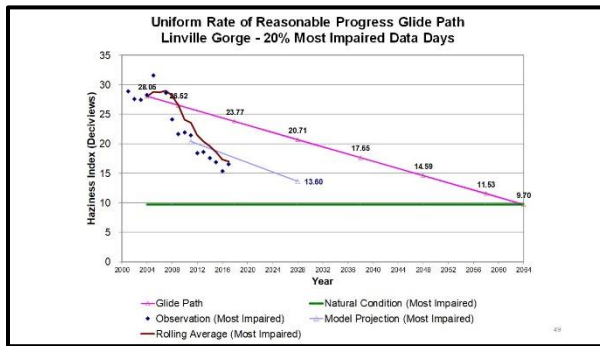


### Model Performance Evaluation

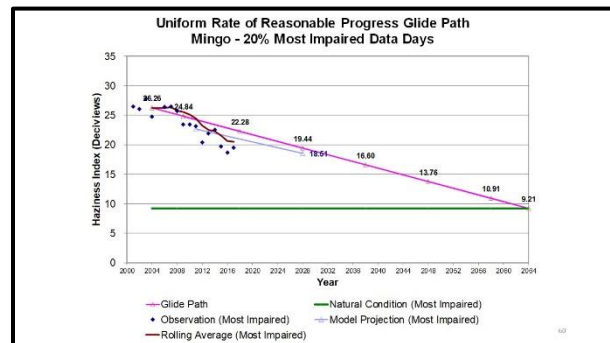
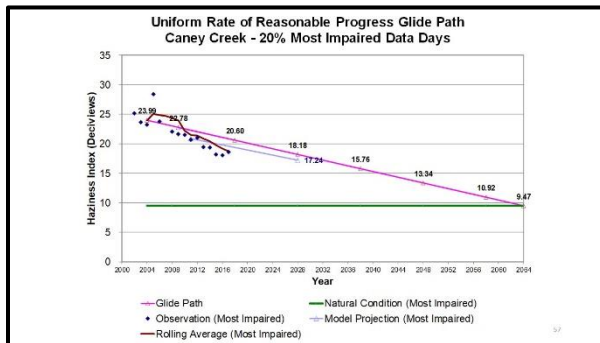
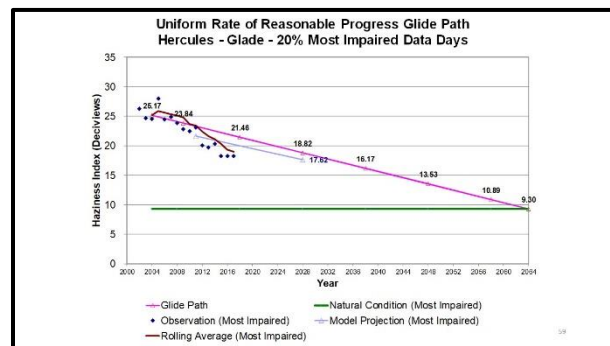
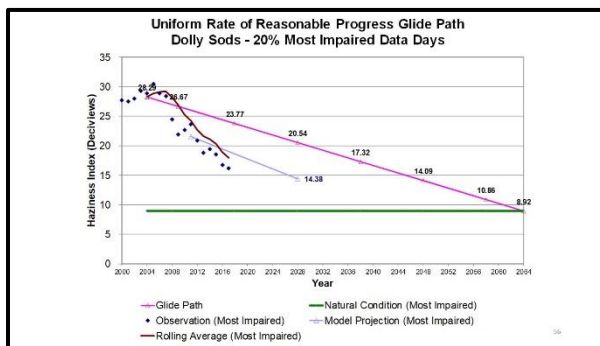
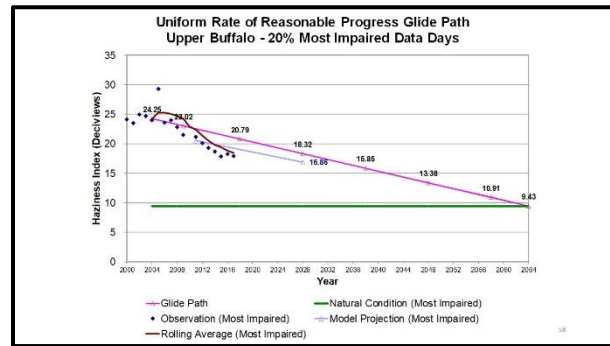
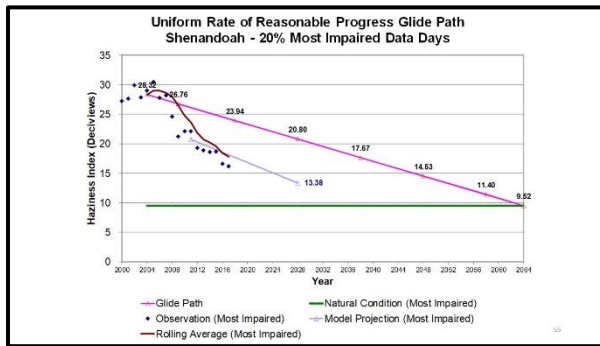
- Compared model results to observations. Looked at statistics, comparison plots, and spatial plots
  - Ozone
  - PM<sub>2.5</sub> and light extinction
  - Wet and dry deposition
- Overall, the model performance is generally within the range deemed acceptable for regulatory applications















## Draft AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO <sub>2</sub> _2028 (tons/year)	SO <sub>2</sub> Contribution	NOx Contribution
GA	Brunswick Cellulose Inc.	71.9	1,554.5	214.2	8.61%	2.87%
FL	ROCKTENN CP, LLC	74.9	2,316.8	2,606.7	8.34%	0.38%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	7.34%	0.23%
FL	ISA	105.1	951.8	2,094.5	4.24%	0.09%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,860.2	2.58%	0.05%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	117.6	117.4	3,197.8	2.24%	0.01%
SC	ALUMAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	1.79%	0.00%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	502.0	1.74%	0.37%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	1.72%	0.02%
OH	General James M. Gavin Power Plant (0627010056)	865.3	8,422.5	41,595.8	1.67%	0.02%
SC	NANTHE COOPERATION GENERATING STATION	751.0	3,225.5	4,081.2	1.55%	0.08%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	1.51%	0.00%
FL	ISA CHEMICAL INDUSTRIES, INC.	118.5	57.7	808.9	1.19%	0.00%
FL	DUKE ENERGY FLORIDA, INC. (DFP)	296.6	2,489.8	5,306.4	1.16%	0.04%
GA	Isa Power Company - Plant Bowen	458.1	6,643.3	10,453.4	1.05%	0.03%
GA	Savannah Sugar Refinery	89.9	521.6	582.0	1.03%	0.07%
SC	INTERNATIONAL PAPER EASTOVER	788.7	1,780.3	3,212.4	0.93%	0.09%
GA	Isa Power Company - Plant McManus	27.1	72.2	30.1	0.91%	0.14%
AL	Paracomb Operating Company LLC	519.2	148.3	18,974.4	0.88%	0.00%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,463.7	0.87%	0.09%

See Appendix C for draft AOI point contributions at other Class I areas

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## Round 1 Facility Tags

Facility State/Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO <sub>2</sub> Tag
AL	VISTAS	03103-1440211 Escambia Operating Company LLC		1
AL	VISTAS	01063-98511 Escambia Operating Company LLC		1
AL	VISTAS	01073-1018711 DRUMMOND COMPANY, INC.		1
AL	VISTAS	01097-1066111 Alta Power - Barry		1
AL	VISTAS	01097-1061611 Union Oil of California - Churchata Gas Plant		1
AL	VISTAS	01097-949811 Akzo Nobel Chemicals Inc.		1
AL	VISTAS	01103-1000011 Nucor Steel Decatur LLC		1
AL	VISTAS	01109-985711 Sandens Lead Co.		1
FL	VISTAS	12005-535411 ROCKTENN CP LLC		1
FL	VISTAS	12017-640611 DUKE ENERGY (FLORIDA, INC. (DCE)	1	1
FL	VISTAS	12011-640711 F&A		1
FL	VISTAS	12033-752711 SULF POWER - Crist		1
FL	VISTAS	12047-769711 WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.		1
FL	VISTAS	12057-538611 TAMPA ELECTRIC COMPANY (TEC)		1
FL	VISTAS	12057-716411 MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12089-753711 ROCKTENN CP, LLC	1	1
FL	VISTAS	12089-845811 RAYONIER PERFORMANCE FIBERS LLC		1
FL	VISTAS	12105-517711 MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12105-519811 MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12123-752411 BUCKEYE FLORIDA, LIMITED PARTNERSHIP		1

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## VISTAS Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## Round 1 Facility Tags

Facility State/Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO <sub>2</sub> Tag
GA	VISTAS	13015-2613011 Isa Power Company - Plant Bowen		1
GA	VISTAS	13015-3679811 International Paper - Savannah		1
GA	VISTAS	13177-3771011 Brunswick Cellulose Inc.		1
KY	VISTAS	21091-7352411 Century Aluminum of KY LLC		1
KY	VISTAS	21145-6037011 Tennessee Valley Authority (TVA) - Shawnee Fossil Plant		1
KY	VISTAS	21175-5196711 Tennessee Valley Authority - Paradise Fossil Plant		1
KY	VISTAS	21183-5561611 Big Rivers Electric Corp. - Wilson Station		1
NC	VISTAS	37013-8479311 PCS Phosphate Company, Inc. - Aurora		1
NC	VISTAS	37067-7020011 Blue Ridge Paper Products - Canton Mill		1
SC	VISTAS	45015-4839011 ALUMAX OF SOUTH CAROLINA		1
SC	VISTAS	45019-4978011 KAPSTONE CHARLESTON KRAFT LLC	1	1
SC	VISTAS	45043-5698811 INTERNATIONAL PAPER CO LARGE TOWN MILL		1
TN	VISTAS	47003-6196011 TVA BULL RUN FOSSIL PLANT	1	1
IN	VISTAS	47009-9159211 Mc Ghee Tyson	1	1
TN	VISTAS	47093-4979911 Conoco - Knoxville Plant	1	1
TN	VISTAS	47105-4129211 OAS & OIL, London	1	1
IN	VISTAS	47145-4979111 TVA KINGSION FOSSIL PLANT		1
TN	VISTAS	47161-4979111 TVA CUMBERLAND FOSSIL PLANT		1
IN	VISTAS	47163-3982311 EASTMAN CHEMICAL COMPANY		1

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## PSAT SO<sub>2</sub> and NOx Tags

### Round 1 (124 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 51 tags
- NOx tags for individual VISTAS facilities = 21 tags

### Round 2 (45 tags identified so far...)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 13 tags
- NOx tags for individual non-VISTAS facilities = 4 tags

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## Round 1 Facility Tags

Facility State/Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO <sub>2</sub> Tag
VA	VISTAS	51027-5019811 Rowell Cement Company		1
VA	VISTAS	51077-4034811 Rowell Cement Company LP		1
VA	VISTAS	51540-5748711 Meacham & Co Packaging Resource Group		1
WV	VISTAS	54023-6257011 Dominion Resources, Inc. - MOUNT STORM POWER STATION	1	1
WV	VISTAS	54033-6271711 ALLIANCE ENERGY SUPPLY CO. LLC HARRISON	1	1
WV	VISTAS	54041-6900311 EQUITRANS - CORLEY RUN CS 70		1
WV	VISTAS	54049-4864511 AMERICAN ALUMINUM POWER GRANT TOWN PLT	1	1
WV	VISTAS	54051-6900311 MITCHELL PLANT		1
WV	VISTAS	54061-1632011 LONGVIEW POWER		1
WV	VISTAS	54061-6773811 MONONGAHELA POWER CO. FORT MARTIN POWER	1	1
WV	VISTAS	54061-6773811 MONONGAHELA POWER CO. FORT MARTIN POWER		1
WV	VISTAS	54073-4782811 MONONGAHELA POWER CO. PEASANTS POWER STA	1	1
WV	VISTAS	54079-6789111 APPALACHIAN POWER COMPANY JOHN F. AMOS PLANT	1	1
WV	VISTAS	54083-6740511 ELADY BEESD		1
WV	VISTAS	54083-6790711 PILES CREEK CO-GEN	1	1
WV	VISTAS	54093-6327811 KINGSFORD MANUFACTURING COMPANY	1	1

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## Round 2 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
MD	CENRAP	29143-5363611	NEW MADRID POWER PLANT-MAHSLION	1	1
MD	MAINE-VU	24003-7763811	Luke Paper Company	1	1
PA	MAINE-VU	42005-3866111	GENON NE MGMT CO/WEYSTONE STA	1	1
PA	MAINE-VU	42003-3005711	HOMER CITY GEN IRY /CENTRA TWP	1	1
IL	Midwest RPO	17227-7808911	Joppat Steam	1	1
IN	Midwest RPO	18051-7363111	Gibson	1	1
IN	Midwest RPO	18125-7362411	INDIANAPOLIS POWER & LIGHT - PELUSHBURG	1	1
IN	Midwest RPO	18129-8166111	Spiceo AB Brown South Indiana Gas & Ele	1	1
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	1	1
OH	Midwest RPO	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	1	1
OH	Midwest RPO	39053-7983011	Ohio Valley Electric Corp., Rager Creek Station (0627000003)	1	1
OH	Midwest RPO	39053-8144511	General James M. Garfield Power Plant (0627010006)	1	1
OH	Midwest RPO	39081-8113211	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	1	1

## What We've Learned

- The major facility landscape continues to change
  - Shutdowns, fuel switches, additional emission controls
- Emissions continue to go down
- SO<sub>2</sub> emissions are still the major haze contributor, but NOx emissions are becoming more important
- Regional haze levels continue to be reduced
- Visibility improvement is well ahead of schedule

## 4-Factor Analysis

- States will evaluate certain sources and emissions to determine if reasonable controls are in place or available
- Considers four important factors
  - Potential costs of compliance
  - Time necessary for compliance
  - Energy and non-air quality environmental impacts of compliance
  - Remaining useful life of sources subject to this analysis

## VISTAS Consultation and Communications

- Sharing information with EPA OAQPS, Regions 3 and 4
- Sharing information and seeking input from Federal Land Managers (next call early June)
- Preparing for briefing to stakeholders (later this year)
- Considering a face-to-face VISTAS meeting – TBD
- Working with RPO colleagues towards a national regional haze meeting this fall
- VISTAS staff available to present information at meetings in your state upon request

## VISTAS Technical Work Status

Task	Status
Data collection/analysis	nearing completion
VISTAS 2011 modeling	done
Emission updates	done
Emission processing	done
2028 modeling	done
Benchmarking	nearing completion
Area of influence analysis	nearing completion
Source apportionment modeling	beginning in May
Future year model projections	draft results available

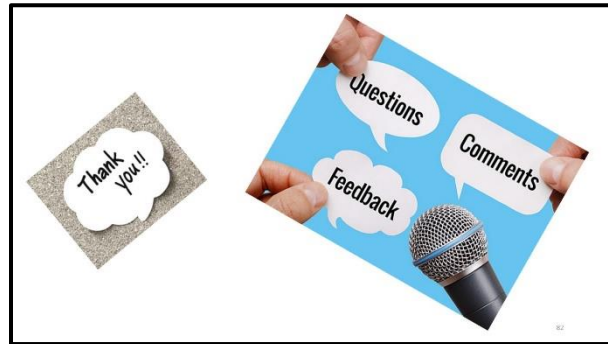
## VISTAS Remaining Work/Technical Schedule

Task	Schedule
Benchmarking	May-June 2019
Area of influence analysis	May 2019
Source apportionment (tagging)	August 2019
Data collection/analysis	May-June 2019
Future year projections (RRFs)	August 2019
Best and final run???	Necessity uncertain
Final reports and documentation	<b>December 2019</b>
Web site updates and postings	Ongoing task

### VISTAS State Responsibilities

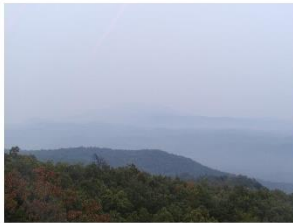
- Perform 4-factor analysis
- Consult and communicate with state stakeholders
- Consult with in-state FLM contacts if applicable
- Consult with surrounding states if applicable
- Complete state-specific analysis and documentation
- Follow state regulatory and SIP development processes
- Seek input and respond to public comment
- Submit regional haze SIPs to EPA by July 31, 2021
- Why all of this work?

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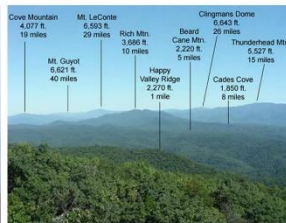


82

### Look Rock Hazy Day



### Look Rock Clear Day



83

## Appendix A

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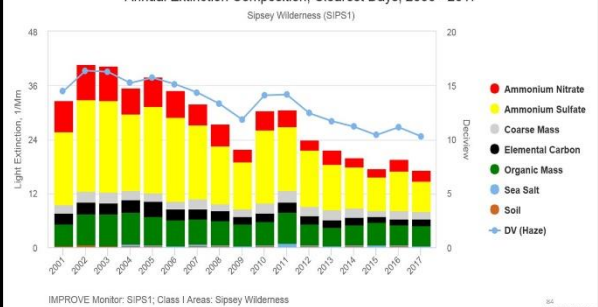
### Contact Information

- **James Boylan, PhD., Georgia DNR**
  - Email: [James.Boylan@dnr.ga.gov](mailto:James.Boylan@dnr.ga.gov)
  - Phone: 404-363-7014
- **Randy Strait, North Carolina DAQ**
  - Email: [randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov)
  - Phone: 919-707-8721
- **John Hornback, Metro 4/SESARM**
  - Email: [hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org)
  - Phone: 404-361-4000



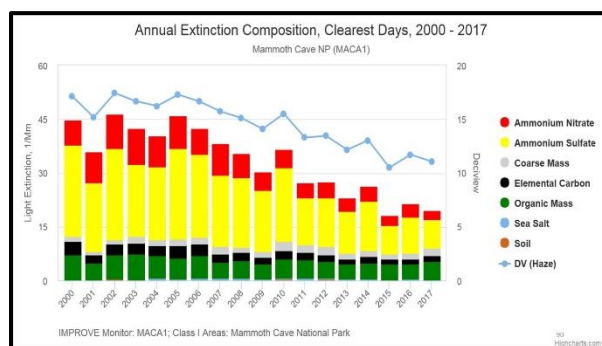
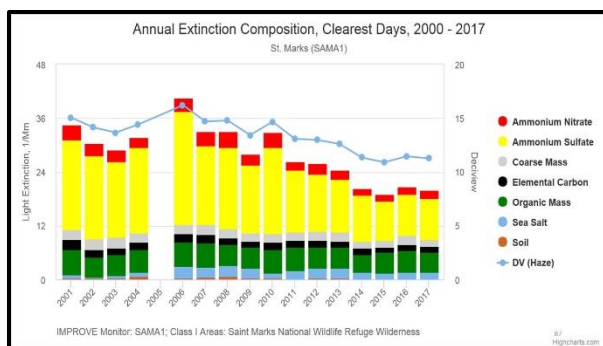
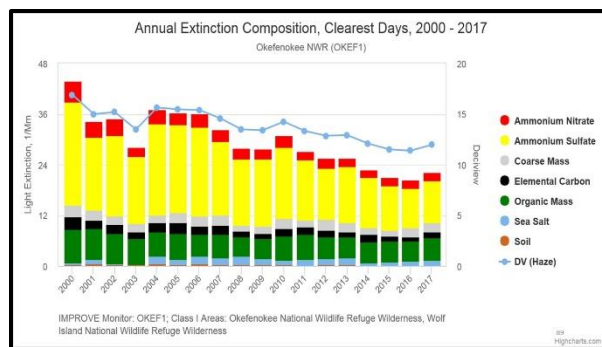
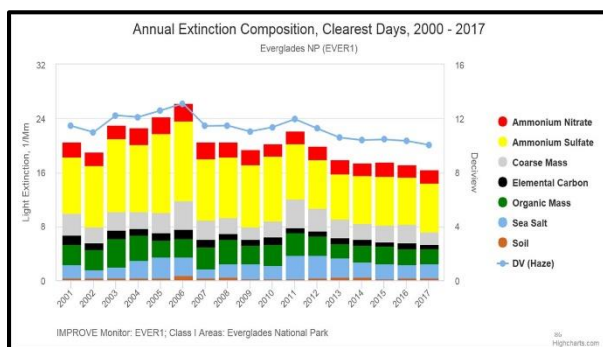
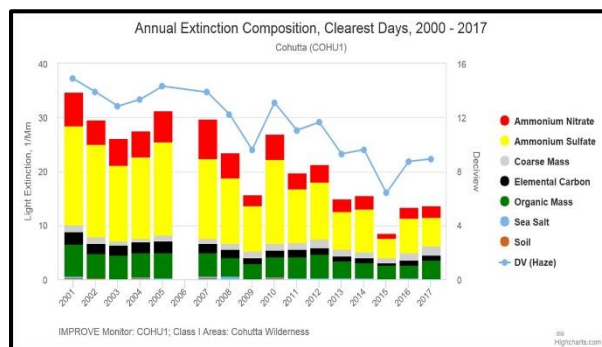
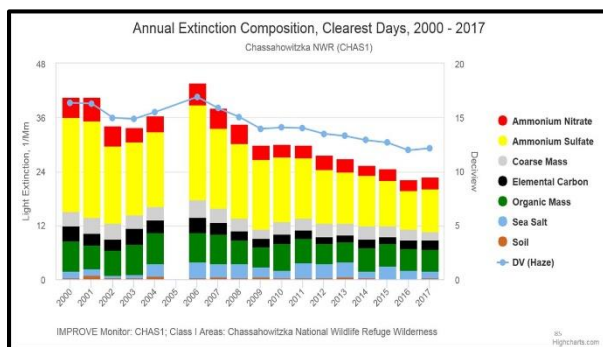
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### Annual Extinction Composition, Clearest Days, 2000 - 2017

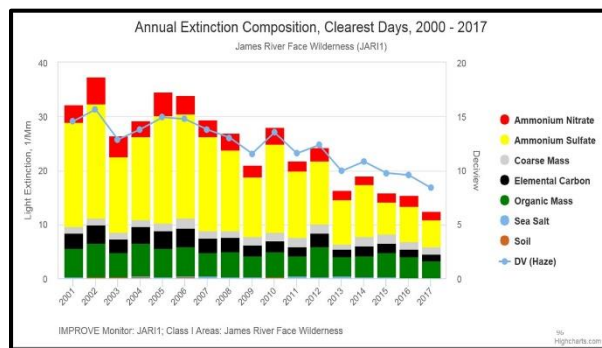
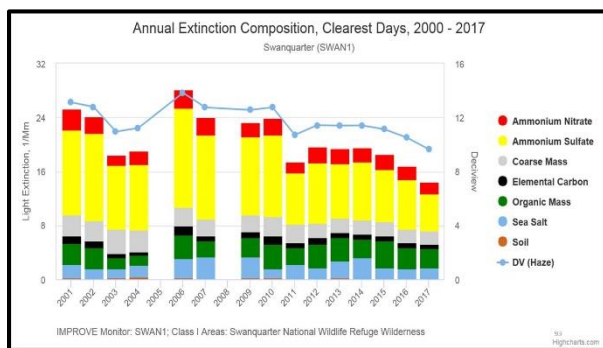
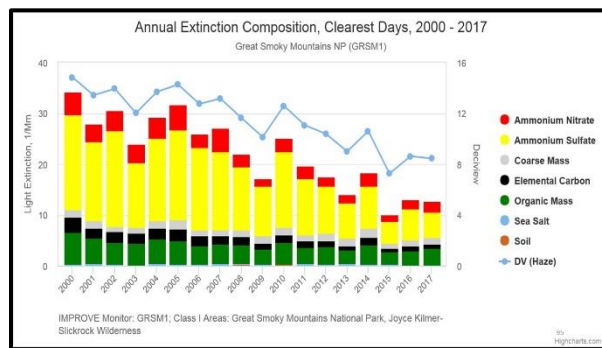
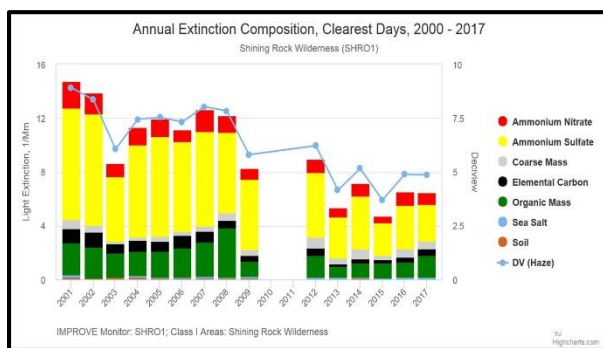
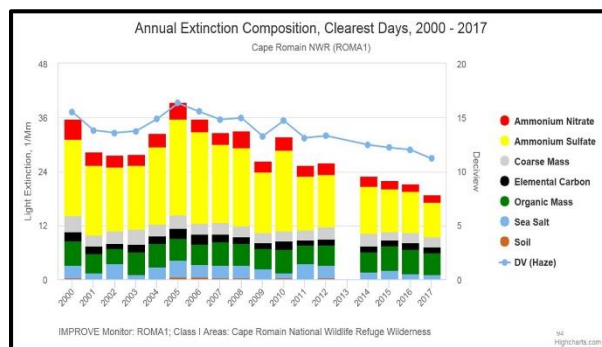
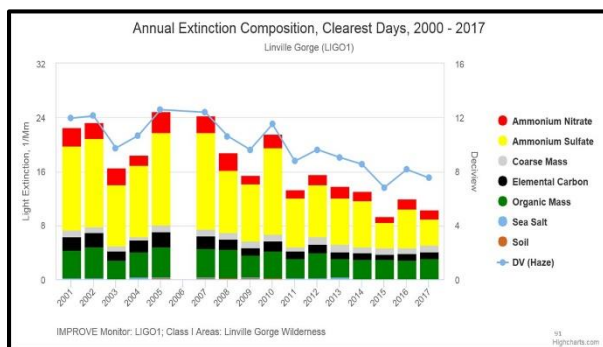


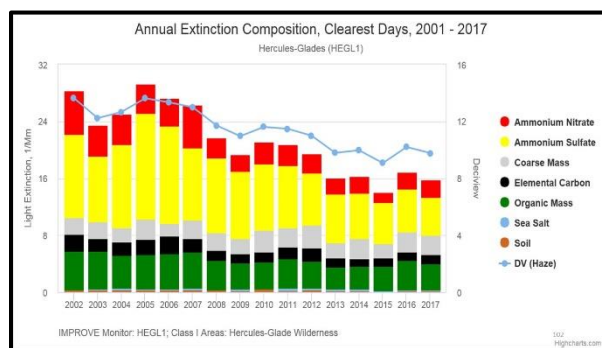
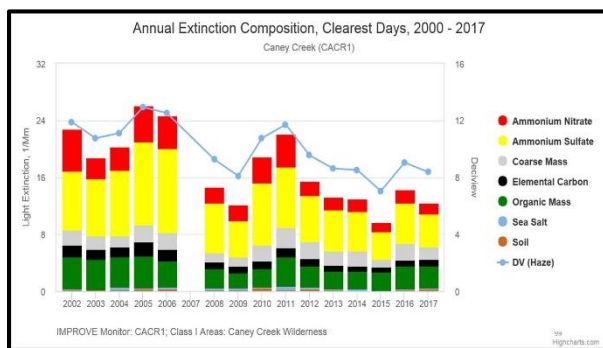
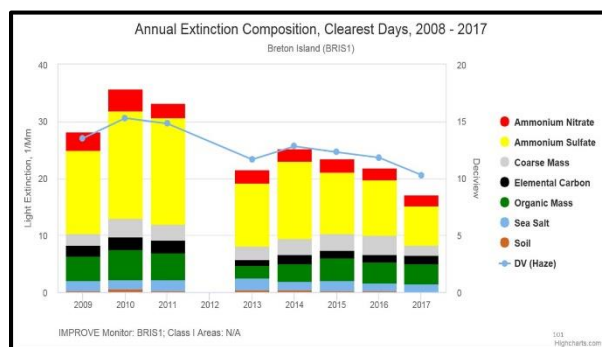
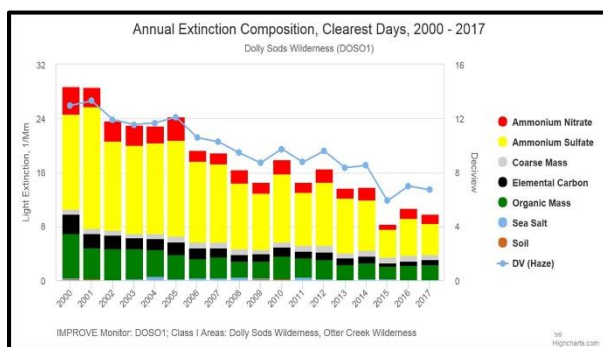
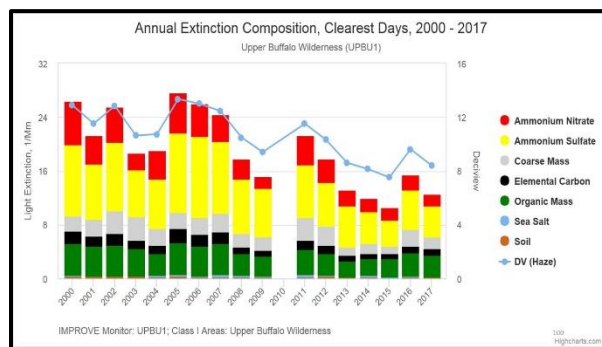
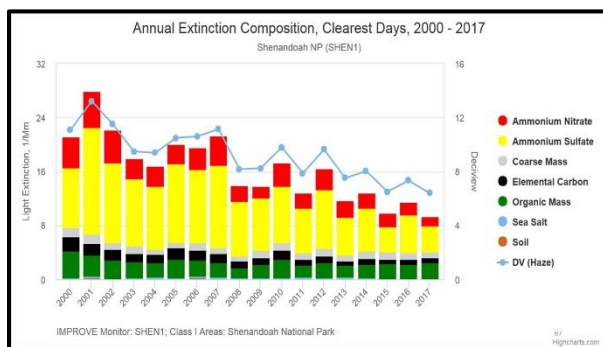
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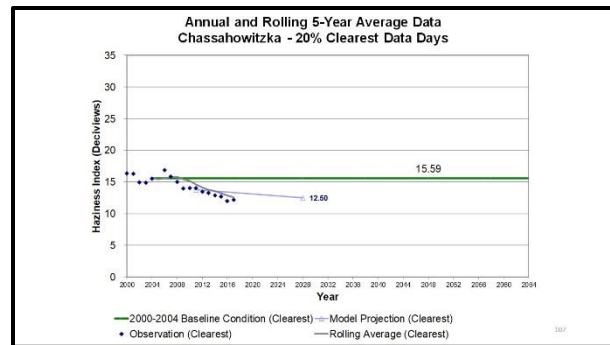
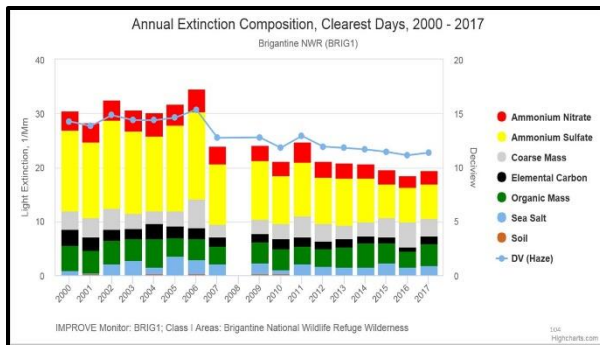
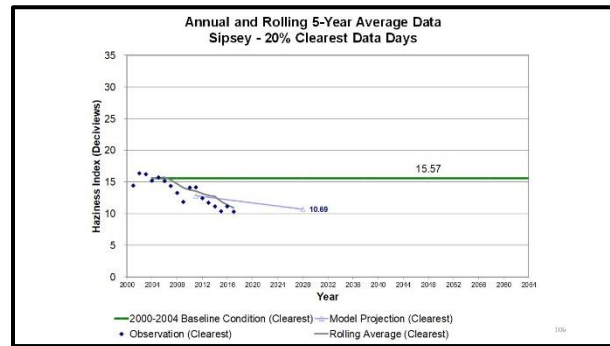
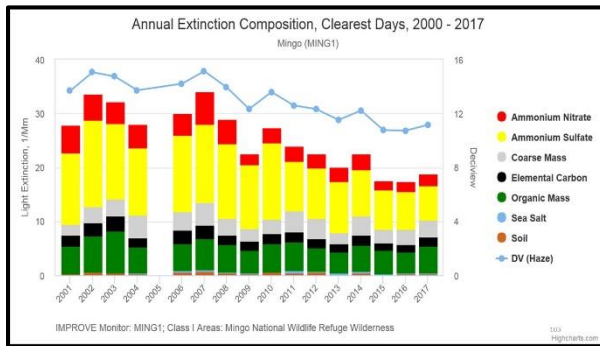
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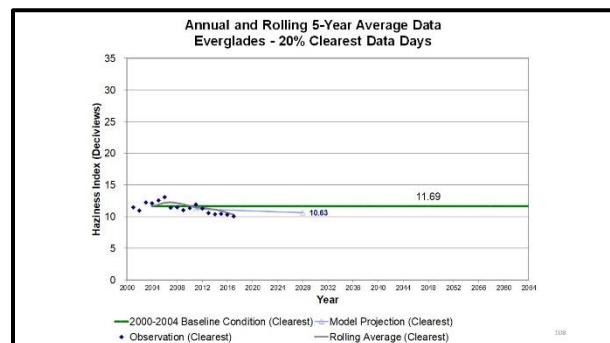


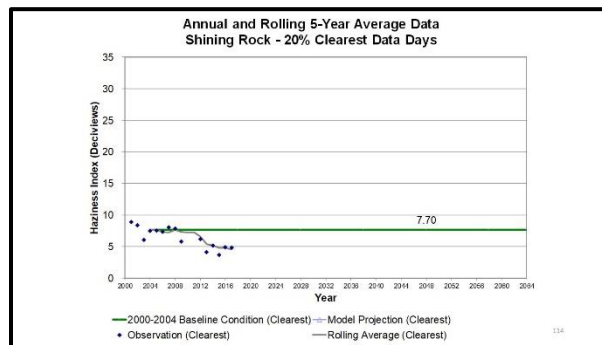
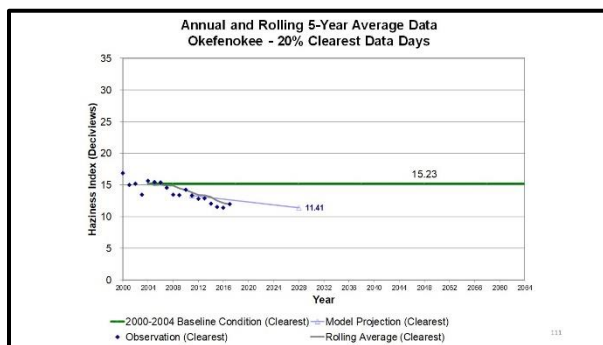
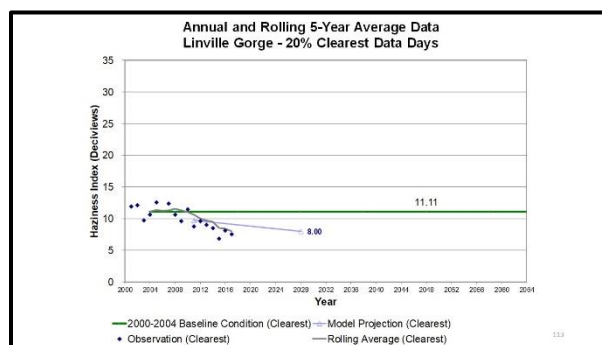
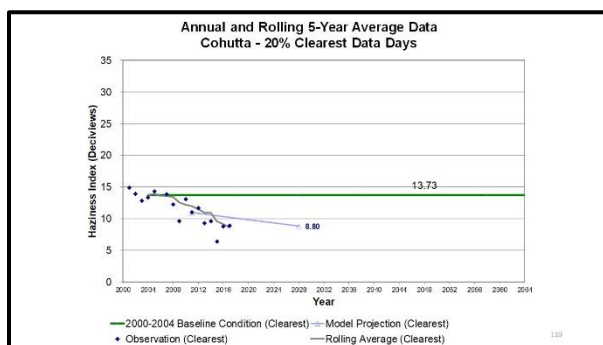
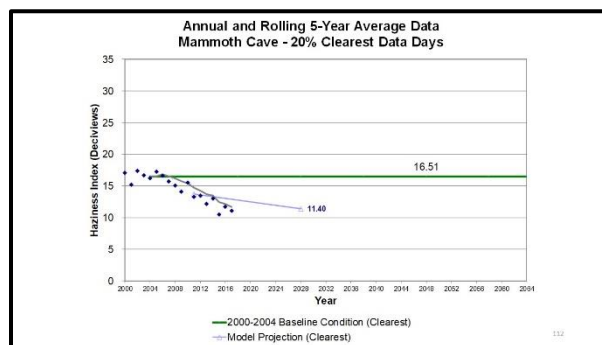
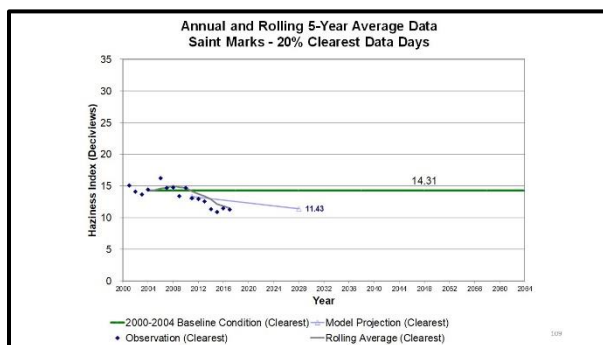




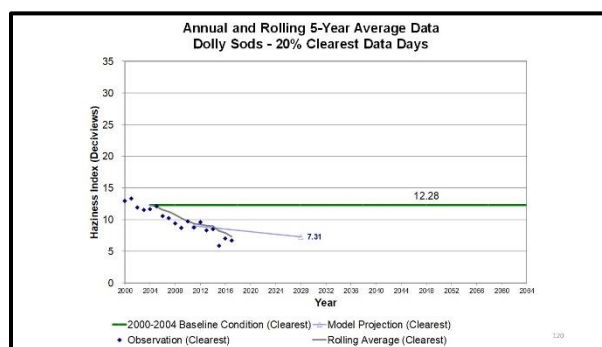
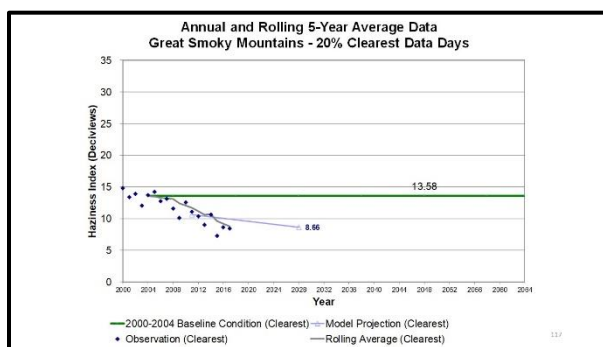
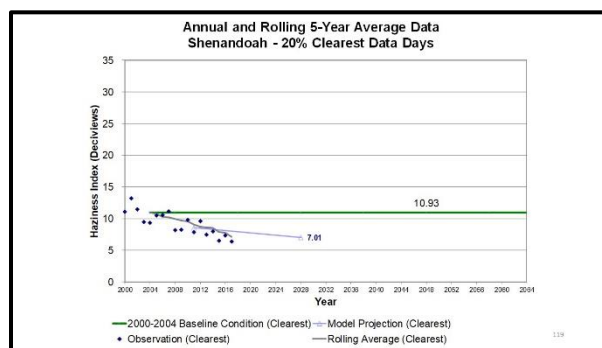
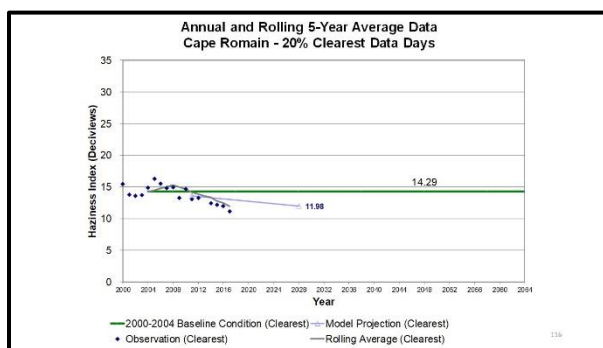
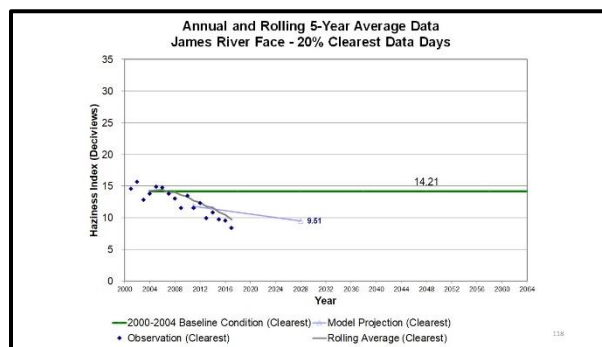
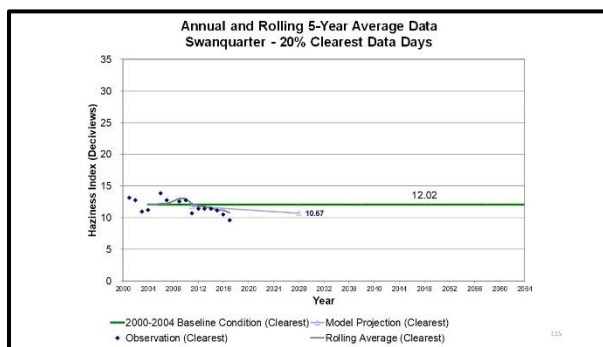


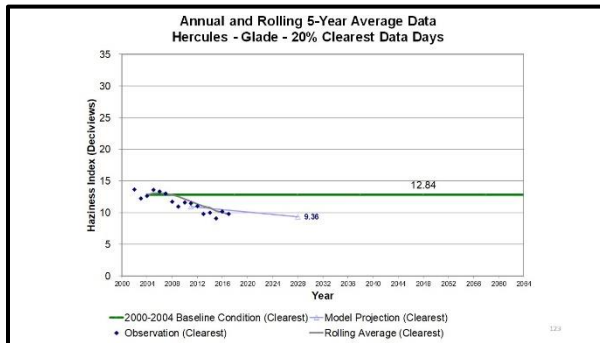
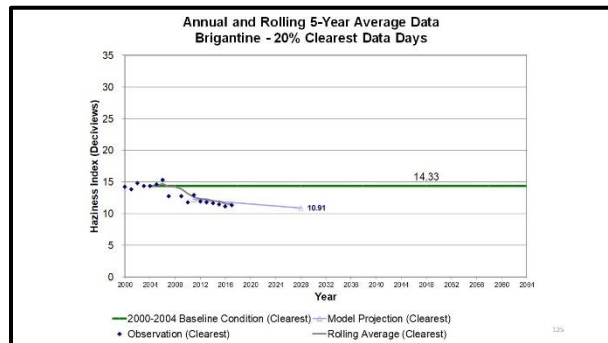
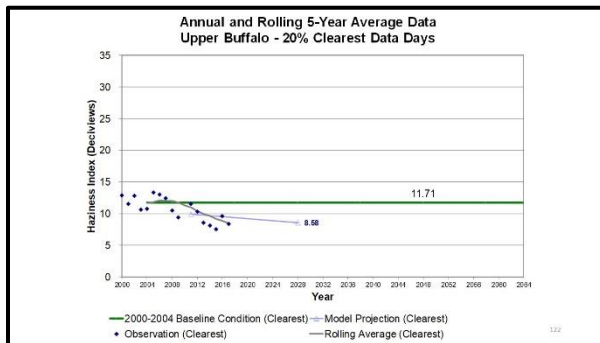
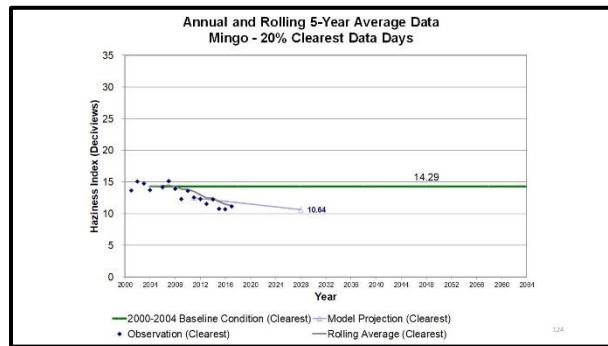
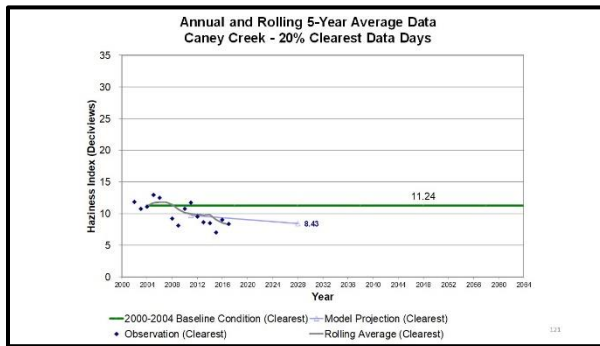
## Appendix B











Appendix C

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### Draft AOI Source Categories for SIPS

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	9.8%	5.8%	15.5%
NONROAD_MAR	0.1%	4.1%	4.2%
NONROAD_OTHER	0.2%	4.2%	4.4%
ONROAD	0.3%	8.6%	9.0%
POINT	44.4%	13.6%	58.0%
PT_FIRES_PRESCRIBED	6.2%	2.7%	8.9%
<b>TOTAL</b>	<b>61.0%</b>	<b>39.0%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for CHAS

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
FL	DUKE ENERGY FLORIDA, INC. (DEC)	17.4	2,489.8	5,350.4	60.69%	1.86%
FL	TAMPA ELECTRIC COMPANY (TEC)	106.8	2,665.0	6,084.9	4.51%	0.23%
FL	MOSENA FERTILIZER LLC	112.6	310.4	7,900.7	4.40%	0.02%
FL	CEMEX CONSTRUCTION MATERIALS FLORIDA, LLC	21.5	631.6	325.0	4.11%	1.00%
FL	MOSENA FERTILIZER, LLC	99.7	159.7	3,084.1	3.68%	0.02%
FL	E. D. MCINTOSH, JR. POWER PLANT	96.1	1,765.3	4,717.7	2.98%	0.17%
FL	MOSENA FERTILIZER, LLC	112.2	141.0	4,425.6	2.22%	0.01%
FL	ORLANDO UTILITIES COMMISSION	138.8	4,013.4	2,690.6	1.13%	0.18%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	141.2	917.8	3,713.4	0.72%	0.02%
FL	MOSENA FERTILIZER, LLC	123.0	29.5	1,123.5	0.54%	0.00%
AL	Inscambia Operating Company LLC	500.7	349.3	18,924.4	0.49%	0.00%
FL	CITY OF GAINESVILLE, GRI	113.1	410.0	881.4	0.47%	0.01%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	219.3	2,116.8	2,608.7	0.39%	0.01%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	189.0	112.4	3,197.8	0.38%	0.00%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	174.0	1,830.7	1,520.4	0.32%	0.02%
FL	JEA	209.9	651.8	2,094.5	0.30%	0.01%
FL	GEORGIA PACIFIC CONSUMER OPERATIONS LLC	133.7	1,187.6	735.6	0.24%	0.04%
FL	EPUS	27.1	280.2	19.1	0.22%	0.20%
FL	BUCKTOWN, LLC	355.3	1,404.9	2,980.9	0.22%	0.01%
FL	FLORIDA GAS TRANSMISSION COMPANY	33.6	7.1	4.0	0.18%	0.00%

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### Draft AOI Point Contributions for SIPS

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	8,806.8	30,536.3	5.58%	0.30%
MO	NEW MADRID POWER PLANT MARSTON	314.5	4,394.1	16,783.7	3.40%	0.26%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	7,007.3	19,504.7	3.23%	0.55%
TN	TVA CUMBERLAND FOSSIL PLANT	228.9	4,916.5	8,427.3	3.11%	0.46%
IN	Edison	448.7	12,280.3	25,117.2	2.28%	0.28%
KY	Blairstown Electric Corp. - Wilson Station	345.5	1,151.9	6,994.2	1.90%	0.07%
IL	Jopoka Steam	346.5	4,706.3	20,509.3	1.90%	0.24%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	10,665.3	18,141.9	1.68%	0.73%
AL	Pease Steel Division LLC	40.0	331.2	170.2	1.66%	0.79%
AL	DRUMMOND COMPANY, INC.	98.7	1,228.5	2,562.2	1.66%	0.16%
AL	Alabama Power - Etowah	78.5	5,176.4	1,410.8	1.47%	0.80%
AL	Walden Lake, Inc.	99.6	781.8	2,279.2	1.43%	0.10%
MO	NIROSTON POWER STATION MARSTON POWER STATION	349.1	1,826.0	12,252.1	1.26%	0.09%
MO	INDIANA ALUMINUM INC. NEW MADRID	314.5	39.1	5,876.5	1.19%	0.00%
IN	Seneca Mill Brown South Indiana Gas & Elec	396.7	1,578.6	7,664.7	1.17%	0.07%
AL	Ala power - MILLER	82.9	11,047.1	1,490.5	1.10%	3.03%
GA	Via Power Company - Plant Roswell	274.1	6,643.1	10,453.4	1.04%	0.14%
AL	St. Gaston	148.7	2,629.8	2,288.9	0.98%	0.17%
IL	Newton	516.6	1,834.9	10,631.6	0.97%	0.07%
IN	ALCOA - WARREN POWER PLANT AGC DIV OF AL	396.3	11,158.6	5,071.3	0.89%	0.61%

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### Draft AOI Source Categories for EVER

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	5.4%	6.4%	11.8%
NONROAD_MAR	12.9%	23.2%	36.1%
NONROAD_OTHER	0.4%	12.5%	12.9%
ONROAD	2.0%	17.2%	19.2%
POINT	10.2%	7.5%	17.7%
PT_FIRES_PRESCRIBED	1.8%	0.4%	2.3%
<b>TOTAL</b>	<b>32.8%</b>	<b>67.2%</b>	<b>100.0%</b>

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### Draft AOI Source Categories for CHAS

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	0.5%	0.5%	1.0%
NONROAD_MAR	0.1%	0.3%	0.4%
NONROAD_OTHER	0.1%	1.2%	1.3%
ONROAD	0.2%	1.8%	2.0%
POINT	88.6%	4.0%	92.6%
PT_FIRES_PRESCRIBED	2.3%	0.4%	2.7%
<b>TOTAL</b>	<b>91.8%</b>	<b>8.2%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for EVER

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
FL	Miami Infil	58.6	4,171.9	424.9	8.75%	13.77%
FL	MOSENA FERTILIZER, LLC	303.3	310.4	7,900.7	4.70%	0.02%
FL	MIAMI DADE WATER AND SEWER DEPARTMENT	38.1	29.5	61.1	3.73%	0.41%
FL	TAMPA ELECTRIC COMPANY (TEC)	116.6	2,665.0	6,084.9	2.85%	0.08%
FL	E. D. MCINTOSH, JR. POWER PLANT	122.8	1,765.3	4,717.7	2.88%	0.16%
FL	MOSENA FERTILIZER, LLC	104.7	141.0	4,425.6	2.66%	0.01%
FL	MIAMI DADE WATER AND SEWER DEPARTMENT	66.1	51.2	131.8	1.97%	0.11%
FL	Port Landfill/Industrials	97.1	1,922.6	207.7	1.81%	2.39%
FL	WASTE MANAGEMENT INC. OF FLORIDA	173.2	5.8	390.4	1.87%	0.00%
FL	FLORIDA POWER & LIGHT (FPL)	35.4	170.6	13.0	1.68%	2.35%
FL	MOSENA FERTILIZER, LLC	122.3	150.7	3,084.1	1.47%	0.01%
FL	ORLANDO UTILITIES COMMISSION	146.1	4,013.4	2,690.6	1.33%	0.24%
TX	Martin Lake	1,552.8	12,258.5	56,110.3	1.11%	0.01%
FL	MOSENA FERTILIZER, LLC	293.1	29.5	1,123.5	1.10%	0.00%
FL	WASTE MANAGEMENT INC. OF FLORIDA	112.0	64.5	375.3	0.92%	0.05%
FL	DUKE ENERGY (FLORIDA, INC.) (DE)	443.2	2,489.8	5,308.4	0.79%	0.02%
TX	WIA PARESH ELECTRIC OPERATING STATION	1,544.8	3,865.5	37,774.2	0.75%	0.00%
FL	CEMEX CONSTRUCTION MATERIALS FLORIDA, LLC	50.8	931.6	29.5	0.69%	2.74%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	490.3	917.8	3,713.4	0.68%	0.02%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,513.9	8,806.8	30,536.3	0.61%	0.04%

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### Draft AOI Source Categories for SAMA

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	2.5%	1.4%	3.9%
NONROAD_MAR	0.5%	1.4%	1.8%
NONROAD_OTHER	0.3%	2.1%	2.3%
ONROAD	0.5%	3.1%	3.5%
POINT	61.5%	4.3%	65.8%
PT_FIRES_PRESCRIBED	19.9%	2.7%	22.7%
<b>TOTAL</b>	<b>85.2%</b>	<b>14.8%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for COHU

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
GA	Co Power Company - Plant Bowen	18.0	6,643.3	10,451.4	18.77%	1.10%
IN	INDIANA MICHIGAN POWER DSA AEP - ROCKPORT	410.1	8,806.8	30,536.3	4.47%	0.13%
GA	TEMPLE INLAND	87.4	1,773.4	1,791.0	4.46%	0.17%
IN	Shively	487.1	12,280.3	23,117.2	2.20%	0.10%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	2.09%	0.15%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.7	7,007.3	19,504.7	2.08%	0.07%
TN	THE KINGSTON FOSSEL PLANT	124.0	1,687.4	1,886.1	2.08%	0.13%
GA	Co Power Company - Plant Hammond	88.5	864.9	777.5	1.90%	0.08%
OH	Genex at James M. Garvin Power Plant (0627010056)	512.0	8,122.5	41,559.8	1.64%	0.02%
TN	THE CUMBERLAND FOSSEL PLANT	327.0	4,918.5	8,427.9	1.32%	0.09%
KY	Big Rivers Electric Corp. - Wilson Station	360.0	1,151.0	6,954.2	1.02%	0.01%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	7,150.0	22,131.9	1.01%	0.06%
GA	Co Power Company - Plant Windley	156.8	2,057.5	4,806.0	1.01%	0.04%
KY	KY Utilities Co. - Owsen Station	441.5	7,539.9	10,109.3	1.00%	0.08%
IL	Jopka Steam	466.0	4,706.3	20,509.3	0.99%	0.02%
GA	Matheson Industries Inc.	32.0	66.5	77.1	0.97%	0.01%
TN	PACEMAN CHEMICAL COMPANY	769.8	6,900.3	6,470.2	0.95%	0.08%
MO	AMEREN MISSOURI-LABADIE PLANT	695.4	9,685.5	41,740.3	0.92%	0.01%
TN	TATL & TYLE, Loudon	109.0	883.3	477.8	0.89%	0.09%
IL	Neville	564.0	1,834.9	10,031.6	0.87%	0.01%

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### Draft AOI Point Contributions for SAMA

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
AL	Incumbia Operating Company LLC	317.6	145.3	18,974.4	17.07%	0.01%
FL	ROCKTECH CP LLC	140.8	1,404.9	2,590.9	7.26%	0.20%
FL	BUCKEYE FLORIDA LIMITED PARTNERSHIP	61.4	1,830.7	1,520.4	5.65%	0.43%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	189.3	2,489.8	5,106.1	4.63%	0.20%
IL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	157.7	112.4	3,197.8	4.29%	0.01%
AL	Incumbia Operating Company LLC	315.0	145.6	8,589.6	3.81%	0.00%
AL	Islanders Lead Co.	255.5	121.7	7,951.1	2.60%	0.00%
FL	MOXALIC FERTILIZER LLC	373.9	310.4	7,900.7	1.70%	0.01%
FL	TAMPA ELECTRIC COMPANY (TEC)	307.1	2,665.0	6,084.9	1.62%	0.06%
AL	Isa Power - Barry	383.1	2,181.9	6,025.6	1.42%	0.02%
FL	SOUTH POWER - Crist	799.5	2,998.4	2,615.7	1.27%	0.08%
AL	Union Oil of California - Chenshula Gas Plant	396.3	348.2	2,773.2	0.97%	0.01%
LA	Columbian Chemicals Co. - North Bend Plant	709.9	640.1	2,814.0	0.94%	0.00%
FL	IEA	253.7	651.8	2,094.5	0.91%	0.03%
MO	AMEREN MISSOURI-LABADIE PLANT	1,121.8	9,685.5	41,740.3	0.86%	0.00%
AL	Continental Carbon Company	270.8	2,260.0	2,368.3	0.85%	0.02%
FL	MOXALIC FERTILIZER, LLC	376.1	141.0	4,425.6	0.81%	0.00%
AL	Akzo Nobel Chemicals Inc.	383.2	20.7	3,355.7	0.77%	0.00%
AL	PowerSouth Energy Corp. - Norman	360.7	2,410.8	4,194.9	0.76%	0.03%
GA	Georgia-Pacific Corp Cedar Springs Operation	149.2	2,884.2	510.1	0.75%	0.24%

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### Draft AOI Source Categories for OKEF

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	1.8%	1.6%	3.4%
NONROAD_MAR	0.6%	5.6%	6.2%
NONROAD_OTHER	0.1%	1.6%	1.7%
ONROAD	0.5%	4.2%	4.6%
POINT	65.6%	5.5%	71.1%
PT_FIRES_PRESCRIBED	10.6%	2.4%	12.9%
<b>TOTAL</b>	<b>79.3%</b>	<b>20.7%</b>	<b>100.0%</b>

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### Draft AOI Source Categories for COHU

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	4.9%	3.1%	8.1%
NONROAD_MAR	0.1%	3.3%	3.4%
NONROAD_OTHER	0.2%	2.4%	2.6%
ONROAD	0.6%	6.4%	7.0%
POINT	68.0%	8.0%	75.9%
PT_FIRES_PRESCRIBED	2.5%	0.5%	3.1%
<b>TOTAL</b>	<b>76.3%</b>	<b>23.7%</b>	<b>100.0%</b>

135

### Draft AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	112.4	112.4	3,197.8	16.11%	0.03%
FL	ROCKTECH CP LLC	64.8	2,316.8	2,605.7	12.12%	0.83%
FL	IEA	65.6	651.8	2,094.5	6.23%	0.17%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	121.6	917.8	3,723.4	3.68%	0.06%
FL	311 CHEMICAL HOLDINGS, INC.	56.8	87.7	898.9	3.67%	0.01%
FL	PLANTING FERTILIZERS FERTILIS LLC	61.4	2,127.1	1,607.0	2.67%	0.86%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	2.60%	0.07%
FL	BUCKEYE FLORIDA LIMITED PARTNERSHIP	153.5	1,830.7	1,520.4	2.06%	0.13%
FL	PROCESSENZ LLC	59.8	66.3	569.5	1.85%	0.02%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	205.0	2,489.8	5,106.1	1.33%	0.05%
AL	Incumbia Operating Company LLC	501.9	349.3	18,974.4	1.20%	0.00%
AL	Islanders Lead Co.	384.6	121.7	7,951.1	1.05%	0.00%
AL	Incumbia Operating Company LLC	491.9	144.6	8,589.6	1.03%	0.00%
GA	Georgia Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,860.2	0.99%	0.01%
GA	Isa Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.97%	0.05%
GA	Brunswick Cellulose Inc.	75.3	8,554.5	294.2	0.96%	0.12%
SC	ALUMAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.92%	0.00%
GA	JPCA Valdosta Mill	112.7	1,032.6	485.7	0.80%	0.08%
SC	NANTICOCOPIE CROSS GENERATING STATION	348.1	3,273.5	4,781.2	0.80%	0.07%
FL	CITY OF GAINESVILLE GRU	111.7	410.0	881.4	0.74%	0.03%

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### Draft AOI Source Categories for WOLF

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	2.6%	1.5%	4.1%
NONROAD_MAR	1.4%	2.7%	4.1%
NONROAD_OTHER	0.3%	3.0%	3.3%
ONROAD	0.7%	5.2%	5.9%
POINT	70.4%	6.8%	77.1%
PT_FIRES_PRESCRIBED	4.7%	0.8%	5.5%
<b>TOTAL</b>	<b>79.9%</b>	<b>20.1%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for MACA

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	8,806.8	30,556.3	16.11%	2.49%
KY	Big Rivers Electric Corp. - Wilson Station	89.9	1,151.9	6,934.2	6.42%	0.35%
IN	Edison	188.2	12,780.3	23,117.2	4.97%	1.15%
KY	Tennessee Valley Authority - Paradise Fossil Plant	75.1	2,827.4	2,990.2	3.54%	1.15%
KY	Century Aluminum of KY LLC	106.0	197.7	5,044.2	5.45%	0.04%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	187.9	10,665.3	16,141.9	2.95%	0.91%
IN	Snow Hill Brown South Indiana Gas & Elec	162.9	1,578.6	7,644.7	2.60%	0.26%
IL	AI COA - WARRICK POWER PLANT AGC DIV OF AI	136.1	11,158.0	5,071.3	1.91%	1.66%
IL	Joplin Steam	241.0	4,706.3	20,509.3	1.72%	0.16%
KY	Century Aluminum Sebree LLC	133.2	79.5	4,191.4	1.48%	0.01%
IN	Indianapolis Valley Authority (IVA) - Shawnee Fossil Plant	233.6	7,007.3	19,504.7	1.32%	0.14%
TN	TVA (UMHILL) AND FOSSE PLANT	157.6	4,916.5	8,427.3	1.51%	0.34%
IN	AI COA INC. - WARRICK OPERATIONS	130.9	182.8	5,891.4	1.47%	0.00%
IN	SABIC INNOVATIVE PLASTICS MT. VERNON LLC	179.3	1,751.8	4,703.4	1.38%	0.17%
OH	General James M. Gavin Power Plant (0627010056)	406.5	8,122.5	41,595.8	1.38%	0.04%
KY	Louisville Gas & Electric Co. - Mill Creek Station	104.6	4,360.3	6,135.3	1.29%	0.47%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.3	7,150.0	22,133.9	1.16%	0.13%
KY	KY Utilities Co. - Ghent Station	204.5	7,939.9	10,169.3	0.91%	0.22%
IN	INDIAN CEMENT CORP.	146.5	2,365.0	4,681.7	0.96%	0.17%
MO	SIKESTON POWER STATION-SIKESTON POWER STATION	310.4	1,826.0	12,252.1	0.84%	0.03%

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### Draft AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
GA	Braslow & Cellulose, Inc.	27.9	1,554.5	294.2	8.61%	2.87%
FL	ROCKTENN CP, LLC	74.9	2,316.8	2,606.7	8.34%	0.38%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	7.34%	0.23%
FL	ISA	105.1	651.8	2,091.5	6.33%	0.09%
GA	Georgia Pacific Consumer Products LP (Savannah River Mill)	109.9	551.5	1,860.2	2.58%	0.05%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.6	112.4	3,197.8	2.34%	0.01%
SC	SALUDA OF SOUTH CAROLINA	223.0	108.1	3,751.7	1.79%	0.00%
FL	BAKEMER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	1.74%	0.37%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	1.72%	0.02%
OH	General James M. Gavin Power Plant (0627010056)	405.3	8,122.5	41,595.8	1.67%	0.02%
NC	NANTHE COAL-FIRE CROSS GENERATING STATION	251.0	3,273.5	4,281.2	1.55%	0.08%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	1.51%	0.00%
FL	IVA CHEMICAL HOLDINGS, INC.	118.5	57.7	898.9	1.19%	0.00%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.0	2,489.8	5,306.4	1.16%	0.04%
GA	Isa Power Company - Plant Bowen	458.1	6,643.3	10,453.4	1.05%	0.03%
GA	Savannah Sugar Refinery	89.9	521.8	582.0	1.03%	0.01%
NC	INTERNATIONAL PAPER FASTOVER	288.7	1,780.3	3,212.9	0.97%	0.05%
GA	Isa Power Company - Plant McManus	27.1	72.2	30.1	0.91%	0.14%
AL	Pascagoula Pulp Milling Company LLC	508.2	348.3	18,974.4	0.88%	0.00%
SC	RAFFINERIE CHARLESTON-KRAFT LLC	213.6	2,355.8	1,863.7	0.87%	0.09%

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### Draft AOI Source Categories for LIGO

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	9.9%	1.7%	11.6%
NONROAD_MAR	0.1%	0.6%	0.7%
NONROAD_OTHER	0.1%	0.8%	0.9%
ONROAD	0.5%	1.9%	2.4%
POINT	80.0%	3.0%	83.1%
PT_FIRES_PRESCRIBED	1.2%	0.1%	1.3%
<b>TOTAL</b>	<b>91.9%</b>	<b>8.1%</b>	<b>100.0%</b>

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### Draft AOI Source Categories for MACA

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	1.0%	6.4%	7.4%
NONROAD_MAR	0.1%	3.4%	3.5%
NONROAD_OTHER	0.1%	3.3%	3.4%
ONROAD	0.2%	8.1%	8.3%
POINT	62.0%	14.1%	76.1%
PT_FIRES_PRESCRIBED	0.8%	0.5%	1.3%
<b>TOTAL</b>	<b>64.1%</b>	<b>35.9%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for LIGO

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
TN	FASTMAN CHEMICAL COMPANY	81.9	6,900.3	6,420.2	18.98%	0.67%
NC	Duke Energy Carolinas, LLC - Marshall Steam Station	57.2	7,511.3	4,139.2	6.25%	0.40%
OH	General James M. Gavin Power Plant (0627010056)	328.2	8,122.5	42,195.8	5.83%	0.04%
VA	Jewell Coke Company LLP	140.4	520.2	5,090.9	5.28%	0.01%
NC	ASL Carbon LLC	52.3	21.2	261.6	4.00%	0.01%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	7,150.0	22,133.9	2.79%	0.01%
NC	Duke Energy Carolinas, LLC - Cliffside Steam Station	85.3	1,947.7	1,082.3	2.35%	0.11%
WV	MONONGAHEIE POWER CO. PJ ASAMTS POWER STA	381.0	5,497.4	16,817.4	2.01%	0.01%
NC	Duke Energy Carolinas, LLC - Belvoir Creek Steam Station	172.2	5,264.3	4,946.1	1.91%	0.08%
WV	APPALACHIAN POWER COMPANY - JOHN LAMOS PLANT	277.7	4,878.1	10,984.2	1.76%	0.02%
IN	AIK INDIANAPOLIS - GREEN AND PLANT	94.7	2,068.3	441.6	1.72%	0.21%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	203.5	8,806.8	30,556.3	1.16%	0.01%
PA	SPRINGHOUSE MUMI CO/KEYSTONE STA	567.5	6,578.5	56,939.2	0.93%	0.00%
NC	Broughton Hospital	35.6	35.8	65.8	0.92%	0.01%
NC	Duke Energy Progress, LLC - Roxboro Steam Electric Plant	263.4	4,527.9	6,665.5	0.91%	0.03%
WV	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	404.3	11,830.0	10,082.9	0.76%	0.03%
SC	BP SCHELTZ FERTILIS, INC.	156.8	1,800.7	2,521.8	0.76%	0.02%
NC	Blue Ridge Paper Products - Canton Mill	39.4	2,293.4	1,127.1	0.76%	0.00%
OH	Ascon Lake Power Plant (D242030013)	614.2	3,690.7	21,188.9	0.75%	0.00%
KY	KY Utilities Co - Ghent Station	412.9	7,939.9	10,169.3	0.71%	0.02%

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### Draft AOI Source Categories for SHRO

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	12.2%	4.2%	16.4%
NONROAD_MAR	0.1%	1.1%	1.2%
NONROAD_OTHER	0.2%	2.7%	2.8%
ONROAD	0.7%	5.9%	6.6%
POINT	61.8%	9.7%	71.5%
PT_FIRES_PRESCRIBED	1.4%	0.2%	1.6%
<b>TOTAL</b>	<b>76.2%</b>	<b>23.8%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for SWAN

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
NC	PCS Phosphate Company (Inc. - Aurora)	52.5	495.6	4,847.9	37.59%	0.57%
PA	GENON NE MGMT CO/KEYSTONE STA	640.2	6,578.5	56,939.2	2.98%	0.08%
NC	Dominar Paper Company LLC	69.0	3,796.5	687.4	2.25%	1.01%
NC	Duke Energy Progress, LLC - Roanoke Steam Electric Plant	282.6	4,527.9	6,665.5	2.03%	0.18%
OH	General James M. Gavin Power Plant (0627010036)	651.5	8,122.5	41,595.8	1.76%	0.08%
MD	Roanoke Power East Smallwood LLC	414.7	4,387.8	10,947.9	1.75%	0.16%
NC	Marine Corps Air Station - Cherry Point	88.4	201.1	607.8	1.30%	0.05%
MD	Duke Paper Company	512.5	3,607.0	22,609.8	0.99%	0.07%
WV	MONONGAHELA POWER CO - PLEASANTS POWER STA	625.7	5,497.4	16,817.4	0.83%	0.07%
MI	St. Clair / Belle River POWER PLANT	977.6	8,488.2	25,225.9	0.83%	0.04%
NC	Weyerhaeuser NE Company - Vanceboro Pulp	86.8	771.8	286.7	0.74%	0.24%
MD	GenOn Energy, Inc. - Mtairdowen	378.9	896.4	3,737.0	0.73%	0.07%
WV	ALLIANT POWER SUPPLY CO., LLC - HARRISBURG	548.8	11,850.9	10,980.9	0.66%	0.08%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	806.7	7,150.0	22,133.9	0.65%	0.05%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	692.0	4,878.1	10,984.2	0.62%	0.04%
SC	SANTEE COOPER CROSS GENERATING STATION	426.9	3,273.5	4,281.2	0.55%	0.07%
PA	JOHNSON CITY GEN. CO CENTER TWP	670.1	5,216.0	11,865.7	0.54%	0.05%
NY	NY UTILITIES Co. - Ghent Station	885.4	7,939.9	10,169.3	0.52%	0.07%
MO	JAMESON MISSOURI LABADIE PLANT	1,345.4	5,685.5	41,740.3	0.51%	0.07%
OH	Department of Public Utilities, City of Cleveland, Ohio (0085000188)	771.5	1,560.9	13,038.0	0.46%	0.01%

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### Draft AOI Point Contributions for SHRO

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
NC	Brier Ridge Paper Products - Canton Mill	16.9	2,492.4	1,127.1	40.57%	6.53%
TN	EASTMAN CHEMICAL COMPANY	126.9	6,900.3	6,420.2	4.35%	0.39%
NC	Duke Energy Carolinas, LLC - Marshall Steam Station	166.0	7,511.3	4,139.2	2.16%	0.48%
GA	Gul Power Company - Plant Bowen	241.6	6,643.3	10,453.4	1.67%	0.07%
NC	Duke Energy Carolinas, LLC - Cliffside Steam Station	94.1	1,951.7	1,082.1	1.34%	0.28%
NC	Duke Energy Carolinas, LLC - Belview Creek Steam Station	264.4	5,764.3	4,946.1	1.40%	0.14%
TN	TVA KINGSTON FOSSIL PLANT	167.7	1,687.4	1,886.1	1.38%	0.13%
OH	General James M. Gavin Power Plant (0627010036)	397.3	8,122.5	41,595.8	1.36%	0.07%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	7,150.0	22,133.9	1.35%	0.02%
WV	Jewell Lake Company LLP	214.7	520.2	5,090.9	1.31%	0.01%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	392.1	4,878.1	10,984.2	1.20%	0.08%
IN	INDIANA MICHIGAN POWER DIST. A.P. - ROCKPORT	473.3	8,806.8	30,536.3	0.68%	0.01%
TN	TVA LUMBERLAND FOSSIL PLANT	454.1	4,916.5	8,427.1	0.51%	0.07%
GA	TP&P - INDIAN	265.7	1,773.4	1,791.0	0.51%	0.07%
TN	TVA BULL RUN FOSSIL PLANT	143.0	964.2	622.5	0.53%	0.05%
WV	MONONGAHELA POWER CO - PLEASANTS POWER STA	680.0	5,497.4	16,817.4	0.51%	0.01%
TN	T&P & TTE - London	145.2	885.1	477.8	0.49%	0.07%
PA	GENON NE MGMT CO/KEYSTONE STA	657.6	6,578.5	56,939.2	0.48%	0.00%
NY	Big River Electric Corp. - Wilson Station	448.4	1,151.9	6,934.2	0.47%	0.01%
MO	JAMESON MISSOURI LABADIE PLANT	799.0	5,685.5	41,740.3	0.46%	0.01%

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### Draft AOI Source Categories for ROMA

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	1.7%	1.1%	2.9%
NONROAD_MAR	1.7%	2.4%	4.0%
NONROAD_OTHER	0.1%	1.8%	1.9%
ONROAD	0.3%	2.8%	3.2%
POINT	79.3%	5.9%	85.1%
PT_FIRES_PRESCRIBED	2.5%	0.4%	2.9%
<b>TOTAL</b>	<b>85.6%</b>	<b>14.4%</b>	<b>100.0%</b>

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### Draft AOI Source Categories for SWAN

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	4.2%	3.6%	7.7%
NONROAD_MAR	0.3%	3.5%	3.8%
NONROAD_OTHER	0.2%	8.7%	8.9%
ONROAD	0.2%	4.1%	4.4%
POINT	66.9%	7.2%	74.1%
PT_FIRES_PRESCRIBED	0.8%	0.3%	1.1%
<b>TOTAL</b>	<b>72.6%</b>	<b>27.4%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for ROMA

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
SC	KAPSTONE CHARLESTON KRAFT LLC	29.3	2,355.8	1,863.7	28.97%	2.72%
SC	ALUMAX OF SOUTH CAROLINA	39.1	108.1	3,751.7	16.95%	0.03%
SC	SANTEE COOPER CROSS GENERATING STATION	63.8	3,273.5	4,181.2	6.53%	0.45%
SC	SANTEE COOPER WINNAP GENERATING STATION	51.4	1,772.5	2,245.9	4.57%	0.38%
SC	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	2,031.3	2,767.5	4.28%	0.35%
SC	NETCO WILLIAMS	76.7	982.7	197.5	3.98%	0.19%
SC	NUCOR STEEL BENKELEY	22.1	440.0	348.3	1.82%	0.42%
GA	International Paper - Savannah	166.1	1,560.7	3,945.4	1.75%	0.04%
SC	SHOWA DENKO CARBON INC.	66.1	264.0	973.2	1.70%	0.03%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	159.9	351.5	1,860.2	1.15%	0.02%
SC	INTERNATIONAL PAPER LANSINGOVER	139.0	1,780.5	5,112.9	1.05%	0.04%
SC	COOPER RIVER PARTNERS LLC	27.9	58.4	58.1	0.94%	0.07%
OH	General James M. Gavin Power Plant (0627010036)	703.0	8,122.5	41,595.8	0.83%	0.00%
SC	SC&G WATRETC	133.1	1,344.0	2,176.8	0.66%	0.03%
SC	Charleston AFB (Int Airport)	36.8	358.4	46.2	0.43%	0.24%
GA	Gul Power Company - Plant Bowen	508.2	6,643.3	10,453.4	0.35%	0.01%
SC	GUANT CF MGMT CO	80.6	509.4	309.0	0.34%	0.04%
FL	WOLCK REMM CO, LLC	302.9	2,316.8	2,606.7	0.34%	0.02%
TN	EASTMAN CHEMICAL COMPANY	476.9	6,900.3	6,420.2	0.34%	0.01%
SC	SC&G COPE	136.5	644.0	962.3	0.33%	0.02%

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### Draft AOI Source Categories for GRSM

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	10.4%	8.3%	18.7%
NONROAD_MAR	0.1%	3.1%	3.2%
NONROAD_OTHER	0.3%	4.6%	4.9%
ONROAD	1.5%	11.3%	12.7%
POINT	50.9%	7.1%	58.0%
PT_FIRES_PRESCRIBED	2.3%	0.3%	2.6%
<b>TOTAL</b>	<b>65.4%</b>	<b>34.6%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for JOYC

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
TN	TVA KINCSTON FOSSEL PLANT	73.7	1,687.4	1,886.1	7.35%	0.53%
TN	EASTMAN CHEMICAL COMPANY	179.2	6,900.3	6,420.2	5.51%	0.15%
OH	General James M. Gavin Power Plant (0627010056)	425.1	8,122.5	41,595.8	4.43%	0.04%
IN	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	391.2	8,806.8	30,536.3	4.05%	0.12%
TN	TATE & LYLE, Loudon	68.1	883.8	472.8	4.05%	0.58%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	7,150.0	22,133.9	3.40%	0.06%
GA	Co Power Company - Plant Bowen	166.2	6,643.3	10,453.4	3.38%	0.09%
TN	TVA RUII BLUN FOSSEL PLANT	70.3	964.2	627.5	2.33%	0.44%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	453.0	10,665.3	18,141.9	2.02%	0.13%
IN	Edison	471.7	12,480.3	23,117.2	1.87%	0.10%
KY	Century Aluminum of KY LLC	377.1	197.7	5,044.7	1.48%	0.01%
TN	Mc Ghee Tyson	44.3	594.7	78.6	1.25%	0.65%
KY	Trainsville Oak & Electric Co., Mill Creek Station	340.9	4,169.1	4,330.1	1.14%	0.11%
KY	KY Utilities Co. - Chert Station	383.0	7,539.9	10,109.3	1.03%	0.07%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	391.6	6,188.5	9,038.1	0.99%	0.04%
IN	ESSANCE CEMENT CORP	380.5	2,385.0	4,681.2	0.96%	0.04%
IL	Joplin Steam	440.1	4,706.3	70,506.3	0.96%	0.01%
VA	Jewell Coke Company LLP	287.5	520.2	5,090.9	0.93%	0.00%
KY	Big Rivers Electric Corp - Wilcox Station	358.1	1,151.9	6,934.7	0.85%	0.02%
MO	JAMCEN MISSOURI LAMAR PLANT	703.9	5,685.5	41,740.3	0.84%	0.03%

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### Draft AOI Point Contributions for GRSM

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
TN	TVA KINCSTON FOSSEL PLANT	60.0	1,687.4	1,886.1	0.64%	0.64%
TN	EASTMAN CHEMICAL COMPANY	160.1	6,900.3	6,420.2	0.17%	0.17%
TN	TATE & LYLE, Loudon	36.1	883.3	472.8	0.74%	0.74%
IN	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	375.5	8,806.8	30,536.3	0.12%	0.12%
TN	Mc Ghee Tyson	23.7	594.7	78.6	0.80%	2.72%
TN	TVA RUII BLUN FOSSEL PLANT	47.1	964.2	627.5	0.76%	0.58%
OH	General James M. Gavin Power Plant (0627010056)	400.5	8,122.5	41,595.8	2.03%	0.04%
GA	Co Power Company - Plant Bowen	188.2	6,643.3	10,453.4	1.90%	0.01%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	7,150.0	22,133.9	1.66%	0.08%
TN	Kemee - Knoxville Plant	61.3	711.5	121.5	1.55%	0.82%
IL	Joplin Steam	414.4	4,706.3	70,506.3	1.47%	0.04%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	368.7	6,188.5	9,038.1	1.44%	0.11%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	435.6	10,665.3	18,141.9	1.34%	0.11%
KY	KY Utilities Co. - Chert Station	379.2	7,539.9	10,109.3	1.29%	0.08%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	7,007.3	19,504.7	1.21%	0.02%
IN	Edison	456.3	12,480.3	23,117.2	1.13%	0.06%
KY	Big Rivers Electric Corp. - Wilcox Station	345.8	1,151.9	6,934.7	1.06%	0.01%
KY	Century Aluminum of KY LLC	380.5	197.7	5,044.7	0.97%	0.00%
WV	MCKONGAHEIL POWER CO. PLEASANTS POWER STA	475.9	5,497.4	16,817.4	0.96%	0.01%
WV	APPALACHIAN POWER COMPANY - JOHN EAMOS PLANT	367.1	4,878.1	10,984.2	0.94%	0.01%

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### Draft AOI Source Categories for JARI

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	5.7%	3.6%	9.3%
NONROAD_MAR	0.1%	2.4%	2.5%
NONROAD_OTHER	0.1%	1.7%	1.7%
ONROAD	0.4%	7.2%	7.6%
POINT	70.2%	7.4%	77.5%
PT_FIRES_PRESCRIBED	1.1%	0.2%	1.3%
<b>TOTAL</b>	<b>77.5%</b>	<b>22.5%</b>	<b>100.0%</b>

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### Draft AOI Source Categories for JOYC

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	7.5%	4.6%	12.1%
NONROAD_MAR	0.1%	2.2%	2.3%
NONROAD_OTHER	0.2%	2.6%	2.8%
ONROAD	0.8%	7.1%	7.9%
POINT	64.8%	6.4%	71.2%
PT_FIRES_PRESCRIBED	3.3%	0.4%	3.7%
<b>TOTAL</b>	<b>76.6%</b>	<b>23.4%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for JARI

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
VA	McAuliffe Packaging Resource Group	46.51	1,985.69	2,115.31	17.46%	1.12%
OH	General James M. Gavin Power Plant (0627010056)	270.18	8,122.53	41,595.81	7.55%	0.14%
WV	Pleasant Creek Cement Company	44.43	1,977.97	2,780.17	6.35%	0.47%
WV	MCKONGAHEIL POWER CO-PLEASANTS POWER STA	247.97	5,497.37	16,817.43	3.82%	0.15%
WV	APPALACHIAN POWER COMPANY - JOHN EAMOS PLANT	223.52	4,878.10	10,984.24	3.45%	0.13%
PA	EDMONDSON MOUNTAIN COAL FERTILIZER STA	131.13	6,538.47	56,439.71	2.94%	0.04%
WV	ALLEGHENY ENERGY SUPPLY CO. LLC - HARRISON	207.56	11,830.88	10,082.94	2.72%	0.35%
MD	Isler Paper Company	208.66	3,607.00	22,659.84	2.66%	0.04%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.18	7,149.97	22,133.90	1.87%	0.05%
NC	Duke Energy Progress, LLC - Roxboro Steam Electric Plant	132.76	4,527.87	6,665.48	1.49%	0.15%
UT	Cardinal Power Plant (Cardinal Operating Company) (064026004)	306.40	2,457.31	7,460.79	1.33%	0.04%
PA	HOMER CITY GEN. CO. CENTER TWP	321.57	5,215.96	11,865.70	1.19%	0.01%
NC	Duke Energy Carolinas, LLC - Rebores Creek Steam Station	156.28	5,294.28	4,946.09	1.07%	0.16%
IL	GP Big Island LLC	17.13	240.68	39.67	0.92%	0.56%
MI	ST. CLAIR / BELLE RIVER POWER PLANT	625.38	9,446.15	25,225.90	0.86%	0.04%
KY	KY Utilities Co. - Chert Station	699.32	7,099.93	10,169.85	0.81%	0.04%
NC	Duke Energy Progress, LLC - Mayo Electric Generating Plant	131.86	1,994.76	1,770.36	0.81%	0.04%
WV	MCKONGAHEIL POWER CO. - LORI MARTIN POWER	234.03	15,743.32	4,681.87	0.80%	0.27%
VA	Jewell Coke Company LLP	277.64	520.12	5,090.91	0.77%	0.00%
PA	JPM MONTOUR LLC/MONTOURSES	454.21	4,855.41	21,482.00	0.73%	0.02%

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### Draft AOI Source Categories for SHEN

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	7.9%	5.3%	13.2%
NONROAD_MAR	0.2%	1.8%	1.9%
NONROAD_OTHER	0.1%	2.4%	2.5%
ONROAD	0.3%	5.5%	5.8%
POINT	67.4%	8.2%	75.6%
PT_FIRES_PRESCRIBED	0.7%	0.2%	0.9%
<b>TOTAL</b>	<b>76.6%</b>	<b>23.4%</b>	<b>100.0%</b>

1247

### Draft AOI Point Contributions for DOSO

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
WV	ALL COHENY ENERGY SUPPLY CO., LLC HARRISON	83.6	11,830.9	10,082.9	17.69%	1.77%
MD	Juke Paper Company	51.7	3,607.0	22,659.8	11.48%	0.12%
WV	Dominion Resources, Inc. MOUNT STORM POWER STATION	17.5	3,984.1	2,123.6	9.88%	0.33%
OH	General James M. Garvin Power Plant (0627010056)	233.8	8,122.5	41,595.8	7.12%	0.09%
WV	MONONGAHELA POWER CO. - FORT MARTIN POWER	79.8	13,743.3	4,881.9	6.11%	1.00%
WV	MONONGAHELA POWER CO. - PLEASANTS POWER STA.	163.9	5,497.4	16,817.4	4.34%	0.11%
PA	GENCON NE MGMT CO/KEYSTONE STA	172.8	6,578.5	56,939.2	3.85%	0.01%
WV	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	219.8	4,878.1	10,984.2	3.33%	0.10%
WV	LONGVIEW POWER	81.2	1,556.6	2,333.7	2.85%	0.11%
WV	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	81.3	1,245.1	2,210.3	2.92%	0.10%
OH	Avon Lake Power Plant (0241030013)	347.6	3,603.7	21,188.9	1.43%	0.01%
WV	MITCHELL PLANT	144.2	2,719.6	5,372.4	1.36%	0.06%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	2,130.0	22,133.9	1.31%	0.02%
OH	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	2,467.3	7,460.8	1.27%	0.03%
WV	MONONGAHELA POWER CO. PLEASANTS POWER STA.	75.1	655.6	828.6	1.10%	0.05%
PA	HOMEER CITY GEN LPV CENTER TWP	157.6	5,216.0	11,865.7	1.05%	0.04%
PA	NRG WHOLESALE GEN/SEWARD GEN STA	148.4	2,754.6	8,880.3	0.94%	0.01%
OH	Drum Primary Aluminum Corp. (0686000001)	158.9	0.4	2,470.8	0.03%	0.00%
OH	Department of Public Utilities, City of Orrville, Ohio (0378501088)	278.2	1,901.9	13,038.0	0.93%	0.01%
OH	Cincinnati Power Plant (0616000000)	242.3	9,957.9	6,356.2	0.67%	0.11%

1248

### Draft AOI Point Contributions for SHEN

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
MD	Juke Paper Company	118.4	3,607.0	22,659.8	14.57%	0.21%
PA	GENCON NE MGMT CO/KEYSTONE STA	249.8	6,578.5	56,939.2	10.85%	0.09%
OH	General James M. Garvin Power Plant (0627010056)	313.4	8,122.5	41,595.8	4.82%	0.13%
WV	MONONGAHELA POWER CO. PLEASANTS POWER STA.	265.0	5,497.4	16,817.4	4.55%	0.22%
WV	ALLEGHENY ENERGY SUPPLY CO., LLC HARRISON	189.2	11,830.9	10,082.9	4.21%	0.93%
PA	HOMEER CITY GEN LPV CENTER TWP	750.4	5,216.0	11,865.7	2.38%	0.12%
WV	MONONGAHELA POWER CO. - FORT MARTIN POWER	184.4	13,743.3	4,881.9	2.21%	1.16%
WV	Dominion Resources, Inc. MOUNT STORM POWER STATION	104.2	3,984.1	2,123.6	1.93%	0.24%
WV	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	295.6	4,878.1	10,984.2	1.93%	0.09%
PA	NRG WHOLESALE GEN/SEWARD GEN STA	215.5	2,254.6	8,880.3	1.65%	0.04%
PA	DRUM PRM ALUMINUM CORP. (0686000001)	213.6	0.4	2,470.8	1.39%	0.09%
OH	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	2,467.3	7,460.8	1.40%	0.07%
WV	MITCHELL PLANT	251.8	2,719.6	5,372.4	1.34%	0.10%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	2,130.0	22,133.9	1.20%	0.10%
MD	Raven Power Fort Smallwood LLC	180.7	4,387.8	10,942.9	1.20%	0.08%
WV	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	188.9	1,245.1	2,210.3	1.19%	0.11%
OH	Department of Public Utilities, City of Orrville, Ohio (0378501088)	385.1	1,901.9	13,038.0	1.18%	0.07%
OH	Avon Lake Power Plant (0241030013)	432.2	3,603.7	21,188.9	1.16%	0.04%
WV	LONGVIEW POWER	186.3	1,556.6	2,333.7	1.04%	0.13%
MD	AES Warrior Run	122.1	638.0	1,331.5	0.93%	0.04%

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### Draft AOI Source Categories for OTCR

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	7.4%	3.7%	11.1%
NONROAD_MAR	0.1%	0.7%	0.8%
NONROAD_OTHER	0.0%	0.7%	0.7%
ONROAD	0.2%	1.4%	1.6%
POINT	78.1%	7.0%	85.2%
PT_FIRES_PRESCRIBED	0.5%	0.1%	0.6%
<b>TOTAL</b>	<b>86.4%</b>	<b>13.6%</b>	<b>100.0%</b>

1249

### Draft AOI Source Categories for DOSO

SOURCE CATEGORY	SO2	NOx	TOTAL
NONPOINT	6.8%	2.8%	9.6%
NONROAD_MAR	0.1%	0.6%	0.7%
NONROAD_OTHER	0.0%	0.6%	0.7%
ONROAD	0.2%	1.3%	1.4%
POINT	81.2%	5.7%	86.9%
PT_FIRES_PRESCRIBED	0.5%	0.1%	0.6%
<b>TOTAL</b>	<b>88.9%</b>	<b>11.1%</b>	<b>100.0%</b>

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### Draft AOI Point Contributions for OTCR

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
WV	ALL COHENY ENERGY SUPPLY CO., LLC HARRISON	77.8	11,830.9	10,082.9	16.97%	1.77%
OH	General James M. Garvin Power Plant (0627010056)	214.2	8,122.5	41,595.8	10.22%	0.18%
WV	MONONGAHELA POWER CO. PLEASANTS POWER STA.	148.3	5,497.4	16,817.4	8.00%	0.23%
WV	MONONGAHELA POWER CO. - FORT MARTIN POWER	82.7	13,743.3	4,881.9	4.86%	0.90%
WV	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	198.0	4,878.1	10,984.2	4.26%	0.12%
MD	Juke Paper Company	71.7	3,607.0	22,659.8	4.11%	0.04%
PA	GENCON NE MGMT CO/KEYSTONE STA	186.5	6,578.5	56,939.2	3.64%	0.03%
WV	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	77.0	1,245.1	2,210.3	2.56%	0.09%
WV	LONGVIEW POWER	83.4	1,556.6	2,333.7	2.38%	0.10%
OH	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	2,467.3	7,460.8	1.50%	0.05%
WV	Dominion Resources, Inc. MOUNT STORM POWER STATION	99.9	3,984.1	2,123.6	1.85%	0.06%
OH	Avon Lake Power Plant (0241030013)	136.8	2,719.6	5,372.4	1.33%	0.06%
OH	Drum Primary Aluminum Corp. (0686000001)	129.6	0.4	2,470.8	1.11%	0.00%
OH	Cincinnati Power Plant (0616000000)	232.8	9,957.9	6,356.2	1.10%	0.17%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	2,130.0	22,133.9	1.10%	0.02%
OH	Avon Lake Power Plant (0241030013)	345.6	3,603.7	21,188.9	1.09%	0.01%
OH	Kraton Polymers U.S., LLC (0684010011)	175.1	555.8	2,061.8	1.00%	0.02%
OH	Drum Engineered Carbons LLC (0684010009)	169.6	391.8	1,933.3	0.97%	0.01%
WV	MONONGAHELA POWER CO. PLEASANTS POWER STA.	76.3	655.6	828.6	0.89%	0.04%
PA	HOMEER CITY GEN LPV CENTER TWP	172.6	5,216.0	11,865.7	0.87%	0.04%

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## **Appendix F-3g - VISTAS Regional Haze Meeting, St. Louis, MO, October 28-30, 2019**

# VISTAS REGION PROJECT MANAGEMENT

*A Comparison of Approaches  
Used in Planning Periods 1 and 2*

John Hornback, Executive Director  
Metro 4/SESARM/VISTAS  
October 29, 2019

1

## VISTAS What is it?



- **Visibility Improvement State and Tribal Association of the Southeast**
- **Formed in 2001**

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## PRESENTATION Outline

- **Region**
- **Organization**
- **Resources**
- **Technical Approaches**
- **Collaboration/Consultation**
- **Schedule**
- **Summary**

2

## VISTAS Participating Agencies



- **U.S. EPA Region 3 states (2)**
  - Virginia, West Virginia
- **U.S. EPA Region 4 agencies (10)**
  - Alabama, Florida
  - Georgia, Kentucky
  - Mississippi, North Carolina,
  - South Carolina, Tennessee
  - Eastern Band of Cherokee Indians
  - Knox County, TN local air agency

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## THE VISTAS REGION

3

## VISTAS The 18 Southeastern Class I Areas



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## VISTAS PROJECT ORGANIZATION

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## VISTAS

### *Policy / Operations / Analysis – 2<sup>nd</sup> Planning Period*

- STAD
- Coordinating Committee (CC)
- Technical Analysis Work Group (TAWG)
- Occasional sub-groups
  - (e.g., Data Collection and Analysis)
- CC/TAWG generally functioning together

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## VISTAS Governance

- Southeastern States Air Resource Managers, Inc.
  - Board of Directors
- State and Tribal Air Directors (STAD)
  - States
  - Tribe
  - Local Agency
  - Governance, policy, general direction
- Similar structure for both planning periods

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## VISTAS

### *Project Management – 1<sup>st</sup> Planning Period*

- Project Manager – John Hornback
- Technical Coordinator – Pat Brewer
- Technical Advisors
- Contracts – 24
- MOUs - 3
- Key VISTAS agency staff

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## VISTAS

### *Policy / Operations / Analysis – 1<sup>st</sup> Planning Period*

- STAD
- Coordinating Committee
- Planning Work Group
- Data Work Group
- Technical Analysis Work Group
- Various sub-groups and teams

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## VISTAS

### *Project Management – 2<sup>nd</sup> Planning Period*

- Project Manager – John Hornback (much larger role)
- Coordination and Technical Analysis – Jim Boylan
- Coordination and Technical Analysis – Randy Strait
- 1 contract with a lead contractor and a sub-contractor

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**VISTAS**  
*Resources – 1<sup>st</sup> Planning Period*

- Staffing – Metro 4/SESARM, coordinators, advisors
- In-kind services from SESARM states
- Contractor services – many contractors
- Shared expenses - VIEWS data warehouse, ERTAC
- Budget resources – approximately \$10,000,000
- Leveraged federal work products – limited
- Federal coordination - significant

**VISTAS**  
*Technical Approaches for 1<sup>st</sup> & 2<sup>nd</sup> Rounds*

ACTIVITY	1 <sup>ST</sup> PLANNING PERIOD	2 <sup>ND</sup> PLANNING PERIOD
Monitoring and Data Collection/Analysis	Yes	Data collect/analysis
Emissions Inventories (base and future years)	Yes	EPA with updates
Emissions Processing	Yes	Yes
International Emissions, Air Quality, BART Modeling	Yes	Air Quality
Area of Influence Analysis	Yes	Yes
Source Apportionment Modeling/Tagging/Projections/RRFs	Yes	Yes
Support – Coordination, Advice, GIS, Archival	Yes	Limited

**VISTAS**  
*Resources – 2<sup>nd</sup> Planning Period*

- Staffing – Metro 4/SESARM
- In-kind services from SESARM states
- Contractor services – 1 lead plus 1 subcontractor
- Shared expenses - none
- Budget resources ... ~ 5% of first round funds
- Leveraged federal work products – significant
- Federal coordination - limited



## **VISTAS COLLABORATION/CONSULTATION**

### *1<sup>st</sup> Planning Period*

- Extensive face-to-face meetings
- Some VISTAS/FLM conference calls
- Some VISTAS/stakeholder conference calls
- MANE-VU/VISTAS consultation meeting
- Frequent federally-coordinated calls
- Weekly RPO calls during certain phases
- Resources and time were available

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## **VISTAS**

### *Schedule – 1<sup>st</sup> Planning Period*

- 2001 – created the VISTAS organizational plan
- 2002-2006 – focused technical work
- 2006-2007 – continued technical work and SIP development
- December 17, 2007 – SIPs were due
- At least 7 years to design and complete the project plus state SIP submittals to EPA

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## **VISTAS COLLABORATION/CONSULTATION**

### *2<sup>nd</sup> Planning Period*

- No face-to-face meetings to-date
- Several VISTAS/FLM/EPA conference calls
- No VISTAS/stakeholder conference calls (to-date)
- MANE-VU/VISTAS consultation calls
- Federally-coordinated regional haze calls (limited)
- Monthly MJO calls include periodic regional haze topics
- Overall goals remains same
- Resources and time are limited for face-to-face meetings

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## **VISTAS**

### *Schedule – 2<sup>nd</sup> Planning Period*

- December 2017 – Denver – created initial plan
- April 2018 – executed contract
- December 2019 – most technical work will be completed
- 2020-2021 – completion of any remaining technical work and SIP development
- July 31, 2021 – SIPs due
- 3 ½ years for technical work and SIP development

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## **VISTAS PROJECT SCHEDULE**

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## **VISTAS PROJECT SUMMARY**

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## VISTAS PROJECT Summary (1 of 2)

- Similar basic organizational structure but streamlined
- Similar oversight and standards of performance including QA
- Similar internal participation –
  - states, locals, tribes
- Similar external participation –
  - RPOs, FLMs, EPA

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## VISTAS PROJECT Summary (2 of 2)

- Fewer resources (~ 5% of 1<sup>st</sup> planning period funding)
- Less time (~ 50% of 1<sup>st</sup> planning period time)
- Similar desired outcomes
  - Technically sound, credible, approvable regional SIPs
  - Maintenance of relationships developed in 1<sup>st</sup> round
  - Continued progress toward 2064 goals

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## COMMENTS / QUESTIONS?



- **Jim Boylan**
  - Chair, Coordinating Committee
  - [james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov)
- **Randy Strait**
  - Chair, Technical Analysis Work Group
  - [randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov)
- **John Hornback**
  - Project Coordinator, VISTAS Project
  - [hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org)

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# VISTAS 2028 Emissions and Modeling Analyses



Jim Boylan (GA DNR), Randy Strait (NC DAQ), and  
John Hornback (Metro 4/SESARM)

2019 National Regional Haze Meeting  
St. Louis, MO - October 28, 2019

## VISTAS Air Quality Model

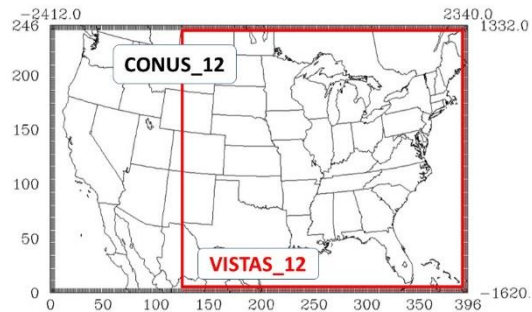
- Started with EPA's 2011/2028 modeling platform
  - Version 6.3el
  - CAMx v6.32
- Replaced CAMx v6.32 with CAMx v6.40
- Used 2011 meteorology
- Reasons for using EPA platform
  - Time limited
  - Budget limited
  - Most source sectors acceptably represented in EPA platform

## Outline

- Modeling Overview
- 2028 Emission Projections
- 2028 Model Projections
- Next Steps



## VISTAS Modeling Domains



# MODELING OVERVIEW

## Benchmark Comparisons

1. EPA 2011 with CAMx\_6.32 (CONUS) vs.  
Alpine 2011 with CAMx\_6.32 (CONUS)
2. Alpine 2011 with CAMx\_6.32 (CONUS) vs.  
Alpine 2011 with CAMx\_6.40 (CONUS)
3. Alpine 2011 with CAMx\_6.40 (CONUS) vs.  
**Alpine 2011 with CAMx\_6.40 (VISTAS)**
4. EPA 2028 with CAMx\_6.32 (CONUS) vs.  
Alpine 2028 with CAMx\_6.40 (CONUS)
5. Alpine 2028 with CAMx\_6.40 (CONUS) vs.  
**Alpine 2028 with CAMx\_6.40 (VISTAS)**

### Model Performance Evaluation

- Compared model results to observations. Looked at statistics, comparison plots, and spatial plots
  - Ozone
  - PM<sub>2.5</sub> and light extinction
  - Wet and dry deposition
- Overall, the model performance is generally within the range deemed acceptable for regulatory applications

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### Point Source Adjustments

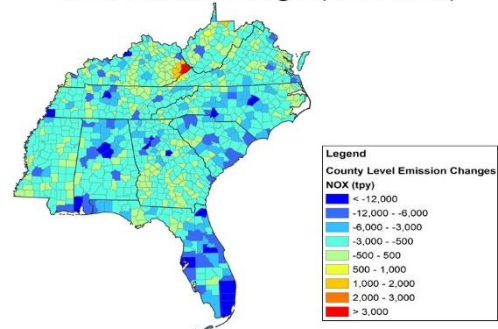
- **EGU Point Sources**
  - EPA modeling used IPM and assumed CPP controls
  - Adjust the EPA 2028 EGU emissions up/down based on ERTAC EGU annual emission, 2023 “en” emissions (based on 2016 NEI), and/or other emissions provided by individual states
- **Non-EGU Point Sources**
  - Adjust the EPA 2028 non-EGU emissions up/down based on feedback from SESARM states
  - States looked at 2014-2016 NEI and EPA’s non-EGU 2023 “en” emissions

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## 2028 EMISSION PROJECTIONS

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### NOx Emission Changes (2028-2011)



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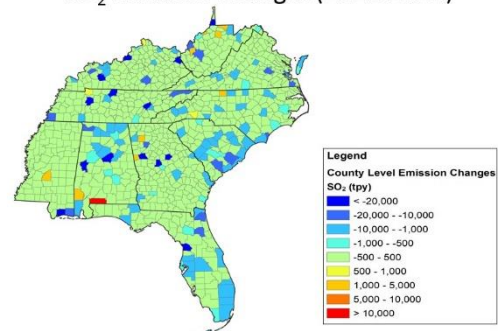
### Emissions Updates

- Used EPA’s 2011 base year emissions without change
- Updated EPA’s 2028 projection year emissions
  - EGU and major non-EGU sources
  - Removed Clean Power Plan assumptions
  - Adjusted for changes in fuels and facility operating plans



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### SO<sub>2</sub> Emission Changes (2028-2011)

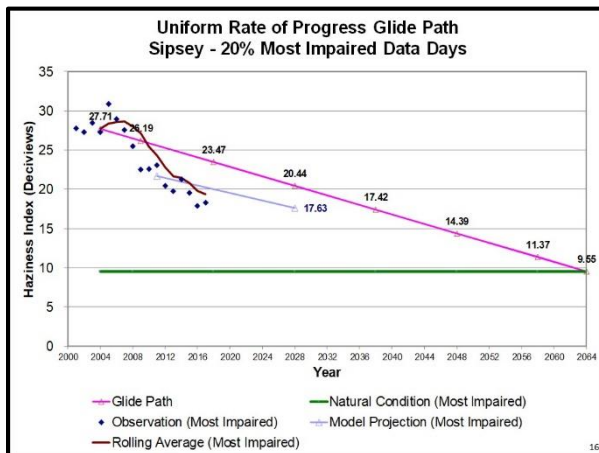


12



# 2028 MODEL PROJECTIONS

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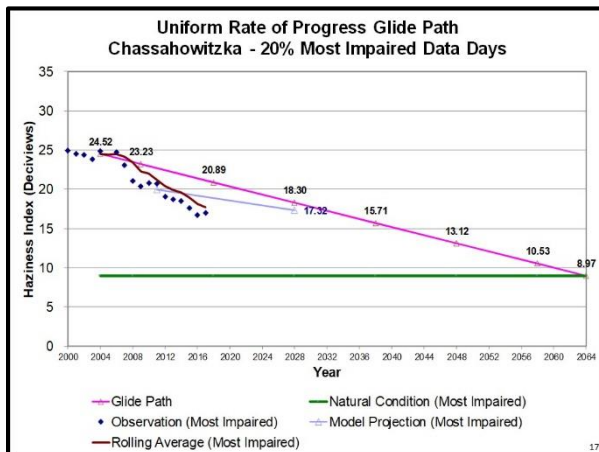


16

## Class I Areas of Interest to VISTAS States



14



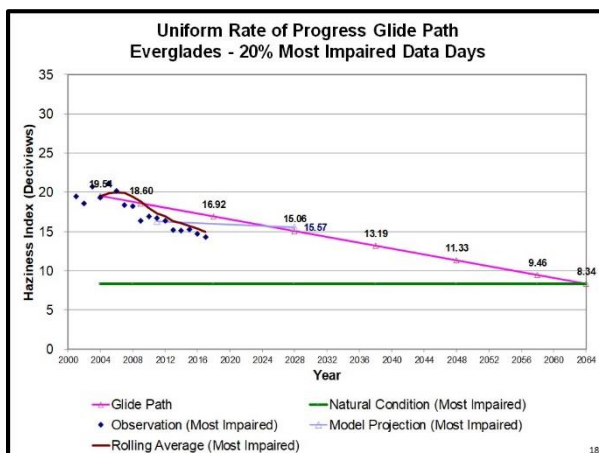
17

## VISTAS Class I Areas

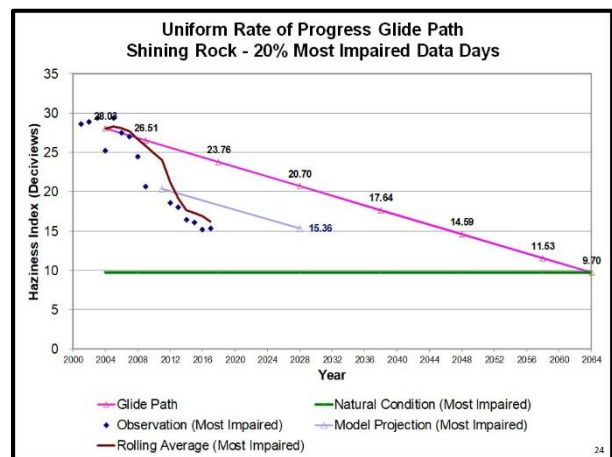
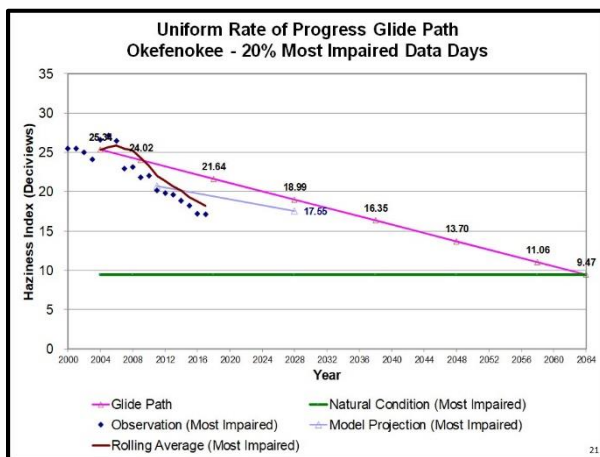
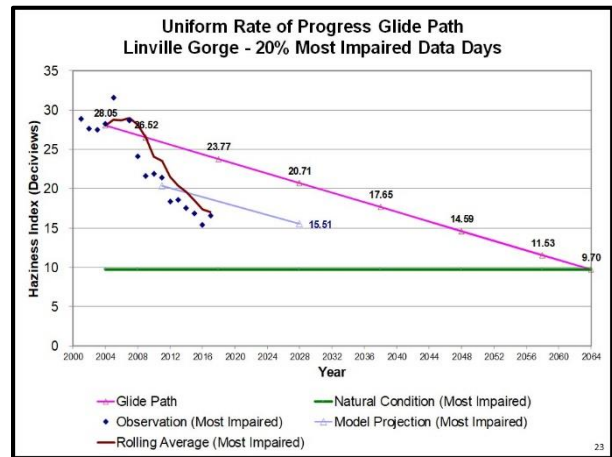
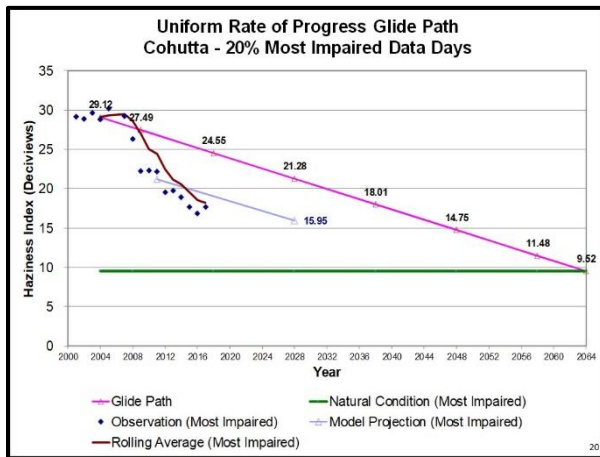
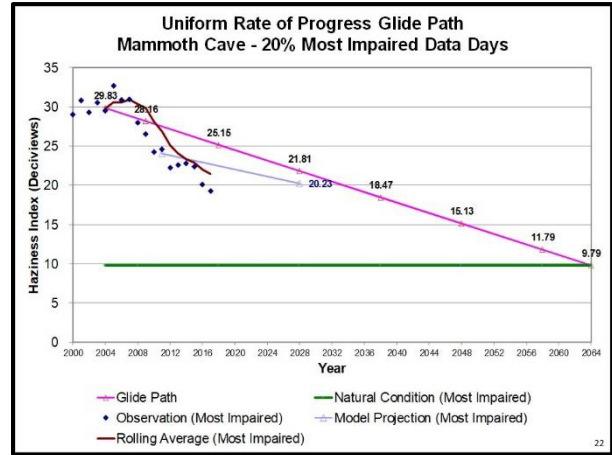
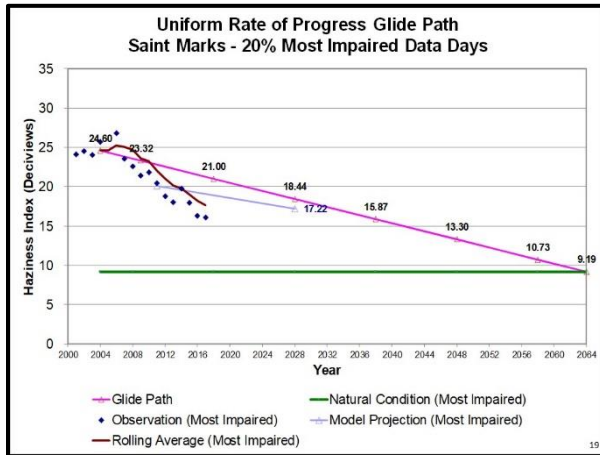
VISTAS FEDERAL CLASS I AREAS	
AL - Sipsey Wilderness Area (SIPS)	USDA Forest Service
FL - Chassahowitzka Wilderness Area (CHAS)	USDI Fish and Wildlife Service
FL - Everglades National Park (EVER)	USDI National Park Service
FL - Saint Marks Wilderness Area (SAMA)	USDI Fish and Wildlife Service
GA - Cohutta Wilderness Area (COHU)	USDA Forest Service
GA - Okefenokee Wilderness Area (OKEF)	USDI Fish and Wildlife Service
GA - Wolf Island Wilderness Area (WOLF)*	USDI Fish and Wildlife Service
KY - Mammoth Cave National Park (MACA)	USDI National Park Service
NC - Linville Gorge Wilderness Area (LIGO)	USDA Forest Service
NC - Shining Rock Wilderness Area (SHRO)	USDA Forest Service
NC - Swanquarter Wilderness Area (SWAN)	USDI Fish and Wildlife Service
SC - Cape Romain Wilderness Area (ROMA)	USDI Fish and Wildlife Service
TN/NC - Great Smoky Mountains National Park (GRSM)	USDI National Park Service
TN/NC - Joyce Kilmer-Slickrock Wilderness Area (JOYC)*	USDA Forest Service
VA - James River Face Wilderness Area (JARI)	USDA Forest Service
VA - Shenandoah National Park (SHEN)	USDI National Park Service
WV - Dolly Sods Wilderness Area (DOSD)	USDA Forest Service
WV - Otter Creek Wilderness Area (OTCR)*	USDA Forest Service

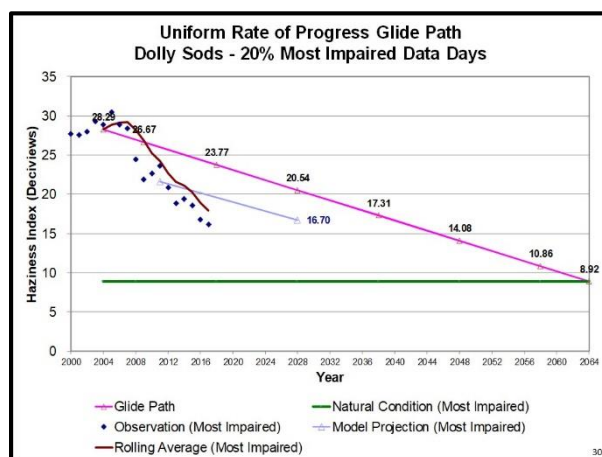
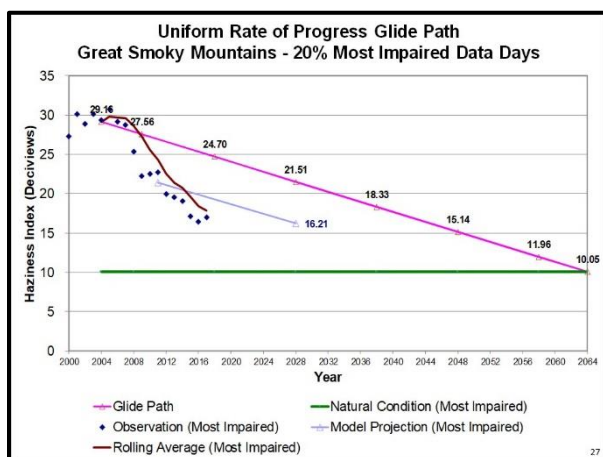
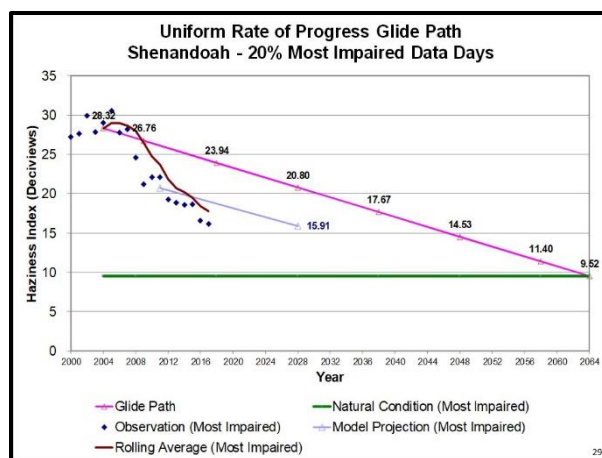
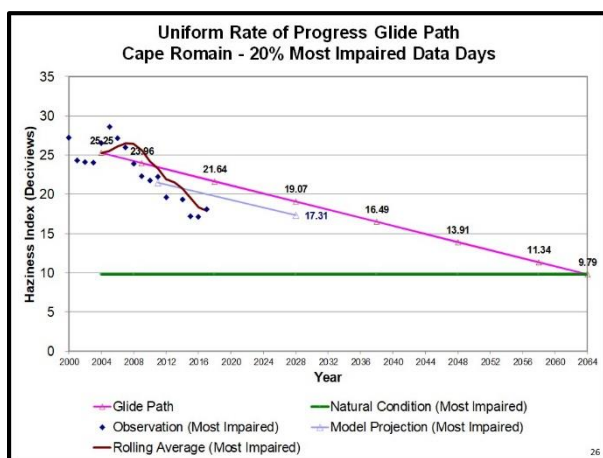
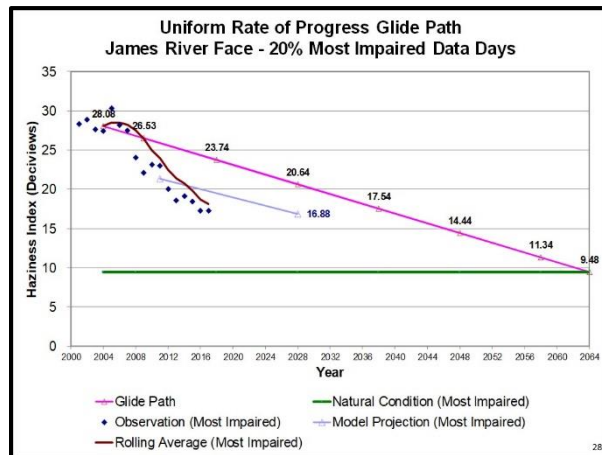
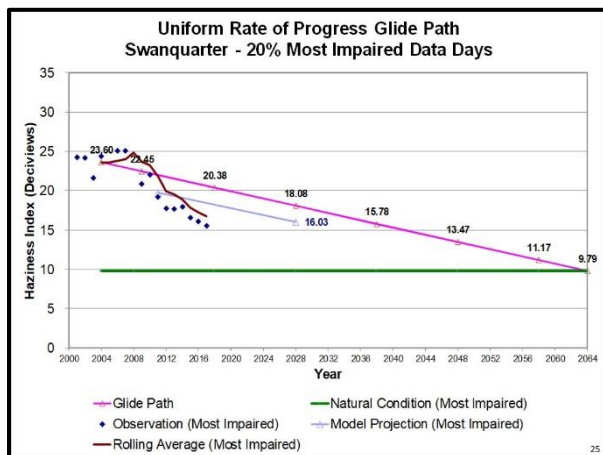
\*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

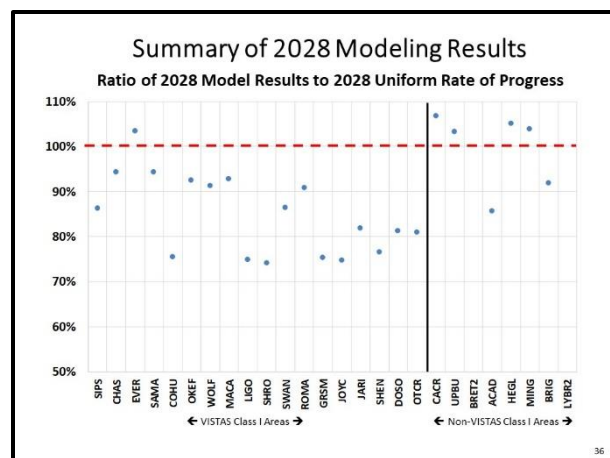
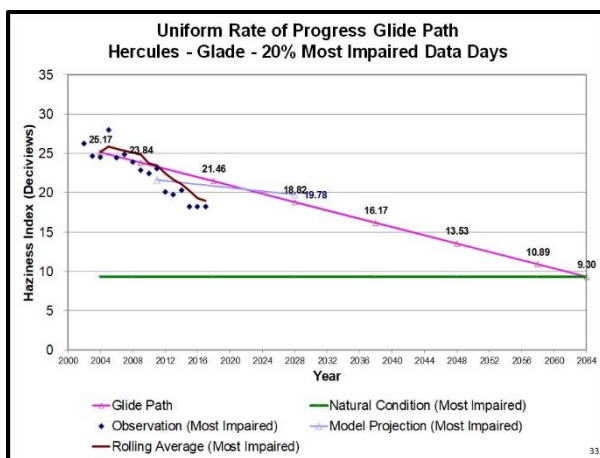
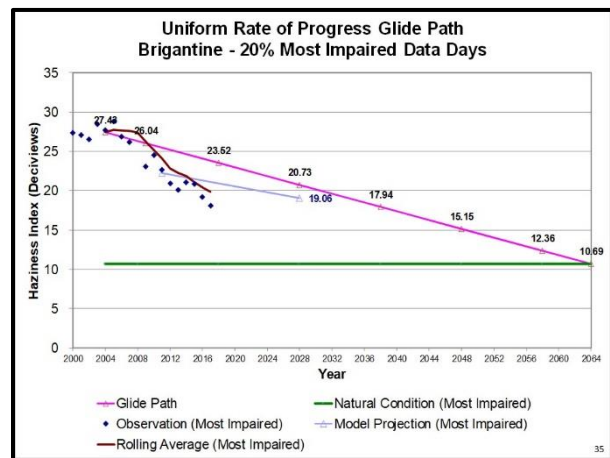
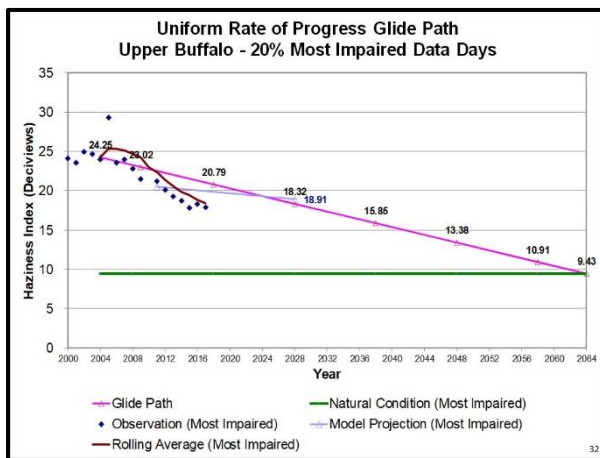
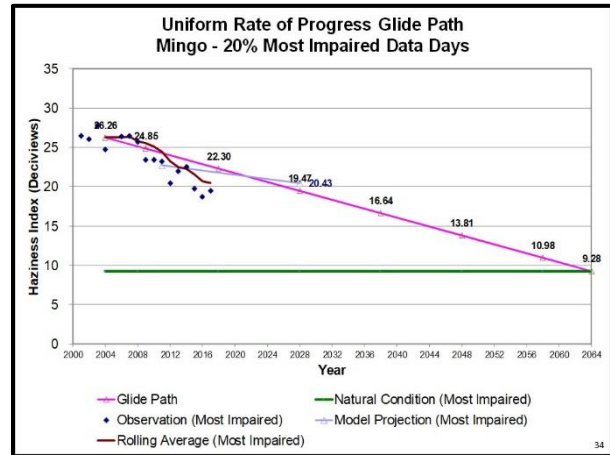
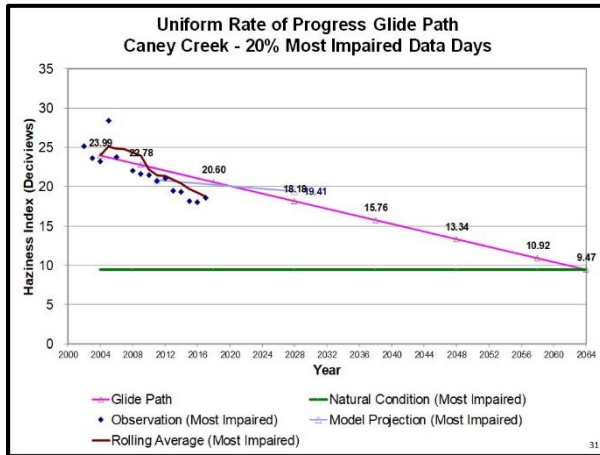
15



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### Remaining Work Schedule

Task	Schedule
Best and final 2028 run?	Necessity uncertain
Final reports and documentation	February 2020
Website updates and postings	Ongoing task
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

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### Contact Information

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**2019 National Regional Haze Meeting**  
**St. Louis, MO - October 29, 2019**

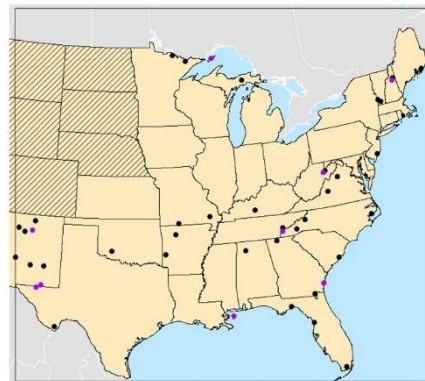
- Evaluates 2028 emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d)*EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the 4-factor analysis

- AOI Analysis
- PSAT Analysis
- Next Steps

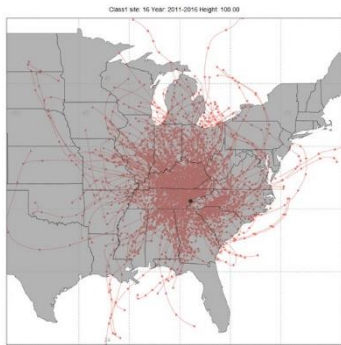


- Trajectories were run using NAM-12 meteorology for the 20% most impaired days in 2011-2016 at 44 Class I areas.
  - Trajectories were run with starting heights of 100, 500, 1,000, and 1,500 meters.
  - Trajectories were run 72 hours backwards in time for each height at each location.
  - Trajectories were run with start times of 12AM (midnight of the start of the day), 6AM, 12PM, 6PM, and 12AM (midnight at the end of the day) local time.
- **44 Class I areas x 6 years x 24 days/year x 4 heights x 5 start times = 126,720 trajectories**

### Class I Areas Analyzed

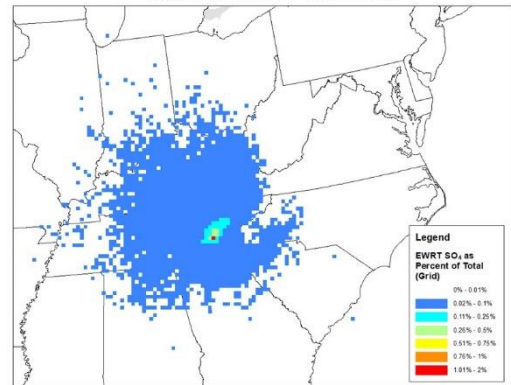


### 100 Meter Trajectories at GRSM



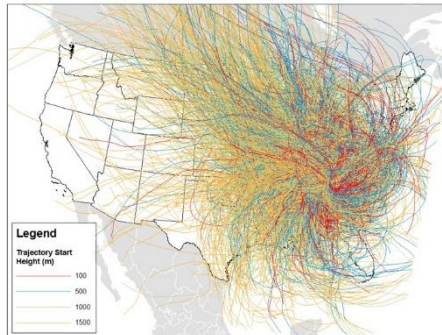
7

### Sulfate EWRT at GRSM



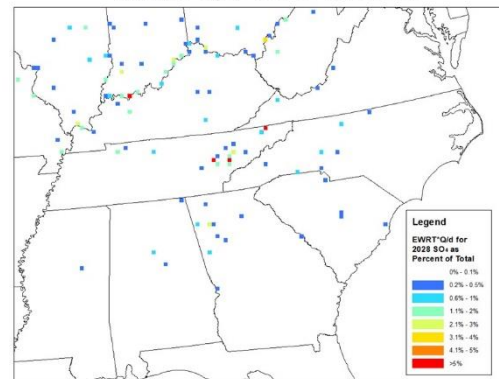
10

### All Trajectories at GRSM



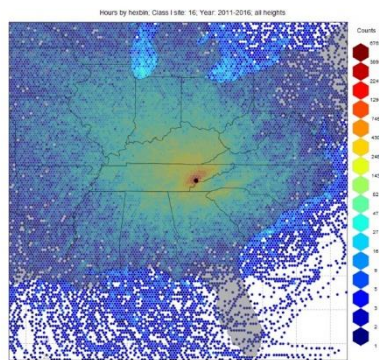
8

### Sulfate Q/d\*EWRT at GRSM



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### Residence Time for GRSM



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### AOI Point Contributions for GRSM

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
TN	TVA KINGSTON FOSSIL PLANT	60.0	1,687.4	1,886.1	0.71%	0.71%
TN	EASTMAN CHEMICAL COMPANY	160.1	6,900.3	6,420.2	0.19%	0.19%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	8,806.8	30,536.3	0.21%	4.66%
TN	McClellan Tyson	19.7	564.7	78.6	3.01%	4.31%
OH	General James M. Gavin Power Plant (6627010056)	400.5	8,122.5	41,595.8	0.04%	2.25%
GA	Gas Power Company - Plant Bowen	189.7	6,643.3	10,453.4	0.04%	2.10%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	7,150.0	22,113.9	0.09%	1.84%
TN	Cemex - Knoxville Plant	44.3	711.5	121.5	0.90%	1.71%
IL	Jopka Steam	474.4	4,706.3	20,509.3	0.04%	1.62%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	368.7	6,188.5	9,038.1	0.13%	1.60%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	435.6	10,465.3	18,141.9	0.12%	1.48%
KY	KY Utilities Co - Ghent Station	359.2	7,939.9	10,169.3	0.09%	1.43%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	7,007.3	19,504.7	0.02%	1.34%
IN	Gibson	456.3	12,280.3	23,117.2	0.07%	1.25%
TN	TATE & LYLE, Loudon	36.1	252.5	110.2	0.23%	1.22%
KY	Big Rivers Electric Corp. - Wilson Station	345.8	1,151.9	6,934.2	0.03%	1.17%
KY	Century Aluminum of KY LLC	360.5	197.7	9,044.2	0.00%	1.07%
WV	MIDMONTGARELA POWER CO-PLEASANTS POWER STA.	475.9	5,497.4	16,817.4	0.02%	1.06%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	367.1	4,878.1	10,984.2	0.01%	1.05%
MO	AMEREN MISSOURI-RUSH ISLAND PLANT	628.2	3,349.3	20,151.5	0.00%	0.90%

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### AOI Source Categories for GRSM

SOURCE CATEGORY	NO <sub>x</sub>	SO <sub>2</sub>	TOTAL
NONPOINT	8.5%	10.7%	19.2%
NONROAD_MAR	3.1%	0.1%	3.2%
NONROAD_OTHER	4.7%	0.3%	5.0%
ONROAD	11.6%	1.5%	13.1%
POINT	7.0%	49.9%	56.8%
PT_FIRES_PRESCRIBED	0.3%	2.3%	2.6%
<b>TOTAL</b>	<b>35.2%</b>	<b>64.8%</b>	<b>100.0%</b>

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### AOI Source Categories for OKEF

SOURCE CATEGORY	NO <sub>x</sub>	SO <sub>2</sub>	TOTAL
NONPOINT	1.7%	2.0%	3.7%
NONROAD_MAR	6.0%	0.6%	6.6%
NONROAD_OTHER	1.7%	0.1%	1.9%
ONROAD	4.5%	0.5%	5.0%
POINT	5.9%	62.9%	68.8%
PT_FIRES_PRESCRIBED	2.6%	11.4%	13.9%
<b>TOTAL</b>	<b>22.4%</b>	<b>77.6%</b>	<b>100.0%</b>

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### AOI Source Categories for COHU

SOURCE CATEGORY	NO <sub>x</sub>	SO <sub>2</sub>	TOTAL
NONPOINT	3.2%	5.1%	8.3%
NONROAD_MAR	3.4%	0.1%	3.5%
NONROAD_OTHER	2.5%	0.2%	2.7%
ONROAD	6.6%	0.6%	7.2%
POINT	8.1%	67.0%	75.1%
PT_FIRES_PRESCRIBED	0.5%	2.6%	3.2%
<b>TOTAL</b>	<b>24.3%</b>	<b>75.7%</b>	<b>100.0%</b>

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### AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (km)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	71.5	112.4	2,745.0	0.03%	11.01%
FL	ROCK TENN CO, LLC	64.8	2,316.6	2,606.7	0.88%	10.01%
FL	SEA	65.6	651.8	2,094.5	0.19%	8.89%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	121.4	917.8	5,713.4	0.07%	3.25%
FL	IFF CHEMICAL HOLDINGS, INC.	56.8	37.7	858.9	0.01%	3.25%
FL	RAYONIER PERFORMANCE FIBERS LLC	63.4	2,327.1	562.0	0.90%	2.82%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	0.08%	2.81%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	1,830.7	1,520.4	0.14%	2.18%
FL	REINSENZ LLC	59.8	66.3	569.5	0.02%	1.96%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	205.0	2,489.8	5,306.4	0.06%	1.40%
AL	Sanders Lead Co	384.6	121.7	7,951.1	0.00%	1.11%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,860.2	0.01%	1.05%
GA	Gsa Power Company - Plant Bowen	458.1	6,443.3	10,459.4	0.05%	1.02%
GA	Brownsville Cellulose Inc.	75.1	1,514.3	284.2	0.34%	1.01%
SC	ALUMAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA Valdosta Mill	112.7	1,032.6	485.7	0.09%	0.85%
SC	SANTEE COOPER CROSS GENERATING STATION	348.1	3,273.5	4,281.2	0.05%	0.85%
FL	CITY OF GAINESVILLE, GRU	111.7	410.0	881.4	0.03%	0.79%
SC	KAPSTONE CHARLESTON RAFT LLC	314.9	2,355.8	1,861.7	0.06%	0.65%
GA	Gsa Power Company - Plant Wansley	403.7	2,052.5	4,856.0	0.02%	0.65%

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### AOI Point Contributions for COHU

State	FACILITY NAME	DISTANCE (km)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Gsa Power Company - Plant Bowen	78.0	6,443.3	10,459.4	1.15%	11.91%
IN	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	410.1	8,806.8	30,536.3	0.13%	4.68%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Gibson	487.1	12,280.3	23,117.2	0.10%	2.31%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.18%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	7,007.3	19,504.7	0.07%	2.18%
TN	TVA WINSTON FOSSIL PLANT	124.0	1,687.4	1,886.1	0.13%	2.17%
OH	General James M. Gavin Power Plant (0627010056)	512.0	8,122.5	41,595.8	0.02%	1.71%
TN	TVA CUMBERLAND FOSSIL PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Big Rivers Electric Corp - Wilson Station	369.0	1,151.9	6,934.2	0.01%	1.07%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	7,150.0	22,133.9	0.06%	1.05%
GA	Gsa Power Company - Plant Wansley	154.9	2,052.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co. - Olcott Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	Joppa Steam	466.9	4,706.3	20,509.3	0.02%	1.04%
GA	Mohawk Industries Inc.	32.0	66.5	77.1	0.07%	1.02%
TN	EASTMAN CHEMICAL COMPANY	269.8	6,900.3	6,420.2	0.09%	0.99%
MO	AMEREN MISSOURI-LABADRE PLANT	695.4	9,685.5	41,740.3	0.01%	0.96%
IL	Newport	564.0	1,934.5	10,631.6	0.01%	0.91%
GA	Chemical Products Corporation	71.9	19.5	513.8	0.00%	0.89%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	444.4	6,188.5	9,038.1	0.04%	0.76%

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### AOI Source Categories for WOLF

SOURCE CATEGORY	NO <sub>x</sub>	SO <sub>2</sub>	TOTAL
NONPOINT	1.7%	2.8%	4.4%
NONROAD_MAR	2.9%	1.5%	4.4%
NONROAD_OTHER	3.3%	0.3%	3.6%
ONROAD	5.7%	0.7%	6.4%
POINT	7.3%	67.9%	75.2%
PT_FIRES_PRESCRIBED	0.9%	5.1%	6.0%
<b>TOTAL</b>	<b>21.8%</b>	<b>78.2%</b>	<b>100.0%</b>

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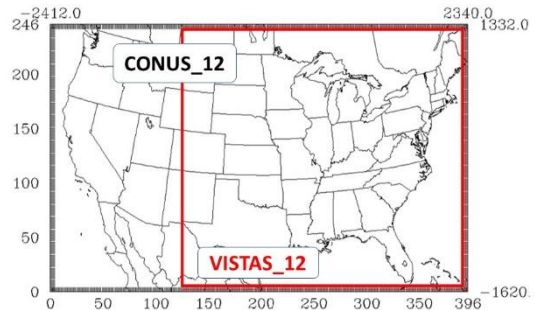


## AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO <sub>2</sub> _2028 (tons/year)	NOx Contribution	SO <sub>2</sub> Contribution
GA	Bromwich Cellulose Inc.	27.9	1,554.5	294.2	2.34%	1.84%
FL	ROCK TENN CP, LLC	74.0	2,316.8	2,606.7	0.39%	1.43%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	1.93%
FL	JEA	105.1	651.8	2,094.5	0.09%	4.43%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,860.2	0.03%	2.65%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.6	112.4	2,745.0	0.01%	1.97%
SC	ALLUMAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	0.00%	1.84%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	0.38%	1.79%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (0627010056)	845.3	8,122.5	41,595.8	0.02%	1.71%
SC	SANTEC COOPER CROSS GENERATING STATION	251.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	997.1	0.00%	1.55%
FL	JFF CHEMICAL HOLDINGS, INC.	118.5	37.7	858.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	521.8	582.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	3,780.3	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
FL	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	GENON NE MGMT CO/KEYSTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

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## VISTAS Modeling Domains



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## PSAT ANALYSIS

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## PSAT SO<sub>2</sub> and NOx Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

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## Source Apportionment Modeling

- Particulate Matter Source Apportionment Technology (PSAT) tags applied to "VISTAS\_12" 2028 model projections (2011 meteorology)
- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- Both NOx and SO<sub>2</sub> tagging
- Refines information on AOI contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## VISTAS Round 1 Facility Tags

Facility State	Facility BPO	FACILITY_ID_SHORT	FACILITY_NAME_SHORT	NOx Tag	SO <sub>2</sub> Tag
AL	VISTAS	01053-740211	Escambia Operating Company LLC	1	1
AL	VISTAS	01053-985111	Escambia Operating Company LLC	1	1
AL	VISTAS	01073-101871	DRUMMOND COMPANY, INC.	1	1
AL	VISTAS	01097-105611	Ala Power - Barry	1	1
AL	VISTAS	01097-106461	Union Oil of California - Chunchula Gas Plant	1	1
AL	VISTAS	01097-949811	Alco Nobel Chemicals Inc.	1	1
AL	VISTAS	01103-100011	Nucor Steel Decatur LLC	1	1
AL	VISTAS	01109-985711	Sanders Lead Co	1	1
FL	VISTAS	12005-555411	ROCKTENN CP LLC	1	1
FL	VISTAS	12017-640011	DUKE ENERGY FLORIDA, INC. (DEF)	1	1
FL	VISTAS	12031-640211	JEA	1	1
FL	VISTAS	12033-752711	GULF POWER - Crist	1	1
FL	VISTAS	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	1	1
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	1	1
FL	VISTAS	12097-719411	MOSAIC FERTILIZER, LLC	1	1
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	1	1
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS LLC	1	1
FL	VISTAS	12105-717711	MOSAIC FERTILIZER LLC	1	1
FL	VISTAS	12105-919811	MOSAIC FERTILIZER, LLC	1	1
FL	VISTAS	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1	1

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## VISTAS Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
GA	VISTAS	13015-2813011	Ga Power Company - Plant Bowen	1	
GA	VISTAS	13013-3679811	International Paper - Savannah	1	
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc.	1	
KY	VISTAS	21091-7352411	Century Aluminum of KY LLC	1	
KY	VISTAS	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1	
KY	VISTAS	21177-5196711	Tennessee Valley Authority - Paradise Fossil Plant	1	
KY	VISTAS	21183-5561611	Big Rivers Electric Corp. - Wilson Station	1	
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1	
NC	VISTAS	37087-7920511	Blue Ridge Paper Products - Canton Mill	1	
SC	VISTAS	45015-4834911	ALUMAX OF SOUTH CAROLINA	1	
SC	VISTAS	45019-4978611	KAPSTONE CHARLSTON KRAFT LLC	1	
SC	VISTAS	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	1	
TN	VISTAS	47001-6196011	TVA BULL RUN FOSSIL PLANT	1	
TN	VISTAS	47093-4979911	Cemex - Knoxville Plant	1	
TN	VISTAS	47105-4119211	LATE & LYLE, Loudon	1	
TN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	1	
TN	VISTAS	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	1	
TN	VISTAS	47163-3982311	EASTMAN CHEMICAL COMPANY	1	

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## Non-VISTAS Round 2 Facility Tags

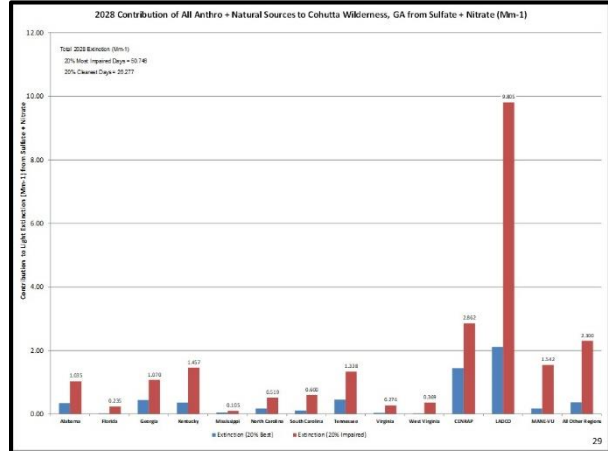
Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
AR	CENRAP	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT		1
MO	CENRAP	29143-5363811	NEW MADRID POWER PLANT-MARSTON		1
MD	MANE-VU	24001-7763811	Luke Paper Company	1	1
PA	MANE-VU	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1	1
PA	MANE-VU	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	1	1
PA	MANE-VU	42063-3005111	WNG WHOLESALE GEN/SEWARD GEN STA	1	1
IL	LADCO	17127-7808911	Jopco Steam		1
IN	LADCO	18173-8183111	Alcoa Warrick Power Pk Agc Div of AL		1
IN	LADCO	18051-7363111	Gibson		1
IN	LADCO	18147-9017211	INDIANA MICHIGAN POWER DBA/EP ROCKPORT	1	1
IN	LADCO	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG		1
IN	LADCO	18129-8166111	Digeco AB Brown South Indiana Gas & Ele		1
OH	LADCO	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	1	1
OH	LADCO	39031-8010811	Conesville Power Plant (0616000000)	1	1
OH	LADCO	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	1	1
OH	LADCO	39053-8148011	General James M. Gavin Power Plant (0627030005)	1	1
OH	LADCO	39053-7983011	Ohio Valley Electric Corp., Ryger Creek Station (0627000003)	1	1

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## VISTAS Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
VA	VISTAS	51023-5039811	Roadville Cement Company		1
VA	VISTAS	51027-4034811	Jewell Cole Company LLP	1	
VA	VISTAS	51580-5798711	Meadwestvaco Packaging Resource Group	1	
WV	VISTAS	54023-6257011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	1	1
WV	VISTAS	54033-6271711	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	1	1
WV	VISTAS	54041-5900311	EQUITRANS - COPELY RUN CS 70	1	1
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	1	1
WV	VISTAS	54051-6902311	MITCHELL PLANT	1	1
WV	VISTAS	54061-1652011	LONGVIEW POWER	1	1
WV	VISTAS	54063-6778611	MONONGAHELA POWER CO. - FORT MARTIN POWER	1	1
WV	VISTAS	54061-6773811	MORGANTOWN ENERGY ASSOCIATES	1	1
WV	VISTAS	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	1	1
WV	VISTAS	54079-6789111	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	1	1
WV	VISTAS	54083-6790511	SLADY 6C4350	1	1
WV	VISTAS	54083-6790711	PILES CREEK 6C4340	1	1
WV	VISTAS	54093-6327811	KINGSFORD MANUFACTURING COMPANY	1	1

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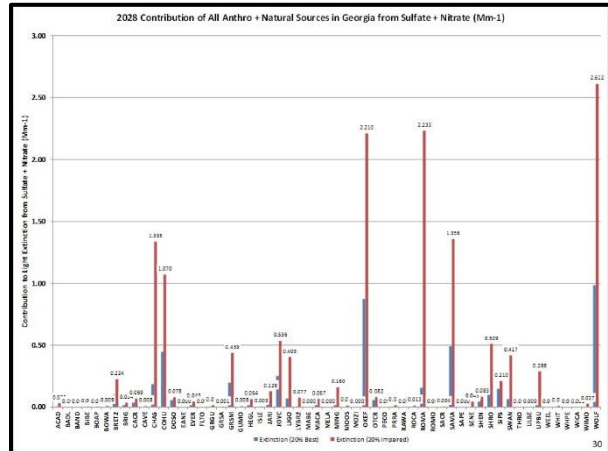


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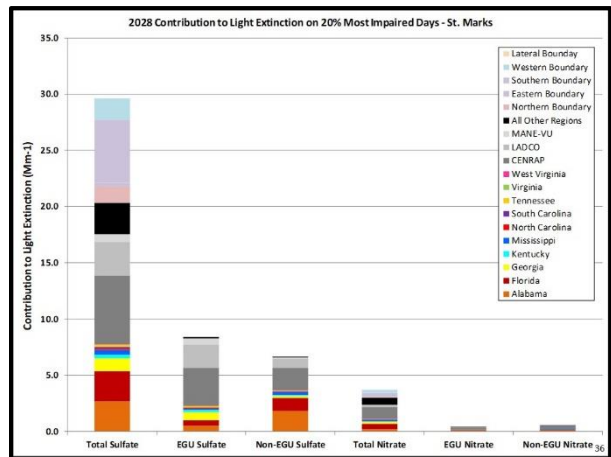
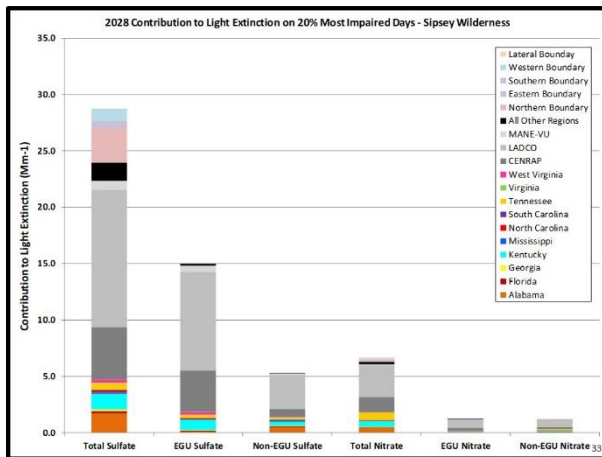
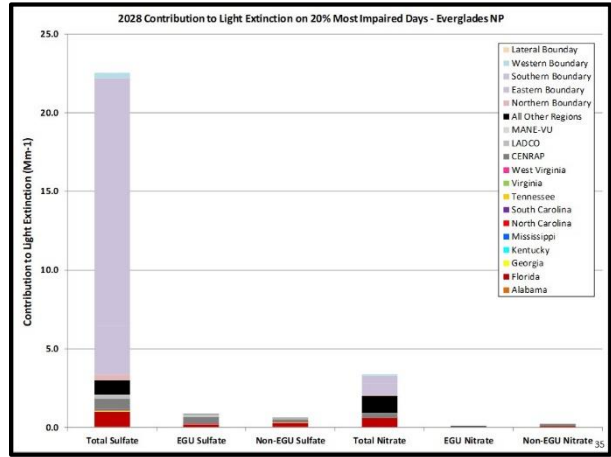
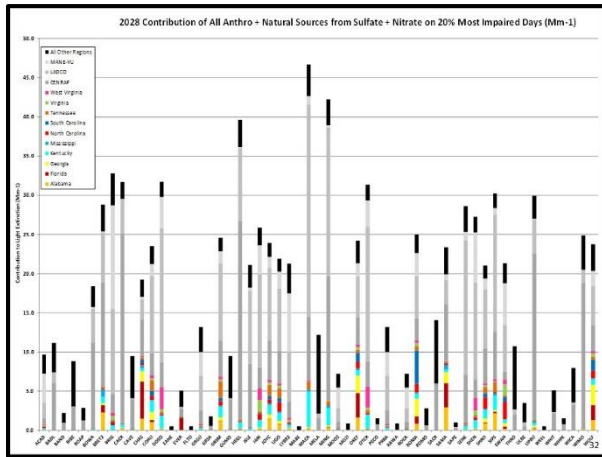
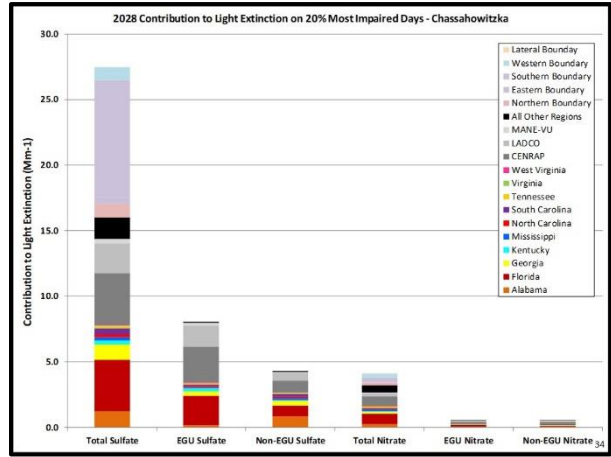
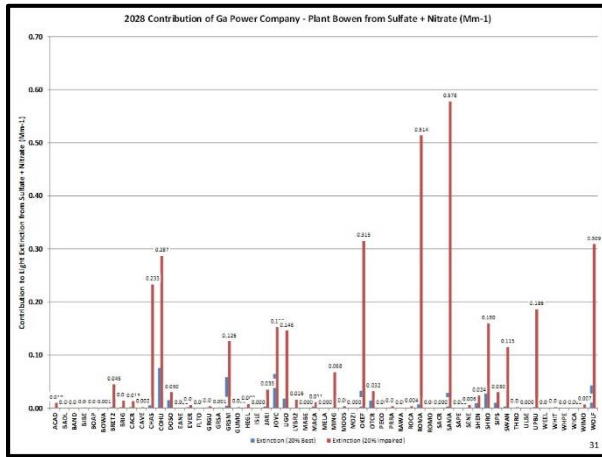
## VISTAS Round 2 Facility Tags

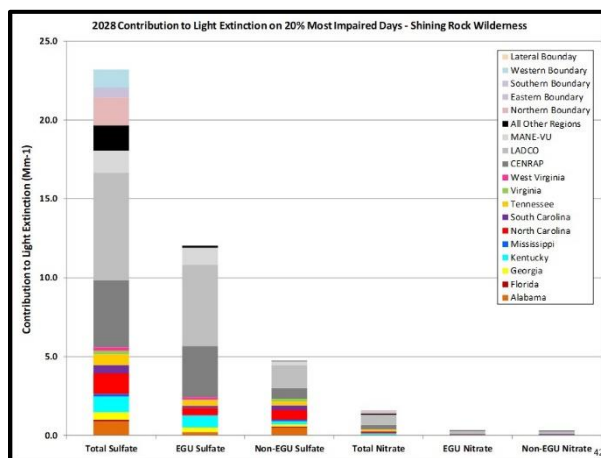
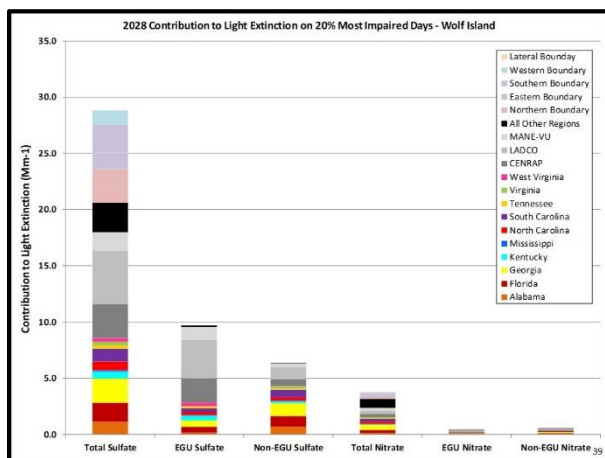
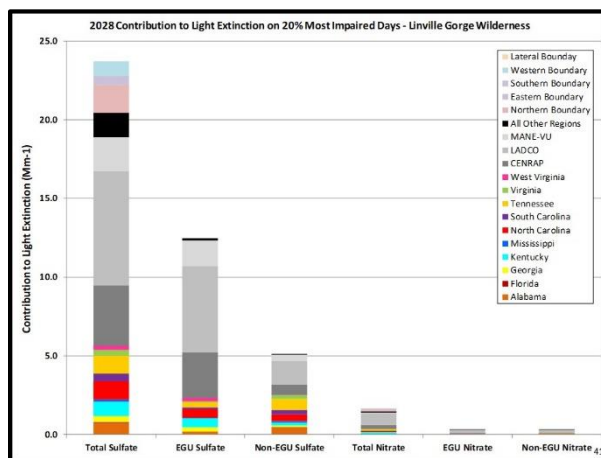
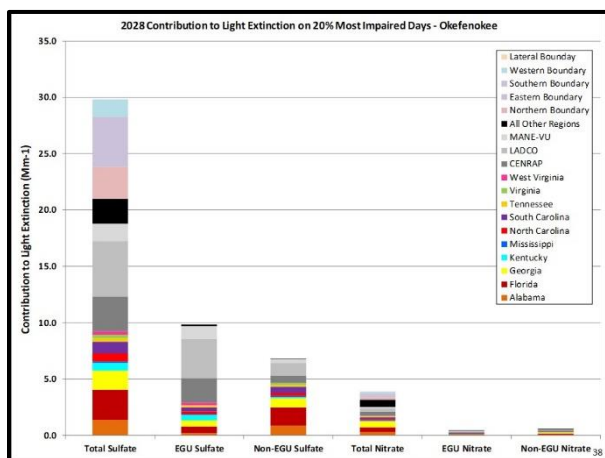
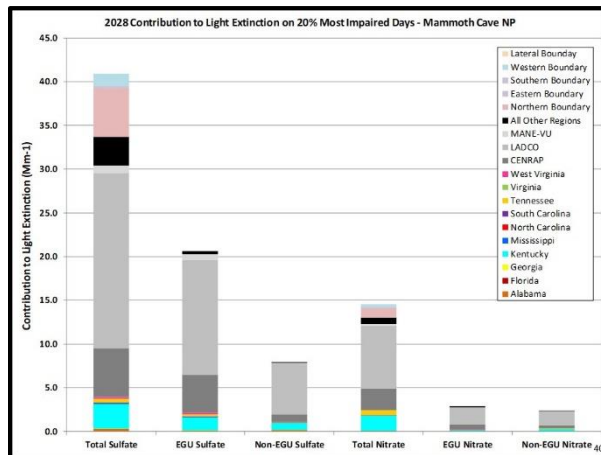
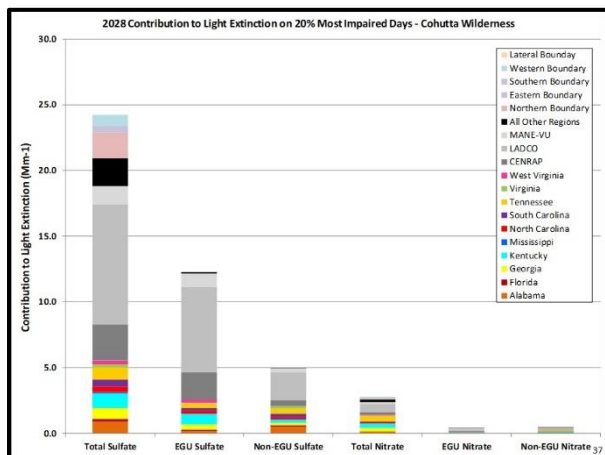
Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
AL	VISTAS	01129-1012911	American Midstream Chatham, LLC		1
FL	VISTAS	12123-752411	BUCKEYE FLORIDA LIMITED PARTNERSHIP	1	
FL	VISTAS	12086-9000111	CEMEX CONSTRUCTION MATERIALS FL LLC.	1	
FL	VISTAS	12086-9000111	FLORIDA POWER & LIGHT (FPL)	1	
FL	VISTAS	12086-9000111	HOMESTEAD CITY UTILITIES	1	
FL	VISTAS	12129-2731711	TALLAHASSEE CITY FURDOM GENERATING STA.	1	
FL	VISTAS	12086-8999111	TARMAC AMERICA LLC	1	
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc	1	
GA	VISTAS	13103-5363111	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1	
GA	VISTAS	13115-5393111	International Paper - Rome	1	
MS	VISTAS	28059-8384311	Chevron Products Company, Pascagoula Refinery	1	1
MS	VISTAS	28059-6251011	Mississippi Power Company, Plant Victor J Daniel	1	1
NC	VISTAS	37087-7920511	Blue Ridge Paper Products - Canton Mill	1	
NC	VISTAS	37117-8049011	Dorland Paper Company, LLC	1	1
NC	VISTAS	37035-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	1	1
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1	
NC	VISTAS	37023-8513011	SGL Carbon LLC	1	
SC	VISTAS	45015-4110411	SANTER COOPER CROSS GENERATING STATION	1	
SC	VISTAS	45043-6623811	SANTER COOPER WINNIEH GENERATING STATION	1	
SC	VISTAS	45015-8306711	SCE& WILLIAMS	1	
VA	VISTAS	51027-4034811	Jewell Cole Company LLP	1	
VA	VISTAS	51580-5798711	Meadwestvaco Packaging Resource Group	1	
VA	VISTAS	51023-5039811	Roadville Cement Company	1	

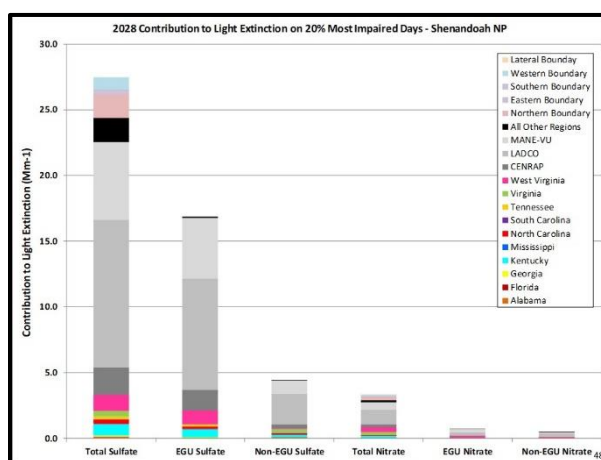
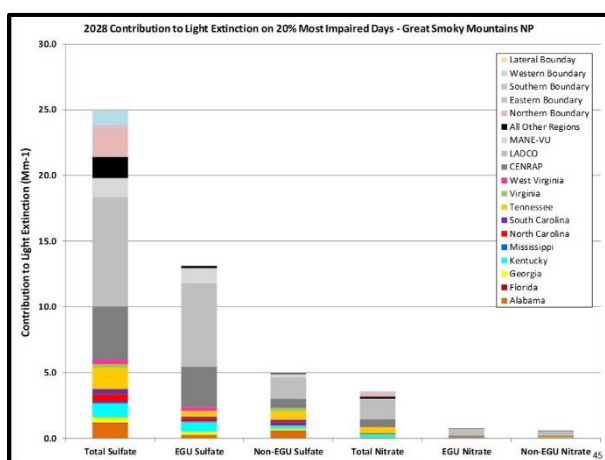
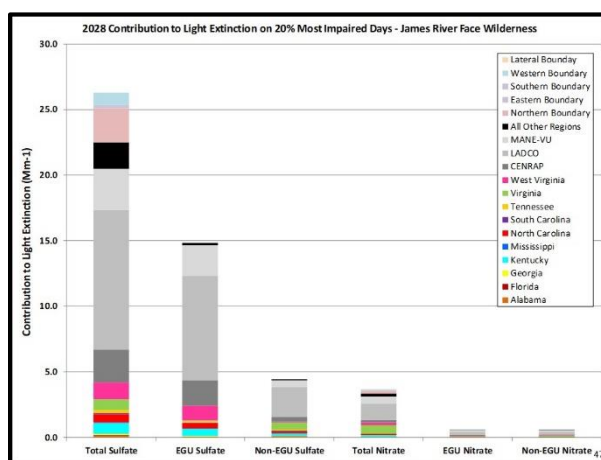
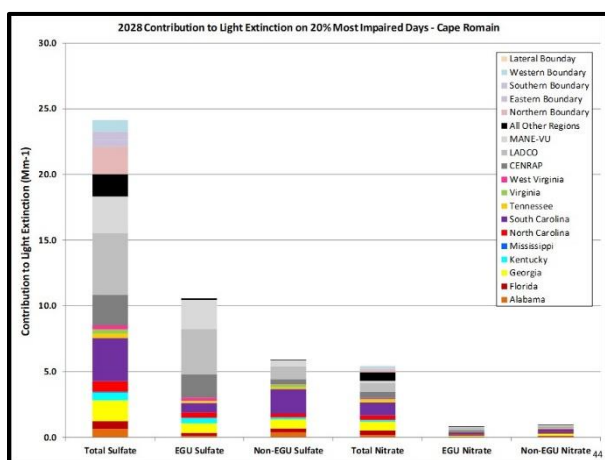
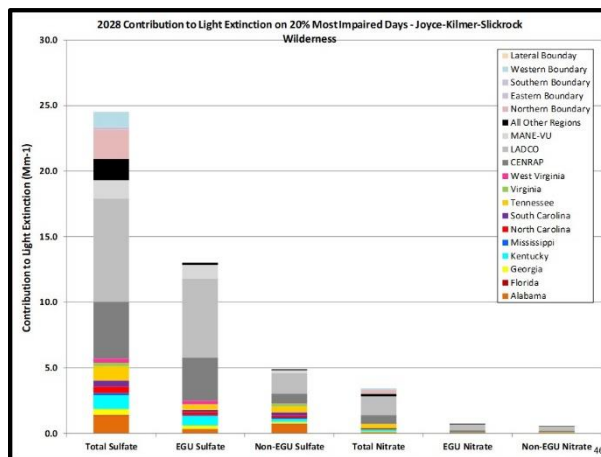
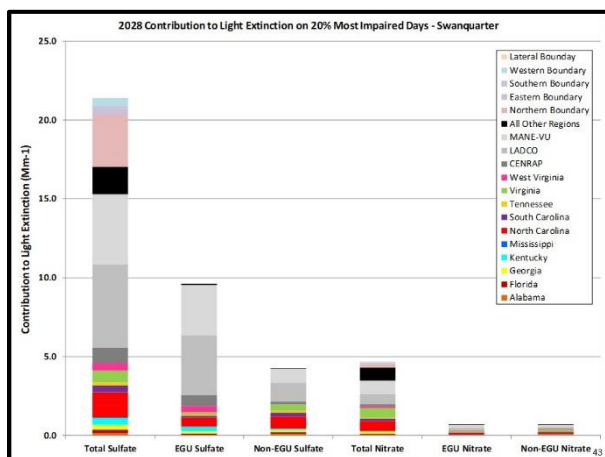
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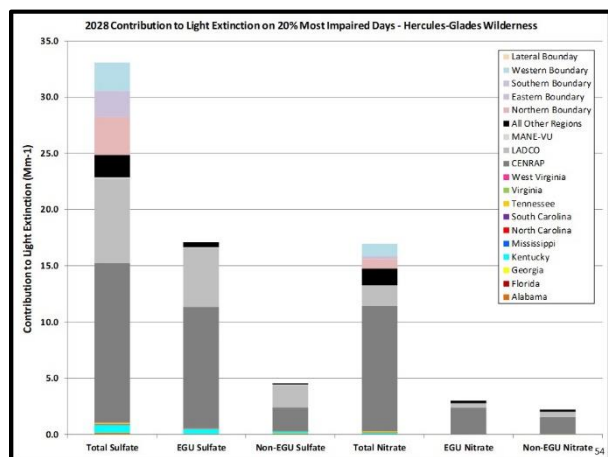
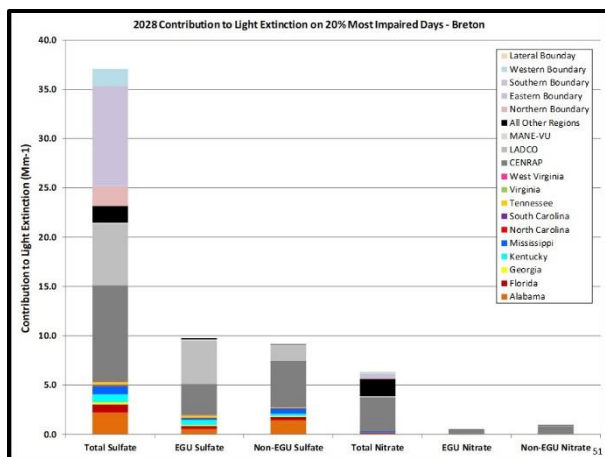
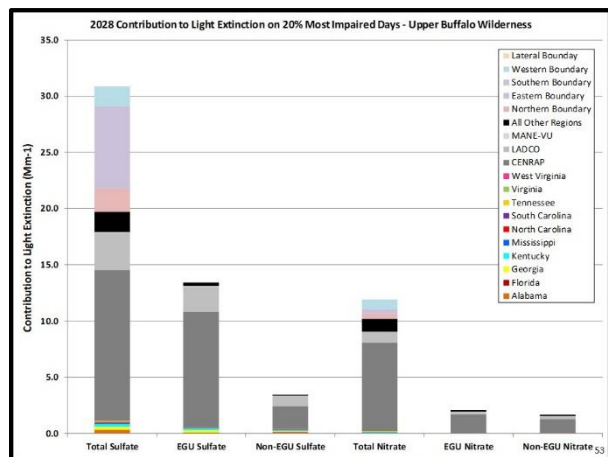
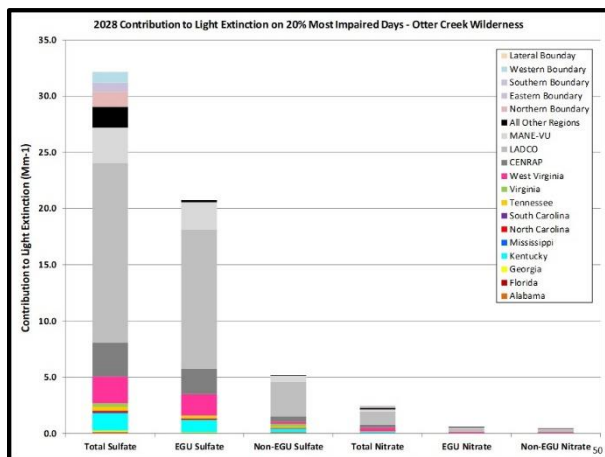
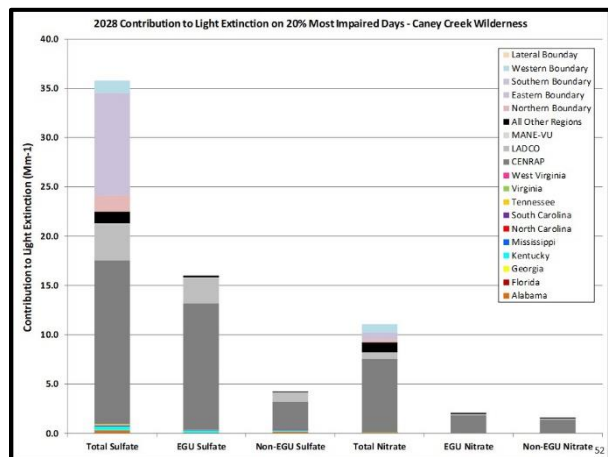
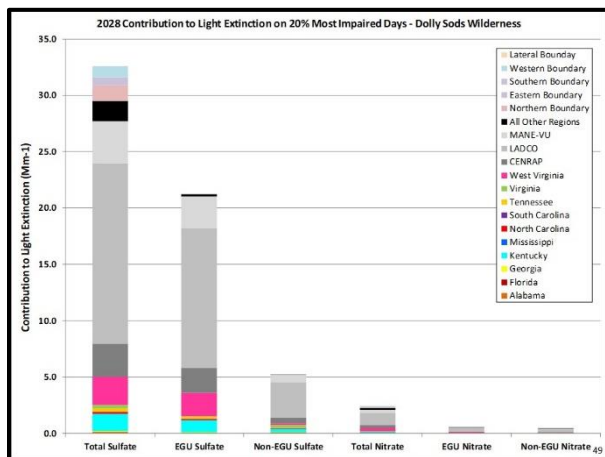
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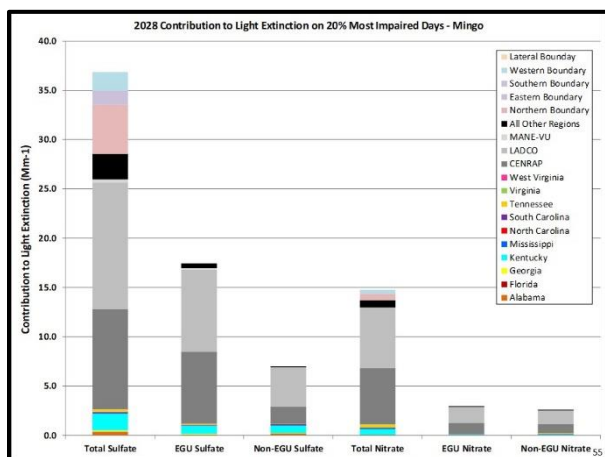








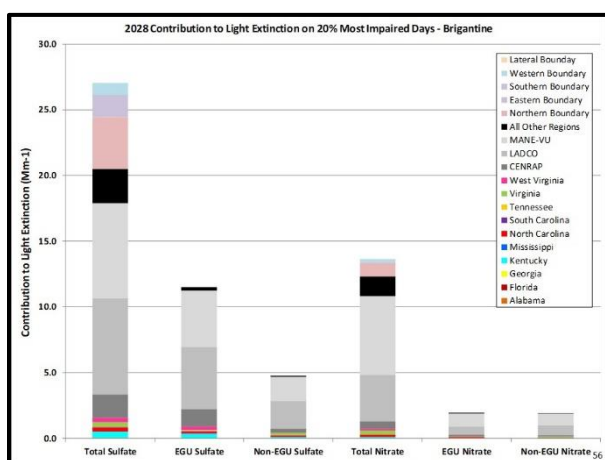




### Screening for 4-Factor Analysis

- States are in the process of selecting sources for the reasonable progress 4-factor analysis
- State need to make decisions on screening thresholds:
  - Most states will likely use a screening threshold based on a facility's percent contribution to point source contributions
    - Likely range is between 2% to 5%
  - Sulfate and nitrate separately vs. combination
  - AOI contributions, PSAT contributions, or combination
    - In some cases, the AOI contributions are significantly different than the PSAT contributions

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### 4-Factor Analysis

- States will evaluate certain sources and emissions to determine if reasonable controls are in place or available
- Considers four important factors
  - Potential costs of compliance
    - \$/ton and \$/Mm<sup>-1</sup>
  - Time necessary for compliance
  - Energy and non-air quality environmental impacts of compliance
  - Remaining useful life of sources subject to this analysis

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## NEXT STEPS

### Remaining Work Schedule

Task	Schedule
Additional PSAT tagging runs?	Necessity uncertain
Final reports and documentation	February 2020
Website updates and postings	Ongoing task
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

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## Contact Information

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- Phone: 404-361-4000



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## **Appendix F-3h - VISTAS Regional Haze Project Update, April 2, 2020**

# VISTAS Regional Haze Project Update



FLM and EPA Conference Call  
April 2, 2020

## Old ERTAC (2.7opt) vs. New ERTAC (16.0)

SO <sub>2</sub>	16.0 2028	2.7opt 2028	Δ SO <sub>2</sub>	Δ SO <sub>2</sub>
CENSARA	367,683.7	760,828.2	-393,144.5	-51.67%
LADCO	266,047.0	379,577.5	-113,530.5	-29.91%
MANE-VU	78,657.0	196,672.6	-118,015.6	-60.01%
VISTAS	161,502.5	273,582.1	-112,079.6	-40.97%
<b>TOTAL</b>	<b>976,471.2</b>	<b>1,783,376.5</b>	<b>-806,905.3</b>	<b>-45.25%</b>

NO <sub>x</sub>	16.0 2028	2.7opt 2028	Δ NO <sub>x</sub>	Δ NO <sub>x</sub>
CENSARA	244,499.3	354,795.1	-110,295.8	-31.09%
LADCO	166,429.4	198,966.9	-32,537.4	-16.35%
MANE-VU	56,315.3	83,432.5	-27,117.2	-32.50%
VISTAS	200,791.1	270,615.7	-69,824.6	-25.80%
<b>TOTAL</b>	<b>840,973.6</b>	<b>1,166,663.1</b>	<b>-325,689.5</b>	<b>-27.92%</b>

## Outline

- Background Information
- 2028 Emissions Updates
- Revised 2028 PSAT Stacked Bar Charts
- Four Factor Analysis
- Next Steps & Schedule



## VISTAS CC/TAWG Conclusions

- 2028 emission updates are necessary
  - **VISTAS States** – States will:
    - Update 2028 major source emissions projections (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, NH<sub>3</sub>, CO) at the facility and unit level
    - Add any new sources of significance
  - **LADCO States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.1 based on LADCO input
  - **All Other States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.0
    - Verify accuracy of large SO<sub>2</sub> and NO<sub>x</sub> source emissions projections via contact with surrounding states/RPOs and update emissions as needed
- Additional 2028 air quality modeling is needed

## VISTAS vs. EPA Emission Projections

- The table below compares the 2028 point emissions used by VISTAS vs. the latest 2028fh emissions used by EPA (projected from 2016). The emissions below are extracted from the VISTAS 12 modeling domain which covers the Eastern U.S.

Pollutant	VISTAS 2028 (tpy)	New EPA 2028 (tpy)	Change (tpy)	Change (%)
NO <sub>x</sub>	2,641,463.83	2,108,115.50	533,348.33	20.19%
SO <sub>2</sub>	2,574,542.02	1,400,287.10	1,174,254.92	45.61%

## Additional Modeling-Related Tasks

- Emissions processing
- Updated 2028 CAMx modeling
- Updated 2028 visibility projections
- Documentation

## Updated 2028 Point Emissions

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## Revised 2028 PSAT Stacked Bar Charts (Original and Adjusted)

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### 2028 SO<sub>2</sub> Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	87,111.28	59,056.98	-32.2%	15,480.96	8,365.96	-46.0%	71,630.32	50,691.02	-29.2%
FL	63,501.23	52,982.68	-16.6%	28,547.41	24,004.67	-15.9%	34,953.82	28,978.01	-17.1%
GA	37,065.83	36,166.09	-2.4%	18,473.28	17,573.54	-4.9%	18,592.55	18,592.55	0.0%
KY	75,140.26	65,636.83	-12.6%	56,262.06	49,585.95	-11.9%	18,878.20	16,050.88	-15.0%
MS	21,234.31	8,405.06	-60.4%	8,984.57	3,226.28	-63.7%	14,249.74	5,188.78	-63.7%
NC	35,232.88	24,347.18	-30.9%	19,734.80	9,571.47	-51.5%	15,498.08	14,775.71	-4.7%
SC	29,600.85	29,601.25	0.0%	10,693.79	10,695.34	0.0%	18,907.05	18,905.91	-0.0%
TN	23,447.58	21,057.17	-10.2%	12,114.30	10,030.04	-17.2%	11,333.28	11,027.13	-2.7%
VA	19,839.18	18,551.32	-6.5%	3,264.09	1,976.23	-39.5%	16,575.09	16,575.09	0.0%
WV	63,404.07	53,715.79	-15.3%	57,828.67	47,744.49	-17.4%	5,575.41	5,971.30	7.1%
CENSARA	1,012,946.59	621,321.29	-38.7%	773,625.13	387,000.54	-50.0%	239,321.46	239,320.75	-0.0%
LADCO	660,186.42	498,171.62	-24.5%	444,506.99	282,492.18	-36.4%	215,679.44	215,679.44	0.0%
MANE-VE	270,810.83	149,439.76	-44.8%	203,661.43	95,074.20	-53.3%	67,149.39	54,365.55	-19.0%
WRAP	182,121.89	135,483.18	-25.6%	136,955.17	90,316.46	-34.1%	45,166.72	45,166.73	0.0%
<b>TOTAL</b>	<b>2,581,643.20</b>	<b>1,773,936.20</b>	<b>-31.3%</b>	<b>1,788,132.63</b>	<b>1,032,667.35</b>	<b>-42.2%</b>	<b>793,510.56</b>	<b>741,268.85</b>	<b>-6.6%</b>

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### PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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### 2028 NOx Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	80,389.97	70,824.72	-11.9%	26,895.35	20,008.14	-25.6%	53,494.61	50,816.58	-5.0%
FL	68,006.19	70,010.40	2.9%	26,250.73	25,049.90	-4.6%	41,755.45	44,960.50	7.7%
GA	67,197.50	65,885.55	-2.0%	25,899.67	24,587.73	-5.1%	41,297.83	41,297.83	0.0%
KY	66,240.03	62,130.83	-6.2%	36,781.72	32,695.94	-11.1%	29,458.31	29,434.89	-0.1%
MS	52,159.32	46,853.62	-10.2%	18,279.53	12,208.89	-33.2%	33,879.79	34,644.73	2.3%
NC	65,863.97	58,933.80	-10.5%	27,842.23	20,977.65	-24.7%	38,021.74	37,956.15	-0.2%
SC	36,051.31	36,170.87	0.3%	10,522.78	10,707.42	1.8%	25,528.53	25,463.44	-0.3%
TN	45,879.07	42,954.25	-6.4%	10,086.01	7,814.13	-22.5%	35,793.06	35,140.12	-1.8%
VA	43,210.19	41,671.99	-3.6%	11,973.97	10,435.77	-12.8%	31,236.22	31,236.22	0.0%
WV	65,054.07	68,200.77	4.8%	46,721.77	49,874.15	6.7%	18,332.30	18,326.62	-0.0%
CENSARA	903,979.85	791,397.59	-12.5%	382,706.66	270,182.46	-29.4%	521,273.19	521,215.14	-0.0%
LADCO	548,866.74	491,345.00	-10.5%	244,035.26	186,513.52	-23.6%	304,831.49	304,831.49	0.0%
MANE-VE	244,280.15	222,991.41	-9.7%	103,465.15	82,176.41	-20.6%	140,815.00	140,815.00	0.0%
WRAP	362,819.80	301,433.41	-16.9%	187,944.97	126,558.55	-32.7%	174,874.83	174,874.86	0.0%
<b>TOTAL</b>	<b>2,649,998.14</b>	<b>2,370,804.22</b>	<b>-10.5%</b>	<b>1,159,405.80</b>	<b>879,790.66</b>	<b>-24.1%</b>	<b>1,490,592.35</b>	<b>1,491,013.55</b>	<b>0.0%</b>

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### PSAT SO<sub>2</sub> and NOx Tags (209)

#### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

#### Round 2 (87 tags)

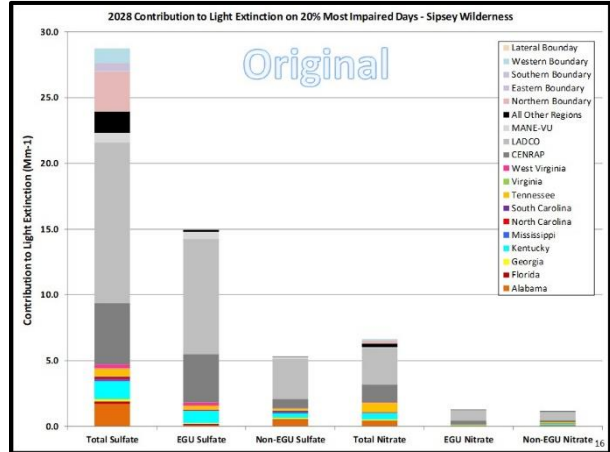
- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

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### PSAT Adjustment Ratios

State/RPO	SO <sub>2</sub> EGU Ratio	SO <sub>2</sub> NEGU Ratio	NOx EGU Ratio	NOx NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	0.872	1.000
WV	0.826	1.071	1.067	1.000
CENSARA	0.494	1.000	0.706	1.000
LADCO	0.636	1.000	0.764	1.000
MANE-VE	0.467	0.810	0.794	1.000

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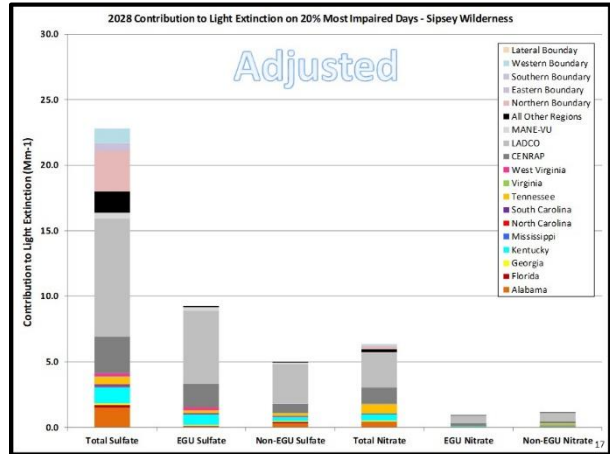
### Revised State/RPO PSAT Results

- Revised EGU Sulfate PSAT Results**  
 = Original EGU Sulfate PSAT Results \* SO<sub>2</sub> EGU Ratio  

$$\text{where, SO}_2 \text{ EGU Ratio} = \frac{(\text{Revised EGU SO}_2 \text{ emissions})}{(\text{Original EGU SO}_2 \text{ emissions})}$$
- Revised NEGU Sulfate PSAT Results**  
 = Original NEGU Sulfate PSAT Results \* SO<sub>2</sub> NEGU Ratio  

$$\text{where, SO}_2 \text{ NEGU Ratio} = \frac{(\text{Revised EGU SO}_2 \text{ emissions})}{(\text{Original EGU SO}_2 \text{ emissions})}$$

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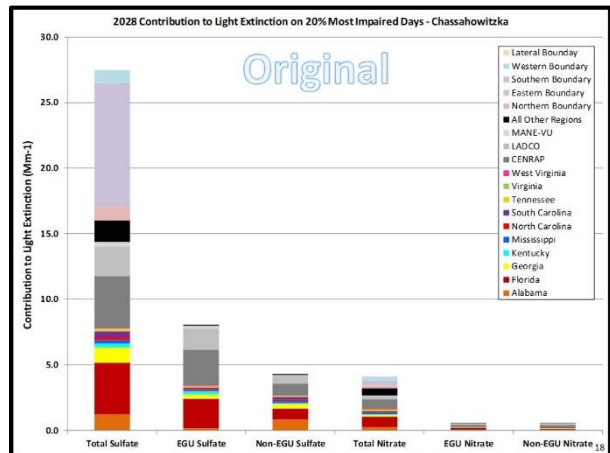
### Revised State/RPO PSAT Results

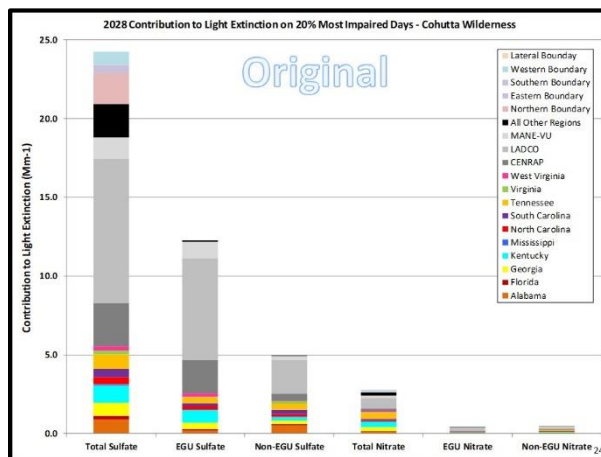
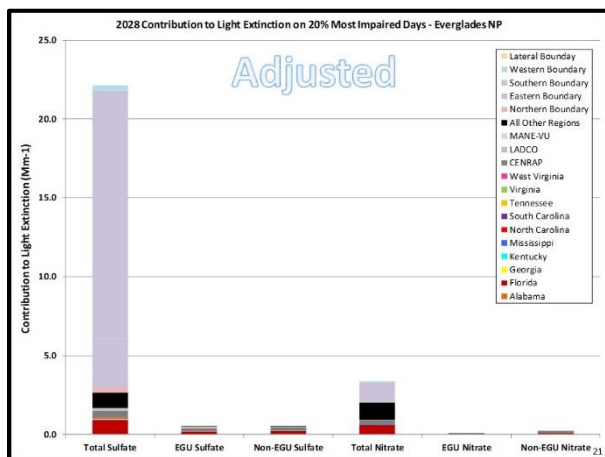
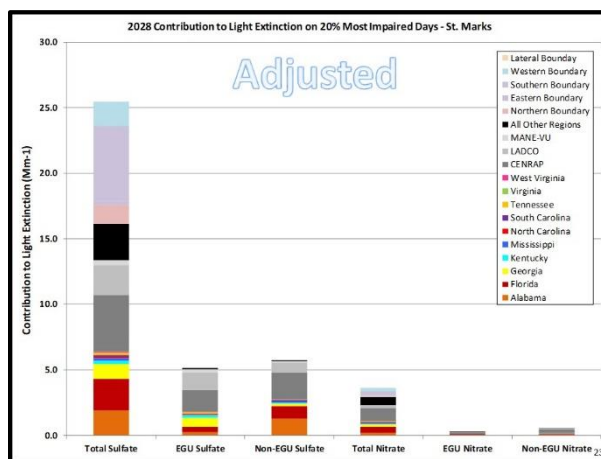
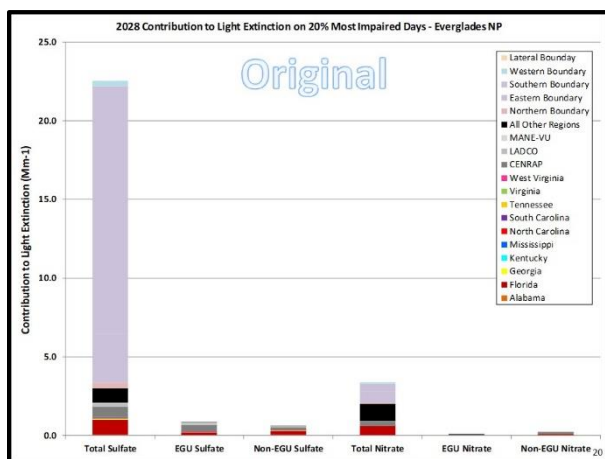
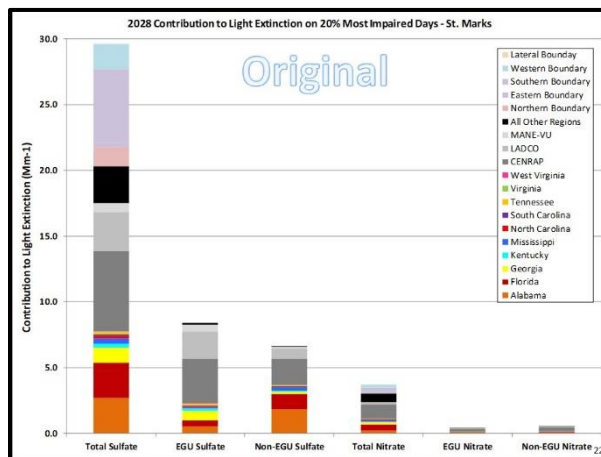
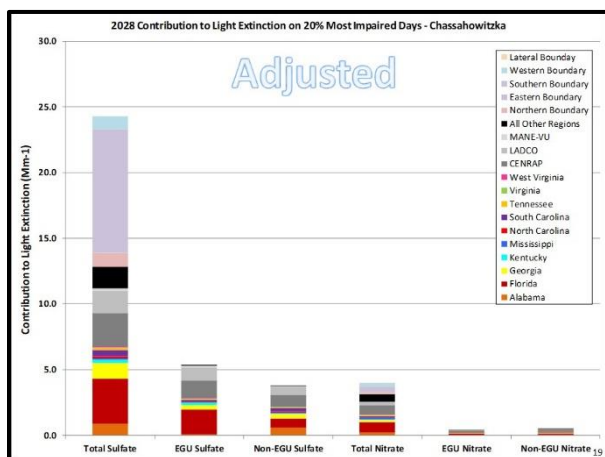
- Revised EGU Nitrate PSAT Results**  
 = Original EGU Nitrate PSAT Results \* NOx EGU Ratio  

$$\text{where, NOx EGU Ratio} = \frac{(\text{Revised EGU NOx emissions})}{(\text{Original EGU NOx emissions})}$$
- Revised NEGU Nitrate PSAT Results**  
 = Original NEGU Nitrate PSAT Results \* NOx NEGU Ratio  

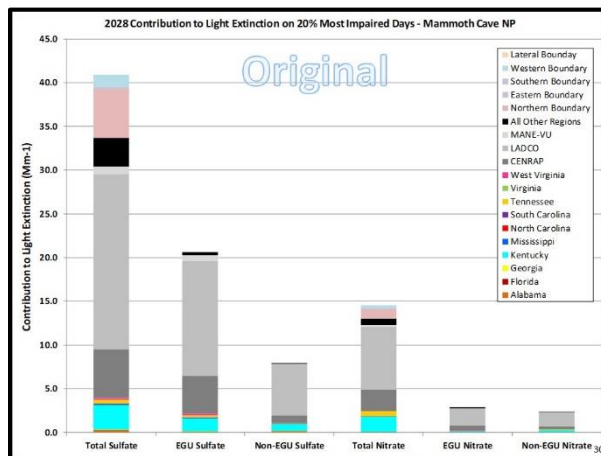
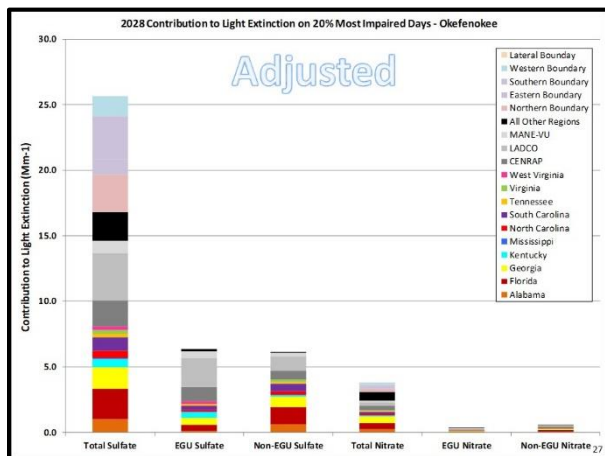
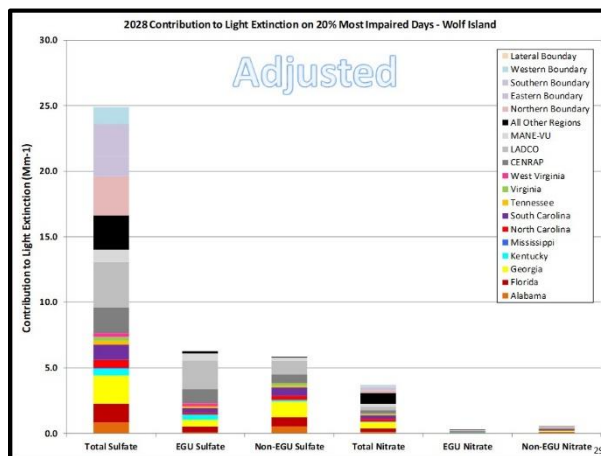
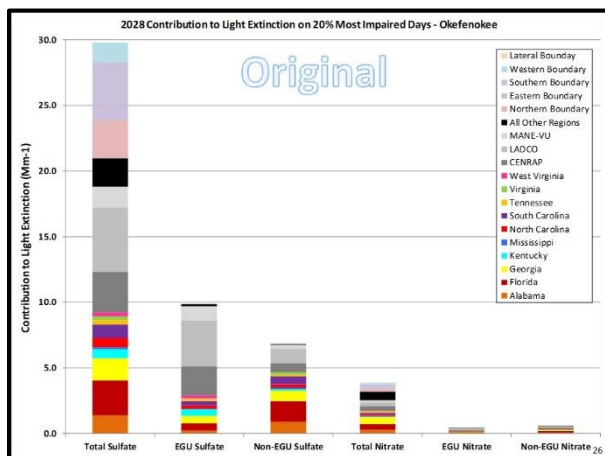
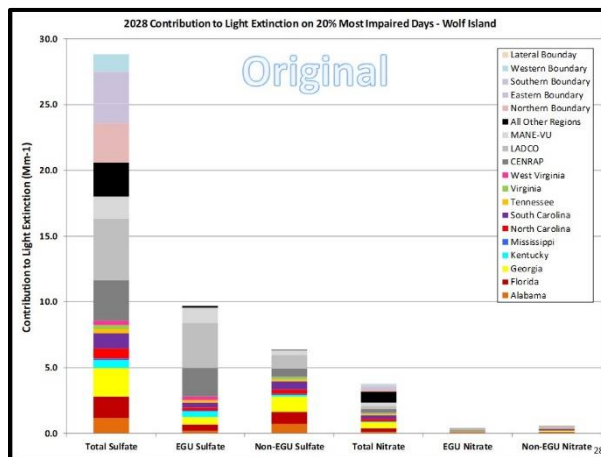
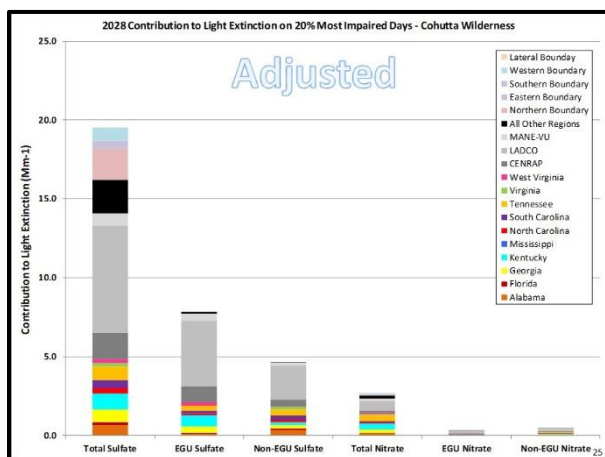
$$\text{where, NOx NEGU Ratio} = \frac{(\text{Revised EGU NOx emissions})}{(\text{Original EGU NOx emissions})}$$

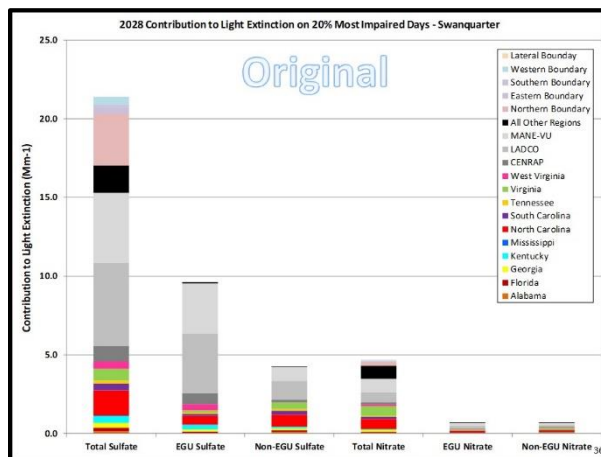
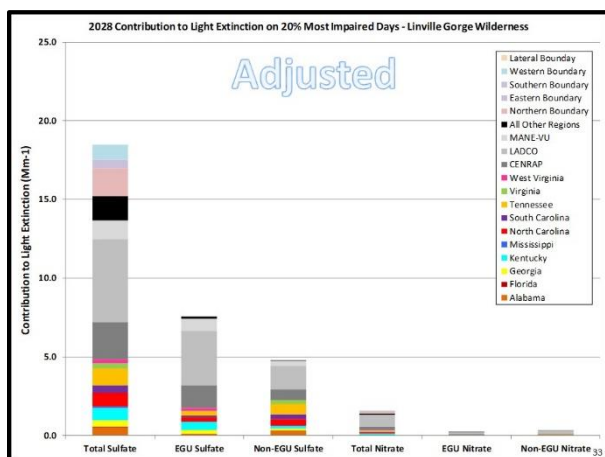
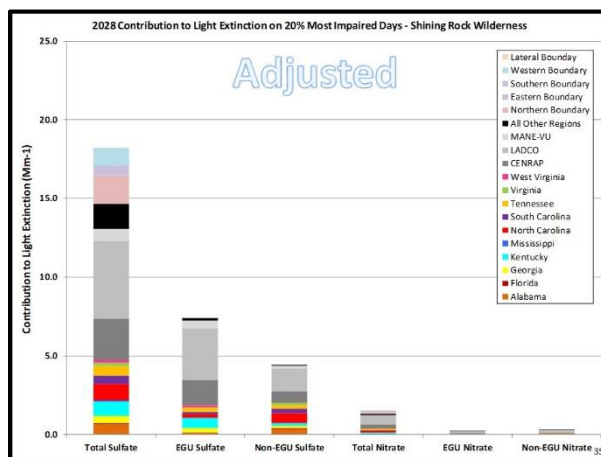
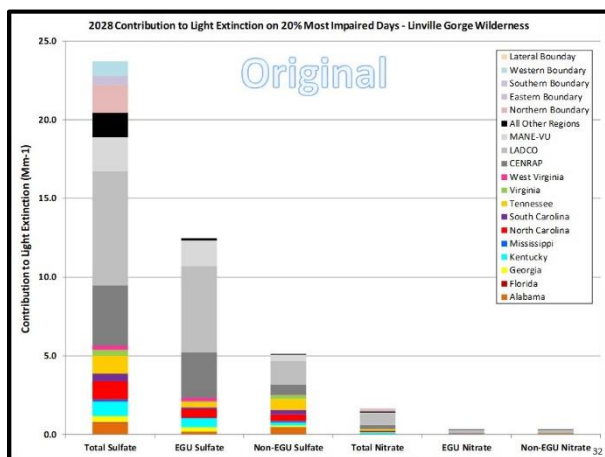
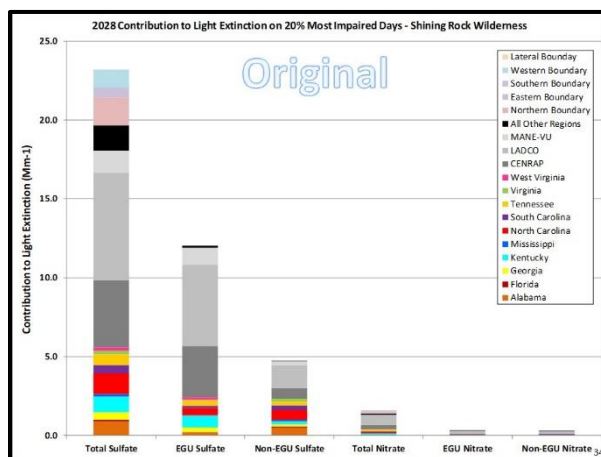
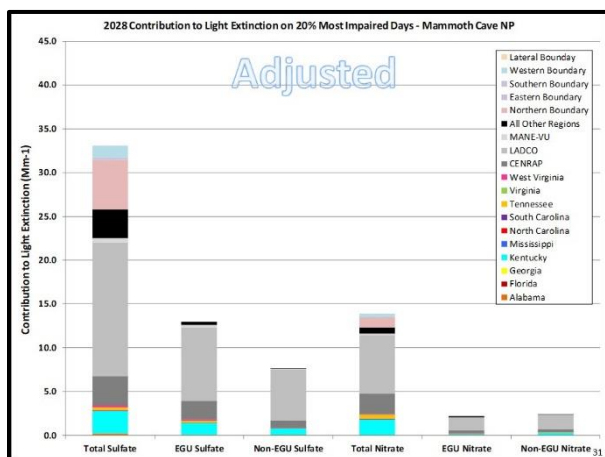
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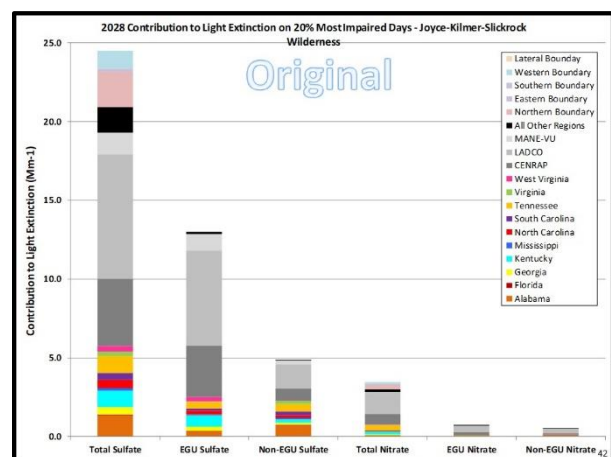
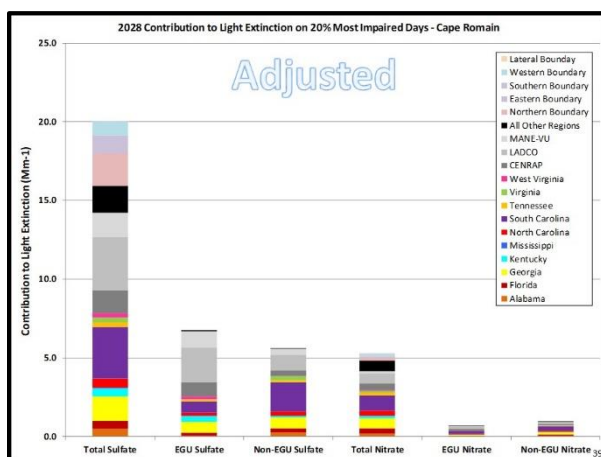
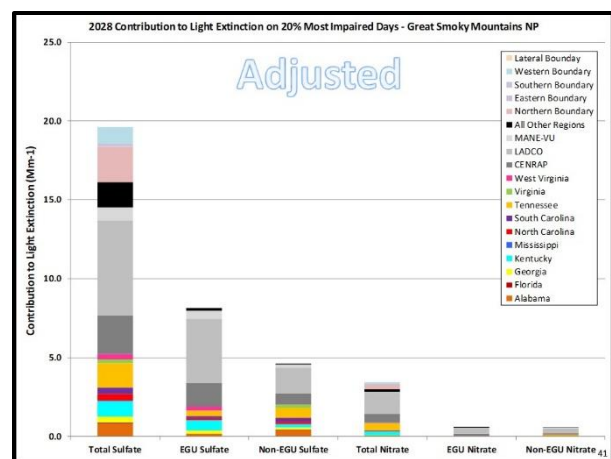
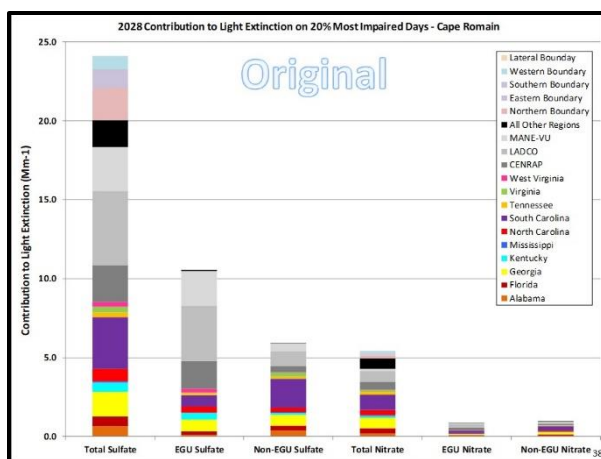
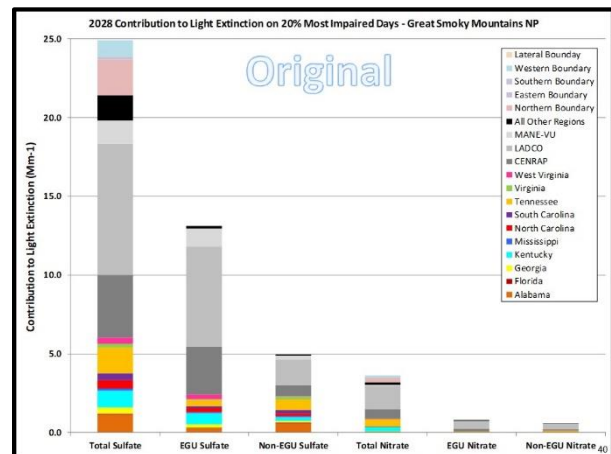
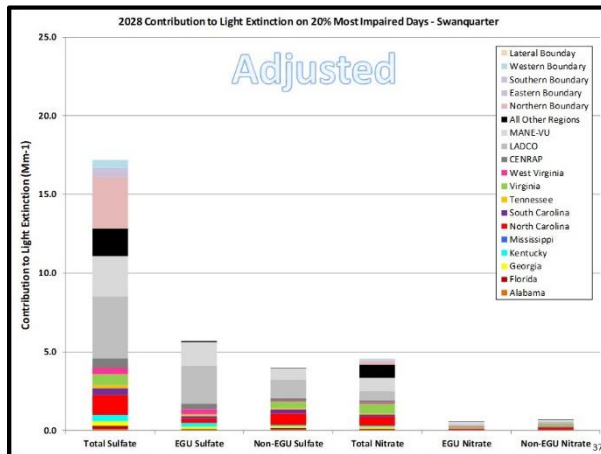




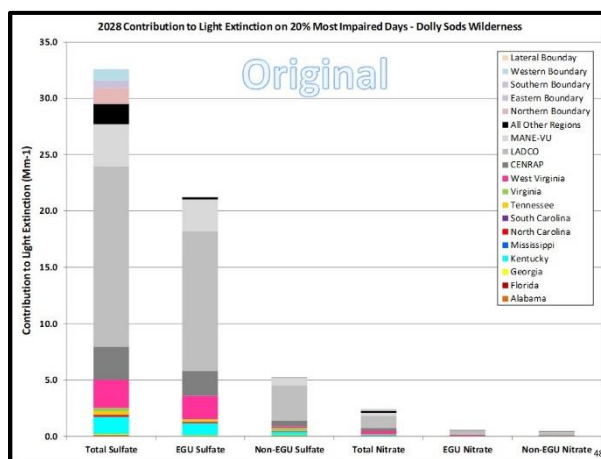
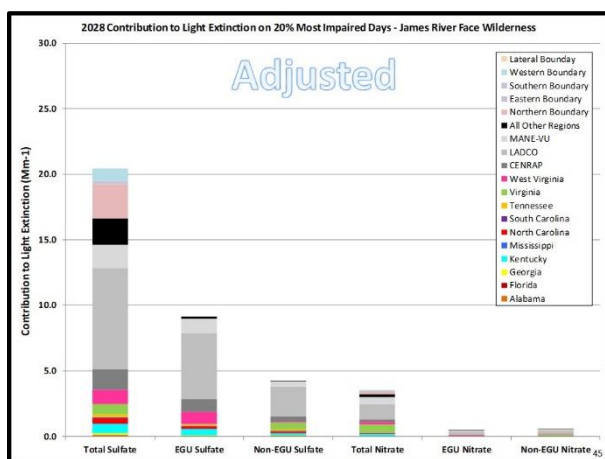
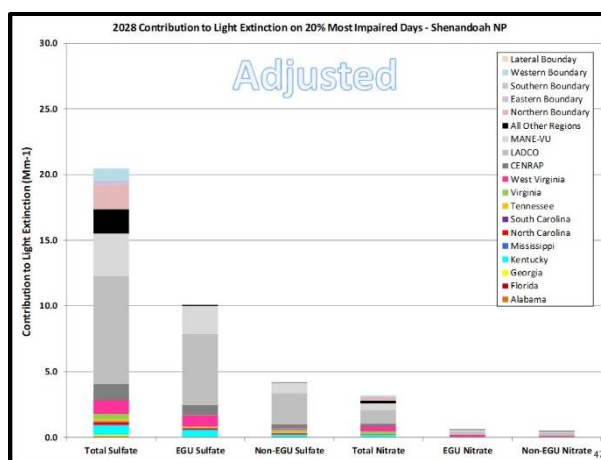
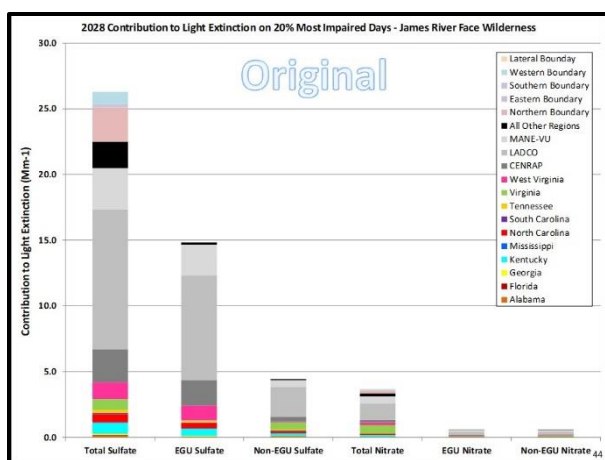
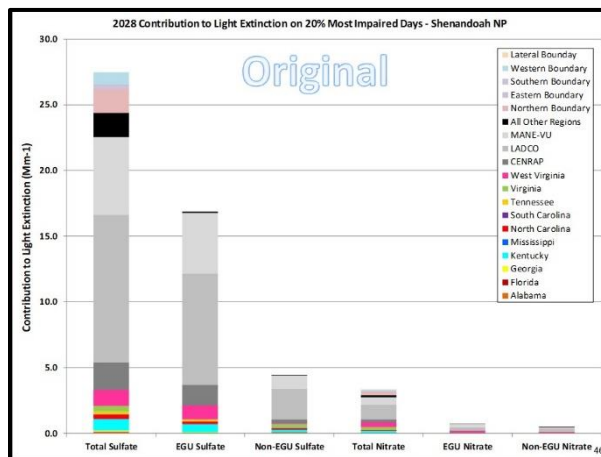
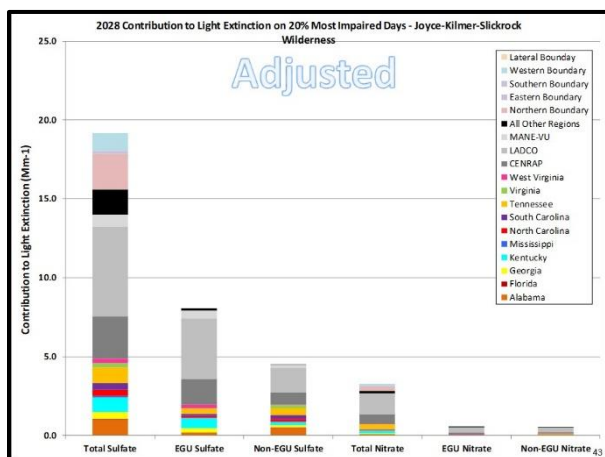


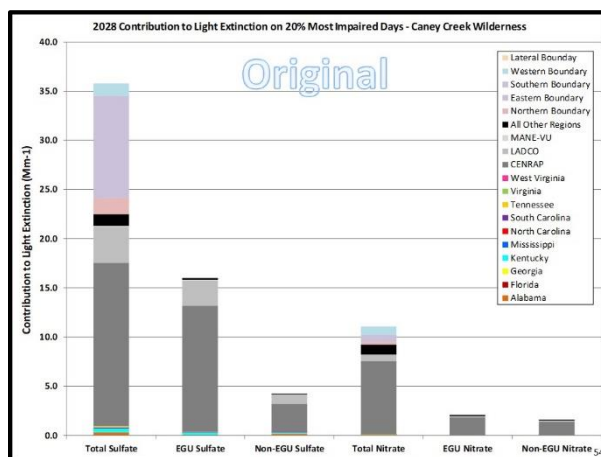
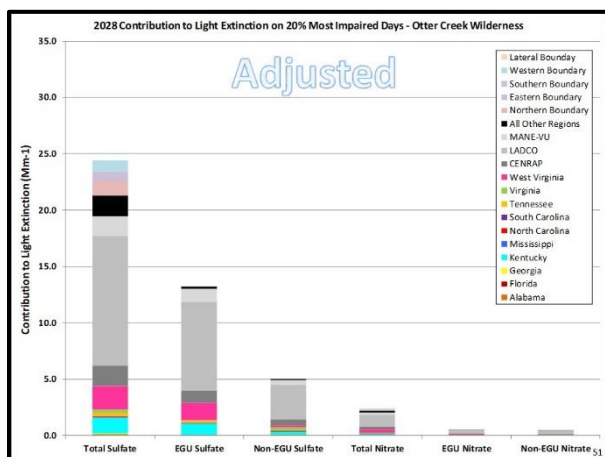
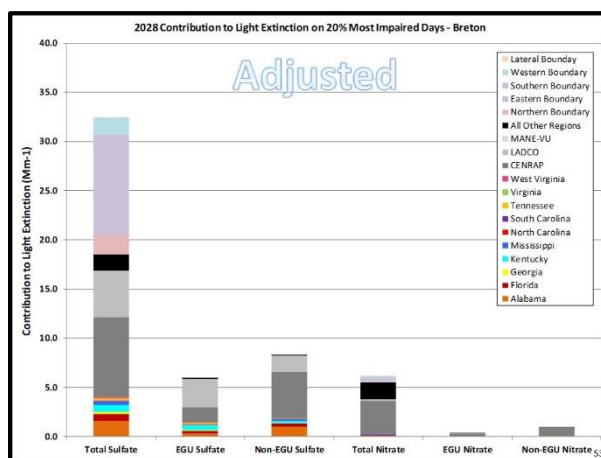
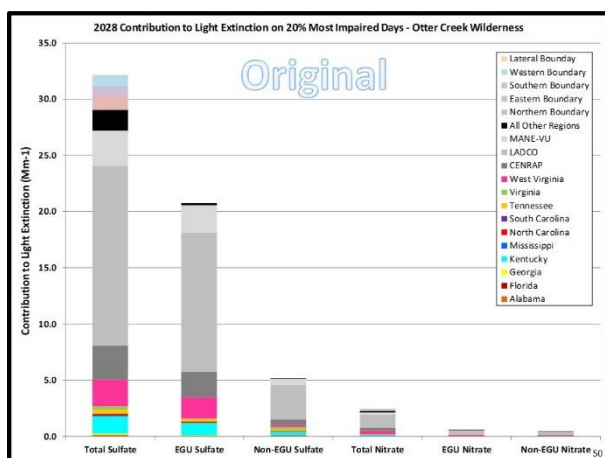
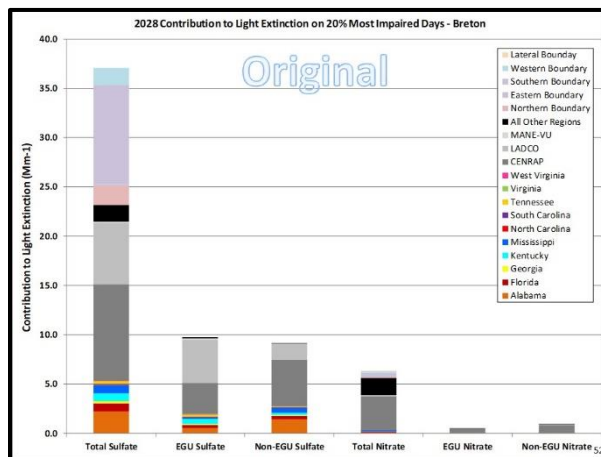
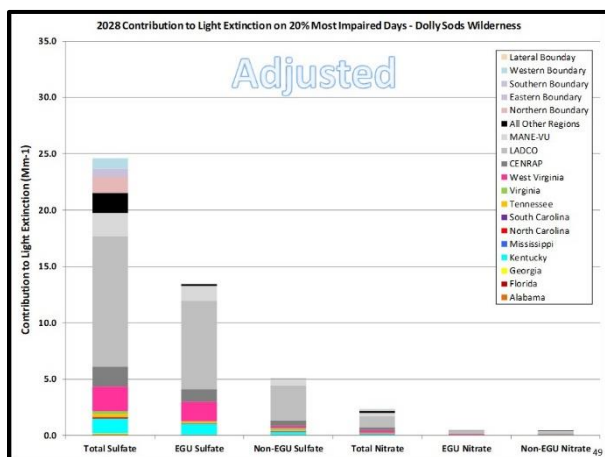


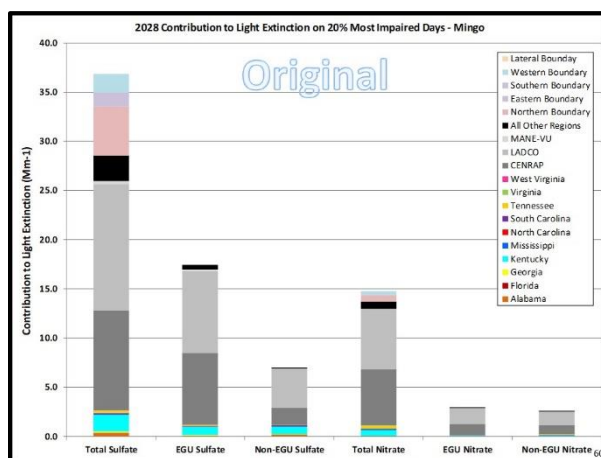
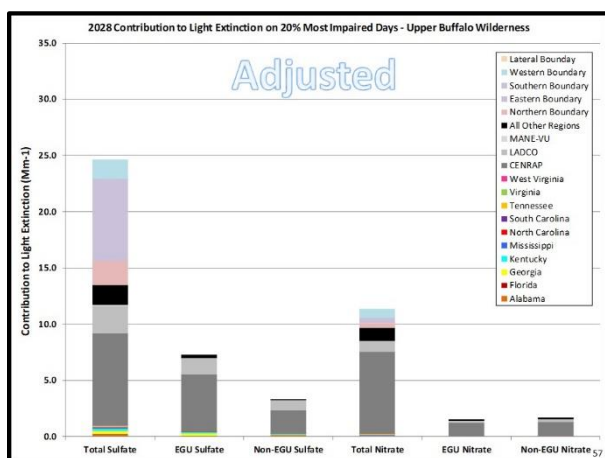
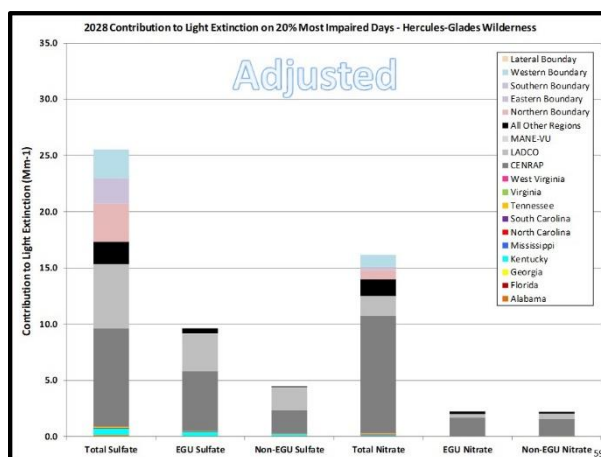
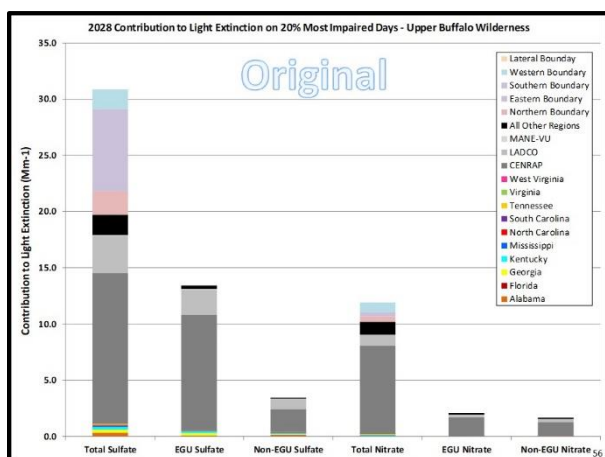
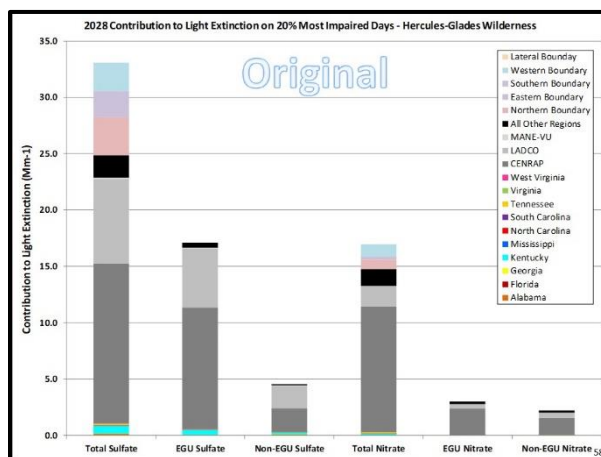
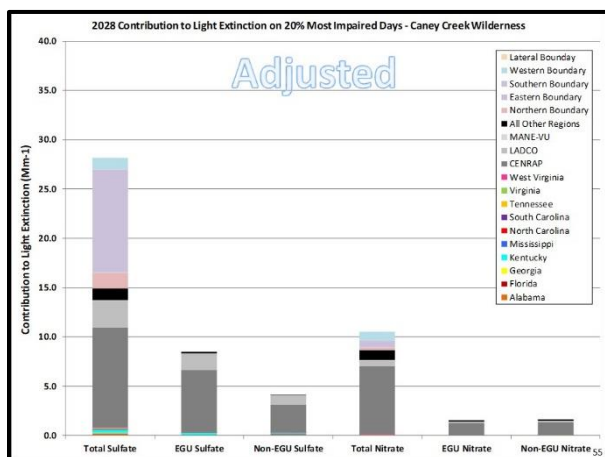


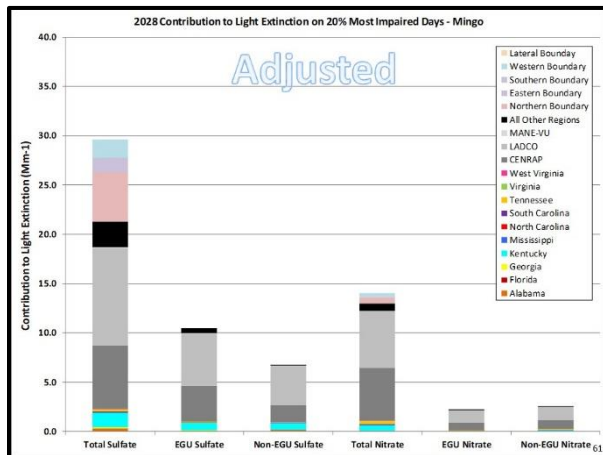






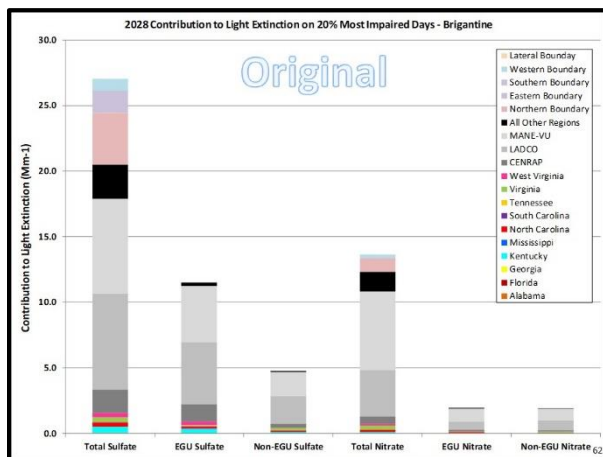






## Four Factor Analysis

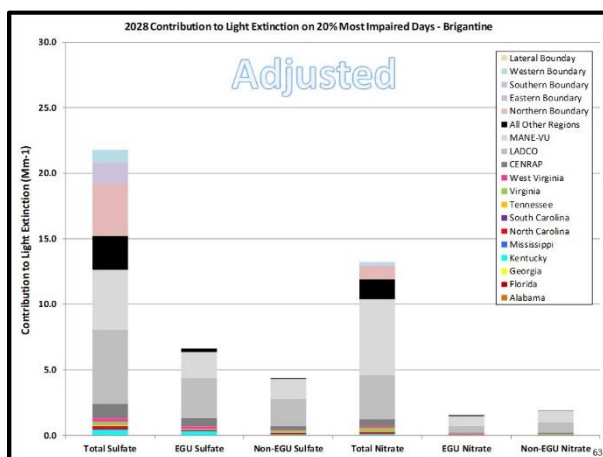
64



### Four-Factor Analysis Screening Approach

1. The VISTAS four-factor analysis approach is based on an initial AOI screening ( $Q/d \times EWRT$ ) to rank facilities based on their sulfate and nitrate contributions at each Class I area.
2. These rankings were used to identify 87 individual facilities for PSAT tagging. PSAT tagging was used to determine the nitrate and sulfate contributions from each facility at each Class I area in the VISTAS\_12 domain.
3. Each individual VISTAS state will apply a PSAT contribution threshold based on the facility sulfate or facility nitrate impacts divided by the total impact of sulfate + nitrate from all point sources to determine which sources will need to be considered for a four-factor analysis.
  - If sulfate contribution  $\geq 1\%$   $\rightarrow$   $SO_2$  Four-Factor Analysis
  - If nitrate contribution  $\geq 1\%$   $\rightarrow$   $NO_x$  Four-Factor Analysis

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### Why 1% Threshold?

- In the Round 1 Regional Haze SIPs, many VISTAS states used the AOI approach and a 1% threshold on a Unit basis.
  - We are using the AOI/PSAT approach and a 1% threshold based on a Facility basis. This will pull in more facilities compared to a Unit basis.
- The CSAPR interstate transport rules use a 1% contribution threshold for determining significant contributions to nonattainment and maintenance areas.
  - The use of a 1% significance threshold would be consistent with the CSAPR approach.

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## Area of Influence (AOI) Analysis

- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d)*EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the 4-factor analysis
- Georgia Example:
  - Sources in Georgia, used  $\geq 2\%$  threshold
  - Sources outside Georgia, used  $\geq 4\%$  threshold

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## AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (km)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Brunswick Cellulose Inc	27.9	1,544.3	284.2	2.94%	8.84%
FL	ROCK TENN CP, LLC	74.9	2,316.8	2,606.7	0.39%	8.56%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.53%
FL	JEA	105.1	651.8	2,094.5	0.09%	4.43%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,860.2	0.09%	2.83%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.5	112.4	2,745.0	0.01%	1.97%
SC	ALUMINAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	0.00%	1.84%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	0.38%	1.79%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (0627010056)	845.3	8,122.5	41,595.8	0.02%	1.71%
SC	Santee Cooper Cross Generating Station	275.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	0.00%	1.55%
FL	IFF CHEMICAL HOLDINGS, INC.	118.5	37.7	898.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,648.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	19.9	521.6	582.0	0.00%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	1,780.3	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	GENON NE MGMT. CO/KEYSTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

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## AOI Point Contributions for COHU

State	FACILITY NAME	DISTANCE (km)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Ga Power Company - Plant Bowen	78.0	6,648.3	10,453.4	1.15%	19.58%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	8,856.6	30,536.3	0.13%	4.46%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Gibson	487.1	12,280.3	23,117.2	0.10%	2.31%
IN	INDIANAPOLIS POWER & LIGHT PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.18%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	7,007.3	19,504.7	0.07%	2.18%
TN	TVA KINGSTON FOSSIL PLANT	124.0	2,687.4	1,886.1	0.13%	2.17%
OH	General James M. Gavin Power Plant (0627010056)	512.0	8,122.5	41,595.8	0.02%	1.71%
TN	TVA CUMBERLAND FOSSIL PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Big Rivers Electric Corp. - Wilson Station	369.0	1,151.9	6,934.2	0.01%	1.07%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	7,150.0	22,133.9	0.06%	1.05%
GA	Ga Power Company - Plant Wansley	156.8	2,032.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co. - Ghent Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	Jopka Steam	466.9	4,706.3	20,509.3	0.02%	1.04%
GA	Mohawk Industries Inc	32.0	66.5	77.1	0.07%	1.02%
TN	EASTMAN CHEMICAL COMPANY	289.8	6,900.3	6,420.2	0.09%	0.99%
MO	AMEREN MISSOURI-LABADE PLANT	695.4	9,685.5	41,740.3	0.01%	0.96%
IL	Newton	564.0	1,934.5	10,633.6	0.01%	0.91%
GA	Chemical Products Corporation	71.9	19.5	513.8	0.00%	0.89%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	444.4	6,188.5	9,038.1	0.04%	0.76%

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## Georgia Tagging for PSAT

- Sources in Georgia ( $\geq 2\%$  threshold)**
  - Ga Power Company - Plant Bowen
  - International Paper - Rome (aka TEMPLE INLAND)
  - International Paper - Savannah
  - Brunswick Cellulose Inc
  - Georgia-Pacific Consumer Products LP (Savannah River Mill)
- Sources outside Georgia ( $\geq 4\%$  threshold)**
  - INDIANA MICHIGAN POWER DBA AEP ROCKPORT (IN)
  - ROCK TENN CP, LLC (FL)
  - JEA (FL)

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## AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (km)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	71.5	112.4	2,745.0	0.03%	14.63%
FL	ROCK TENN CP, LLC	64.8	2,316.8	2,606.7	0.88%	12.82%
FL	JEA	65.6	651.8	2,094.5	0.18%	6.60%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	121.4	917.8	3,713.4	0.07%	3.55%
FL	IFF CHEMICAL HOLDINGS, INC.	56.8	37.7	898.9	0.01%	3.55%
FL	RAYONIER PERFORMANCE FIBERS LLC	63.4	2,327.1	562.0	0.90%	2.82%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	0.08%	2.81%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	1,830.7	1,520.4	0.14%	2.18%
FL	RENESENZ LLC	59.8	66.3	560.5	0.02%	1.96%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	205.0	2,489.8	5,306.4	0.06%	1.40%
AL	Sanders Lead Co	384.6	121.7	7,951.1	0.00%	1.11%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,860.2	0.01%	1.05%
GA	Ga Power Company - Plant Bowen	488.1	6,648.3	10,453.4	0.05%	1.02%
GA	Brunswick Cellulose Inc	73.3	1,534.5	294.2	0.34%	1.01%
SC	ALUMINAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA Valdosta Mill	112.7	1,032.6	485.7	0.09%	0.85%
SC	Santee Cooper Cross Generating Station	348.1	3,273.5	4,281.2	0.05%	0.85%
FL	CITY OF GAINESVILLE GRU	111.7	410.0	881.4	0.03%	0.79%
SC	KAPSTONE CHARLESTON KRAFT LLC	314.5	2,355.8	1,863.7	0.06%	0.65%
GA	Ga Power Company - Plant Wansley	403.7	2,032.5	4,856.0	0.02%	0.65%

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## AOI Screening Summary

State	Threshold	Notes
AL	2%	Sulfate only
FL	5%	Sulfate or nitrate, plus Gulf Crist, Mosaic Bartow, Mosaic New Wales, and Mosaic Riverview
GA	2% - 4%	Sulfate or nitrate, 2% threshold for GA facilities, 4% threshold for facilities outside GA
KY	2%	Sulfate or nitrate
MS	2%	Sulfate or nitrate
NC	3%	Sulfate + nitrate
SC	2% - 5%	2% for sulfate, 5% for nitrate, plus Santee Cooper Winyah, International Paper Georgetown, and SCE&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2%	Sulfate or nitrate

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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NO<sub>x</sub> and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## Facility Tags (KY, MS, NC, SC, TN, VA)

Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
KY	VISTAS	21183-506101	Big Rivers Electric Corp. - Wilson Station	5,334.26	1,131.95
KY	VISTAS	21091-752431	Century Aluminum of KY LLC	5,044.16	197.66
KY	VISTAS	21177-510671	Tennessee Valley Authority - Paradise Fossil Plant	3,011.01	3,114.52
KY	VISTAS	21145-401701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	19,304.75	7,007.34
MS	VISTAS	28059-538811	Chevron Products Company - Pascagoula Refinery	761.60	1,534.12
MS	VISTAS	28059-625101	Mississippi Power Company, Plant Victor J. Daniel	231.52	3,829.72
NC	VISTAS	37087-720511	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-804511	Dominion Paper Company, LLC	687.45	1,796.45
NC	VISTAS	37035-837041	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.31
NC	VISTAS	37013-847931	PCS Phosphate Company, Inc. - Aurora	4,845.90	495.58
NC	VISTAS	37023-851801	SGL Carbon - LLC	261.64	21.09
SC	VISTAS	45015-403401	ALLUMAX OF SOUTH CAROLINA	3,751.49	108.08
SC	VISTAS	45043-509861	INTERNATIONAL PAPER GEORGETOWN MILL	2,767.52	2,031.26
SC	VISTAS	45019-497861	KAPSTONE CHARLESTON KRAFT LLC	1,863.45	2,355.82
SC	VISTAS	48013-417041	SANTEC COOPER CROSS GENERATING STATION	4,881.17	3,773.47
SC	VISTAS	45043-665281	SANTEC COOPER WINYAH GENERATING STATION	2,546.86	1,772.53
SC	VISTAS	45015-830671	SCE&G WILLIAMS	392.48	992.73
TN	VISTAS	47091-497991	Cemex - Knoxville Plant	121.47	711.50
TN	VISTAS	47143-798211	EASTMAN CHEMICAL COMPANY	6,420.16	6,900.31
TN	VISTAS	47105-412921	TATE & LYLE, Loudon	477.76	883.25
TN	VISTAS	47001-619601	TVA BULL RUN FOSSIL PLANT	622.54	964.16
TN	VISTAS	47163-497911	TVA CUMBERLAND FOSSIL PLANT	8,427.28	4,916.52
TN	VISTAS	47145-497911	TVA KINGSTON FOSSIL PLANT	1,586.09	1,687.38
VA	VISTAS	51027-403481	Jewell Coke Company LP	5,090.95	520.17
VA	VISTAS	51280-578711	Meadwestvaco Packaging Resource Group	2,115.14	1,985.69
VA	VISTAS	51023-503611	Roundbay Cement Company	2,250.17	1,972.97

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## PSAT SO<sub>2</sub> and NO<sub>x</sub> Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NO<sub>x</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NO<sub>x</sub> tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NO<sub>x</sub> for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO<sub>2</sub> and NO<sub>x</sub> for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NO<sub>x</sub> tags for individual non-VISTAS facilities = 10 tags

→ 87 Total Facility Tags (both SO<sub>2</sub> and NO<sub>x</sub>)

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## Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
WV	VISTAS	54011-627711	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	10,082.34	11,830.88
WV	VISTAS	54009-606611	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	2,219.25	1,245.10
WV	VISTAS	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	10,984.24	4,878.10
WV	VISTAS	54023-625701	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,123.64	1,984.14
WV	VISTAS	54041-690011	EQUITRANE - COLLEY RUN CO. 70	0.10	511.06
WV	VISTAS	54083-679071	FILES CREEK 6C4340	0.15	643.35
WV	VISTAS	54083-679051	GLADY 6C4330	0.11	343.29
WV	VISTAS	54059-632781	KINGSFORD MANUFACTURING COMPANY	16.96	140.88
WV	VISTAS	54061-683011	LONGBOW POWER	2,113.75	1,556.57
WV	VISTAS	54051-690231	MITCHELL PLANT	5,372.40	2,719.62
WV	VISTAS	54061-677861	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,881.87	13,743.32
WV	VISTAS	54079-678911	MONONGAHELA POWER CO. - PLEASANTS POWER STA	16,817.40	5,497.37
WV	VISTAS	54061-677881	MORGANTOWN ENERGY ASSOCIATES	228.64	655.58
AR	CENRAP	05063-108341	ENTERGY ARKANSAS INC- INDEPENDENCE PLANT	32,050.48	14,133.10
MO	CENRAP	29141-536311	NIW MADRID POWER PLANT-MASTON	16,781.71	4,794.10
MD	MANE-VU	24001-770811	Lux Paper Company	22,403.84	1,607.05
PA	MANE-VU	42005-386611	GENON NE MGMT CO/KEYSTONE STA	56,939.25	6,578.47
PA	MANE-VU	42003-300511	HOMER CITY GEN LP/ CENTER TWP	11,885.70	5,215.96
PA	MANE-VU	42003-300511	NPS WHOLESALE GEN/SEWARD GEN STA	8,880.28	2,754.64
IL	Midwest BPO	17127-780891	Joppa Steam	20,509.28	4,706.35
IN	Midwest BPO	18173-818311	Alcoa Warrick Power Pll Agc Div of AL	5,071.28	11,158.55
IN	Midwest BPO	18051-786111	Ellettsville	23,117.23	12,280.34
IN	Midwest BPO	18147-901711	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	30,536.53	8,806.77
IN	Midwest BPO	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	18,141.88	10,665.27
IN	Midwest BPO	18129-816641	Sigeco AB Brown South Indiana Gas & Ele	7,644.70	1,578.59
OH	Midwest BPO	39081-815711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	7,400.79	2,407.30
OH	Midwest BPO	39011-801081	Cornellville Power Plant (0618000000)	6,154.23	9,957.67
OH	Midwest BPO	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	22,133.30	7,149.97
OH	Midwest BPO	39053-814651	General James M. Gavin Power Plant (0627030006)	41,295.81	8,122.51
OH	Midwest BPO	39053-788011	Ohio Valley Electric Corp. - Sugar Creek Station (0627000001)	3,400.14	9,143.84

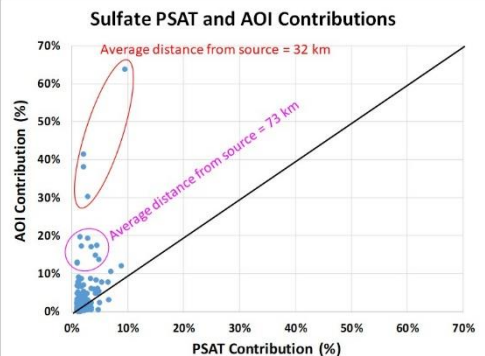
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## Facility Tags (AL, FL, GA)

Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01097-549811	Akzo Nobel Chemicals Inc	3,110.72	20.72
AL	VISTAS	01097-505611	Ala Power - Barry	6,033.12	2,275.76
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	1,168.38	425.87
AL	VISTAS	01073-101871	BILLMUNDO COMPANY, INC.	2,563.12	1,228.93
AL	VISTAS	01053-744021	Escambia Operating Company LLC	18,974.39	349.32
AL	VISTAS	01053-985111	Escambia Operating Company LLC	8,589.60	149.64
AL	VISTAS	01103-300001	Nucor Steel Decatur LLC	170.23	331.24
AL	VISTAS	01105-985711	Sanders Lead Co	7,951.06	121.71
AL	VISTAS	01097-106161	Union Oil of California - Chunchula Gas Plant	2,573.15	349.23
FL	VISTAS	12123-752431	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1,520.42	1,850.75
FL	VISTAS	12086-901111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.50	910.56
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	5,306.41	2,489.85
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (FPL)	13.09	170.61
FL	VISTAS	12033-702711	SUNP POWER - Cuba	2,615.63	2,998.58
FL	VISTAS	12086-353271	HOMESTEAD CITY UTILITIES	0.00	87.09
FL	VISTAS	12031-440211	IEA	2,094.48	651.79
FL	VISTAS	12103-717711	MOSAIC FERTILIZER LLC	7,900.67	310.42
FL	VISTAS	12057-714611	MOSAIC FERTILIZER, LLC	3,014.06	139.71
FL	VISTAS	12105-919811	MOSAIC FERTILIZER, LLC	4,425.56	141.62
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS LLC	561.97	2,327.10
FL	VISTAS	12089-753711	ROCK TOWN CP, LLC	2,868.72	2,316.77
FL	VISTAS	12005-534411	ROCKTOWN CP LLC	2,550.88	1,404.89
FL	VISTAS	12129-773171	TALLAHASSEE CITY PURDOM GENERATING STA.	2.86	121.46
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	6,084.90	2,865.03
FL	VISTAS	12086-899911	TARMAC AMERICA LLC	9.38	879.70
FL	VISTAS	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	3,197.77	112.41
GA	VISTAS	13127-372101	Brunswick Cellulose Inc	294.20	1,554.51
GA	VISTAS	13105-261201	Ex Power Company, Plant Bowen	10,243.42	6,443.32
GA	VISTAS	13103-538311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13051-367811	International Paper - Savannah	3,945.38	1,560.73
GA	VISTAS	13115-539511	TEMPLE INLAND	1,791.00	1,773.33

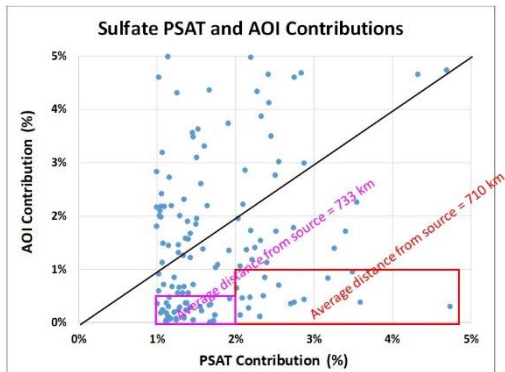
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## Sulfate AOI vs. Sulfate PSAT (≥ 1%)



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### Sulfate AOI vs. Sulfate PSAT ( $\geq 1\%$ )



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### Four-Factor Analysis Screening Approach

- Due to the amount of resources already invested in the AOI and PSAT analysis, **VISTAS plans to continue with our original approach** for determining which sources will require a four-factor analysis.
- In cases where emissions decreased or increased at individual facilities being considered for a four-factor analysis, the facility contributions will be adjusted to be consistent with the lower/higher facility emissions before comparing to the PSAT contribution threshold.
- **EPA verbally stated this should be okay 2/6/2020.**

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### AOI vs. PSAT Summary

- AOI tends to overestimate impacts for facilities near the Class I area.
- AOI tends to underestimate impacts for facilities far away from the Class I area.
  - AOI uses 72-hour back trajectories, sulfate can last for weeks and travel hundreds to thousands of km.
- PSAT is the most reliable modeling tool for tracking facility contributions to visibility impairment at Class I areas.

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### Revised Facility PSAT Results

- **Revised Facility Sulfate PSAT Results**  

$$= \text{Original Facility Sulfate PSAT Results} * \text{SO}_2 \text{ Ratio}$$

$$\text{where, SO}_2 \text{ Ratio} = \frac{(\text{Revised facility SO}_2 \text{ emissions})}{(\text{Original facility SO}_2 \text{ emissions})}$$

- **Revised Facility Nitrate PSAT Results**  

$$= \text{Original Facility Sulfate PSAT Results} * \text{NO}_x \text{ Ratio}$$

$$\text{where, NO}_x \text{ Ratio} = \frac{(\text{Revised facility NO}_x \text{ emissions})}{(\text{Original facility NO}_x \text{ emissions})}$$

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### Four-Factor Analysis Screening Approach

- The updated 2028 CAMx modeling will impact the **total sulfate and total nitrate impacts** from all sources at each Class I area since the  $\text{SO}_2$  and  $\text{NO}_x$  emissions have decreased.
- However, the **individual sulfate and total nitrate impacts** from the individual 87 tagged facilities should not change unless a facility has reduced or increased  $\text{SO}_2$  and/or  $\text{NO}_x$  emissions.
- Therefore, the percent contribution (facility sulfate impact/total impact of all point sources of sulfate + nitrate) will increase since the denominator will decrease; however, the order of the rankings from largest impact to smallest impact should not change unless one of those facilities reduced or increased emissions.

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### PSAT Adjustments (AL, FL, GA)

Facility State	Facility ID	FACILITY ID - STD	FACILITY NAME - STD	SO <sub>2</sub> Ratio	NO <sub>x</sub> Ratio
AL	VISTAS	01097-105611	Alto-Nobel Chemicals Inc.	1.000	1.000
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	0.000	0.000
AL	VISTAS	01073-101871	DRUMMOND COMPANY, INC.	1.000	1.000
AL	VISTAS	01053-746011	Escambia Operating Company LLC	0.700	1.000
AL	VISTAS	01053-985111	Escambia Operating Company LLC	0.010	0.000
AL	VISTAS	01103-100001	Nucor Steel Decorator LLC	1.000	1.000
AL	VISTAS	01109-90571	Sanders Lead Co	1.000	1.000
AL	VISTAS	01097-106161	Union Oil of California - Churchill Gas Plant	0.000	0.000
FL	VISTAS	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1.000	1.000
FL	VISTAS	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC	1.000	1.000
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	0.000	0.000
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (PTF)	1.000	1.000
FL	VISTAS	12033-752711	GULF POWER - Crest	0.215	0.041
FL	VISTAS	12086-852771	HOMESTEAD CITY UTILITIES	1.000	1.000
FL	VISTAS	12031-640211	JEA	0.500	1.000
FL	VISTAS	12105-717711	MOSIAC FERTILIZER, LLC	0.500	1.000
FL	VISTAS	12057-716411	MOSIAC FERTILIZER, LLC	0.100	1.000
FL	VISTAS	12105-913811	MOSIAC FERTILIZER, LLC	0.010	1.000
FL	VISTAS	12085-845811	RAYONIER PERFORMANCE FIBERS LLC	1.000	1.000
FL	VISTAS	12085-753711	ROCK TENN CP, LLC	1.000	1.000
FL	VISTAS	12005-534111	ROCK TENN CP, LLC	1.000	1.000
FL	VISTAS	12129-273171	TALLAHASSEE CITY PURDUM GENERATING STA.	1.000	1.000
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	1.000	1.000
FL	VISTAS	12085-899911	TARMAC AMERICA LLC	1.000	1.000
FL	VISTAS	12047-789711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	0.000	0.000
GA	VISTAS	13127-372101	Brunswick Cellulose Inc.	1.000	1.000
GA	VISTAS	13015-281501	Ga Power Company - Plant Bowen	1.000	1.000
GA	VISTAS	13103-536311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1.000	1.000
GA	VISTAS	13011-307811	International Paper - Savannah	1.000	1.000
GA	VISTAS	13115-539311	TEMPLE INLAND	1.000	1.000

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## PSAT Adjustments (KY, MS, NC, SC, TN, VA)

Facility State	Facility RPO	FACILITY_ID	FACILITY_NAME STD	SO2 Ratio	NH3 Ratio
KY	VISTAS	21143-5363811	Big Rivers Electric Corp. - Wilson Station	1.000	1.000
KY	VISTAS	21091-7352811	Century Aluminum of KY LLC	0.441	1.000
KY	VISTAS	21177-5196711	Tennessee Valley Authority - Paradise Fossil Plant	0.000	0.218
KY	VISTAS	21145-4037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VISTAS	28059-8384811	Cherokee Products Company, Paragoula Refinery	1.000	1.000
MS	VISTAS	28059-6250111	Mississippi Power Company, Plant Victor / Daniel	1.000	1.000
NC	VISTAS	37087-7920511	Blue Ridge Paper Products - Canton Mill	0.339	0.976
NC	VISTAS	37117-8049511	Dominion Paper Company, LLC	1.000	1.000
NC	VISTAS	37035-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	0.941	0.713
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1.000	1.000
NC	VISTAS	37023-8513011	BSL Carbon LLC	1.000	1.000
SC	VISTAS	45015-4434911	ALLIANCE OF SOUTH CAROLINA	1.000	1.000
SC	VISTAS	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	1.000	1.000
SC	VISTAS	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	1.000	1.000
SC	VISTAS	45015-4120411	SANTEC COOPER CROSS-GENERATING STATION	1.000	1.000
SC	VISTAS	45043-4652811	SANTEC COOPER WINDYHILL GENERATING STATION	1.000	1.000
SC	VISTAS	45015-8306711	SC&G WILLIAMS	1.000	1.000
TN	VISTAS	47031-4979911	Cemex - Knoxville Plant	1.000	1.000
TN	VISTAS	47143-3982311	EASTMAN CHEMICAL COMPANY	1.000	1.000
TN	VISTAS	47105-4129211	TATE & LYLE, Loudon	0.241	0.261
TN	VISTAS	47001-6196011	TVA BULL RUN FOSSIL PLANT	0.000	0.000
TN	VISTAS	47143-4979911	TVA CUMBERLAND FOSSIL PLANT	1.000	1.000
TN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	0.222	0.222
VA	VISTAS	51027-4034811	Jewell Coke Company LLP	1.000	1.000
VA	VISTAS	51280-5789711	Meadwestvaco Packaging Resource Group	1.000	1.000
VA	VISTAS	51033-5039811	Roanoke Cement Company	1.000	1.000

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## Chassahowitzka Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
FL	12017-540611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	63.62%	9.55%	4.74%	1.95%	0.40%	0.17%	0.17%
GA	18015-2813011	Ga Power Company - Plant Bowen	637.2	0.03%	1.72%	1.72%	0.00%	0.02%	0.02%	0.02%
<b>Facilities Who Dropped Off After REVISION</b>										
AR	05063-1083411	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.05%	1.47%	0.62%	0.00%	0.09%	0.03%	0.03%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,099.6	0.03%	1.13%	0.40%	0.00%	0.04%	0.04%	0.04%
AL	01053-7440211	Escambia Operating Company LLC	530.7	0.21%	1.67%	0.21%	0.00%	0.02%	0.02%	0.02%
<b>Additional sources (if use Sulfate + Nitrate ≥ 1%)</b>										
FL	12057-518611	TAMPA ELECTRIC COMPANY (TEC)	106.8	4.73%	0.96%	0.96%	0.24%	0.05%	0.05%	0.05%

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## PSAT Adjustments (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility RPO	FACILITY_ID	FACILITY_NAME STD	SO2 Ratio	NH3 Ratio
WV	VISTAS	54031-6271711	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	0.212	0.341
WV	VISTAS	54039-4846511	AMERICAN BITUMINOUS POWER GRANT TOWN PLT	0.212	0.341
WV	VISTAS	54079-4789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	0.533	0.863
WV	VISTAS	54023-6257011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	0.441	0.863
WV	VISTAS	54041-6900311	EQUITRANS - COLEY RUN CS 70	1.000	1.000
WV	VISTAS	54043-6706711	FULES CREEK #C430	1.000	1.000
WV	VISTAS	54083-6790311	GLADY #C430	1.000	1.000
WV	VISTAS	54093-6327811	KINGSFORD MANUFACTURING COMPANY	1.000	1.000
WV	VISTAS	54091-1832011	LONGVIEW POWER	0.599	0.133
WV	VISTAS	54031-6902311	MITCHELL PLANT	0.261	0.261
WV	VISTAS	54061-6773611	MONONGAHELA POWER CO. - FORT MARTIN POWER	0.626	0.873
WV	VISTAS	54073-4782811	MONONGAHELA POWER CO - PLEASANTS POWER STA	0.599	0.133
WV	VISTAS	54043-6773611	MONONGAHELA POWER CO - PLEASANTS POWER STA	0.599	0.133
AR	CENRAP	05063-1083411	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	0.426	0.713
MO	CENRAP	29143-5363811	NEW MADRID POWER PLANT-MARSTON	0.441	0.976
MD	MANE-VU	34063-7763811	Luke Paper Company	1.000	1.000
PA	MANE-VU	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	0.436	0.713
PA	MANE-VU	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	0.761	0.951
PA	MANE-VU	42063-3005111	NRA WHOLESALE GEN/NEWARD-GEN STA	0.761	0.724
IL	Midwest RPO	18173-8183111	Joppa Steam	0.193	0.424
IN	Midwest RPO	18173-8183111	Alcoa Warrick Power Pnt Agc Div of AL	0.388	0.211
IN	Midwest RPO	18053-7363111	Gibson	0.562	0.951
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	0.231	0.963
IN	Midwest RPO	18125-7364211	INDIANAPOLIS POWER & LIGHT - PETERSBURG	0.233	0.526
IN	Midwest RPO	18128-8166111	Sigeco AB Brown South Indiana Gas & Ele	0.000	0.013
OH	Midwest RPO	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	0.000	0.000
OH	Midwest RPO	39011-8010811	Cornellville Power Plant (0618000000)	0.000	0.000
OH	Midwest RPO	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	0.461	0.626
OH	Midwest RPO	39033-8148511	General James M. Gavin Power Plant (0627010056)	0.521	0.963
OH	Midwest RPO	39033-7983811	Ohio Valley Electric Corp. - Sugar Creek Station (0627000001)	0.521	0.963

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## Everglades NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
FL	12057-518611	TAMPA ELECTRIC COMPANY (TEC)	316.6	3.02%	2.56%	2.56%	0.08%	0.00%	0.00%	0.00%
FL	12105-515811	MOSAIC FERTILIZER, LLC	304.7	2.21%	2.09%	2.03%	0.01%	0.00%	0.00%	0.00%
FL	12105-717711	MOSAIC FERTILIZER, LLC	308.3	2.26%	3.55%	2.02%	0.02%	0.00%	0.00%	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.16%	0.17%	0.17%	2.02%	0.76%	2.04%	2.04%

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## Sipsey Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	3.81%	1.61%	1.61%	0.57%	0.04%	0.04%	
OH	39033-8148511	General James M. Gavin Power Plant (0627010056)	690.9	0.38%	2.75%	1.44%	0.01%	0.09%	0.09%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	5.72%	4.09%	1.44%	0.31%	0.23%	0.22%	
IN	18051-7363111	Gibson	448.7	2.85%	2.12%	1.19%	0.27%	0.19%	0.13%	
IN	18125-7364211	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	1.72%	2.19%	1.14%	0.23%	0.23%	0.12%	
TN	47143-4979911	TVA CUMBERLAND FOSSIL PLANT	228.9	3.18%	1.07%	1.07%	0.48%	0.12%	0.12%	
Facilities Who Dropped Off After REVISION										
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	314.5	3.48%	1.46%	0.97%	0.20%	0.06%	0.05%	
IL	17127-7808911	Joppa Steam	346.5	1.94%	2.51%	0.59%	0.25%	0.03%	0.01%	
IN	18173-8183111	ALCOA - WARRICK POWER PLT AGC DIV OF AL	396.3	0.91%	1.02%	0.29%	0.62%	0.52%	0.14%	
Additional sources (if use Sulfate + Nitrate ≥ 1%)										
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	314.5	3.48%	1.46%	0.97%	0.20%	0.06%	0.05%	

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## St Marks Wilderness Area

State	Facility ID	Facility Name	DISTANCE	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
GA	13015-2813011	Ga Power Company - Plant Bowen	452.9	0.38%	5.59%	3.59%	0.01%	0.03%	0.03%
FL	12005-535411	ROCKTEEN CP LLC	140.8	9.54%	9.38%	3.36%	0.24%	0.09%	0.09%
Facilities Who Dropped Off After REVISION									
AL	01097-1059111	Ala Power - Barry	383.1	1.67%	1.43%	0.71%	0.03%	0.02%	0.02%
AL	01053-7440211	Escambia Operating Company LLC	325.6	5.95%	3.53%	0.70%	0.01%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	908.4	0.33%	1.67%	0.59%	0.00%	0.01%	0.01%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,251.0	0.29%	1.29%	0.48%	0.01%	0.00%	0.00%
AL	01053-985111	Escambia Operating Company LLC	315.0	0.00%	1.68%	0.02%	0.00%	0.00%	0.00%

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## Cohutta Wilderness Area

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	1.71%	3.41%	1.79%	0.02%	0.05%	0.05%
GA	13015-2813011	Ga Power Company - Plant Bowen	78.0	19.58%	1.56%	1.56%	1.15%	0.03%	0.03%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	2.18%	1.05%	1.03%	0.07%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	4.68%	2.84%	1.00%	0.13%	0.08%	0.08%
<b>Facilities Who Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	1.05%	2.06%	0.96%	0.06%	0.03%	0.03%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	801.1	0.14%	2.06%	0.76%	0.00%	0.01%	0.01%
IN	18051-7363111	Gibson	487.1	2.11%	1.89%	0.76%	0.10%	0.02%	0.01%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	477.0	2.18%	1.19%	0.62%	0.16%	0.03%	0.03%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.10%	0.25%	0.13%	0.06%	0.01%

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## Mammoth Cave NP

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	16.88%	9.57%	1.26%	2.60%	0.26%	0.25%
IN	18051-7363111	Gibson	158.2	3.21%	2.16%	1.22%	1.20%	0.83%	0.25%
KY	21188-5561611	Bar Rivers Electric Corp - Wilson Station	89.8	6.22%	1.07%	1.07%	0.37%	0.06%	0.06%
<b>Facilities Who Dropped Off After REVISION</b>									
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	312.7	0.66%	1.29%	0.86%	0.04%	0.07%	0.07%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	182.9	3.09%	1.50%	0.78%	0.96%	0.40%	0.20%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	1.21%	1.43%	0.67%	0.14%	0.11%	0.09%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	406.5	1.45%	1.15%	0.60%	0.04%	0.02%	0.02%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.30%	1.15%	0.49%	0.04%	0.05%	0.02%
IN	18179-8183111	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	2.00%	1.03%	0.30%	1.74%	0.82%	0.22%
IN	18129-8106111	Sigeco AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.00%	0.27%	0.06%	0.00%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	1.60%	0.86%	0.86%	0.15%	0.14%	0.14%

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## Okefenokee Wilderness Area

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
FL	12047-7697111	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	71.5	14.63%	4.32%	2.10%	0.03%	0.01%	0.01%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	1.02%	1.74%	1.74%	0.05%	0.04%	0.04%
FL	12123-7524111	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	2.18%	1.64%	1.64%	0.14%	0.11%	0.11%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.46%	2.19%	1.15%	0.01%	0.01%	0.01%
FL	12089-7537111	ROCK TENN CP, LLC	64.8	12.82%	1.00%	1.00%	0.88%	0.11%	0.11%
<b>Facilities Who Dropped Off After REVISION</b>									
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,129.0	0.46%	2.09%	0.77%	0.01%	0.01%	0.01%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	921.9	0.09%	1.34%	0.63%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	915.7	0.55%	1.40%	0.49%	0.01%	0.02%	0.02%

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## Linville Gorge Wilderness Area

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
TN	47163-9982311	EASTMAN CHEMICAL COMPANY	81.9	19.21%	2.87%	2.87%	0.68%	0.07%	0.07%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	329.2	3.90%	4.67%	2.45%	0.04%	0.01%	0.01%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	567.5	0.94%	3.49%	1.29%	0.00%	0.00%	0.00%
<b>Facilities Who Dropped Off After REVISION</b>									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	1.18%	2.22%	0.78%	0.01%	0.07%	0.06%
IN	18051-7363111	Gibson	582.3	0.67%	1.35%	0.76%	0.01%	0.07%	0.05%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	688.6	0.03%	1.11%	0.74%	0.00%	0.00%	0.00%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.61%	0.00%	0.01%	0.00%
MD	24001-7763811	Luke Paper Company	463.8	0.23%	1.37%	0.60%	0.00%	0.00%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	550.5	0.36%	1.12%	0.58%	0.01%	0.07%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	2.82%	1.00%	0.47%	0.03%	0.02%	0.02%

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## Wolf Island Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
FL	12089-7537111	ROCK TENN CP, LLC	74.9	8.56%	1.79%	1.79%	0.39%	0.11%	0.11%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	1.08%	1.78%	1.78%	0.03%	0.04%	0.04%
GA	13127-9721011	Brunswick Cellulose Inc	27.9	8.84%	1.34%	1.34%	2.94%	0.10%	0.10%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	845.3	1.71%	2.51%	1.32%	0.02%	0.02%	0.02%
GA	13051-9679811	International Paper - Savannah	85.9	7.53%	1.18%	1.18%	0.24%	0.07%	0.07%
<b>Facilities Who Dropped Off After REVISION</b>									
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,048.6	0.84%	2.37%	0.88%	0.01%	0.01%	0.01%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.07%	1.25%	0.58%	0.00%	0.02%	0.01%
FL	12047-7697111	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	173.6	1.97%	1.05%	0.51%	0.01%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	899.0	0.37%	1.36%	0.49%	0.00%	0.02%	0.02%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
SC	45015-4120411	Santee Cooper Cross Generating Station	251.0	1.59%	0.99%	0.99%	0.09%	0.06%	0.06%
FL	12031-6402111	IEA	105.1	4.43%	0.96%	0.99%	0.09%	0.03%	0.05%

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## Shining Rock Wilderness Area

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	397.8	1.89%	3.26%	1.71%	0.01%	0.01%	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	573.4	0.47%	1.16%	1.16%	0.01%	0.02%	0.02%
<b>Facilities Who Dropped Off After REVISION</b>									
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	625.2	0.36%	1.37%	0.91%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.70%	2.55%	0.90%	0.01%	0.07%	0.07%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	657.6	0.49%	2.36%	0.87%	0.00%	0.00%	0.00%
IN	18051-7363111	Gibson	554.2	0.29%	1.55%	0.87%	0.01%	0.07%	0.05%
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	16.9	41.29%	2.14%	0.77%	6.65%	0.07%	0.07%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	1.37%	1.59%	0.74%	0.03%	0.01%	0.01%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.13%	1.74%	0.74%	0.00%	0.01%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	529.0	0.18%	1.12%	0.58%	0.01%	0.11%	0.05%
IL	17127-7808911	Joppa Steam	582.4	0.23%	1.07%	0.42%	0.00%	0.01%	0.00%

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## Swanquarter Wilderness Area

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	640.2	3.00%	6.66%	2.46%	0.08%	0.08%	0.06%
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	37.89%	2.16%	2.16%	0.57%	0.09%	0.05%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	651.5	1.77%	2.74%	1.44%	0.06%	0.03%	0.03%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.35%	1.00%	1.33%	0.02%	0.03%	0.04%
MD	24001-7763811	Luke Paper Company	512.5	0.43%	2.88%	1.25%	0.02%	0.09%	0.09%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	568.6	0.67%	1.19%	1.22%	0.08%	0.10%	0.08%
<b>Facilities Who Dropped Off After REVISION</b>									
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	620.1	0.55%	1.27%	0.99%	0.05%	0.05%	0.05%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.84%	1.22%	0.84%	0.07%	0.03%	0.03%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,005.3	0.34%	1.69%	0.60%	0.02%	0.03%	0.03%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	620.1	0.55%	1.27%	0.99%	0.05%	0.05%	0.05%

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## Joyce Kilmer-Slickrock Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	425.1	4.73%	4.69%	2.46%	0.09%	0.01%	0.01%
<b>Facilities Who Dropped Off After REVISION</b>									
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	711.0	0.27%	2.17%	0.80%	0.00%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	391.2	4.33%	2.27%	0.80%	0.14%	0.16%	0.16%
IN	18051-7363111	Gibson	471.7	2.00%	1.29%	0.73%	0.11%	0.21%	0.15%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.2	3.63%	1.53%	0.71%	0.06%	0.01%	0.01%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	1.58%	1.36%	0.58%	0.05%	0.02%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	453.0	2.16%	1.00%	0.52%	0.24%	0.23%	0.12%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	73.7	7.86%	1.24%	0.38%	0.57%	0.10%	0.03%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.84%	0.99%	0.59%	0.05%	0.07%	0.07%

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## Cape Romain Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
SC	45015-4979811	KAPSTONE CHARLESTON KRAFT LLC	29.9	50.18%	2.80%	2.80%	2.74%	0.25%	0.25%
GA	13015-2813011	Ga Power Company - Plant Bowen	506.2	0.36%	2.71%	2.71%	0.03%	0.10%	0.10%
SC	45015-4884911	ALUMAX OF SOUTH CAROLINA	39.1	17.07%	1.79%	1.79%	0.09%	0.02%	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	857.1	0.30%	4.74%	1.75%	0.00%	0.01%	0.01%
SC	45015-4120411	Santee Cooper Cross Generating Station	68.8	6.57%	1.73%	1.73%	0.43%	0.21%	0.21%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.84%	3.18%	1.67%	0.00%	0.08%	0.08%
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.26%	0.35%	0.11%	0.11%
SC	45043-6652811	Santee Cooper Winah Generating Station	51.4	4.60%	1.02%	1.02%	0.38%	0.13%	0.13%
<b>Facilities Who Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	776.2	0.11%	1.14%	0.53%	0.00%	0.04%	0.03%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	868.3	0.06%	1.18%	0.42%	0.00%	0.07%	0.06%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
GA	13051-3679811	International Paper - Savannah	166.1	1.76%	0.99%	0.99%	0.04%	0.05%	0.05%

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## James River Face Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	7.66%	5.44%	2.86%	0.14%	0.08%	0.08%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	2.76%	2.51%	2.58%	0.36%	0.12%	0.10%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	1.35%	1.92%	2.55%	0.04%	0.02%	0.04%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	3.87%	2.33%	1.59%	0.15%	0.03%	0.04%
WV	54079-4789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.36%	0.13%	0.09%	0.08%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	337.1	2.98%	2.88%	1.07%	0.06%	0.03%	0.03%
VA	51580-5798711	Meadwestvaco Packaging Resource Group	46.5	12.64%	1.02%	1.02%	1.14%	0.15%	0.15%
<b>Facilities Who Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.89%	1.39%	0.65%	0.05%	0.05%	0.04%
IN	18051-7363111	Gibson	779.4	0.59%	1.02%	0.58%	0.02%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	663.5	0.56%	1.33%	0.47%	0.03%	0.01%	0.01%

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## Great Smoky Mountains NP

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	2.25%	5.10%	2.62%	0.04%	0.02%	0.02%
<b>Facilities Who Dropped Off After REVISION</b>									
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	688.2	0.11%	2.31%	0.86%	0.00%	0.02%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	4.66%	2.42%	0.85%	0.21%	0.19%	0.18%
IN	18051-7363111	Gibson	456.3	1.25%	1.34%	0.75%	0.07%	0.27%	0.19%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	1.84%	1.50%	0.70%	0.09%	0.02%	0.01%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	435.6	1.48%	1.08%	0.56%	0.12%	0.29%	0.14%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.52%	0.02%	0.01%	0.00%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	60.0	7.38%	1.23%	0.28%	0.71%	0.08%	0.02%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	4.66%	2.42%	0.85%	0.21%	0.19%	0.18%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	1.34%	0.94%	0.94%	0.02%	0.06%	0.00%

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## Shenandoah NP

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	249.8	11.81%	8.89%	3.29%	0.10%	0.05%	0.04%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	1.53%	2.32%	3.08%	0.06%	0.05%	0.08%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	189.7	4.60%	2.75%	2.81%	0.99%	0.37%	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	323.4	5.25%	4.88%	2.56%	0.14%	0.10%	0.10%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	4.97%	2.20%	1.50%	0.24%	0.18%	0.19%
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	230.4	2.60%	1.56%	1.27%	0.13%	0.04%	0.04%
<b>Facilities Who Dropped Off After REVISION</b>									
MD	24001-7763811	Luke Paper Company	118.4	5.90%	2.20%	0.96%	0.23%	0.09%	0.09%
PA	42063-3005111	NRG WHOLESALF GEN/SEWARD GEN STA	215.5	1.80%	1.00%	0.76%	0.04%	0.02%	0.01%
WV	54061-6779611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.60%	1.27%	0.47%	0.41%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	1.31%	1.28%	0.60%	0.11%	0.05%	0.04%
WV	54079-4789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	285.6	2.09%	1.04%	0.58%	0.09%	0.09%	0.13%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	755.8	0.71%	1.40%	0.32%	0.89%	0.02%	0.02%
<b>Additional sources (f use Sulfate + Nitrate ≥ 1%)</b>									
MD	24001-7763811	Luke Paper Company	118.4	5.90%	2.20%	0.96%	0.23%	0.09%	0.09%
WV	54061-6779611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.60%	1.27%	0.47%	0.41%

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### Dolly Sods Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	83.6	13.58%	4.94%	5.07%	1.36%	0.26%	0.22%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	233.8	7.62%	6.56%	3.45%	0.10%	0.03%	0.03%
WV	54079-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	4.64%	4.32%	2.96%	0.16%	0.07%	0.07%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	1.36%	2.14%	2.84%	0.03%	0.01%	0.02%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	1.40%	2.25%	1.05%	0.02%	0.04%	0.04%
WV	54051-6902311	MITCHELL PLANT	164.2	1.43%	1.28%	1.03%	0.07%	0.02%	0.03%
<b>Facilities Who Dropped Off After Revision</b>									
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	172.8	4.12%	2.43%	0.90%	0.01%	0.00%	0.00%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	3.56%	1.45%	0.81%	0.11%	0.01%	0.02%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	79.8	6.53%	1.27%	0.79%	1.07%	0.18%	0.16%
IN	18051-7363111	Gibson	729.5	0.04%	0.24%	0.70%	0.02%	0.04%	0.03%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	676.3	0.44%	1.93%	0.68%	0.01%	0.02%	0.02%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	682.6	0.18%	1.05%	0.54%	0.02%	0.04%	0.02%
OH	39031-8010811	Conesville Power Plant (0616000000)	242.3	0.71%	1.09%	0.00%	0.12%	0.08%	0.00%

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### VISTAS Facilities ≥ 1%

Facility State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	OKEF
FL	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	CHAS
FL	12105-717711	MOSEF FERTILIZER LLC	EVER
FL	12105-919811	MOSEF FERTILIZER, LLC	EVER
FL	12085-753711	ROCK TENN CP, LLC	OKEF, WOLF
FL	12005-535411	ROCKTEEN CP LLC	SAMA
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	EVER
FL	12086-899911	TARMAC AMERICA LLC	EVER
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	OKEF
GA	13127-3721011	Brunswick Cellulose Inc	WOLF
GA	13015-2813011	Ga Power Company - Plant Bowen	CHAS, COHU, OKEF, ROMA, SAMA, WOLF
GA	13051-3679811	International Paper - Savannah	WOLF
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	MACA
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	COHU, HEGI, MING, SHRO, SIPS
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	SWAN
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	ROMA
SC	45042-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	ROMA
SC	45015-4120411	SANTÉE COOPER CROSS GENERATING STATION	ROMA
SC	45043-6652811	SANTÉE COOPER WINYAH GENERATING STATION	ROMA
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	LIGO
TN	47161-4979211	TVA CUMBERLAND FOSSIL PLANT	SIPS
VA	51086-5798711	Meadowbush Packaging Resource Group	JARI
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JARI, OTCR, SHEN, SWAN
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	JARI
WV	54051-6902311	MITCHELL PLANT	DOSO, OTCR
WV	54073-4781811	MONONGAHELA POWER CO-PLEASANTS POWER STA	DOSO, JARI, OTCR, SHEN

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### Otter Creek Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	72.8	17.37%	4.49%	4.61%	1.83%	0.26%	0.22%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	10.46%	7.08%	3.72%	0.18%	0.04%	0.04%
WV	54079-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	8.19%	4.39%	3.00%	0.30%	0.08%	0.09%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	1.94%	2.03%	2.70%	0.09%	0.02%	0.03%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	1.12%	2.40%	1.12%	0.02%	0.06%	0.05%
WV	54051-6902311	MITCHELL PLANT	136.8	1.56%	1.40%	1.10%	0.06%	0.03%	0.04%
<b>Facilities Who Dropped Off After Revision</b>									
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	4.36%	1.67%	0.93%	0.12%	0.02%	0.03%
IN	18051-7363111	Gibson	709.7	0.24%	1.27%	0.72%	0.01%	0.05%	0.03%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	4.98%	1.14%	0.71%	0.92%	0.20%	0.17%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	655.7	0.64%	2.01%	0.71%	0.01%	0.03%	0.03%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	186.5	3.73%	1.91%	0.71%	0.03%	0.00%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	663.0	0.23%	1.07%	0.56%	0.02%	0.04%	0.02%
OH	39031-8010811	Conesville Power Plant (0616000000)	232.8	1.12%	1.07%	0.00%	0.17%	0.08%	0.00%

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### Non-VISTAS Facilities ≥ 1%

Facility State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
IN	18051-7363111	Gibson	MACA, SIPS
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	COHU, MACA, SIPS
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	SIPS
MD	24001-7761811	Luke Paper Company	SWAN
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	DOSO, JARI, OTCR, SHEN, SWAN
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	DOSO, OTCR
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	COHU, DOSO, GRSM, JARI, KSR, LIGO, OKEF, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	JARI, LIGO, ROMA, SHEN, SWAN
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	SHEN

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### Non-VISTAS Class I Areas

- Only one VISTAS facility has a contribution ≥ 1% at any non-VISTAS Class I Area
- Tennessee Valley Authority (TVA) - Shawnee Fossil Plant**
  - Hercules-Glades Wilderness Area (1.35% sulfate)
  - Mingo Wilderness Area (1.08% sulfate)

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### Effective Emission Control Technology

- For the purpose of SO<sub>2</sub> control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO<sub>2</sub> emission limit of the 2012 Mercury Air Toxics Standards (MATS) rule for power plants. The two limits in the rule (0.2 lb/MMBtu for coal-fired EGUs or 0.3 lb/MMBtu for EGUs fired with oil-derived solid fuel) are low enough that it is unlikely that an analysis of control measures for a source already equipped with a scrubber and meeting one of these limits would conclude that even more stringent control of SO<sub>2</sub> is necessary to make reasonable progress.
- For the purposes of SO<sub>2</sub> and NO<sub>x</sub> control measures, a combustion source (e.g., an EGU or industrial boiler or process heater) that, during the first implementation period, installed a FGD system that operates year-round with an effectiveness of at least 90 percent or by the installation of a selective catalytic reduction system that operates year-round with an overall effectiveness of at least 90 percent (in both cases calculating the effectiveness as the total for the system, including any bypassed flue gas), on a pollutant-specific basis.

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### Additional Considerations

- The final list of four-factor analysis sources will be determined in consultation with the FLMs, EPA, other states, and stakeholders.
- Some states may perform additional four-factor analyses for sources not listed on Slide 106.
- Some states may allow their facilities to take a permit limit that will result in adjusted PSAT impacts below the 1% threshold in lieu of performing a four-factor analysis.
- The large number of coal-fired EGU retirements and fuel switching from coal to natural gas needs to be considered along with the sources selected for the four-factor analysis. States should not be penalized for early action.

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### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
- For general, contract, and funding questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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## Next Steps and Schedule

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### Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed
2028 Emissions Processing	Late April, 2020
2028 CAMx Modeling	Late June, 2020
2028 Visibility Projections	Mid-July, 2020
2028 Deposition Projections	Mid-July, 2020
Final reports and documentation	Late July, 2020
Website updates and postings	Late July, 2020
End of Contract	September 30, 2020
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

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## **Appendix F-3i - VISTAS Presentation to MJOs, April 21, 2020**



# VISTAS Regional Haze Project Update



Regional Planning Organization Briefing  
April 21, 2020

## Initial VISTAS Emissions Updates

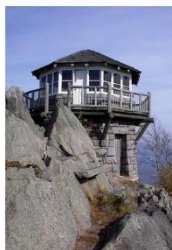
- Used EPA's 2011 base year emissions without change
- Updated EPA's Initial 2028 projection year emissions
  - EGU and major non-EGU sources
  - Removed Clean Power Plan assumptions
  - VISTAS – Adjusted for changes in fuels and facility operating plans
  - Non-VISTAS – Used ERTAC 2.7opt



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## Outline

- Background Information
- 2028 Emissions Updates
- Revised 2028 PSAT Stacked Bar Charts
- Four Factor Analysis
- Next Steps & Schedule



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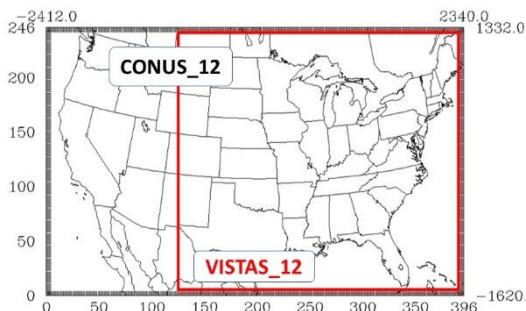
## VISTAS vs. EPA Updated 2028 Emission Projections

- The table below compares the 2028 point emissions used by VISTAS vs. the latest 2028fh emissions used by EPA (projected from 2016). The emissions below are extracted from the VISTAS 12 modeling domain which covers the Eastern U.S.

Pollutant	VISTAS 2028 (tpy)	New EPA 2028 (tpy)	Change (tpy)	Change (%)
NOx	2,641,463.83	2,108,115.50	<b>533,348.33</b>	20.19%
SO2	2,574,542.02	1,400,287.10	<b>1,174,254.92</b>	45.61%

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## VISTAS Modeling Domains



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## Old ERTAC (2.7opt) vs. New ERTAC (16.0)

SO2	16.0_2028	2.7opt_2028	Δ SO2	Δ SO2
CENSARA	367,683.7	760,828.2	-393,144.5	<b>-51.67%</b>
LADCO	266,047.0	379,577.5	-113,530.5	<b>-29.91%</b>
MANE-VU	78,657.0	196,672.6	-118,015.6	<b>-60.01%</b>
VISTAS	161,502.5	273,582.1	-112,079.6	<b>-40.97%</b>
<b>TOTAL</b>	<b>976,471.2</b>	<b>1,783,376.5</b>	<b>-806,905.3</b>	<b>-45.25%</b>
NOx	16.0_2028	2.7opt_2028	Δ NOx	Δ NOx
CENSARA	244,499.3	354,795.1	-110,295.8	<b>-31.09%</b>
LADCO	166,429.4	198,966.9	-32,537.4	<b>-16.35%</b>
MANE-VU	56,315.3	83,432.5	-27,117.2	<b>-32.50%</b>
VISTAS	200,791.1	270,615.7	-69,824.6	<b>-25.80%</b>
<b>TOTAL</b>	<b>840,973.6</b>	<b>1,166,663.1</b>	<b>-325,689.5</b>	<b>-27.92%</b>

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## VISTAS CC/TAWG Conclusions

- 2028 emission updates are necessary
  - VISTAS States** – States will:
    - Update 2028 major source emissions projections (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, NH<sub>3</sub>, CO) at the facility and unit level
    - Add any new sources of significance
  - LADCO States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.1 based on LADCO input
  - All Other States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.0
    - Verify accuracy of large SO<sub>2</sub> and NO<sub>x</sub> source emissions projections via contact with surrounding states/RPOs and update emissions as needed
- Additional 2028 air quality modeling is needed

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## 2028 SO<sub>2</sub> Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	87,111.28	59,056.98	-32.2%	15,480.96	8,365.96	-46.0%	71,630.32	50,691.02	-29.2%
FL	63,501.23	52,982.68	-16.6%	28,547.41	24,004.67	-15.9%	34,953.82	28,978.01	-17.1%
GA	37,065.83	36,166.09	-2.4%	18,473.28	17,573.54	-4.9%	18,592.55	18,592.55	0.0%
KY	75,140.26	65,636.83	-12.6%	56,262.06	49,585.95	-11.9%	18,878.20	16,050.88	-15.0%
MS	23,234.31	8,405.06	-63.9%	6,984.57	3,236.28	-53.7%	14,249.74	5,168.78	-63.7%
NC	35,232.88	24,347.18	-30.9%	19,734.80	9,971.47	-51.2%	15,498.08	14,775.71	-4.7%
SC	29,600.85	29,601.25	0.0%	10,693.79	10,695.34	0.0%	18,907.05	18,905.91	-0.0%
TN	23,447.58	21,057.17	-10.2%	12,114.30	10,030.04	-17.2%	11,333.28	11,027.13	-2.7%
VA	19,839.18	18,551.32	-6.5%	3,264.09	1,976.23	-39.5%	16,575.09	16,575.09	0.0%
WY	63,404.07	53,715.79	-15.3%	57,828.67	47,744.49	-17.4%	5,575.41	5,971.30	7.1%
CENSARA	1,017,946.59	621,321.29	-38.7%	773,625.13	387,000.54	-50.0%	239,321.46	239,320.75	-0.0%
LADCO	860,186.42	498,171.62	-42.1%	444,936.99	282,492.18	-36.4%	215,679.44	215,679.44	0.0%
MANE-VU	270,810.83	149,439.76	-44.8%	203,661.43	95,074.20	-53.3%	67,145.39	54,365.55	-19.0%
WRAP	182,121.89	135,483.18	-25.6%	136,955.17	90,316.46	-34.1%	45,166.72	45,166.73	0.0%
<b>TOTAL</b>	<b>2,581,643.20</b>	<b>1,773,936.20</b>	<b>-31.3%</b>	<b>1,788,132.63</b>	<b>1,032,667.35</b>	<b>-42.2%</b>	<b>793,510.56</b>	<b>741,268.85</b>	<b>-6.6%</b>

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## Additional Modeling-Related Tasks

- Emissions processing
- Updated 2028 CAMx modeling (VISTAS\_12)
- Updated 2028 visibility projections
- Documentation

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## 2028 NO<sub>x</sub> Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	80,389.97	70,824.72	-11.9%	26,895.35	20,008.14	-25.6%	53,494.61	50,816.58	-5.0%
FL	68,006.19	70,010.40	2.9%	26,250.73	25,049.90	-4.6%	41,755.45	44,960.50	7.7%
GA	67,197.50	65,885.55	-1.9%	25,899.67	24,587.73	-5.1%	41,297.83	41,297.83	0.0%
KY	66,240.03	62,130.83	-6.2%	36,781.72	32,695.94	-11.1%	29,458.31	29,434.89	-0.1%
MS	52,159.32	46,853.62	-10.2%	18,279.53	12,208.89	-33.2%	33,879.79	34,644.73	2.3%
NC	65,863.97	58,933.80	-10.5%	27,842.23	20,977.65	-24.7%	38,021.74	37,956.15	-0.2%
SC	36,051.31	36,170.87	0.3%	10,522.78	10,707.42	1.8%	25,528.53	25,463.44	-0.3%
TN	45,879.07	42,954.25	-6.4%	10,086.01	7,814.13	-22.5%	35,793.06	35,140.12	-1.8%
VA	43,210.19	41,671.99	-3.6%	11,973.97	10,435.77	-12.8%	31,236.22	31,236.22	0.0%
WY	65,054.07	68,200.77	4.8%	46,721.77	49,874.15	6.7%	18,332.30	18,326.62	-0.0%
CENSARA	903,979.85	791,397.59	-12.5%	387,106.66	270,182.46	-29.4%	521,273.19	521,215.14	-0.0%
LADCO	548,866.74	491,345.00	-10.5%	244,035.26	186,513.52	-23.6%	304,831.49	304,831.49	0.0%
MANE-VU	244,280.15	222,991.41	-9.1%	103,465.15	82,176.41	-20.6%	140,815.00	140,815.00	0.0%
WRAP	362,819.80	301,433.41	-16.9%	187,944.97	126,558.55	-32.7%	174,874.83	174,874.86	0.0%
<b>TOTAL</b>	<b>2,649,998.14</b>	<b>2,370,804.22</b>	<b>-10.5%</b>	<b>1,159,405.80</b>	<b>879,790.66</b>	<b>-24.1%</b>	<b>1,490,592.35</b>	<b>1,491,013.55</b>	<b>0.0%</b>

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Updated 2028  
Point Emissions

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Revised 2028 PSAT  
Stacked Bar Charts  
(Original and Adjusted)

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### PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NO<sub>x</sub> and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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### Revised State/RPO PSAT Results

#### Revised EGU Sulfate PSAT Results

$$= \text{Original EGU Sulfate PSAT Results} * \text{SO}_2 \text{ EGU Ratio}$$

$$\text{where, SO}_2 \text{ EGU Ratio} = \frac{(\text{Revised EGU SO}_2 \text{ emissions})}{(\text{Original EGU SO}_2 \text{ emissions})}$$

#### Revised NEGU Sulfate PSAT Results

$$= \text{Original NEGU Sulfate PSAT Results} * \text{SO}_2 \text{ NEGU Ratio}$$

$$\text{where, SO}_2 \text{ NEGU Ratio} = \frac{(\text{Revised NEGU SO}_2 \text{ emissions})}{(\text{Original NEGU SO}_2 \text{ emissions})}$$

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### PSAT SO<sub>2</sub> and NO<sub>x</sub> Tags (209)

#### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NO<sub>x</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NO<sub>x</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 20 tags

#### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NO<sub>x</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NO<sub>x</sub> for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NO<sub>x</sub> tags for individual non-VISTAS facilities = 10 tags

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### Revised State/RPO PSAT Results

#### Revised EGU Nitrate PSAT Results

$$= \text{Original EGU Nitrate PSAT Results} * \text{NO}_x \text{ EGU Ratio}$$

$$\text{where, NO}_x \text{ EGU Ratio} = \frac{(\text{Revised EGU NO}_x \text{ emissions})}{(\text{Original EGU NO}_x \text{ emissions})}$$

#### Revised NEGU Nitrate PSAT Results

$$= \text{Original NEGU Nitrate PSAT Results} * \text{NO}_x \text{ NEGU Ratio}$$

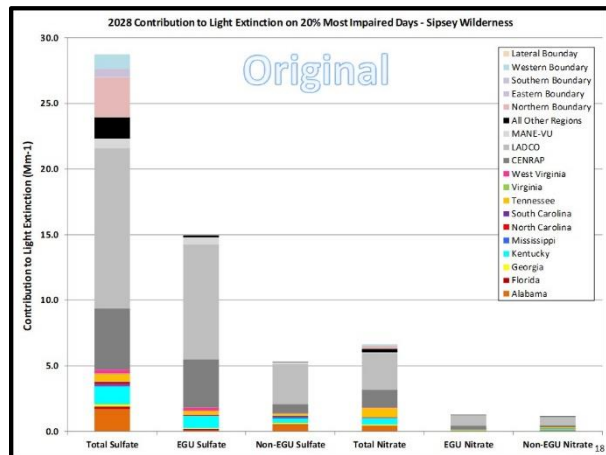
$$\text{where, NO}_x \text{ NEGU Ratio} = \frac{(\text{Revised NEGU NO}_x \text{ emissions})}{(\text{Original NEGU NO}_x \text{ emissions})}$$

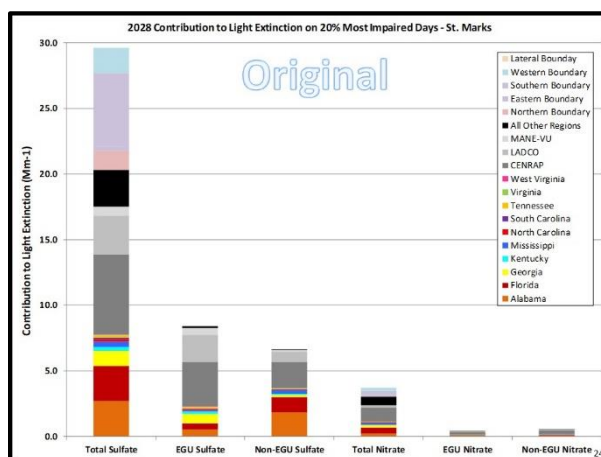
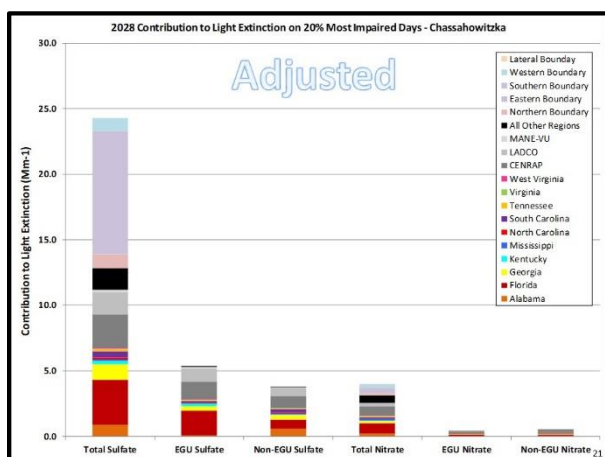
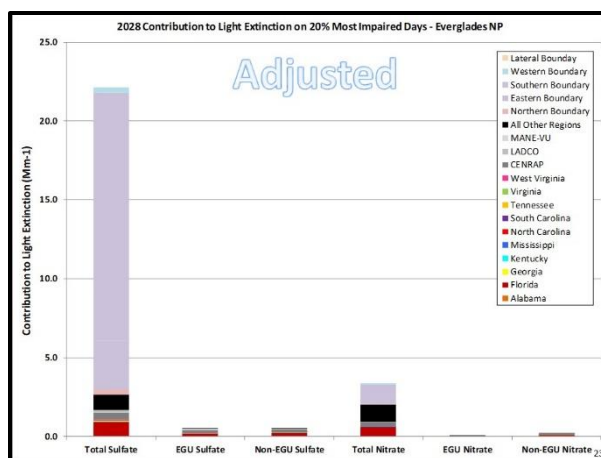
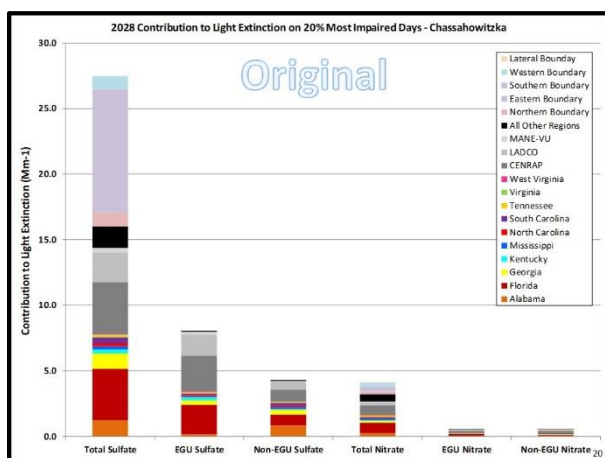
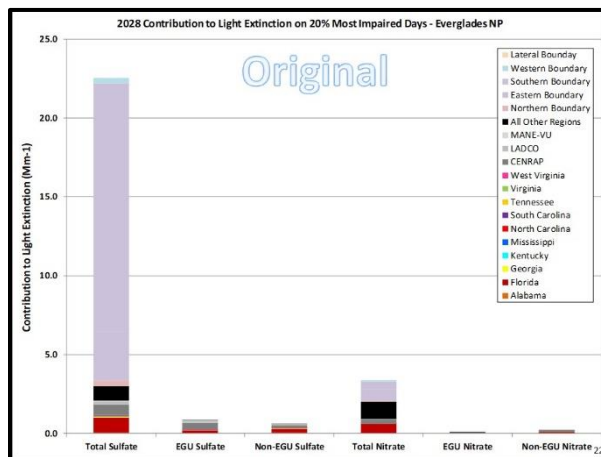
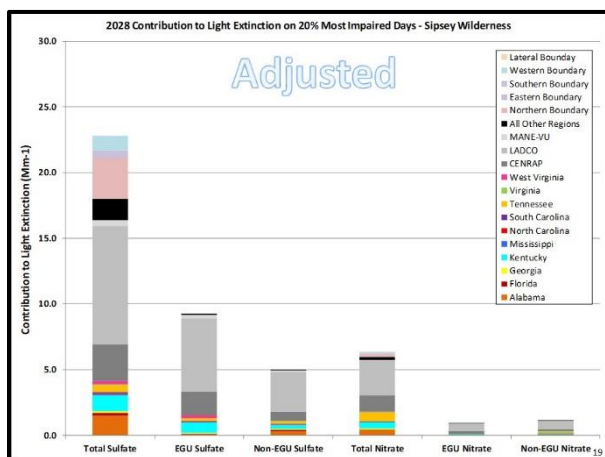
17

### PSAT Adjustment Ratios

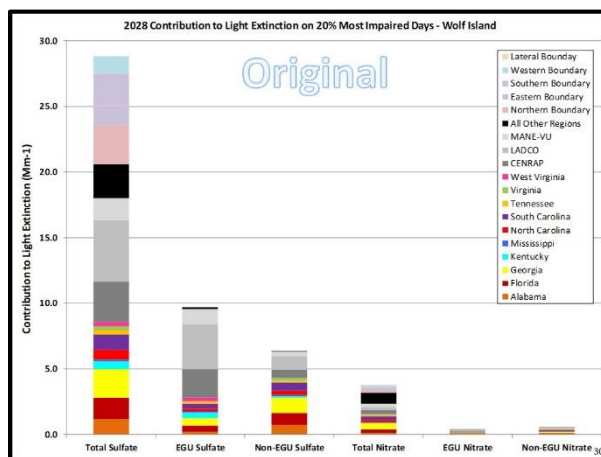
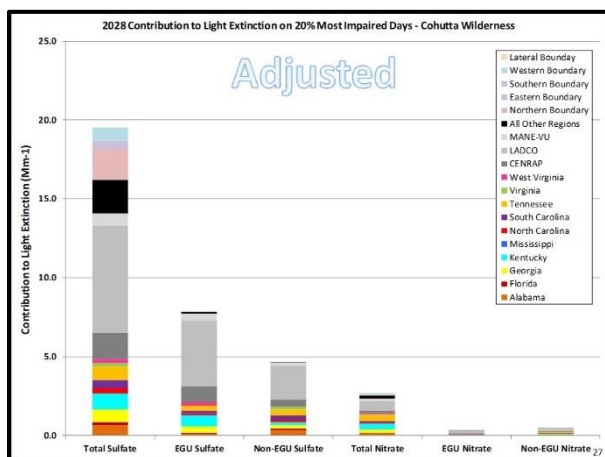
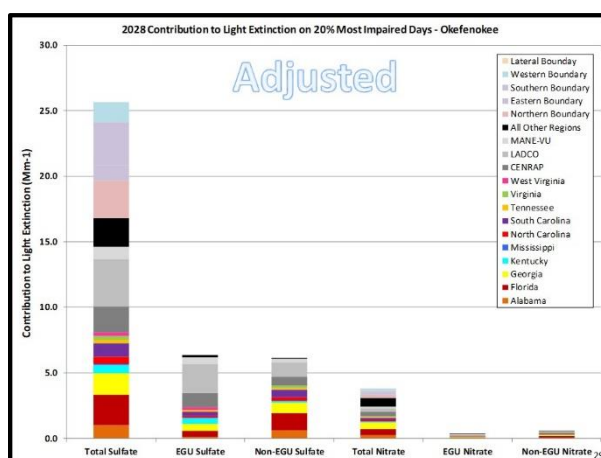
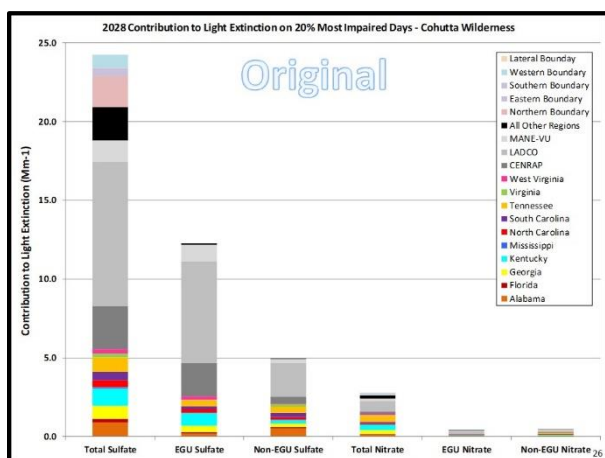
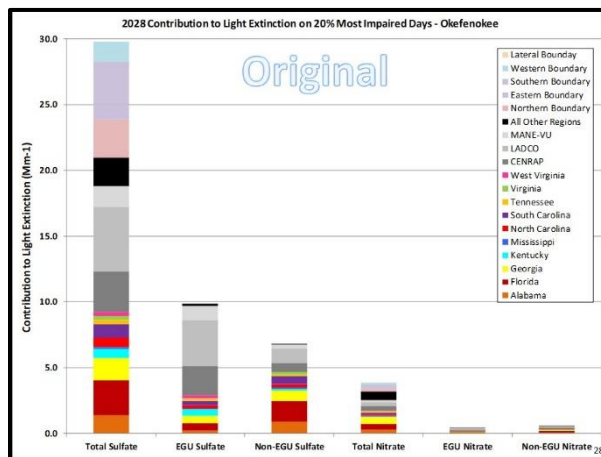
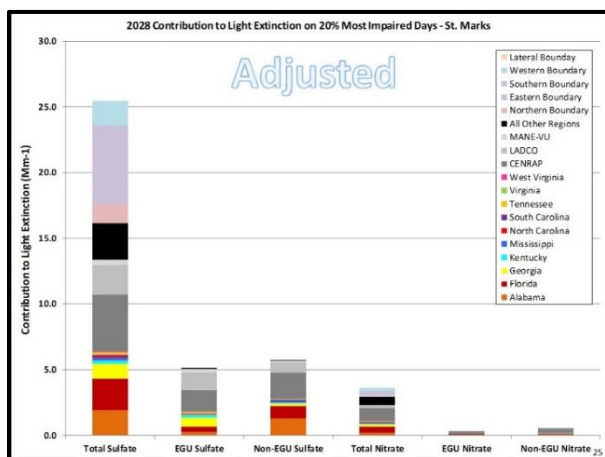
State/RPO	SO <sub>2</sub> EGU Ratio	SO <sub>2</sub> NEGU Ratio	NO <sub>x</sub> EGU Ratio	NO <sub>x</sub> NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	0.872	1.000
WV	0.826	1.071	1.067	1.000
CENSARA	0.494	1.000	0.706	1.000
LADCO	0.636	1.000	0.764	1.000
MANE-VU	0.467	0.810	0.794	1.000

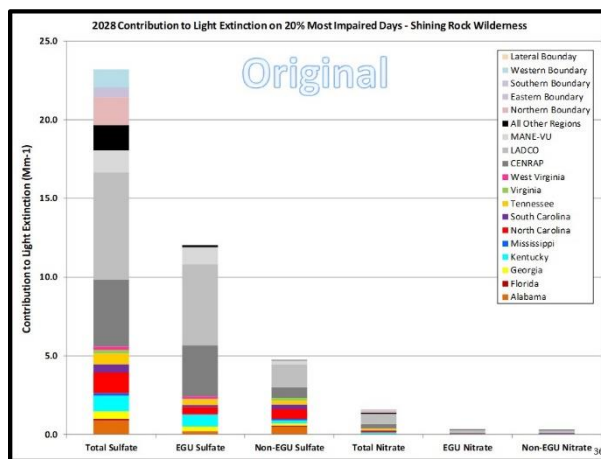
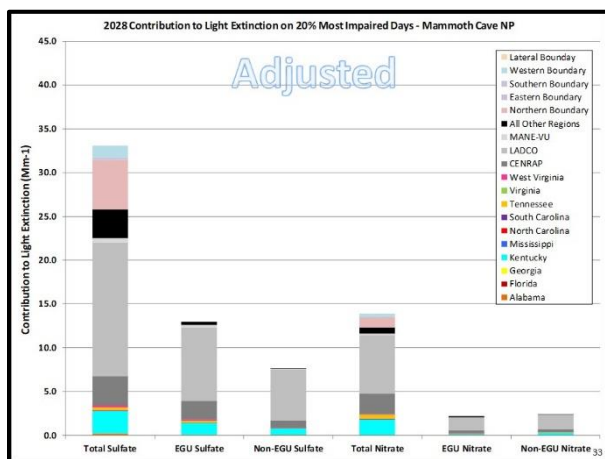
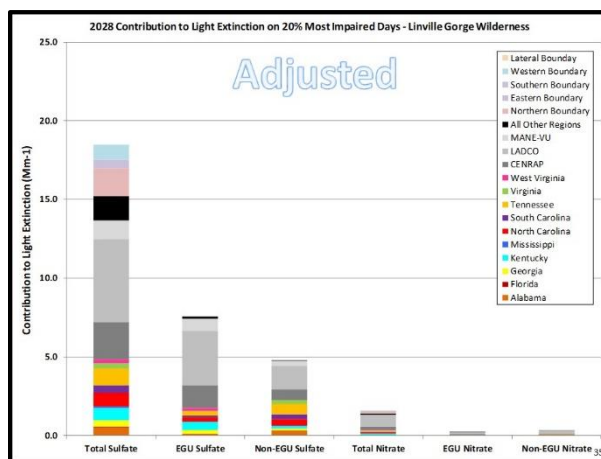
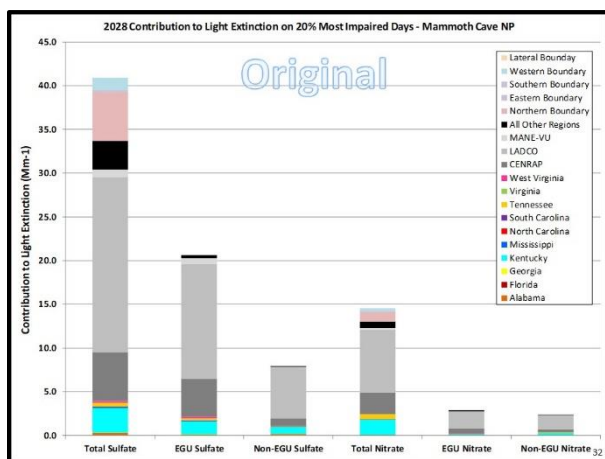
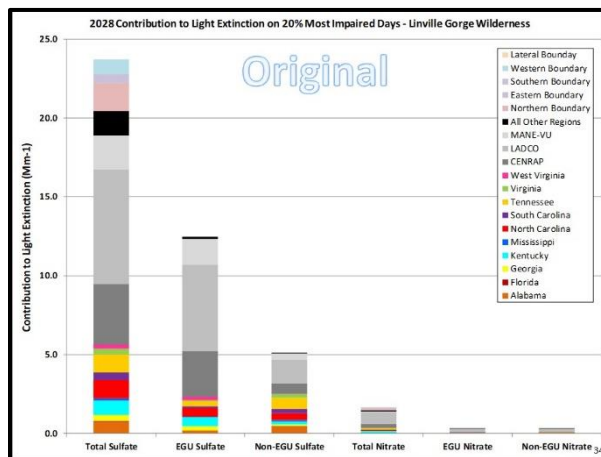
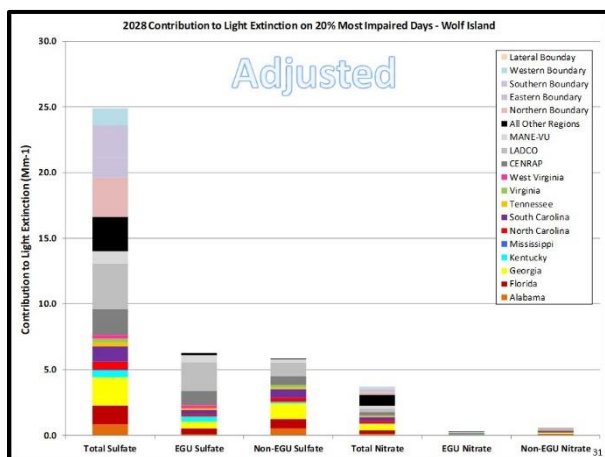
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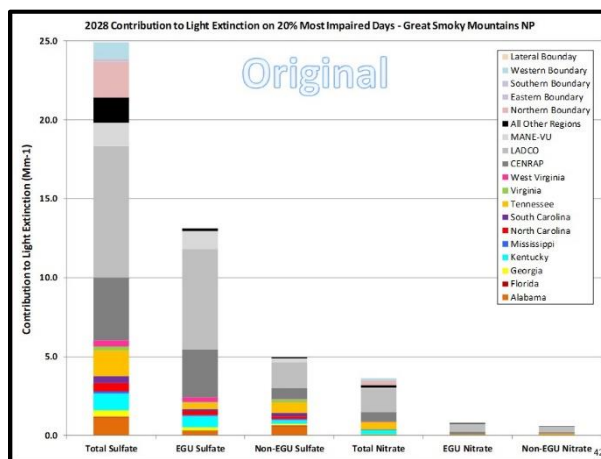
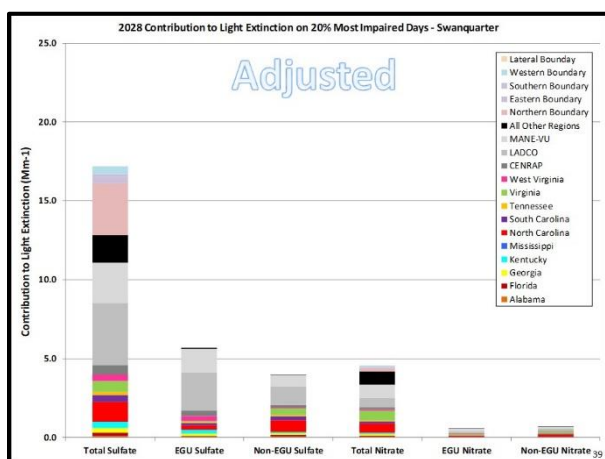
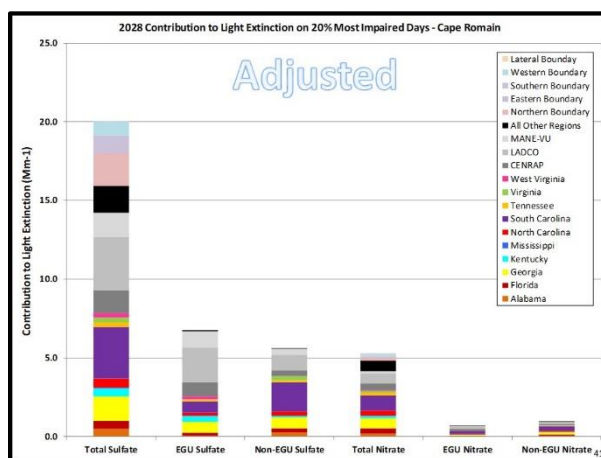
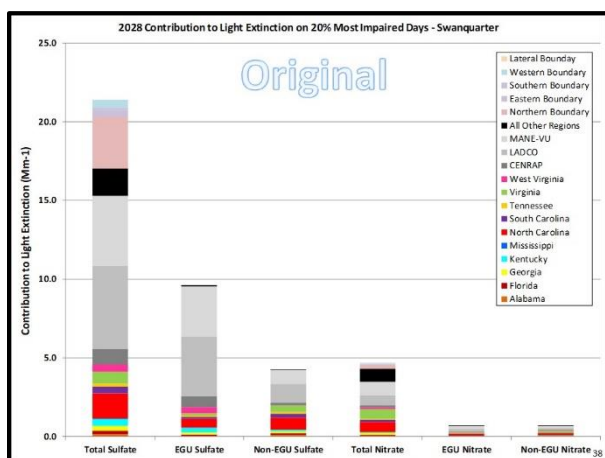
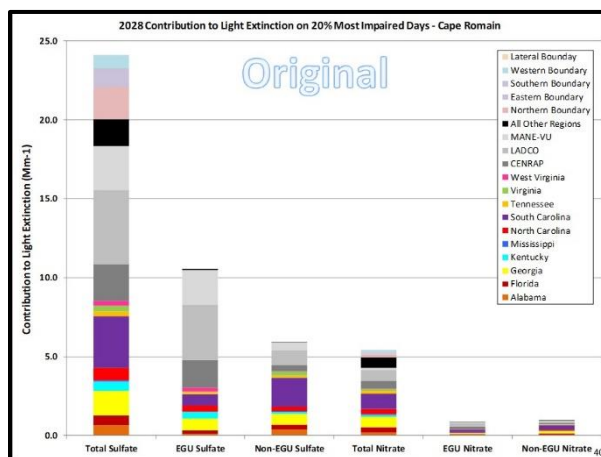
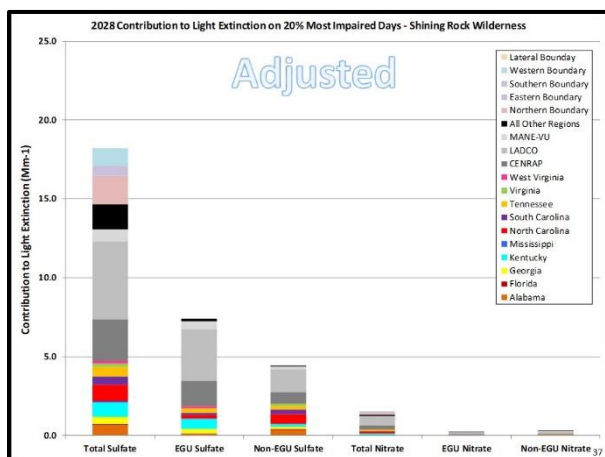


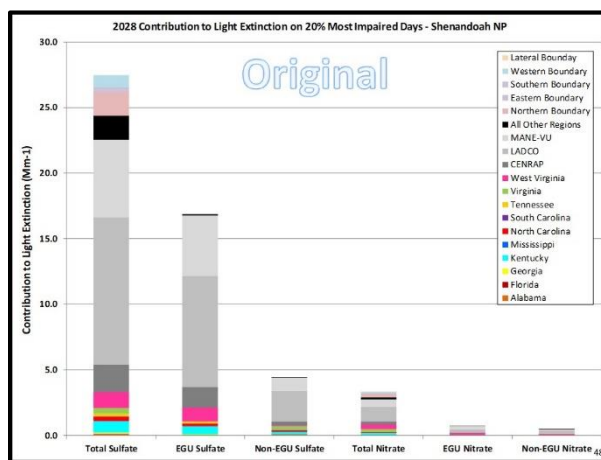
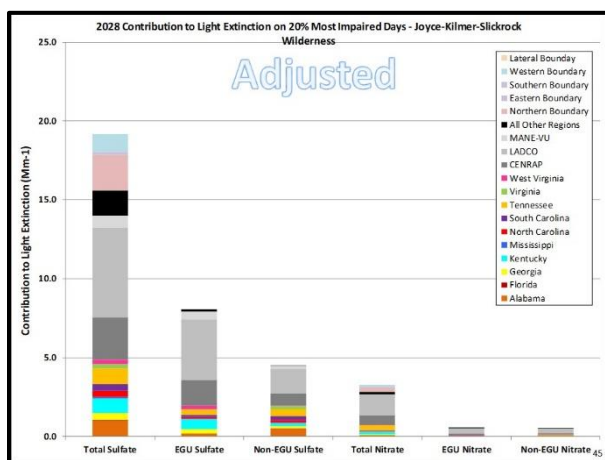
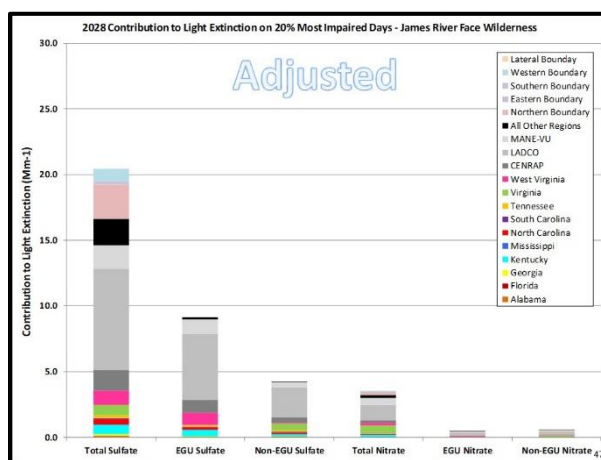
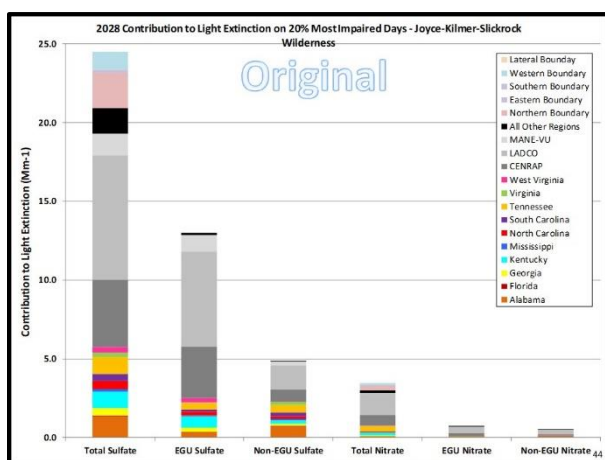
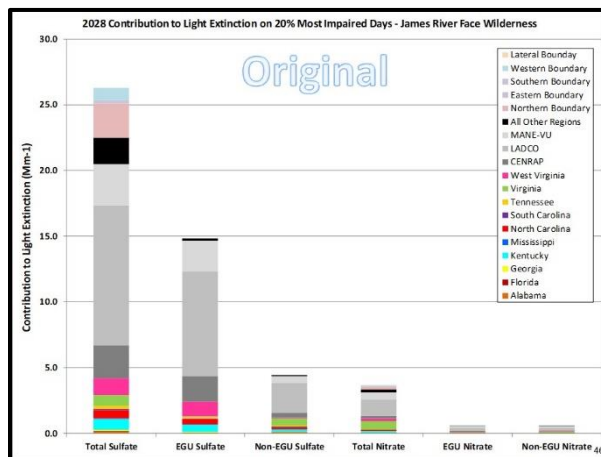
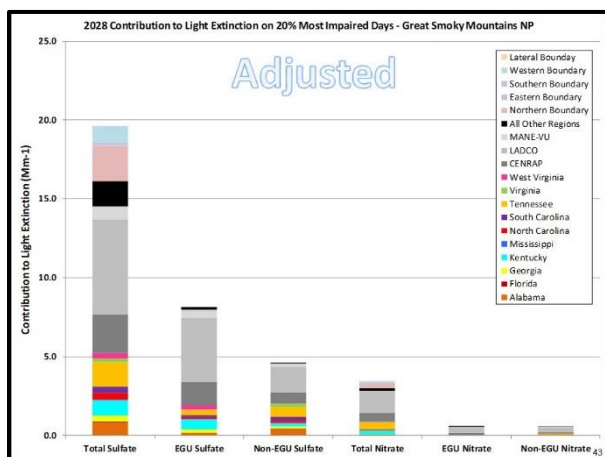


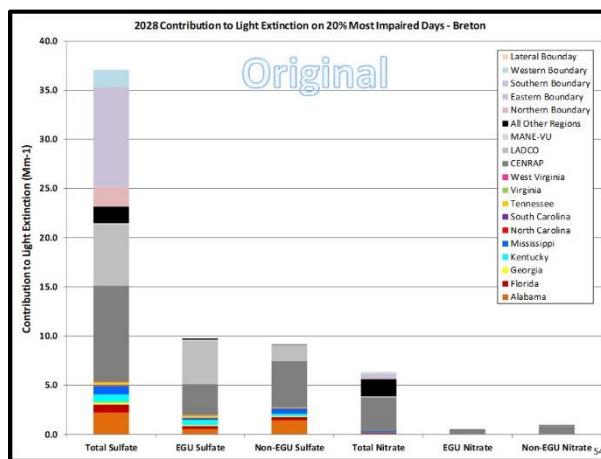
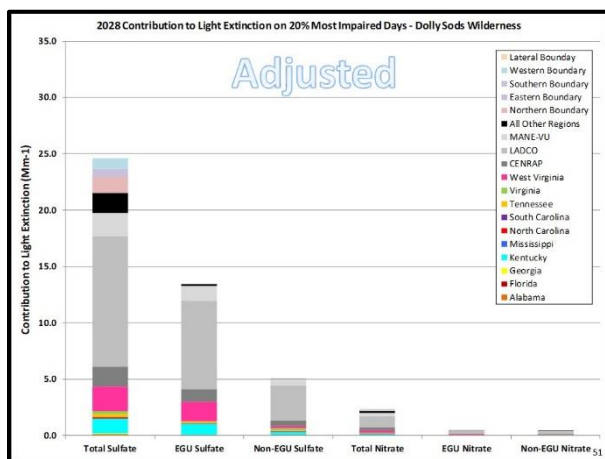
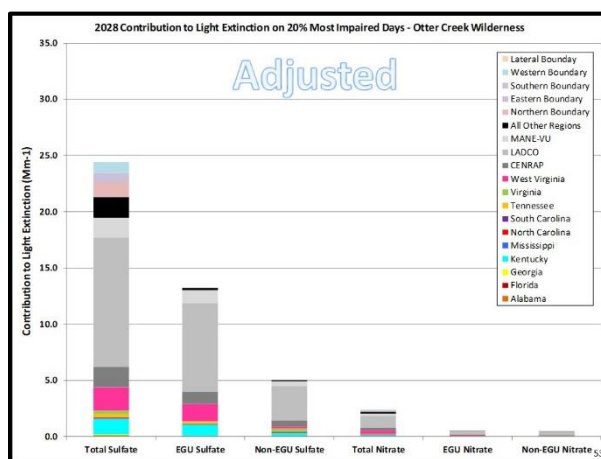
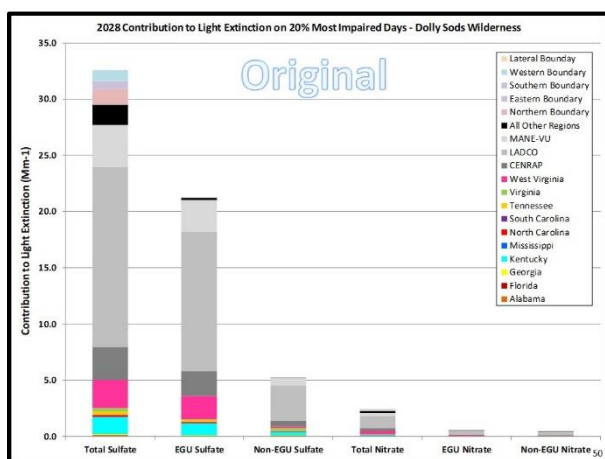
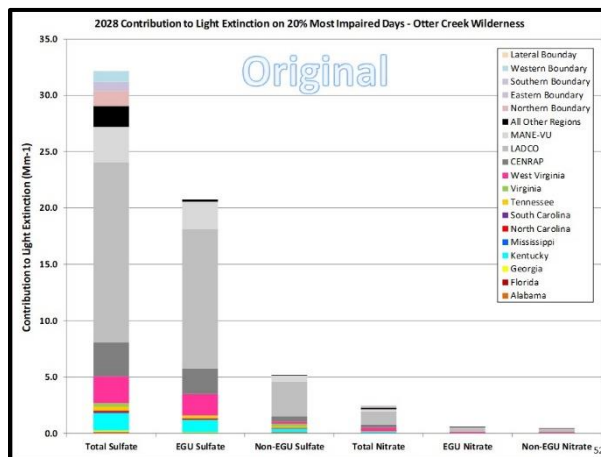
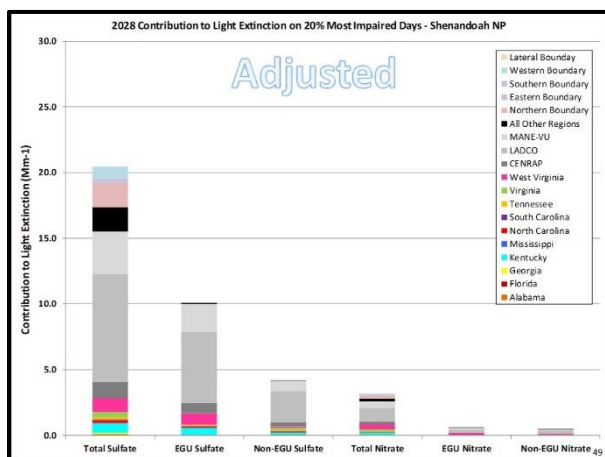


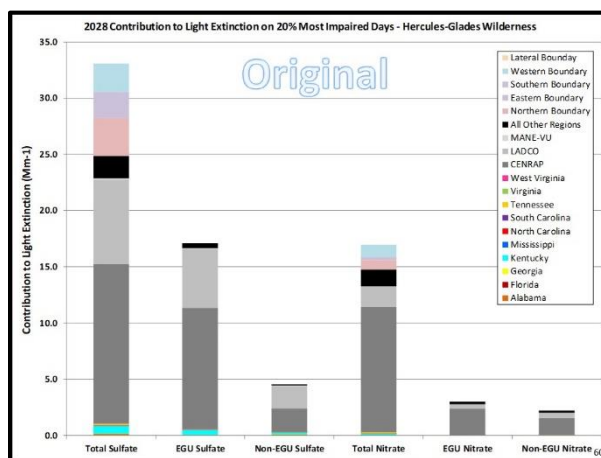
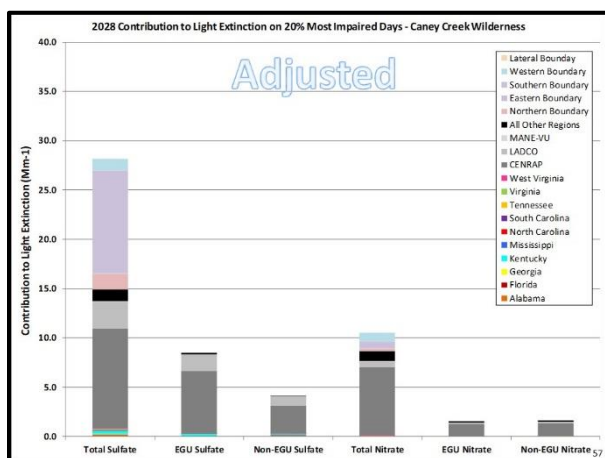
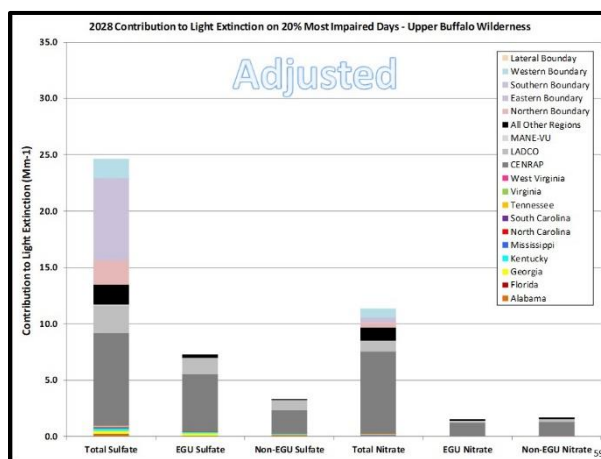
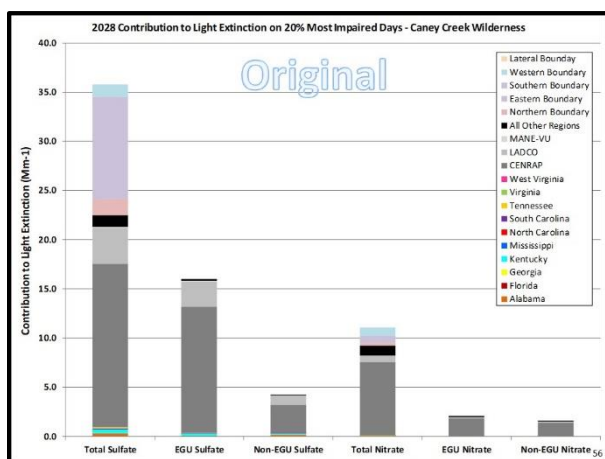
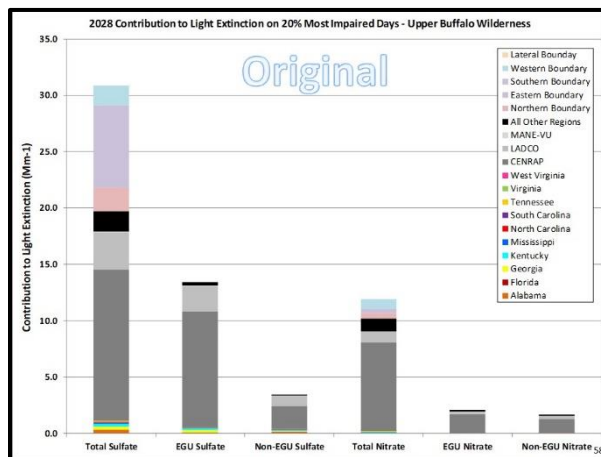
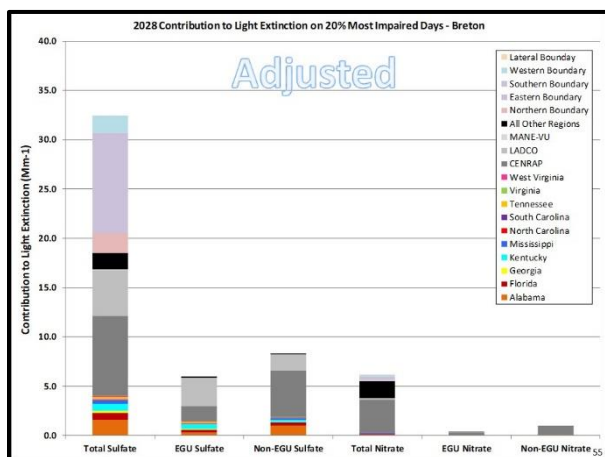


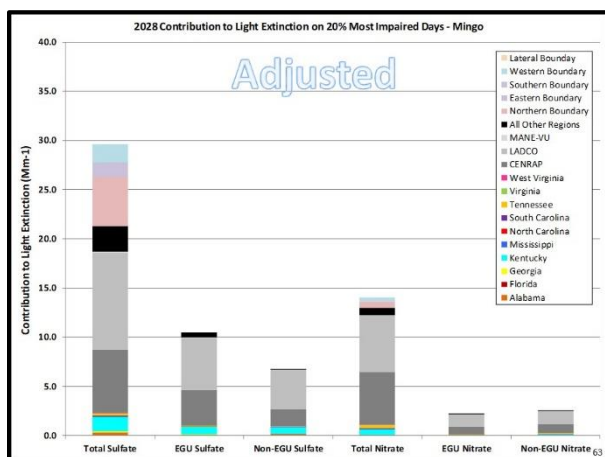
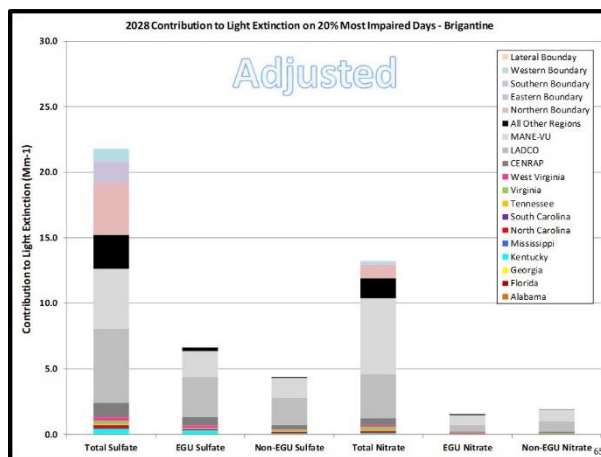
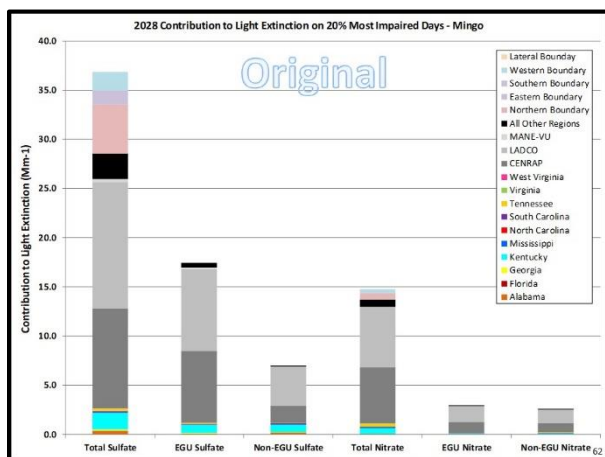
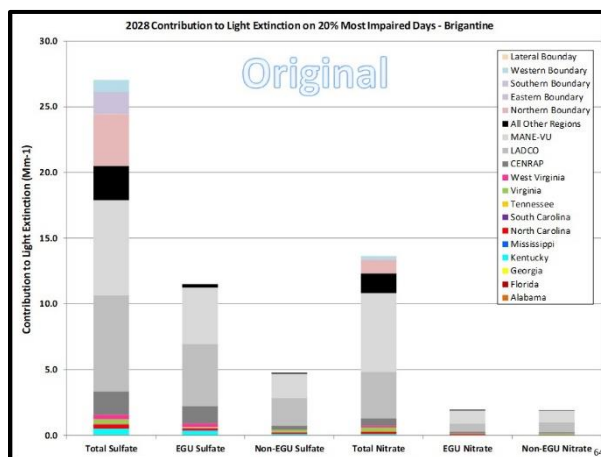
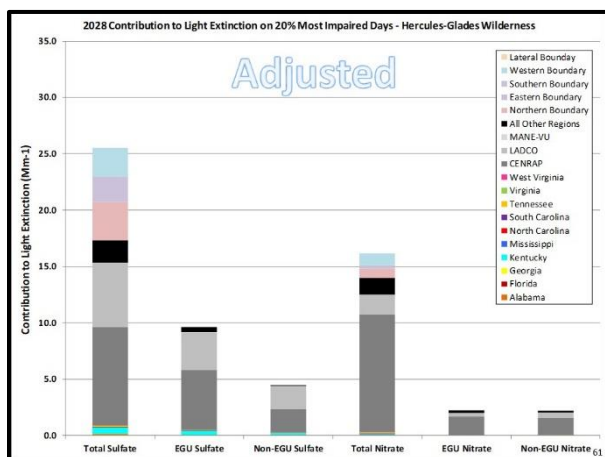












Four Factor Analysis



## Four-Factor Analysis Screening Approach

1. The VISTAS four-factor analysis approach is based on an initial AOI screening ( $Q/d * EWRT$ ) to rank facilities based on their sulfate and nitrate contributions at each Class I area.
2. These rankings were used to identify 87 individual facilities for PSAT tagging. PSAT tagging was used to determine the nitrate and sulfate contributions from each facility at each Class I area in the VISTAS\_12 domain.
3. Each individual VISTAS state will apply a PSAT contribution threshold based on the facility sulfate and facility nitrate impacts (separately, not combined) divided by the total impact of sulfate + nitrate from all point sources to determine which sources may need to be considered for a four-factor analysis.
  - If sulfate contribution  $\geq 1.00\% \rightarrow SO_2$  Four-Factor Analysis
  - If nitrate contribution  $\geq 1.00\% \rightarrow NO_x$  Four-Factor Analysis

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## Area of Influence (AOI) Analysis

- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d)*EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the 4-factor analysis
- Georgia Example:
  - Sources in Georgia, used  $\geq 2\%$  threshold
  - Sources outside Georgia, used  $\geq 4\%$  threshold

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## Why 1% Threshold?

- In the Round 1 Regional Haze SIPs, many VISTAS states used the AOI approach and a 1% threshold on a Unit basis.
  - We are using the AOI/PSAT approach and a  $\geq 1.00\%$  PSAT threshold based on a Facility basis.
  - This will pull in more facilities compared to a Unit basis.
- This approach results in a reasonable number of sources that can be evaluated with limited state resources and focuses on the sources with the largest impacts.

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## AOI Point Contributions for COHU

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Ga Power Company - Plant Bowen	78.0	6,643.3	10,453.4	1.15%	19.58%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	8,806.8	30,536.3	0.13%	4.68%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Gibson	487.1	12,280.3	23,117.2	0.10%	2.21%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.18%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	7,007.3	19,504.7	0.07%	2.18%
TN	TVA KINSTON FOSSIL PLANT	124.0	1,687.4	1,886.1	0.13%	2.17%
OH	General James M. Gavin Power Plant (0627010056)	512.0	8,122.5	41,595.8	0.02%	1.71%
TN	TVA CUMBERLAND FOSSIL PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Big Rivers Electric Corp. - Wilson Station	369.0	1,151.5	6,934.2	0.01%	1.07%
OH	Duke Energy Ohio, With H. Zimmer Station (2413090154)	454.6	7,150.0	22,133.9	0.06%	1.05%
GA	Ga Power Company - Plant Wansley	156.8	2,052.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co. - Ghent Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	poppe steam	466.9	4,706.3	20,509.3	0.02%	1.04%
GA	Mohawk Industries Inc.	12.0	66.5	77.1	0.07%	1.02%
TN	EASTMAN CHEMICAL COMPANY	269.8	6,900.3	6,420.2	0.09%	0.99%
MO	AMEREN MISSOURI-LABADIE PLANT	695.4	9,685.5	41,740.3	0.01%	0.96%
IL	Newton	564.0	1,934.9	10,631.6	0.01%	0.91%
GA	Chemical Products Corporation	71.9	19.5	513.8	0.00%	0.89%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	444.4	6,188.5	9,038.1	0.04%	0.76%

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## HYSPLIT Trajectories

- Trajectories were run using NAM-12 meteorology for the 20% most impaired days in 2011-2016 at 44 Class I areas.
  - Trajectories were run with starting heights of 100, 500, 1,000, and 1,500 meters.
  - Trajectories were run 72 hours backwards in time for each height at each location.
  - Trajectories were run with start times of 12AM (midnight of the start of the day), 6AM, 12PM, 6PM, and 12AM (midnight at the end of the day) local time.
- 44 Class I areas x 6 years x 24 days/year x 4 heights x 5 start times = **126,720 trajectories**

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## AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	71.5	112.4	2,745.0	0.03%	14.63%
FL	ROCK TENN CP, LLC	64.8	2,316.8	2,606.7	0.88%	12.82%
FL	IEA	65.6	651.8	2,094.5	0.18%	6.60%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	121.4	917.8	3,713.4	0.07%	3.25%
FL	RTT CHEMICAL HOLDINGS, INC.	56.8	37.7	898.9	0.01%	3.25%
FL	RAYONIER PERFORMANCE FIBERS LLC	63.4	2,327.1	562.0	0.90%	2.82%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	0.08%	2.81%
FL	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	1,830.7	1,520.4	0.14%	2.18%
FL	RENSSENZ LLC	59.8	66.3	569.5	0.02%	1.96%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	205.0	2,489.8	5,306.4	0.06%	1.40%
AL	Santer's Land Co.	384.6	221.7	7,951.1	0.00%	1.11%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,860.2	0.01%	1.05%
GA	Ga Power Company - Plant Bowen	438.1	6,643.3	10,453.4	0.09%	1.02%
GA	Brunswick Cellulose Inc.	75.3	1,554.5	294.2	0.34%	1.01%
SC	ALLUMAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA Valdosta Mill	112.7	1,032.6	485.7	0.09%	0.85%
SC	SANTEE COOPER CROSS GENERATING STATION	348.1	3,273.5	4,281.2	0.05%	0.85%
FL	CITY OF GAINESVILLE, GRU	111.7	410.0	881.4	0.03%	0.79%
SC	KAPSTONE CHARLESTON KRAFT LLC	314.9	2,355.8	1,863.7	0.06%	0.65%
GA	Ga Power Company - Plant Wansley	403.7	2,052.5	4,856.0	0.02%	0.65%

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## AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO <sub>2</sub> _2028 (tons/year)	NOx Contribution	SO <sub>2</sub> Contribution
GA	Brunswick Cellulose Inc.	27.9	1,554.5	294.2	2.34%	8.84%
FL	ROCKTENN CP, LLC	74.9	2,316.8	2,606.7	0.59%	8.56%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.53%
FL	JEA	105.1	651.8	2,094.5	0.09%	4.43%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,860.2	0.03%	2.65%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.6	112.4	2,745.0	0.01%	1.97%
SC	ALUMAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	0.00%	1.84%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	0.38%	1.79%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (0627010056)	845.3	8,122.5	41,595.8	0.02%	1.71%
SC	SANTEE COOPER CROSS GENERATING STATION	251.0	3,273.5	4,281.2	0.07%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	0.00%	1.55%
FL	IFF CHEMICAL HOLDINGS, INC.	118.5	37.7	898.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	521.6	562.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	3,790.3	3,212.9	0.02%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	GENON NE MGMT CO/KEYSTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## Georgia Tagging for PSAT

- Sources in Georgia (≥ 2% threshold)**
  - Ga Power Company – Plant Bowen
  - International Paper – Rome (aka TEMPLE INLAND)
  - International Paper – Savannah
  - Brunswick Cellulose Inc
  - Georgia-Pacific Consumer Products LP (Savannah River Mill)
- Sources outside Georgia (≥ 4% threshold)**
  - INDIANA MICHIGAN POWER DBA AEP ROCKPORT (IN)
  - ROCK TENN CP, LLC (FL)
  - JEA (FL)

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## PSAT SO<sub>2</sub> and NOx Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

→ 87 Total Facility Tags (both SO<sub>2</sub> and NOx)

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## AOI Screening Summary

State	Threshold	Notes
AL	2%	Sulfate only
FL	5%	Sulfate or nitrate, plus Gulf Crist, Mosaic Bartow, Mosaic New Wales, and Mosaic Riverview
GA	2% - 4%	Sulfate or nitrate, 2% threshold for GA facilities, 4% threshold for facilities outside GA
KY	2%	Sulfate or nitrate
MS	2%	Sulfate or nitrate
NC	3%	Sulfate + nitrate
SC	2% - 5%	2% for sulfate, 5% for nitrate, plus Santee Cooper Winyah, International Paper Georgetown, and SCE&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2%	Sulfate or nitrate

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## Facility Tags (AL, FL, GA)

Facility State	Facility RPO	FACILITY ID STD	FACILITY NAME STD	SO <sub>2</sub> (TPY)	NOx (TPY)
AL	VISTAS	01097-849811	Alzo Nobel Chemicals Inc	3,135.72	20.73
AL	VISTAS	01097-105611	Ala Power - Barry	6,033.17	2,275.76
AL	VISTAS	01176-108711	American Midstream Chattahoochee, LLC	3,105.39	425.87
AL	VISTAS	01073-101871	BRUMMOND COMPANY, INC.	2,562.17	1,228.55
AL	VISTAS	01053-744021	Escambia Operating Company LLC	18,574.39	349.32
AL	VISTAS	01053-885111	Escambia Operating Company LLC	8,589.80	149.64
AL	VISTAS	01103-100011	Purolite Steel Chemicals LLC	170.23	333.24
AL	VISTAS	01109-885711	Sanders Lead Co	7,551.06	121.71
AL	VISTAS	01097-106161	Union Oil of California - Chunchula Gas Plant	2,573.15	349.23
FL	VISTAS	12129-725411	BUCKEYE FLORIDA LIMITED PARTNERSHIP	1,320.44	1,830.78
FL	VISTAS	12086-900111	CHENIERE CONSTRUCTION MATERIALS FL, LLC	29.51	910.30
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	5,306.41	2,489.83
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (PTF)	13.05	170.61
FL	VISTAS	12033-752711	GULF POWER - Crist	2,631.69	2,998.36
FL	VISTAS	12086-352771	HOMESTEAD CITY UTILITIES	0.00	97.09
FL	VISTAS	12031-640211	JEA	2,094.48	651.79
FL	VISTAS	12105-717711	MOSAIC FERTILIZER, LLC	7,960.67	310.44
FL	VISTAS	12017-716411	MOSAIC FERTILIZER, LLC	3,014.06	159.70
FL	VISTAS	12105-919811	MOSAIC FERTILIZER, LLC	4,425.36	141.02
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS LLC	961.97	2,327.10
FL	VISTAS	12089-753711	ROCKTENN CP, LLC	2,608.72	2,316.77
FL	VISTAS	12003-535411	ROCKTENN CP LLC	2,590.88	1,404.89
FL	VISTAS	12129-273171	TALLAHASSEE CITY PURDOM GENERATING STA.	2.86	121.46
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	6,084.30	2,865.03
FL	VISTAS	12086-899911	TAMPA-AMERICA LLC	9.38	879.70
FL	VISTAS	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	3,187.77	112.41
GA	VISTAS	13127-372101	Brunswick Cellulose Inc	294.20	1,554.51
GA	VISTAS	13015-261011	Ga Power Company - Plant Bowen	80,404.42	6,643.32
GA	VISTAS	13103-536311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13031-367811	International Paper - Savannah	3,945.38	1,560.78
GA	VISTAS	13115-539311	TEMPLE INLAND	1,791.05	1,779.33

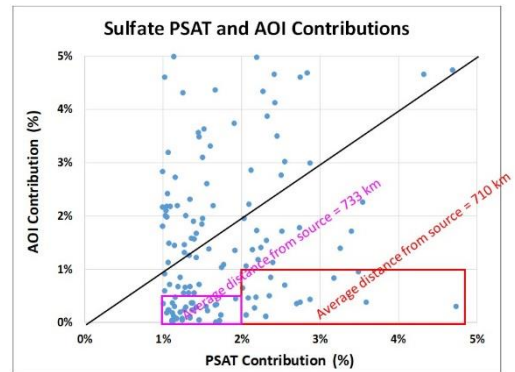
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### Facility Tags (KY, MS, NC, SC, TN, VA)

Facility State	Facility RPO	FACILITY_ID STD	FACILITY_NAME STD	SO <sub>2</sub> (TPY)	NO <sub>x</sub> (TPY)
KY	VISTAS	21183-501811	Big Rivers Electric Corp. - Wilson Station	4,524.14	1,131.25
KY	VISTAS	21091-735211	Century Aluminum of KY LLC	5,041.10	1,397.66
KY	VISTAS	21177-5196711	Tennessee Valley Authority - Paradise Fossil Plant	3,011.01	3,114.53
KY	VISTAS	21145-4037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	19,504.75	7,007.34
MS	VISTAS	28059-8384811	Chevron Products Company, Passagoula Refinery	761.60	1,534.12
MS	VISTAS	28059-6251011	Mississippi Power Company, Plant Victor / Daniel	231.92	3,429.72
NC	VISTAS	37087-7920511	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-8049511	Dartier Paper Company, LLC	167.45	1,796.49
NC	VISTAS	37035-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.31
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	4,845.90	495.58
NC	VISTAS	37023-8513011	SSL Carbon LLC	261.64	21.69
SC	VISTAS	45015-4634911	ALLIANCE OF SOUTH CAROLINA	3,791.69	108.06
SC	VISTAS	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	2,767.52	2,031.26
SC	VISTAS	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	1,863.69	2,355.82
SC	VISTAS	45015-4104611	SANTE COOPER CROSS GENERATING STATION	4,493.17	3,773.42
SC	VISTAS	45043-4652811	SANTE COOPER WINYAH GENERATING STATION	2,486.86	1,772.53
SC	VISTAS	45015-8306711	SC&G WILLIAMS	392.48	992.73
TN	VISTAS	47001-4979911	Cemex - Knoxville Plant	121.47	711.50
TN	VISTAS	47103-3982111	EASTMAN CHEMICAL COMPANY	4,420.18	6,900.11
TN	VISTAS	47105-4129211	TATE & LYLE, Loudon	472.76	883.25
TN	VISTAS	47001-8196011	TVA BULL RUN FOSSIL PLANT	627.54	964.16
TN	VISTAS	47103-4979911	TVA CUMBERLAND FOSSIL PLANT	4,427.31	4,976.10
TN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	1,886.09	1,687.58
VA	VISTAS	51027-4034811	Jewell Coke Company LLP	5,090.95	520.17
VA	VISTAS	51030-5789711	Meadwestvaco Packaging Resource Group	2,115.32	1,965.69
VA	VISTAS	51033-5039811	Roanoke Cement Company	2,290.17	1,972.57

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### Sulfate AOI vs. Sulfate PSAT (≥ 1.00%)



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### Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility RPO	FACILITY_ID STD	FACILITY_NAME STD	SO <sub>2</sub> (TPY)	NO <sub>x</sub> (TPY)
WV	VISTAS	54033-6271711	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	10,082.94	11,830.88
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	2,210.29	1,245.10
WV	VISTAS	54079-6780111	APPALACHIAN POWER COMPANY - JOHN W. AMOS PLANT	10,984.24	4,876.10
WV	VISTAS	54023-6297011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,123.64	1,984.14
WV	VISTAS	54041-6900311	EQUITRANS - COPELY RUN CS 70	0.10	511.06
WV	VISTAS	54083-6790711	FILES CREEK #C490	0.15	643.35
WV	VISTAS	54043-6790511	FLATLY #C4350	0.11	343.27
WV	VISTAS	54083-6827811	KINGSFORD MANUFACTURING COMPANY	16.90	140.88
WV	VISTAS	54061-1832011	LONGVIEW POWER	2,313.73	1,556.57
WV	VISTAS	54013-4902211	MITCHELL PLANT	5,722.46	2,719.62
WV	VISTAS	54061-4773611	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,881.87	13,743.32
WV	VISTAS	54073-4782811	MONONGAHELA POWER CO. - PLEASANTS POWER STA	16,817.43	5,497.37
WV	VISTAS	54083-4773811	MONONGAHELA ENERGY ASSOCIATES	828.64	655.58
AR	CENRAP	05063-1084111	ENTERGY ARKANSAS INC. INDEPENDENCE PLANT	21,050.48	34,313.10
MO	CENRAP	29143-5363811	NEW MADRID POWER PLANT-MARSTON	16,781.71	4,394.10
MD	MAINE-VU	28001-7763811	Luke Paper Company	22,659.84	1,607.03
PA	MAINE-VU	42005-3866111	SERENITY NE MONT CO/KEYSTONE STA	56,939.22	6,578.47
PA	MAINE-VU	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	11,865.70	5,215.99
PA	MAINE-VU	42063-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	8,880.28	2,254.64
IL	Midwest RPO	17127-7808911	Jopka Steam	20,509.38	4,706.35
IN	Midwest RPO	18173-8183111	Alcoa Warma Power Pk Age Div of AL	5,077.28	11,158.95
IN	Midwest RPO	18031-7363111	Gibson	23,117.23	12,280.34
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	30,536.33	8,806.77
IN	Midwest RPO	18125-7362411	INDIANAPOWER & LIGHT - PETERSBURG	18,141.38	10,465.27
IN	Midwest RPO	18128-8166311	Bigeco AB Brown South Indiana Gas & Ele	7,644.70	1,578.59
OH	Midwest RPO	35081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	7,460.79	2,467.31
OH	Midwest RPO	35031-8010811	Cornellville Power Plant (0616000006)	6,154.23	9,957.87
OH	Midwest RPO	35023-8048111	Duke Energy Ohio, Wm. N. Zimmer Station (1413090154)	22,110.90	7,149.67
OH	Midwest RPO	35033-8148511	General James M. Gavin Power Plant (0627010056)	41,595.81	8,122.51
OH	Midwest RPO	35033-7983011	Ohio Valley Electric Corp. - Wyer Creek Station (0627000001)	3,405.14	9,143.84

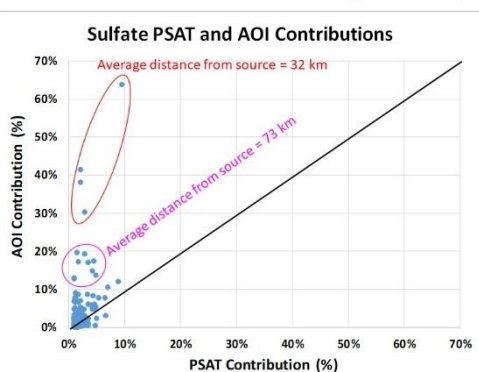
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### AOI vs. PSAT Summary

- AOI tends to overestimate impacts for facilities near the Class I area.
- AOI tends to underestimate impacts for facilities far away from the Class I area.
  - AOI uses 72-hour back trajectories, sulfate can last for weeks and travel hundreds to thousands of km.
- PSAT is the most reliable modeling tool for tracking facility contributions to visibility impairment at Class I areas.

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### Sulfate AOI vs. Sulfate PSAT (≥ 1.00%)



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### Four-Factor Analysis Screening Approach

- The updated 2028 CAMx modeling will impact the **total sulfate and total nitrate impacts** from all sources at each Class I area since the SO<sub>2</sub> and NO<sub>x</sub> emissions have decreased.
- However, the **individual sulfate and total nitrate impacts** from the individual 87 tagged facilities should not change unless a facility has reduced or increased SO<sub>2</sub> and/or NO<sub>x</sub> emissions.
- Therefore, the percent contribution (facility sulfate impact/total impact of all point sources of sulfate + nitrate) will increase since the denominator will decrease; however, the order of the rankings from largest impact to smallest impact should not change unless one of those facilities reduced or increased emissions.

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## Four-Factor Analysis Screening Approach

- Due to the amount of resources already invested in the AOI and PSAT analysis, **VISTAS plans to continue with our original approach** for determining which sources will require a four-factor analysis.
- In cases where emissions decreased or increased at individual facilities being considered for a four-factor analysis, the facility contributions will be adjusted to be consistent with the lower/higher facility emissions before comparing to the PSAT contribution threshold.
- EPA verbally stated this should be okay 2/6/2020.**

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## Revised Facility Nitrate PSAT Results

- Revised Facility Nitrate PSAT Results**  
= **Original Facility Nitrate PSAT Results**  
\* **NOx Ratio\_Facility \* Ratio\_Class\_I\_Area**

$$\text{where, NOx Ratio\_Facility} = \frac{\text{(Revised facility NOx emissions)}}{\text{(Original facility NOx emissions)}}$$

$$\text{where, Ratio\_Class\_I\_Area} = \frac{\text{(Original sulfate + nitrate point contribution)}}{\text{(Revised sulfate + nitrate point contribution)}}$$

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## Original Facility PSAT Contributions

- Original Facility Sulfate PSAT Contributions (%)**  
**Facility Sulfate PSAT Contributions (Mm<sup>-1</sup>)**  
= **Total Sulfate + Nitrate Point Contribution (Mm<sup>-1</sup>)**
- Original Facility Nitrate PSAT Contributions (%)**  
**Facility Nitrate PSAT Contributions (Mm<sup>-1</sup>)**  
= **Total Sulfate + Nitrate Point Contribution (Mm<sup>-1</sup>)**

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## Facility Ratios (AL, FL, GA)

Facility State	Facility BPO	FACILITY ID STD	FACILITY NAME STD	SO2 Ratio	NOx Ratio
AL	VISTAS	0107-740611	Akzo Nobel Chemical Inc.	1.000	1.000
AL	VISTAS	01097-105611	Ala Power - Barry	0.000	1.000
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	0.000	0.000
AL	VISTAS	01073-101071	BRUMMOND COMPANY, INC.	1.000	1.000
AL	VISTAS	01053-744021	Escambia Operating Company LLC	0.330	1.000
AL	VISTAS	01053-85111	Escambia Operating Company LLC	0.000	0.000
AL	VISTAS	01103-100001	Nucor Steel Erector LLC	1.000	1.000
AL	VISTAS	01109-88571	Sanders Lead Co	1.000	1.000
AL	VISTAS	01097-106161	Union Oil of California - Chunchula Gas Plant	0.000	0.000
FL	VISTAS	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1.000	1.000
FL	VISTAS	12086-90011	CEMEX CONSTRUCTION MATERIALS FL, LLC	1.000	1.000
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	0.000	0.000
FL	VISTAS	12086-90001	FLORIDA POWER & LIGHT (PTF)	1.000	1.000
FL	VISTAS	12033-752711	GULF POWER - Crist	0.000	0.000
FL	VISTAS	12086-932711	HOMESTEAD CITY UTILITIES	1.000	1.000
FL	VISTAS	12033-640211	JEA	0.000	0.000
FL	VISTAS	12105-717711	MOSAIC FERTILIZER, LLC	0.000	1.000
FL	VISTAS	12057-716411	MOSAIC FERTILIZER, LLC	0.000	1.000
FL	VISTAS	12105-919611	MOSAIC FERTILIZER, LLC	0.000	1.000
FL	VISTAS	12086-845811	RAYONIER PERFORMANCE FIBERS LLC	1.000	1.000
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	1.000	1.000
FL	VISTAS	12003-538411	ROCK TENN CP, LLC	1.000	1.000
FL	VISTAS	12126-273171	TALLAHASSEE CITY PURDUM GENERATING STA.	1.000	1.000
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	1.000	1.000
FL	VISTAS	12086-899911	TARMAC AMERICA LLC	1.000	1.000
FL	VISTAS	12047-789711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	0.000	0.000
GA	VISTAS	13127-372101	Brunswick Cellulose Inc	1.000	1.000
GA	VISTAS	13015-281201	Ga Power Company - Plant Bowen	1.000	1.000
GA	VISTAS	13103-538611	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1.000	1.000
GA	VISTAS	13031-367801	International Paper - Savannah	1.000	1.000
GA	VISTAS	13115-539311	TEMPLE INLAND	1.000	1.000

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## Revised Facility Sulfate PSAT Results

- Revised Facility Sulfate PSAT Results**  
= **Original Facility Sulfate PSAT Results**  
\* **SO<sub>2</sub> Ratio\_Facility \* Ratio\_Class\_I\_Area**

$$\text{where, SO}_2 \text{ Ratio\_Facility} = \frac{\text{(Revised facility SO}_2 \text{ emissions)}}{\text{(Original facility SO}_2 \text{ emissions)}}$$

$$\text{where, Ratio\_Class\_I\_Area} = \frac{\text{(Original sulfate + nitrate point contribution)}}{\text{(Revised sulfate + nitrate point contribution)}}$$

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## Facility Ratios (KY, MS, NC, SC, TN, VA)

Facility State	Facility BPO	FACILITY ID STD	FACILITY NAME STD	SO2 Ratio	NOx Ratio
KY	VISTAS	21183-550111	Big Rivers Electric Corp. - Wilson Station	1.000	1.000
KY	VISTAS	21091-752411	Century Aluminum of KY LLC	0.000	1.000
KY	VISTAS	21177-510671	Tennessee Valley Authority - Paradise Fossil Plant	0.000	0.000
KY	VISTAS	21145-601201	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VISTAS	28059-338411	Chevron Products Company - Pascagoula Refinery	1.000	1.000
MS	VISTAS	28059-625101	Mississippi Power Company - Plant Victor J. Daniel	1.000	1.000
NC	VISTAS	37087-752011	Blue Ridge Paper Products - Canton Mill	0.000	0.000
NC	VISTAS	37117-804911	Dormier Paper Company, LLC	1.000	1.000
NC	VISTAS	37055-837041	Duke Energy Carolinas, LLC - Marshall Steam Station	0.000	0.000
NC	VISTAS	37013-847931	PCS Phosphate Company, Inc. - Aurora	1.000	1.000
NC	VISTAS	37023-851301	SGL Carbon LLC	1.000	1.000
SC	VISTAS	45015-484811	ALUMAX OF SOUTH CAROLINA	1.000	1.000
SC	VISTAS	45043-569611	INTERNATIONAL PAPER GEORGETOWN MILL	1.000	1.000
SC	VISTAS	45019-497611	KAPSTONE CHARLESTON KRAFT LLC	1.000	1.000
SC	VISTAS	45013-412041	SANTHE COOPER CROSS GENERATING STATION	1.000	1.000
SC	VISTAS	45043-665201	SANTHE COOPER WINNAN GENERATING STATION	1.000	1.000
SC	VISTAS	45015-830671	SCE&G WILLIAMS	1.000	1.000
TN	VISTAS	47093-407911	Cemex - Knoxville Plant	1.000	1.000
TN	VISTAS	47143-198211	EASTMAN CHEMICAL COMPANY	1.000	1.000
TN	VISTAS	47105-412921	TATE & LYLE, Loudon	0.000	0.000
TN	VISTAS	47001-619601	TVA BULL RUN FOSSIL PLANT	0.000	0.000
TN	VISTAS	47181-497011	TVA CUMBERLAND FOSSIL PLANT	1.000	1.000
TN	VISTAS	47145-497911	TVA KINGSTON FOSSIL PLANT	0.000	0.000
VA	VISTAS	51027-403481	Jewell Coke Company LP	1.000	1.000
VA	VISTAS	51280-578671	Meachamstraco Packaging Resource Group	1.000	1.000
VA	VISTAS	51023-503811	Roanoke Cement Company	1.000	1.000

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## Facility Ratios (WV, AR, MO, MD, PA, IL, IN, OH)

Facility/State	Facility ID	FACILITY NAME STD	SO <sub>2</sub> Ratio	NH <sub>3</sub> Ratio
WV	VISTAS 54013-627111	ALLIANCE ENERGY SUPPLY CO. LLC-HARRISON	0.535	0.815
WV	VISTAS 54009-484511	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	0.535	0.815
WV	VISTAS 54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	0.535	0.815
WV	VISTAS 54023-627011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	0.535	0.815
WV	VISTAS 54043-690311	EQUITRANS - COLEEN RUN CS 20	1.000	1.000
WV	VISTAS 54083-679011	FILES CREEK 6C4340	1.000	1.000
WV	VISTAS 54083-679011	GLADY 6C4330	1.000	1.000
WV	VISTAS 54089-627811	KINGSFORD MANUFACTURING COMPANY	1.000	1.000
WV	VISTAS 54061-1832011	LONGVIEW POWER	0.535	0.815
WV	VISTAS 54031-600211	MITCHELL PLANT	0.535	0.815
WV	VISTAS 54061-677361	MONONGAHELA POWER CO. - FORT MARTIN POWER	0.535	0.815
WV	VISTAS 54073-678211	MONONGAHELA POWER CO. - PLEASANTS POWER STA	1.000	1.000
WV	VISTAS 54061-677361	MORGANTOWN ENERGY ASSOCIATES	0.535	0.815
AR	CENRAP 05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	0.430	0.517
MO	CENRAP 29143-1308111	NEW MADRID POWER PLANT-MARSTON	0.595	0.843
MD	MANE-VUJ 24003-1703811	Luke Paper Company	0.430	1.000
PA	MANE-VUJ 42005-386611	SENON NE MGMT CO/KEYSTONE STA	0.330	0.715
PA	MANE-VUJ 42063-3005211	HOMER CITY GEN LP/ CENTER TWPP	0.765	0.891
PA	MANE-VUJ 42063-3005211	NING WOLLESALE GEN/SEWARD GEN STA	0.765	0.724
IL	Midwest RPO 17127-780811	Joppa Steam	0.320	0.424
IN	Midwest RPO 18173-8183111	Alcoa Warrick Power Pk Agc Div of AL	0.280	0.271
IN	Midwest RPO 18125-7362411	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	0.330	0.360
IN	Midwest RPO 18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	0.330	0.360
IN	Midwest RPO 18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	0.330	0.360
IN	Midwest RPO 18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	0.330	0.360
IN	Midwest RPO 18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	0.330	0.360
OH	Midwest RPO 39031-8113111	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	0.000	0.000
OH	Midwest RPO 39031-8113111	Conesville Power Plant (0616000000)	0.000	0.000
OH	Midwest RPO 39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1433090154)	0.460	0.620
OH	Midwest RPO 39033-8148511	General James M. Gavin Power Plant (0627010050)	0.240	0.480
OH	Midwest RPO 39033-7983011	Ohio Valley Electric Corp. - Upper Creek Station (0627000003)	0.240	0.480

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## Sipsey Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	3.31%	1.61%	2.22%	0.97%	0.04%	0.05%	0.05%
OH	39053-8148511	General James M. Gavin Power Plant	690.9	0.38%	2.75%	1.99%	0.01%	0.09%	0.13%	0.13%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	5.72%	4.09%	1.99%	0.31%	0.23%	0.31%	0.31%
IN	18051-7363111	Gibson	448.7	2.85%	2.12%	1.65%	0.27%	0.19%	0.18%	0.18%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	444.4	1.72%	2.19%	1.57%	0.23%	0.23%	0.16%	0.16%
TN	47181-4979311	TVA CUMBERLAND FOSSIL PLANT	228.8	3.18%	1.07%	1.48%	0.48%	0.12%	0.17%	0.17%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	314.5	3.48%	1.46%	1.34%	0.26%	0.06%	0.07%	0.07%
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	845.5	1.89%	0.99%	1.29%	0.07%	0.04%	0.05%	0.05%
<b>Facilities That Dropped Off After REVISION</b>										
IL	17127-7808111	Joppa Steam	346.5	1.04%	1.51%	0.82%	0.25%	0.03%	0.02%	0.02%
IN	18173-8183111	ALCOA WARRICK POWER PLT AGC DIV OF AL	396.3	0.91%	1.02%	0.41%	0.62%	0.52%	0.19%	0.19%

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## Class I Area Ratios

State	Class I Area	Ratio_Class I Area
AL	Sipsey Wilderness Area	1.382
FL	Chassahowitzka Wilderness Area	1.325
FL	Everglades NP	3.290
FL	St Marks Wilderness Area	1.363
GA	Cohutta Wilderness Area	1.363
GA	Dienelenee Wilderness Area	1.317
GA	Woff Island Wilderness	1.311
KY	Mammoth Cave NP	1.337
NC	Linnville Gorge Wilderness Area	1.411
NC	Shining Rock Wilderness Area	1.410
NC	Swainquarter Wilderness Area	1.463
SC	Cape Romain Wilderness	1.302
TN	Great Smoky Mountains NP	1.394
TN	Joyce Kilmer-Slickrock Wilderness	1.401
VA	James River Face Wilderness	1.416
VA	Shenandoah NP	1.463
WV	Dolly Sods Wilderness	1.417
WV	Otter Creek Wilderness	1.412
AR	Caney Creek Wilderness Area	1.490
AR	Upper Buffalo Wilderness Area	1.490
LA	Breton Wilderness	1.306
ME	Acadia National Park	1.402
ME	Moosehorn Wilderness EDM	1.417
MI	Seney Wilderness Area	1.262
MO	Hercules-Glades Wilderness Area	1.450
MO	Mingo Wilderness Area	1.360
NH	Great Gulf Wilderness Area	1.463
NH	Presidential Range Dry River Wilderness	1.463
NJ	Brigantine Wilderness Area	1.391
VT	Lake Brook Wilderness	1.471

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## Chassahowitzka Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12017-640611	DUKE ENERGY FLORIDA, INC (DEF)	27.4	63.62%	9.95%	6.24%	1.95%	0.40%	0.23%	0.23%
GA	13015-2811811	Ed Power Company - Plant Bowen	637.2	0.03%	1.72%	2.28%	0.00%	0.02%	0.03%	0.03%
FL	12057-518611	TAMPA ELECTRIC COMPANY (TEC)	106.8	4.73%	0.96%	1.28%	0.24%	0.05%	0.07%	0.07%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.03%	0.76%	1.01%	0.00%	0.04%	0.05%	0.05%
AL	01109-883711	Standard Laid Co	471.2	0.15%	0.76%	1.00%	0.00%	0.02%	0.03%	0.03%
<b>Facilities That Dropped Off After REVISION</b>										
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.05%	1.47%	0.83%	0.00%	0.05%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,099.6	0.03%	1.13%	0.53%	0.00%	0.04%	0.06%	0.06%
AL	01053-7440211	Escombia Operating Company LLC	530.7	0.21%	1.57%	0.41%	0.00%	0.01%	0.01%	0.01%

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## EXAMPLE: New Madrid Power at SIPS

- Revised Facility Sulfate PSAT Results  
= Original Facility Sulfate PSAT Results  
\* SO<sub>2</sub> Ratio\_Facility \* Ratio\_Class I\_Area
- Original Facility Sulfate PSAT Results = 1.46%
- Revised Facility Sulfate PSAT Results  
= 1.46% \* 0.665 (slide 91) \* 1.382 (slide 92)  
= 1.34% (slide 94)

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## Everglades NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12057-518611	TAMPA ELECTRIC COMPANY (TEC)	916.6	3.02%	2.56%	3.30%	0.08%	0.00%	0.00%	0.00%
FL	12105-518611	MOSAIC FERTILIZER, LLC	304.7	2.21%	2.08%	2.62%	0.01%	0.00%	0.00%	0.00%
FL	12105-717711	MOSAIC FERTILIZER, LLC	808.3	2.26%	3.55%	2.60%	0.02%	0.00%	0.00%	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.16%	0.17%	0.23%	2.02%	0.76%	2.63%	2.63%

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## St Marks Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
GA	18015-2813011	Ga Power Company - Plant Bowen	452.9	0.38%	3.59%	4.89%	0.03%	0.03%	0.03%
FL	12005-535411	ROCKTENN CP LLC	140.8	8.54%	3.38%	4.60%	0.24%	0.09%	0.13%
AL	01109-885711	Sanders Lead Co	255.9	3.06%	0.82%	1.12%	0.00%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
AL	01097-1056111	Ala Power - Barry	383.1	1.67%	1.43%	0.97%	0.03%	0.02%	0.03%
AL	01053-7440211	Exco mbia Operating Company LLC	325.6	5.95%	3.53%	0.96%	0.01%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	908.4	0.33%	1.67%	0.80%	0.00%	0.01%	0.01%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,251.0	0.29%	1.29%	0.65%	0.01%	0.00%	0.00%
AL	01053-985111	Exco mbia Operating Company LLC	315.0	0.00%	2.68%	0.02%	0.00%	0.00%	0.00%

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## Wolf Island Wilderness

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12089-733711	ROCK TENN CP, LLC	74.9	8.56%	1.79%	2.33%	0.39%	0.11%	0.14%
GA	18015-2813011	Ga Power Company - Plant Bowen	458.1	1.08%	1.78%	2.33%	0.03%	0.04%	0.05%
GA	18127-8721011	Brunswick Cellulose Inc	27.9	8.84%	1.84%	1.76%	2.54%	0.10%	0.18%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	845.3	1.71%	2.51%	1.72%	0.02%	0.02%	0.02%
GA	18051-3679811	International Paper - Savannah	85.9	7.53%	1.18%	1.54%	0.04%	0.07%	0.09%
SC	45015-4120411	Santee Cooper Cross Generating Station	251.0	1.59%	0.99%	1.80%	0.09%	0.06%	0.08%
FL	12081-440211	JEK Plant	105.1	4.48%	0.96%	1.29%	0.09%	0.03%	0.06%
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	223.0	1.84%	0.95%	1.25%	0.00%	0.03%	0.03%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,048.6	0.84%	2.37%	1.15%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.07%	1.25%	0.76%	0.00%	0.02%	0.02%
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	173.6	1.97%	1.05%	0.67%	0.01%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	899.0	0.37%	1.38%	0.64%	0.00%	0.02%	0.03%

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## Cohutta Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	1.71%	3.41%	2.44%	0.02%	0.05%	0.07%
GA	18015-2813011	Ga Power Company - Plant Bowen	78.0	19.58%	1.56%	2.13%	1.13%	0.88%	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	497.2	2.18%	1.05%	1.44%	0.07%	0.01%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	4.68%	2.84%	1.37%	0.13%	0.03%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	1.05%	2.06%	1.31%	0.06%	0.03%	0.04%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.89%	0.93%	1.33%	0.09%	0.07%	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	801.1	0.14%	2.06%	1.04%	0.00%	0.01%	0.01%
IN	18051-7363111	Gibson	487.1	2.31%	1.35%	1.03%	0.10%	0.02%	0.02%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	477.0	2.18%	1.19%	0.84%	0.16%	0.03%	0.02%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.10%	0.54%	0.13%	0.06%	0.02%

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## Mammoth Cave NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	16.88%	3.57%	1.68%	2.60%	0.26%	0.33%
IN	18051-7363111	Gibson	198.2	5.21%	2.16%	1.63%	1.20%	0.35%	0.33%
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	89.9	6.72%	1.07%	1.43%	0.37%	0.06%	0.08%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	1.60%	0.86%	1.13%	0.15%	0.14%	0.19%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	312.7	0.66%	1.29%	1.14%	0.04%	0.07%	0.09%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	182.9	3.09%	1.50%	1.04%	0.56%	0.40%	0.27%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	1.21%	1.43%	0.89%	0.14%	0.11%	0.12%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	406.5	1.45%	1.15%	0.81%	0.04%	0.02%	0.02%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.30%	1.15%	0.65%	0.04%	0.05%	0.02%
IN	18173-8183111	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	2.00%	1.03%	0.40%	1.74%	0.82%	0.30%
IN	18129-8165111	Sigeco AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.00%	0.27%	0.06%	0.00%

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## Okefenokee Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	71.5	14.63%	4.92%	2.77%	0.08%	0.01%	0.01%
GA	18015-2813011	Ga Power Company - Plant Bowen	458.1	1.02%	1.74%	2.30%	0.05%	0.04%	0.05%
FL	12123-732411	BUCKEYE FLORIDA, UNITED PARTNERSHIP	193.5	2.18%	1.64%	2.16%	0.14%	0.11%	0.14%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.46%	2.19%	1.51%	0.01%	0.01%	0.01%
FL	12089-733711	ROCK TENN CP, LLC	64.8	12.82%	1.00%	1.31%	0.88%	0.11%	0.13%
SC	45015-4120411	Santee Cooper Cross Generating Station	348.1	0.85%	0.89%	1.18%	0.05%	0.03%	0.04%
GA	18051-3679811	International Paper - Savannah	178.9	2.81%	0.79%	1.04%	0.08%	0.09%	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.23%	0.78%	1.03%	0.00%	0.03%	0.04%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,129.0	0.46%	2.09%	1.02%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	921.9	0.09%	1.34%	0.83%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	915.7	0.55%	1.40%	0.65%	0.01%	0.02%	0.03%

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## Linville Gorge Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	19.21%	2.87%	4.05%	0.68%	0.07%	0.10%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	329.2	5.90%	4.67%	3.46%	0.04%	0.01%	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	567.5	0.94%	3.45%	1.82%	0.00%	0.00%	0.00%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	626.3	0.28%	0.95%	1.34%	0.00%	0.01%	0.02%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.11%	0.85%	1.20%	0.00%	0.01%	0.01%
GA	18015-2813011	Ga Power Company - Plant Bowen	340.9	0.53%	0.80%	1.13%	0.62%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	1.18%	2.22%	1.10%	0.01%	0.07%	0.09%
IN	18051-7363111	Gibson	582.3	0.67%	1.35%	1.07%	0.01%	0.07%	0.07%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	688.0	0.03%	1.11%	1.04%	0.00%	0.00%	0.00%
VA	91073-4034811	Jennett Coke Company LLP	148.4	5.84%	0.73%	1.02%	0.01%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.86%	0.00%	0.01%	0.00%
MD	24001-7763811	Luke Paper Company	453.8	0.23%	1.37%	0.84%	0.00%	0.00%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	550.5	0.36%	1.12%	0.82%	0.01%	0.07%	0.05%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	2.82%	1.00%	0.66%	0.03%	0.02%	0.03%

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## Shining Rock Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	397.3	1.39%	3.26%	2.41%	0.01%	0.01%	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	579.4	0.47%	1.16%	1.63%	0.01%	0.02%	0.02%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	454.1	0.54%	0.93%	1.32%	0.02%	0.01%	0.02%
GA	13015-2813011	Ga Power Company - Plant Bowen	241.6	1.70%	0.92%	1.29%	0.07%	0.01%	0.01%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	625.2	0.36%	1.37%	1.28%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.70%	2.55%	1.27%	0.01%	0.07%	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	657.6	0.49%	2.36%	1.23%	0.00%	0.00%	0.00%
IN	18051-7363111	Gibson	554.2	0.29%	1.55%	1.23%	0.01%	0.07%	0.07%
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	16.9	41.29%	2.14%	1.08%	6.65%	0.07%	0.10%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	1.37%	1.59%	1.05%	0.03%	0.01%	0.01%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.13%	1.74%	1.04%	0.00%	0.01%	0.01%
TN	47165-3982311	EASTMAN CHEMICAL COMPANY	126.9	4.43%	0.74%	1.04%	0.40%	0.02%	0.02%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	529.0	0.18%	1.12%	0.82%	0.01%	0.11%	0.08%
IL	17127-7808911	Uppa Steam	582.4	0.23%	1.07%	0.59%	0.00%	0.01%	0.00%

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## Great Smoky Mountains NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	2.25%	5.10%	3.73%	0.04%	0.02%	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.8	1.34%	0.94%	1.32%	0.02%	0.06%	0.08%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	160.1	6.01%	0.88%	1.22%	0.19%	0.04%	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	688.2	0.11%	2.31%	1.19%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	4.66%	2.42%	1.19%	0.21%	0.19%	0.25%
IN	18051-7363111	Gibson	456.3	1.25%	1.34%	1.05%	0.07%	0.27%	0.27%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	1.84%	1.50%	0.98%	0.09%	0.02%	0.02%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	435.6	1.48%	1.08%	0.78%	0.12%	0.29%	0.20%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.72%	0.02%	0.01%	0.00%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	60.0	7.38%	1.23%	0.38%	0.71%	0.08%	0.03%

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## Swanquarter Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	640.2	3.00%	6.66%	5.44%	0.08%	0.08%	0.09%
NC	37013-8479811	PCS Phosphate Company, Inc. - Aurora	52.5	97.89%	2.16%	1.02%	0.57%	0.49%	0.56%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	651.5	1.77%	2.74%	2.01%	0.06%	0.03%	0.05%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.35%	1.00%	1.86%	0.02%	0.03%	0.06%
MD	24001-7763811	Luke Paper Company	512.5	0.43%	2.88%	1.75%	0.02%	0.05%	0.07%
WV	54039-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	568.6	0.67%	1.19%	1.71%	0.08%	0.10%	0.12%
PA	42063-3005211	POWER CITY GEN LP/ CENTER TWP	620.1	0.55%	1.27%	1.38%	0.05%	0.05%	0.07%
WV	54078-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.84%	1.22%	1.17%	0.07%	0.03%	0.09%
GA	13015-2813011	Ga Power Company - Plant Bowen	810.6	0.15%	0.74%	1.03%	0.00%	0.02%	0.03%
NC	37117-8049811	Dennar Paper Company, LLC	69.0	2.27%	0.72%	1.00%	1.02%	0.14%	0.20%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,005.3	0.34%	1.69%	0.83%	0.02%	0.03%	0.04%

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## Joyce Kilmer-Slickrock Wilderness

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	425.1	4.73%	4.69%	3.45%	0.05%	0.01%	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.84%	0.99%	1.38%	0.09%	0.07%	0.10%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	179.2	9.88%	0.98%	1.30%	0.16%	0.02%	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	711.0	0.27%	2.17%	1.12%	0.00%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	391.2	4.33%	2.27%	1.12%	0.14%	0.16%	0.22%
GA	13015-2813011	Ga Power Company - Plant Bowen	166.2	3.61%	0.79%	1.11%	0.10%	0.01%	0.01%
IN	18051-7363111	Gibson	471.7	2.00%	1.29%	1.02%	0.11%	0.21%	0.21%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	3.63%	1.53%	1.00%	0.06%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	1.58%	1.36%	0.81%	0.05%	0.02%	0.01%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	453.0	2.16%	1.00%	0.72%	0.14%	0.23%	0.16%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	73.7	7.86%	1.24%	0.39%	0.57%	0.10%	0.03%

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## Cape Romain Wilderness

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
SC	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	29.3	30.18%	2.86%	0.73%	2.74%	0.23%	0.33%
GA	13015-2813011	Ga Power Company - Plant Bowen	506.2	0.36%	2.71%	3.53%	0.01%	0.10%	0.14%
SC	45013-4834911	ALUMAX OF SOUTH CAROLINA	39.1	17.07%	1.79%	2.33%	0.05%	0.02%	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	857.1	0.30%	4.74%	2.26%	0.00%	0.01%	0.01%
SC	45013-4120411	SANTTEE COOPER CROSS GENERATING STATION	63.8	6.57%	1.73%	2.23%	0.43%	0.21%	0.27%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.84%	3.18%	2.17%	0.00%	0.03%	0.04%
SC	45048-5689611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.64%	0.33%	0.11%	0.13%
SC	45043-6652811	SANTTEE COOPER WYNNAH GENERATING STATION	51.4	4.60%	1.02%	1.33%	0.38%	0.13%	0.17%
GA	13015-2813011	International Paper - Savannah	164.1	1.76%	0.99%	1.28%	0.04%	0.09%	0.06%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	776.2	0.11%	1.14%	0.69%	0.00%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	868.3	0.06%	1.18%	0.54%	0.00%	0.07%	0.08%

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## James River Face Wilderness

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	7.66%	5.44%	4.04%	0.14%	0.08%	0.11%
WV	54039-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	2.76%	2.51%	3.65%	0.36%	0.12%	0.14%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	1.35%	1.92%	3.61%	0.04%	0.02%	0.06%
WV	54078-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	3.87%	2.38%	2.26%	0.13%	0.03%	0.09%
WV	54079-4789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.93%	0.13%	0.09%	0.11%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	317.1	2.98%	2.88%	1.51%	0.06%	0.03%	0.04%
VA	51380-5798711	Measduwanoa Packaging Resource Group	46.5	12.64%	1.02%	1.43%	1.14%	0.15%	0.22%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.63%	0.66%	1.18%	0.16%	0.04%	0.04%
WV	54051-4902811	MITCHELL PLANT	269.6	0.68%	0.97%	1.05%	0.03%	0.02%	0.04%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.89%	1.39%	0.52%	0.05%	0.05%	0.06%
IN	18051-7363111	Gibson	729.4	0.59%	1.02%	0.82%	0.02%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	663.5	0.56%	1.33%	0.66%	0.03%	0.01%	0.02%

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## Shenandoah NP

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Final Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Final Revised Nitrate PSAT %
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	249.8	11.83%	8.89%	4.81%	0.10%	0.05%	0.06%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	1.53%	2.32%	4.50%	0.06%	0.05%	0.12%
WV	54033-6271711	MONONGAHELA POWER CO.-PLEASANTS POWER STA	189.7	4.60%	2.75%	4.14%	0.99%	0.37%	0.46%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	323.4	5.25%	4.88%	3.75%	0.14%	0.10%	0.14%
WV	54079-4782811	MONONGAHELA POWER CO.-PLEASANTS POWER STA	263.0	4.97%	2.20%	2.20%	0.24%	0.18%	0.18%
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	230.4	2.60%	1.56%	1.78%	0.13%	0.04%	0.06%
MD	24001-7763811	Luke Paper Company	118.4	6.90%	2.20%	1.41%	0.23%	0.09%	0.14%
PA	42063-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	215.5	1.80%	1.00%	1.12%	0.04%	0.02%	0.02%
WV	54051-6902311	MITCHELL PLANT	291.8	1.44%	0.88%	1.01%	0.13%	0.06%	0.14%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.43%	0.55%	1.01%	0.16%	0.06%	0.06%
<b>Facilities That Dropped Off After REVISION</b>									
WV	54061-6773611	MONONGAHELA POWER CO.- FORT MARTIN POWER	184.4	2.41%	1.06%	0.97%	1.27%	0.47%	0.60%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	1.31%	1.28%	0.87%	0.21%	0.05%	0.06%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	295.6	2.09%	1.04%	0.84%	0.09%	0.09%	0.19%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	755.8	0.71%	1.46%	0.76%	0.03%	0.02%	0.03%

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## Non-VISTAS Class I Areas

- Only two VISTAS facilities have a contribution  $\geq 1.00\%$  at any non-VISTAS Class I Area
- ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON (WV)**
  - Moosehorn Wilderness EDM (1.06% sulfate)
- Tennessee Valley Authority (TVA) - Shawnee Fossil Plant (KY)**
  - Caney Creek Wilderness Area (1.09% sulfate)
  - Hercules-Glades Wilderness Area (1.95% sulfate)
  - Mingo Wilderness Area (1.47% sulfate)
  - Great Gulf Wilderness Area (1.03% sulfate)
  - Presidential Range-Dry River Wilderness (1.03% sulfate)

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## Dolly Sods Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Final Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Final Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	88.6	13.58%	4.94%	7.18%	1.86%	0.26%	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	233.8	7.62%	6.56%	4.88%	0.10%	0.03%	0.05%
WV	54079-4782811	MONONGAHELA POWER CO.-PLEASANTS POWER STA	163.9	4.64%	4.32%	4.19%	0.16%	0.07%	0.10%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	1.36%	2.14%	4.02%	0.03%	0.01%	0.03%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	1.40%	2.25%	1.49%	0.02%	0.04%	0.05%
WV	54051-6902311	MITCHELL PLANT	144.2	1.45%	1.28%	1.42%	0.07%	0.02%	0.05%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	172.8	4.12%	2.43%	1.27%	0.01%	0.00%	0.00%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.62%	0.66%	1.18%	0.11%	0.02%	0.02%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	3.56%	1.45%	1.14%	0.11%	0.01%	0.08%
WV	54061-6773611	MONONGAHELA POWER CO.- FORT MARTIN POWER	79.8	6.53%	1.27%	1.13%	1.07%	0.18%	0.23%
KY	21145-6017011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.12%	0.74%	1.05%	0.00%	0.03%	0.02%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18051-7363111	Gibson	729.5	0.04%	1.24%	0.99%	0.02%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	676.3	0.44%	1.93%	0.97%	0.01%	0.02%	0.03%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	682.6	0.08%	1.05%	0.77%	0.02%	0.04%	0.03%
OH	39011-8010811	Conneville Power Plant (0616000001)	242.3	0.71%	1.09%	0.00%	0.12%	0.08%	0.05%

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## VISTAS Facilities $\geq 1.00\%$

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
IL	01109-801711	Banders Lead Co	CHAS, SAMA
FL	12123-7524311	BUCKEYE FLORIDA LIMITED PARTNERSHIP	OKEF
FL	12017-6406111	DUKE ENERGY FLORIDA, INC. (DEF)	CHAS
FL	12011-6401111	JEK	WOLF
FL	12105-7177111	MOSEAC FERTILIZER LLC	EVER
FL	12105-4198111	MOSEAC FERTILIZER, LLC	EVER
FL	12089-7517111	ROCK TWIN CP, LLC	OKEF, WOLF
FL	12005-5354111	ROCKTENN CP LLC	SAMA
FL	12057-5386111	TAMPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12086-8099111	TANIMAC AMERICA LLC	EVER
FL	12047-7897111	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	OKEF
GA	13127-3721011	Brunswick Cellulose Inc	WOLF
GA	13011-2613011	Ex Power Company - Plant Bowen	CHAS, COHU, JSR, LUGO, OKEF, ROMA, SAMA, SHRO, SWAN, WOLF
GA	13051-8079811	International Paper - Savannah	OKEF, ROMA, WOLF
KY	21183-5561611	Big Rivers Electric Corp. - Wilson Station	MACA, SIPS
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, COHU, DOSO, GRSM, GRMA, HELL, JSR, LUGO, MACA, MINIS, OKEF, OTCR, PRED, SHRO, SIPS
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	37117-8049111	Dorland Paper Company, LLC	SWAN
NC	37011-8479111	PCL Phosphate Company, Inc. - Aurora	SWAN
SC	45015-4834911	ALLUMAX OF SOUTH CAROLINA	ROMA, WOLF
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45013-4979811	KAYSTONE CHARLESTON GRAPT LLC	ROMA
SC	45011-4120411	SANTEE COOPER CROSS GENERATING STATION	OKEF, ROMA, WOLF
SC	45043-6652811	SANTEE COOPER WINNAP GENERATING STATION	ROMA
TN	47169-5962111	EASTMAN CHEMICAL COMPANY	COHU, GRSM, JSR, LUGO, SHRO
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	LUGO, SHRO, SIPS
VA	51027-4034811	Jewell Coke Company LLP	SHRO
VA	51040-5786711	Resident/Two Packaging Resonator Group	JAR
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JAR, MOOS, OTCR, SHEN, SWAN
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	DOSO, JAR, OTCR
WV	54011-6902311	MITCHELL PLANT	DOSO, JAR, OTCR, SHEN
WV	54061-6773611	MONONGAHELA POWER CO.- FORT MARTIN POWER	DOSO, OTCR
WV	54079-4782811	MONONGAHELA POWER CO.-PLEASANTS POWER STA	DOSO, JAR, OTCR, SHEN, SWAN

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## Otter Creek Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Final Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Final Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	17.37%	4.49%	6.51%	1.81%	0.26%	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	10.46%	7.08%	5.25%	0.18%	0.04%	0.06%
WV	54079-4782811	MONONGAHELA POWER CO.-PLEASANTS POWER STA	148.3	8.19%	4.39%	4.24%	0.30%	0.08%	0.12%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	1.94%	2.03%	3.81%	0.05%	0.02%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	1.12%	2.40%	1.58%	0.02%	0.06%	0.06%
WV	54051-6902311	MITCHELL PLANT	136.8	1.56%	1.40%	1.56%	0.06%	0.08%	0.09%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	4.36%	1.67%	1.31%	0.12%	0.02%	0.04%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.85%	0.71%	1.27%	0.20%	0.02%	0.02%
KY	21145-6017011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	826.5	0.18%	0.77%	1.09%	0.00%	0.01%	0.02%
IN	18051-7363111	Gibson	709.7	0.24%	1.27%	1.01%	0.01%	0.05%	0.05%
WV	54061-6773611	MONONGAHELA POWER CO.- FORT MARTIN POWER	82.7	4.98%	1.14%	1.00%	0.92%	0.20%	0.24%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	655.7	0.64%	2.01%	1.00%	0.01%	0.03%	0.04%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	186.5	3.73%	1.91%	1.00%	0.03%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.04%	0.03%
OH	39011-8010811	Conneville Power Plant (0616000001)	232.8	1.12%	1.07%	0.00%	0.17%	0.08%	0.00%

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## Non-VISTAS Facilities $\geq 1.00\%$

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
AR	05063-1084311	ENTERGY ARKANSAS INC. INDEPENDENCE PLANT	SHRO
IN	18051-7363111	Gibson	COHU, GRSM, JSR, LUGO, MACA, OTCR, SHRO, SIPS
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	COHU, GRSM, JSR, LUGO, MACA, OTCR, SHRO, SIPS
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	MACA, SIPS
MD	24001-7763811	Luke Paper Company	SHEN, SWAN
MO	29543-5363811	NEW MADRID POWER PLANT-MARSTON	LUGO, MACA, SHRO, SIPS
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	DOSO, JAR, OTCR, SHEN, SWAN
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	COHU, DOSO, JSR, OTCR, SHRO
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	COHU, DOSO, GRSM, JAR, JSR, LUGO, OKEF, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	DOSO, JAR, OTCR, SHEN
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	COHU, DOSO, GRSM, JAR, JSR, LUGO, OKEF, OTCR, ROMA, SHEN, SHRO, SWAN, WOLF
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	SHEN, SWAN
PA	42063-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	SHEN

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### EPA Guidance (August 20, 2019)

- Many facilities already have effective emission control technologies in place. States will consider control options for these facilities on a case-by-case basis.
  - “For the purpose of SO<sub>2</sub> control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO<sub>2</sub> emission limit of the 2012 Mercury Air Toxics Standards (MATS) rule for power plants. The two limits in the rule (0.2 lb/MMBtu for coal-fired EGUs or 0.3 lb/MMBtu for EGUs fired with oil-derived solid fuel) are low enough that it is unlikely that an analysis of control measures for a source already equipped with a scrubber and meeting one of these limits would conclude that even more stringent control of SO<sub>2</sub> is necessary to make reasonable progress.”
  - “For the purposes of SO<sub>2</sub> and NO<sub>x</sub> control measures, a combustion source (e.g., an EGU or industrial boiler or process heater) that, during the first implementation period, installed a FGD system that operates year-round with an effectiveness of at least 90 percent or by the installation of a selective catalytic reduction system that operates year-round with an overall effectiveness of at least 90 percent (in both cases calculating the effectiveness as the total for the system, including any bypassed flue gas), on a pollutant-specific basis.”

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### Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed
2028 Emissions Processing	Late April, 2020
2028 CAMx Modeling	Late June, 2020
2028 Visibility Projections	Mid-July, 2020
2028 Deposition Projections	Mid-July, 2020
Final Reports and Documentation	Late July, 2020
Website Updates and Postings	Late July, 2020
End of Contract	September 30, 2020
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

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### Additional Considerations

- The final list of four-factor analysis sources will be determined in consultation with the FLMS, EPA, other states, and stakeholders.
- Some VISTAS states may perform additional four-factor analyses for sources not listed on Slide 113.
- States will verify projected SO<sub>2</sub> and NO<sub>x</sub> emissions with facilities. PSAT results can be adjusted to match.
- Some states may allow their facilities to take a permit limit that will result in adjusted PSAT impacts below the 1.00% threshold in lieu of performing a four-factor analysis.
- The large number of coal-fired EGU retirements and fuel switching from coal to natural gas needs to be considered along with the sources selected for the four-factor analysis. States should not be penalized for early action.

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### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
- For general, contract, and funding questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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## Next Steps and Schedule

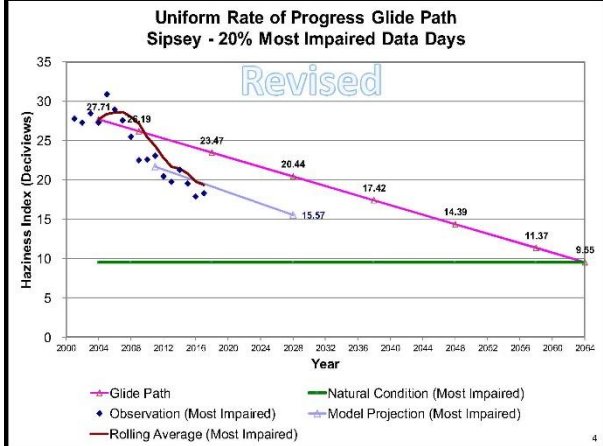
117

**Appendix F-3j - VISTAS Regional Haze Project Update to  
FLMs, EPA OAQPS, Region 3, Region 4, MJOs May 11,  
2020**

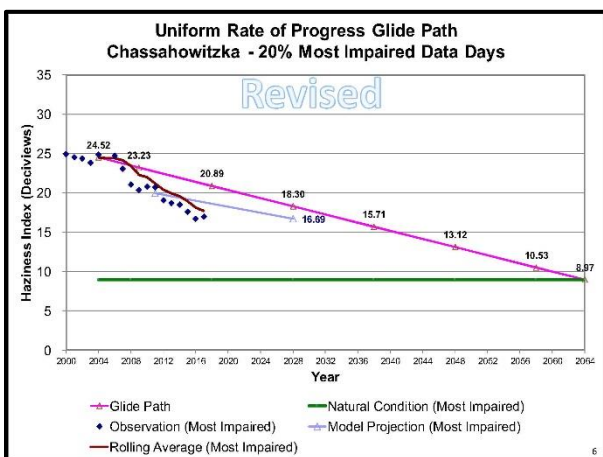
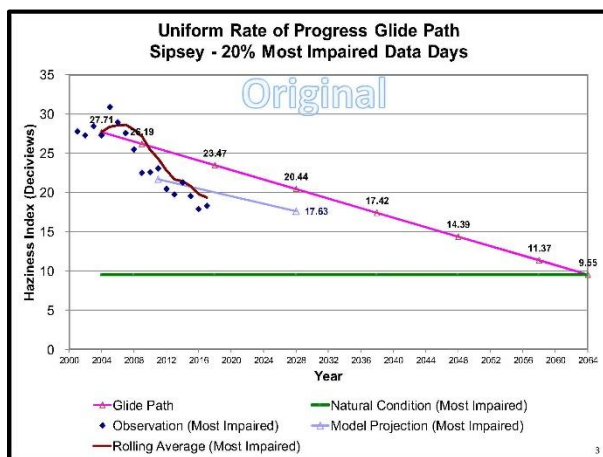
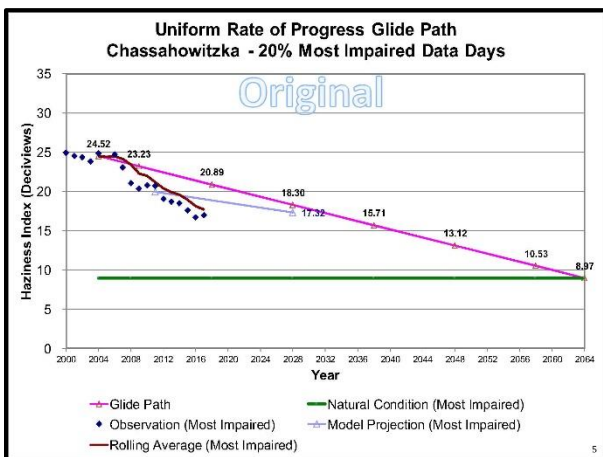
# VISTAS Regional Haze Project Update, Part 1 URP Glide Path Adjustments



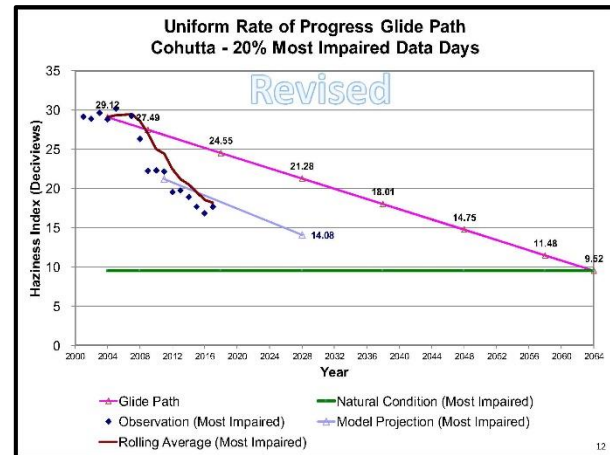
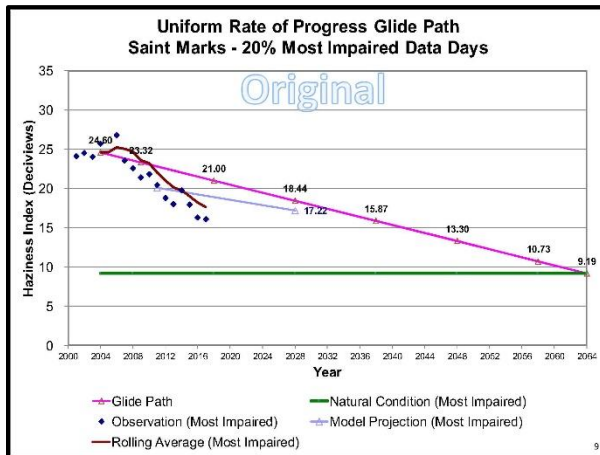
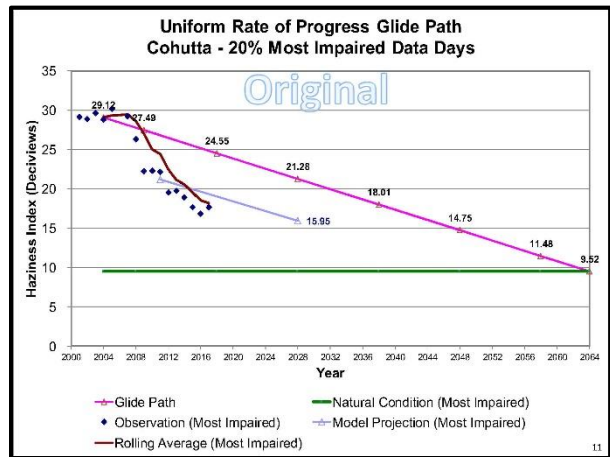
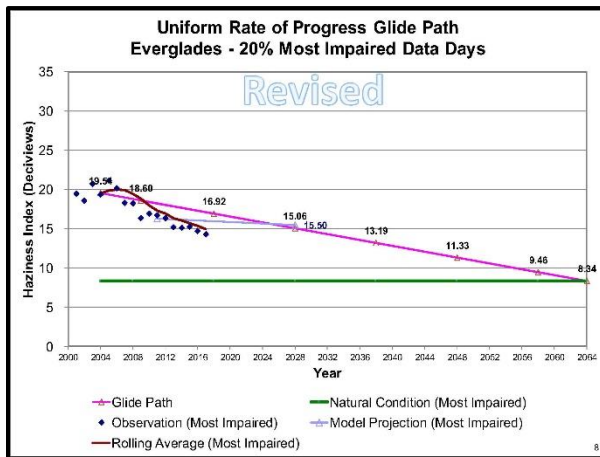
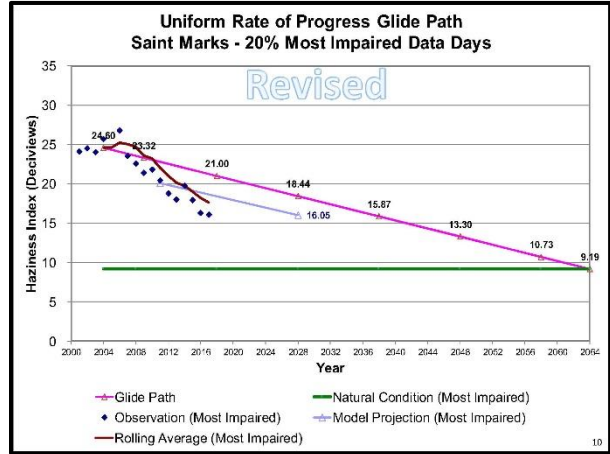
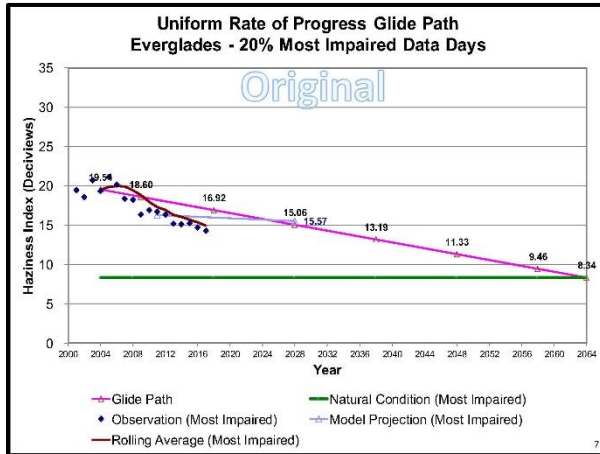
FLM/EPA Briefing  
Jim Boylan  
May 11, 2020

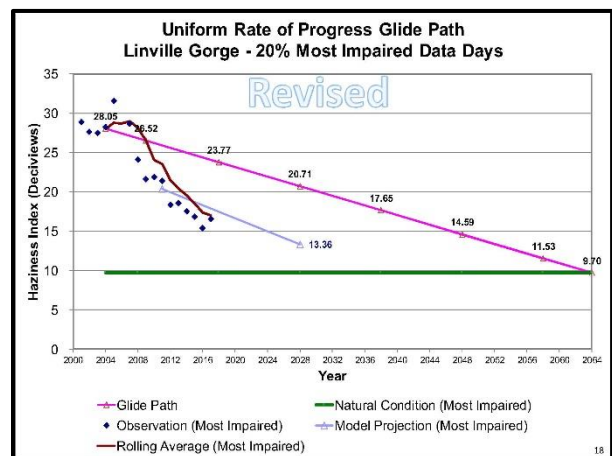
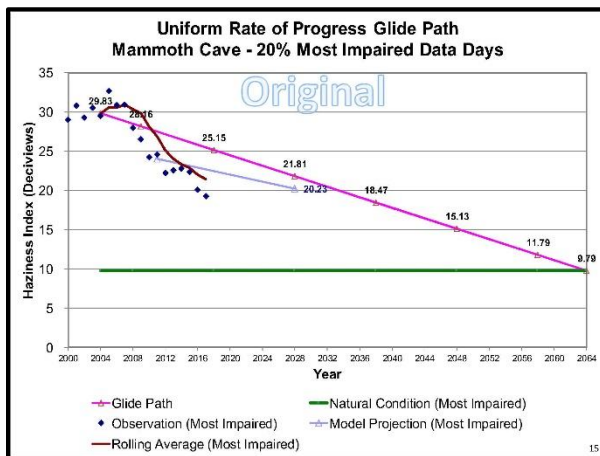
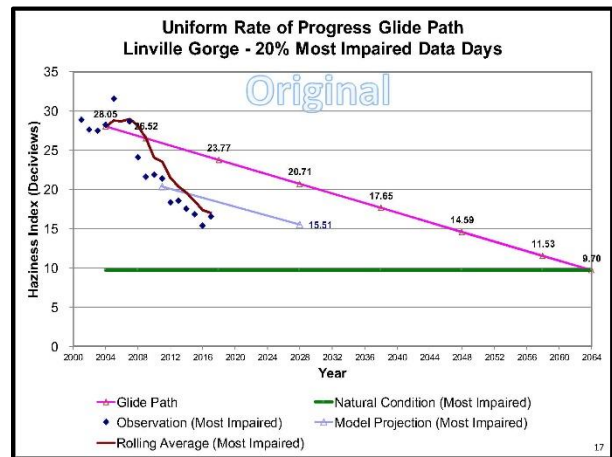
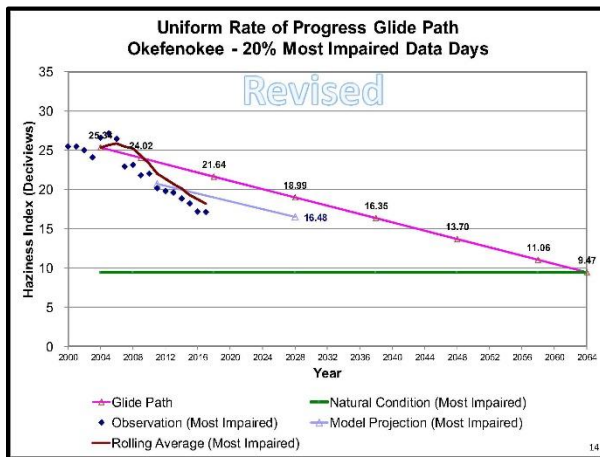
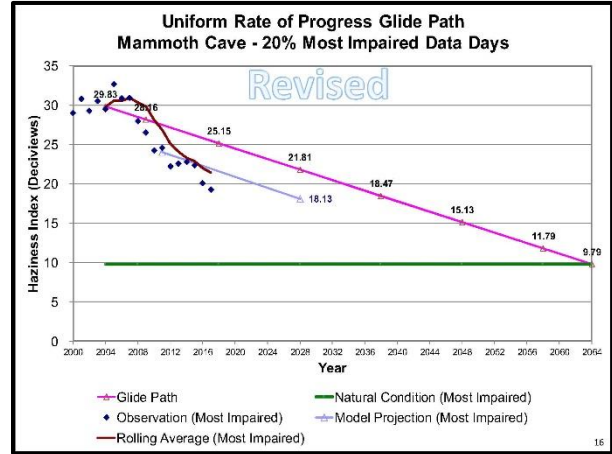
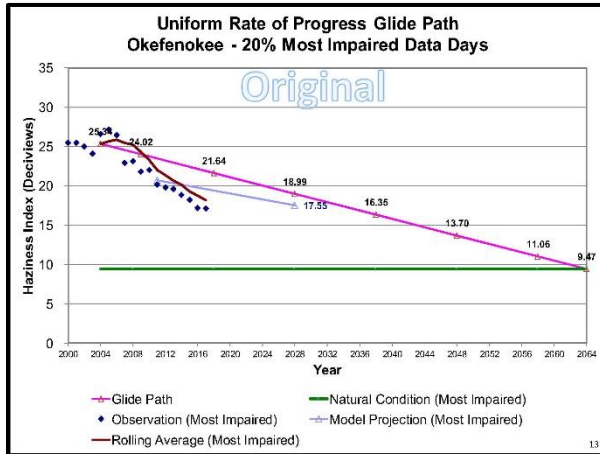


## ORIGINAL AND REVISED 2028 MODEL PROJECTIONS

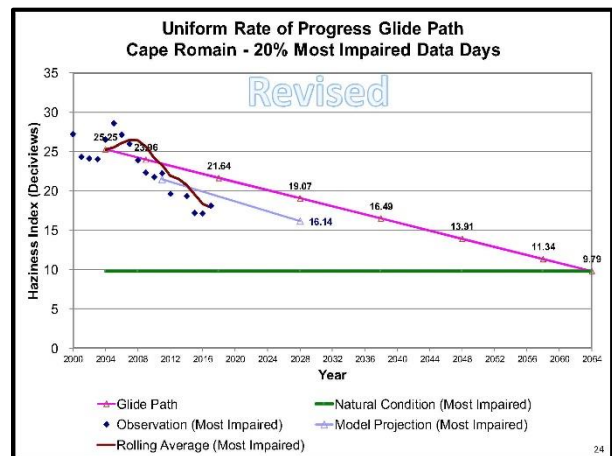
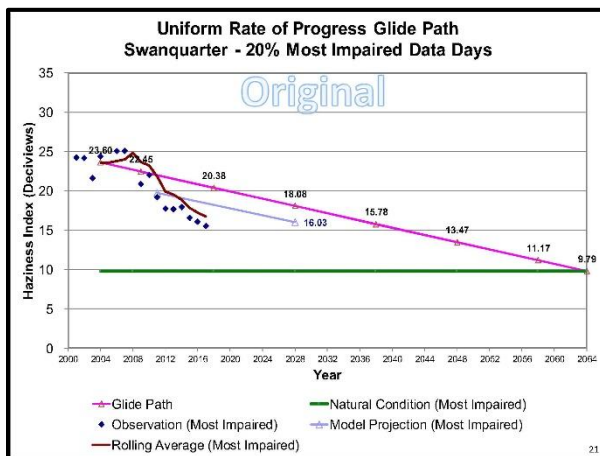
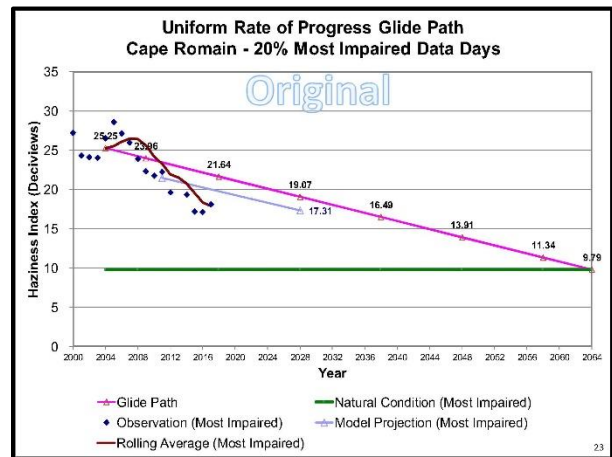
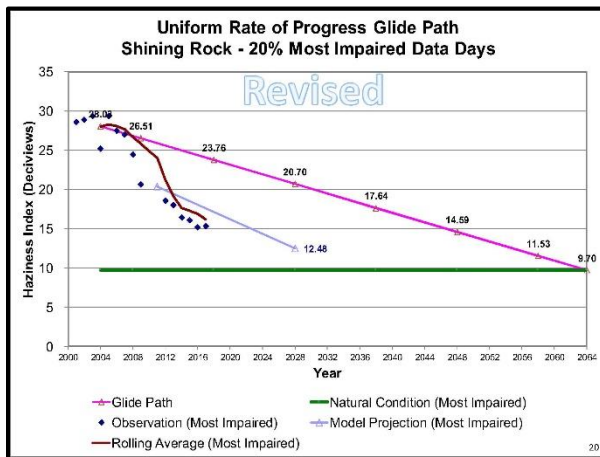
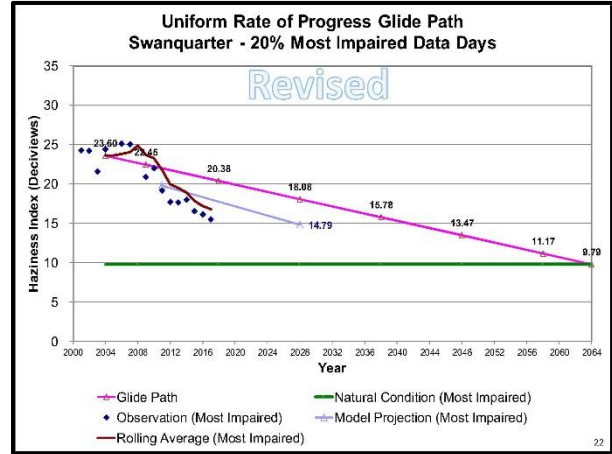
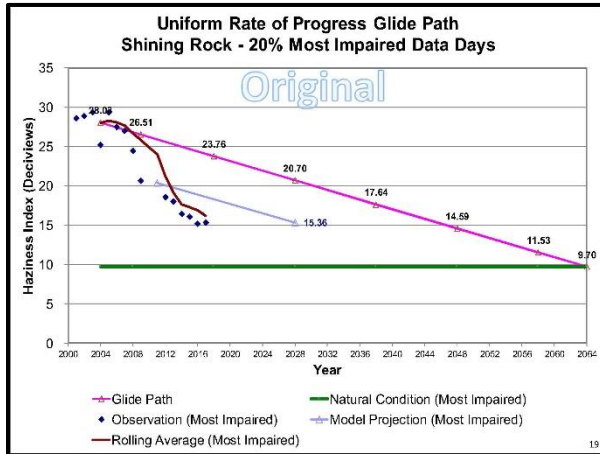


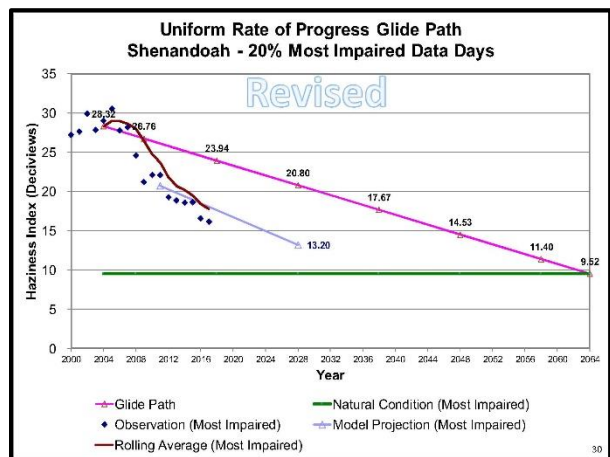
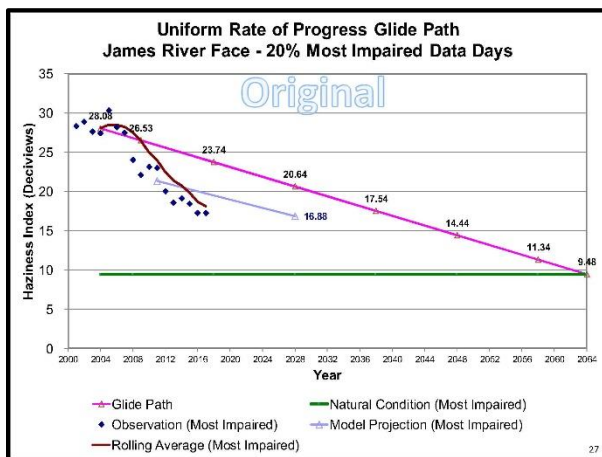
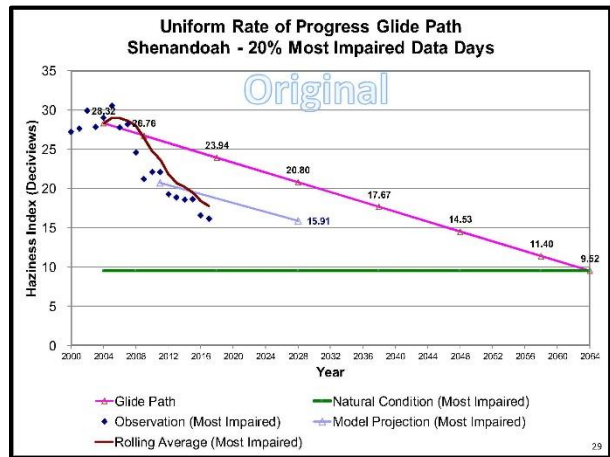
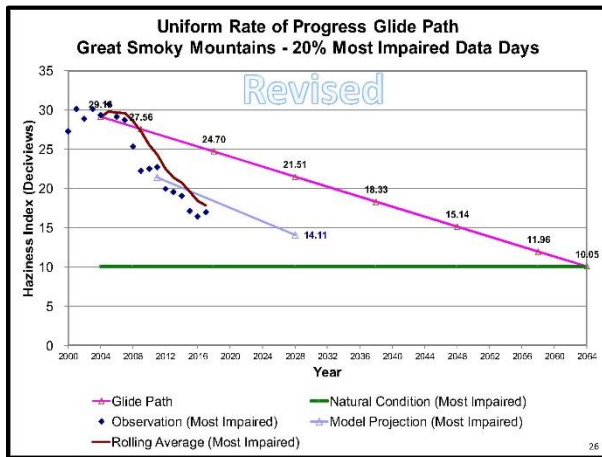
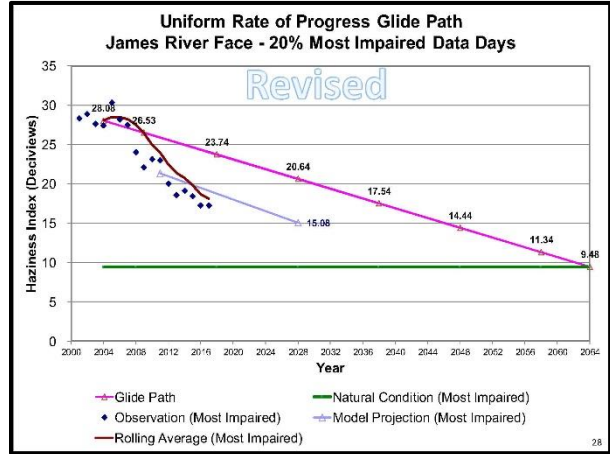
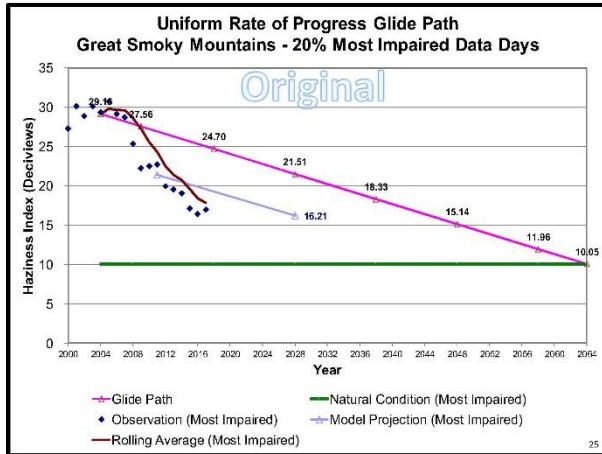


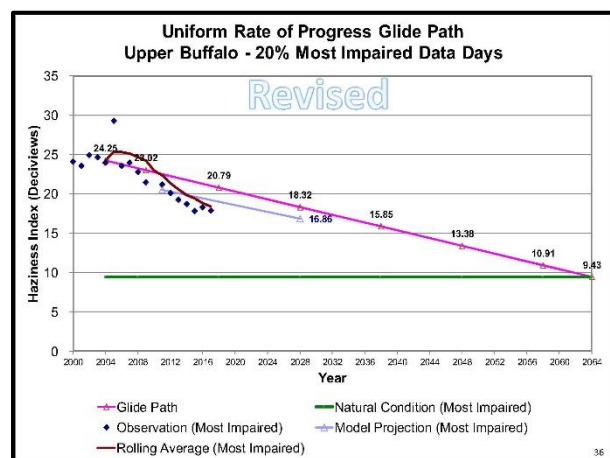
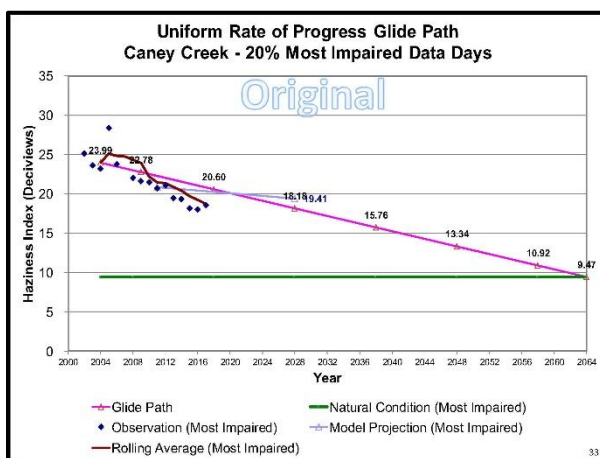
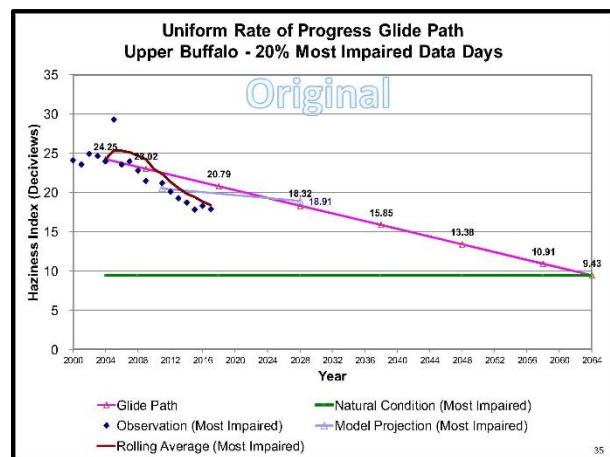
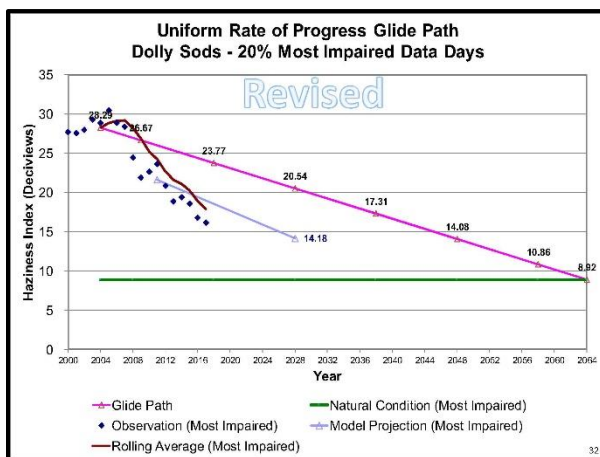
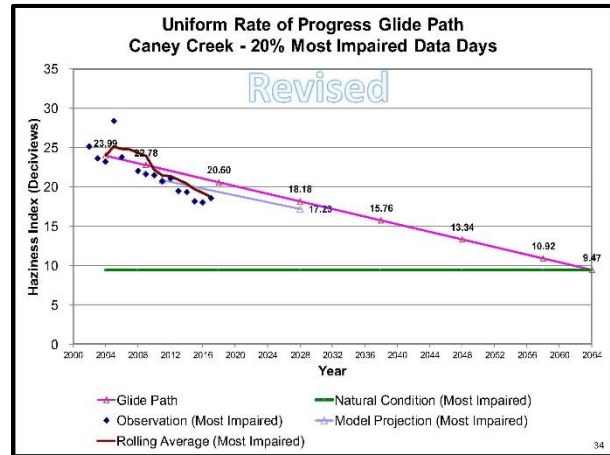
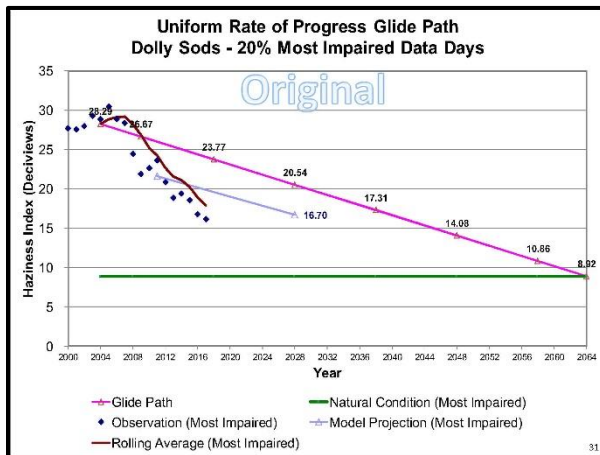


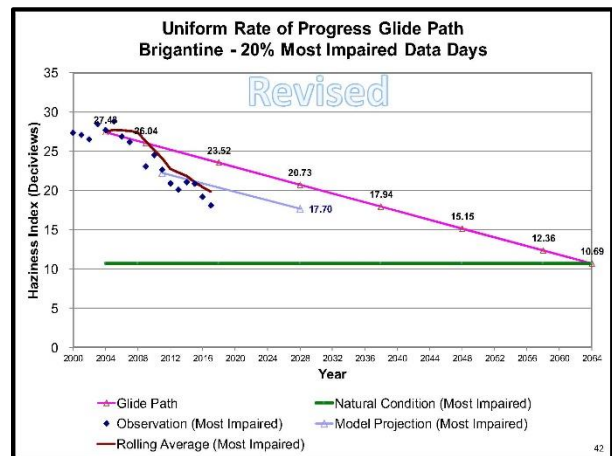
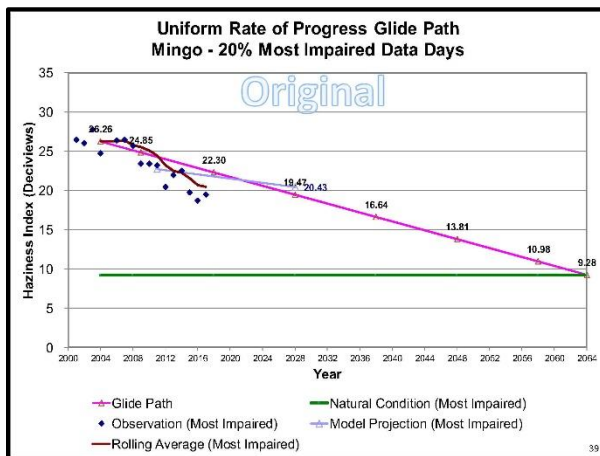
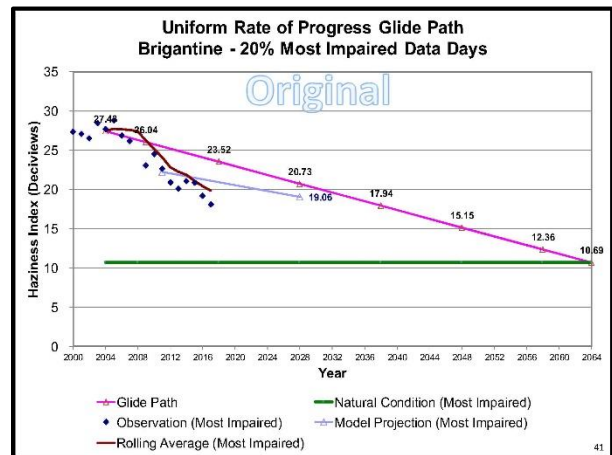
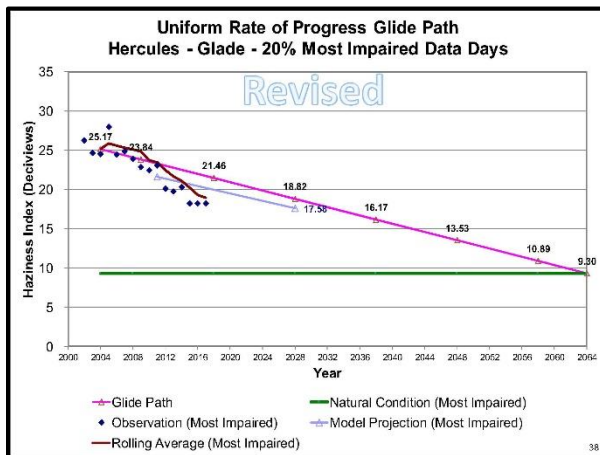
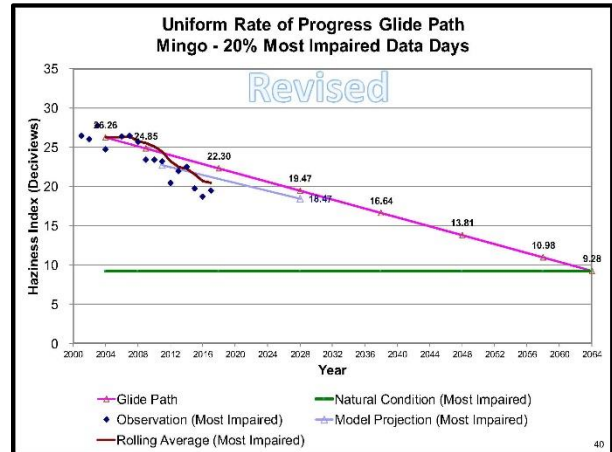
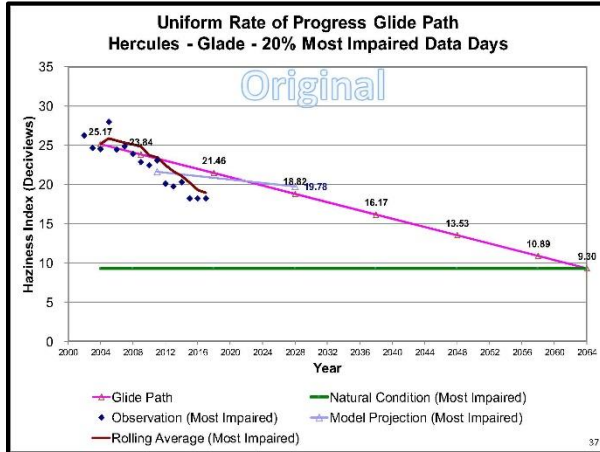












### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
- For project and contract management questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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# VISTAS Regional Haze Project Update – Part 2



FLM/EPA Briefing  
Jim Boylan  
May 11, 2020

## VISTAS Class I Areas

VISTAS FEDERAL CLASS I AREAS	
AL – Sipsey Wilderness Area (SIPS)	USDA Forest Service
FL – Chassahowitzka Wilderness Area (CHAS)	USDI Fish and Wildlife Service
FL – Everglades National Park (EVER)	USDI National Park Service
FL – Saint Marks Wilderness Area (SAMA)	USDI Fish and Wildlife Service
GA – Cohutta Wilderness Area (COHU)	USDA Forest Service
GA – Okefenokee Wilderness Area (OKEF)	USDI Fish and Wildlife Service
GA – Wolf Island Wilderness Area (WOLF)*	USDI Fish and Wildlife Service
KY – Mammoth Cave National Park (MACA)	USDI National Park Service
NC – Linville Gorge Wilderness Area (LIGO)	USDA Forest Service
NC – Shining Rock Wilderness Area (SHRO)	USDI Fish and Wildlife Service
NC – Swamquarter Wilderness Area (SWAN)	USDI Fish and Wildlife Service
SC – Cape Romain Wilderness Area (ROMA)	USDI Fish and Wildlife Service
TN/NC – Great Smoky Mountains National Park (GRSM)	USDI National Park Service
TN/NC – Joyce Kilmer-Slickrock Wilderness Area (JOYC)*	USDA Forest Service
VA – James River Face Wilderness Area (JARI)	USDA Forest Service
VA – Shenandoah National Park (SHEN)	USDI National Park Service
WV – Dolly Sods Wilderness Area (DOSO)	USDA Forest Service
WV – Otter Creek Wilderness Area (OTCR)*	USDA Forest Service

\*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

4

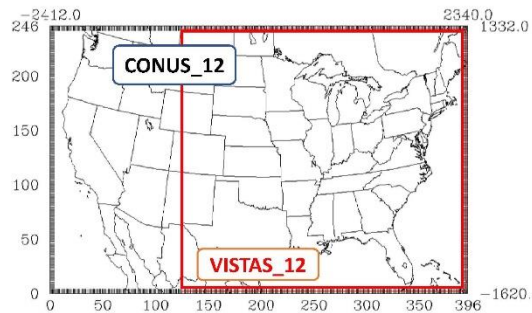
## Outline

- Background Information
- 2028 Emissions Updates
- Revised 2028 PSAT Stacked Bar Charts
- Reasonable Progress Analysis
- Next Steps & Schedule



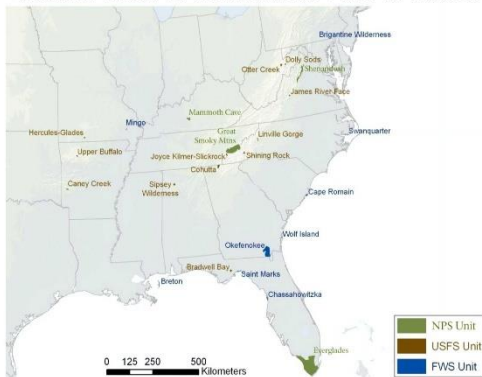
2

## VISTAS Modeling Domains



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## Class I Areas of Interest to VISTAS States



3

## Initial VISTAS Emissions Updates

- Used EPA's 2011 base year emissions without change
- Updated EPA's Initial 2028 projection year emissions
  - EGU and major non-EGU sources
  - Removed Clean Power Plan assumptions
  - VISTAS – Adjusted for changes in fuels and facility operating plans
  - Non-VISTAS – Used ERTAC 2.7opt



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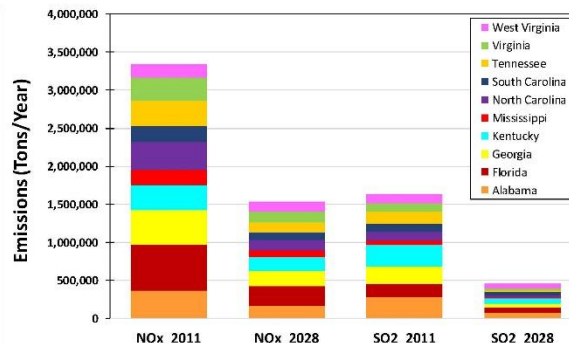
### VISTAS vs. EPA Updated 2028 Emission Projections

- The table below compares the 2028 point emissions used by VISTAS vs. the latest 2028fh emissions used by EPA (projected from 2016). The emissions below are extracted from the VISTAS 12 modeling domain which covers the Eastern U.S.

Pollutant	VISTAS 2028 (tpy)	New EPA 2028 (tpy)	Change (tpy)	Change (%)
NOx	2,641,463.83	2,108,115.50	-533,348.33	-20.19%
SO2	2,574,542.02	1,400,287.10	-1,174,254.92	-45.61%

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### VISTAS States Emissions: 2011 vs. 2028



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### Old ERTAC (2.7opt) vs. New ERTAC (16.0)

SO2	16.0_2028	2.7opt_2028	Δ SO2	Δ SO2
CENSARA	367,683.7	760,828.2	-393,144.5	-51.67%
LADCO	266,047.0	379,577.5	-113,530.5	-29.91%
MANE-VU	78,657.0	196,672.6	-118,015.6	-60.01%
VISTAS	161,502.5	273,582.1	-112,079.6	-40.97%
<b>TOTAL</b>	<b>976,471.2</b>	<b>1,783,376.5</b>	<b>-806,905.3</b>	<b>-45.25%</b>

NOx	16.0_2028	2.7opt_2028	Δ NOx	Δ NOx
CENSARA	244,499.3	354,795.1	-110,295.8	-31.09%
LADCO	166,429.4	198,966.9	-32,537.4	-16.35%
MANE-VU	56,315.3	83,432.5	-27,117.2	-32.50%
VISTAS	200,791.1	270,615.7	-69,824.6	-25.80%
<b>TOTAL</b>	<b>840,973.6</b>	<b>1,166,663.1</b>	<b>-325,689.5</b>	<b>-27.92%</b>

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### Additional Modeling-Related Tasks

- Emissions processing
- Updated 2028 CAMx modeling (VISTAS\_12)
- Updated 2028 visibility projections
- Documentation

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### VISTAS CC/TAWG Conclusions

- 2028 emission updates are necessary
  - VISTAS States** – States will:
    - Update 2028 major source emissions projections (SO<sub>2</sub>, NOx, PM<sub>2.5</sub>, PM<sub>10</sub>, NH<sub>3</sub>, CO) at the facility and unit level
    - Add any new sources of significance
  - LADCO States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.1 based on LADCO input
  - All Other States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.0
    - Verify accuracy of large SO<sub>2</sub> and NOx source emissions projections via contact with surrounding states/RPOs and update emissions as needed
- Additional 2028 air quality modeling is needed

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## Updated 2028 Point Emissions

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## 2028 SO<sub>2</sub> Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	87,111.28	59,056.98	-32.2%	15,480.96	8,365.96	-46.0%	71,630.32	50,691.02	-29.2%
FL	63,501.23	52,982.68	-16.6%	28,547.41	24,004.67	-15.9%	34,953.82	28,978.01	-17.1%
GA	37,065.83	36,166.09	-2.4%	18,473.28	17,573.54	-4.9%	18,592.55	18,592.55	0.0%
KY	75,140.26	65,636.83	-12.6%	56,262.06	49,585.95	-11.9%	18,878.20	16,050.88	-15.0%
MS	21,234.31	8,405.06	-60.4%	6,984.57	3,236.28	-53.7%	14,249.74	5,168.78	-63.7%
NC	35,232.88	24,347.18	-30.9%	19,734.80	9,571.47	-51.5%	15,498.08	14,775.71	-4.7%
SC	29,600.85	29,601.25	0.0%	10,693.79	10,695.34	0.0%	18,907.05	18,905.91	-0.0%
TN	23,447.58	21,057.17	-10.2%	12,114.30	10,030.04	-17.2%	11,333.28	11,027.13	-2.7%
VA	19,839.18	18,551.32	-6.5%	3,264.09	1,976.23	-39.5%	16,575.09	16,575.09	0.0%
WV	63,404.07	53,715.79	-15.3%	57,828.67	47,744.49	-17.4%	5,575.41	5,971.30	7.1%
CENSARA	1,012,946.59	621,321.29	-38.7%	773,625.13	382,000.54	-50.6%	239,321.46	239,320.75	0.0%
LADCO	660,186.42	498,171.62	-24.5%	444,506.99	282,452.18	-36.4%	215,679.44	215,679.44	0.0%
MANE-VU	270,810.83	149,439.76	-44.8%	203,661.43	95,074.20	-53.3%	67,149.39	54,365.55	-19.0%
WRAP	182,121.89	135,483.18	-25.6%	136,955.17	90,316.46	-34.1%	45,166.72	45,166.73	0.0%
<b>TOTAL</b>	<b>2,581,643.20</b>	<b>1,779,936.20</b>	<b>-31.3%</b>	<b>1,788,132.63</b>	<b>1,032,667.35</b>	<b>-42.2%</b>	<b>793,510.56</b>	<b>741,268.85</b>	<b>-6.6%</b>

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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## 2028 NOx Comparison

State/ RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	80,389.97	70,824.72	-11.9%	26,895.35	20,008.14	-25.6%	53,494.61	50,816.58	-5.0%
FL	68,006.19	70,010.40	2.9%	26,250.73	25,049.90	-4.6%	41,755.45	44,960.50	7.7%
GA	67,197.50	65,885.55	-1.9%	25,899.67	24,587.73	-5.1%	41,297.83	41,297.83	0.0%
KY	66,240.03	62,130.83	-6.2%	36,781.72	32,695.94	-11.1%	29,458.31	29,434.89	-0.1%
MS	52,159.32	46,853.62	-10.2%	18,279.53	12,208.89	-33.2%	33,879.79	34,644.73	2.3%
NC	65,863.97	58,933.80	-10.5%	27,842.23	20,977.65	-24.7%	38,021.74	37,955.15	-0.2%
SC	36,051.31	36,170.87	0.3%	10,522.79	10,707.42	1.8%	25,528.52	25,463.44	-0.3%
TN	45,879.07	42,954.25	-6.4%	10,086.01	7,814.13	-22.5%	35,793.06	35,140.12	-1.8%
VA	43,210.19	41,671.99	-3.6%	11,973.97	10,435.77	-12.8%	31,236.22	31,236.22	0.0%
WV	65,054.07	68,200.77	4.3%	46,721.77	49,874.15	6.7%	18,332.30	18,326.62	-0.0%
CENSARA	903,879.85	791,397.59	-12.5%	382,706.66	270,182.46	-29.4%	521,273.19	521,215.14	-0.0%
LADCO	548,866.74	491,345.00	-10.5%	244,035.26	186,513.52	-23.6%	304,831.49	304,831.49	0.0%
MANE-VU	244,280.15	222,997.41	-9.3%	103,465.13	82,178.41	-20.6%	140,815.00	140,815.00	0.0%
WRAP	362,819.80	301,433.41	-16.9%	187,944.97	126,558.55	-32.2%	174,874.83	174,874.86	0.0%
<b>TOTAL</b>	<b>2,649,998.14</b>	<b>2,370,804.22</b>	<b>-10.5%</b>	<b>1,159,405.80</b>	<b>879,790.66</b>	<b>-24.1%</b>	<b>1,490,592.35</b>	<b>1,491,013.55</b>	<b>0.0%</b>

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## PSAT SO<sub>2</sub> and NOx Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

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## Revised 2028 PSAT Stacked Bar Charts (Original and Adjusted)

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## PSAT Adjustment Ratios

State/RPO	SO <sub>2</sub> EGU Ratio	SO <sub>2</sub> NEGU Ratio	NOx EGU Ratio	NOx NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	0.872	1.000
WV	0.826	1.071	1.067	1.000
CENSARA	0.494	1.000	0.706	1.000
LADCO	0.636	1.000	0.764	1.000
MANE-VU	0.467	0.810	0.794	1.000

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## Revised State/RPO PSAT Results

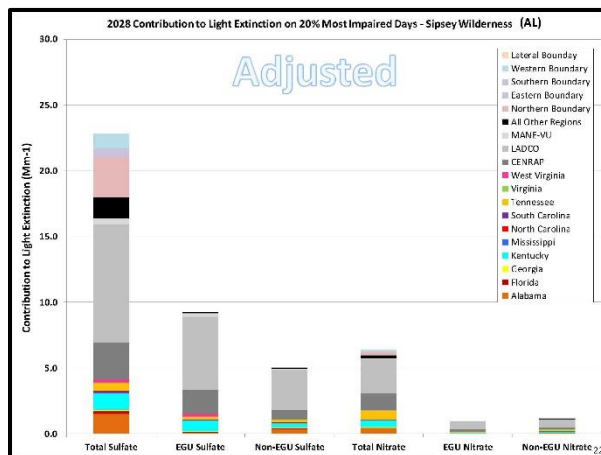
- Revised EGU Sulfate PSAT Results  
= Original EGU Sulfate PSAT Results \* SO<sub>2</sub> EGU Ratio

$$\text{where, SO}_2 \text{ EGU Ratio} = \frac{(\text{Revised EGU SO}_2 \text{ emissions})}{(\text{Original EGU SO}_2 \text{ emissions})}$$

- Revised NEGU Sulfate PSAT Results  
= Original NEGU Sulfate PSAT Results \* SO<sub>2</sub> NEGU Ratio

$$\text{where, SO}_2 \text{ NEGU Ratio} = \frac{(\text{Revised NEGU SO}_2 \text{ emissions})}{(\text{Original NEGU SO}_2 \text{ emissions})}$$

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## Revised State/RPO PSAT Results

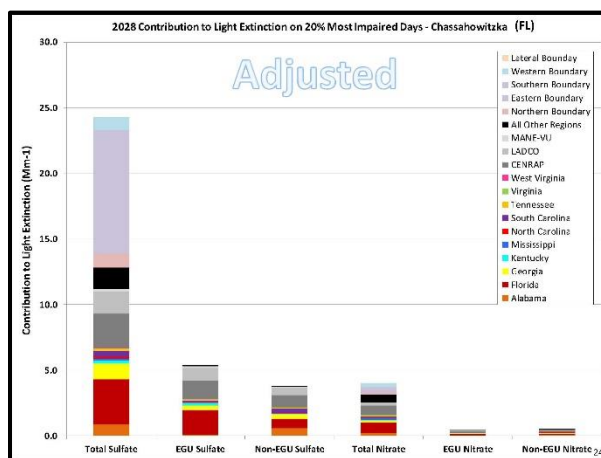
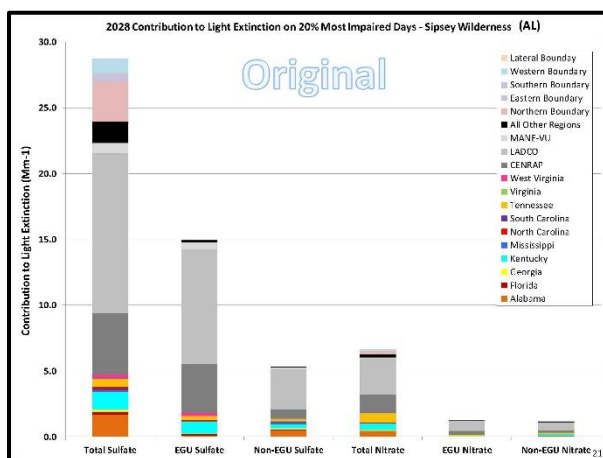
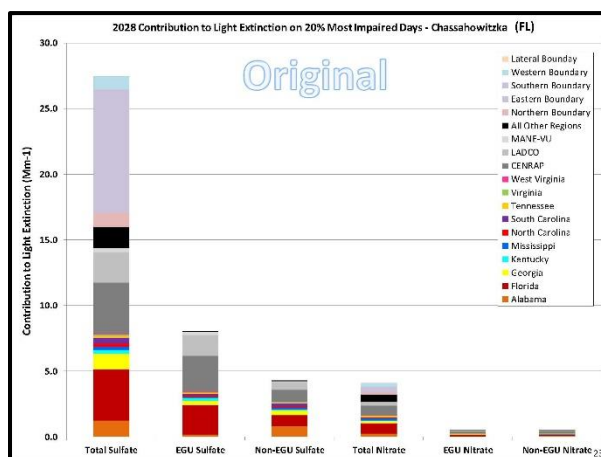
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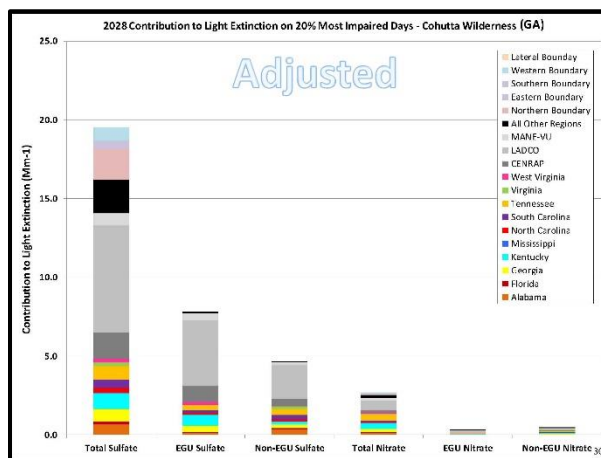
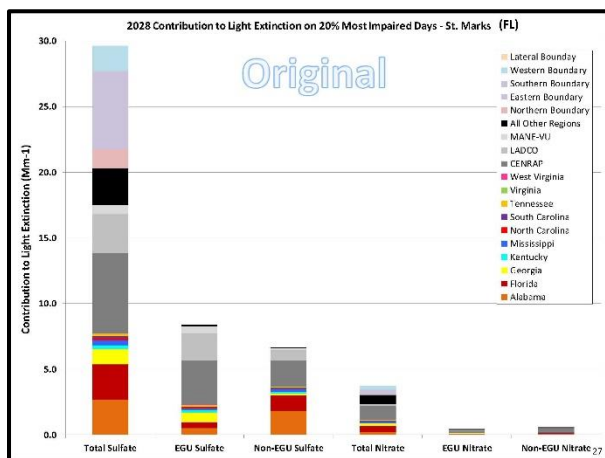
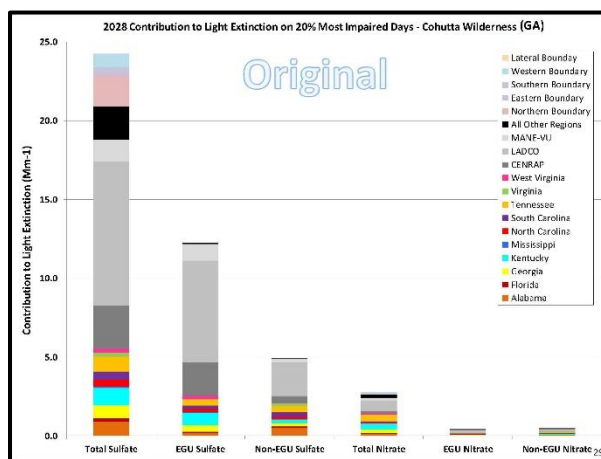
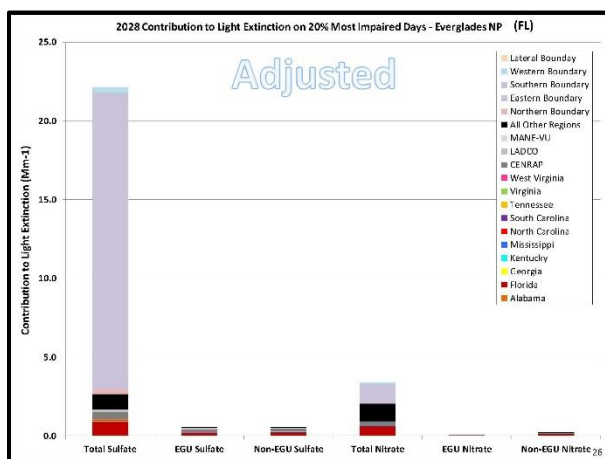
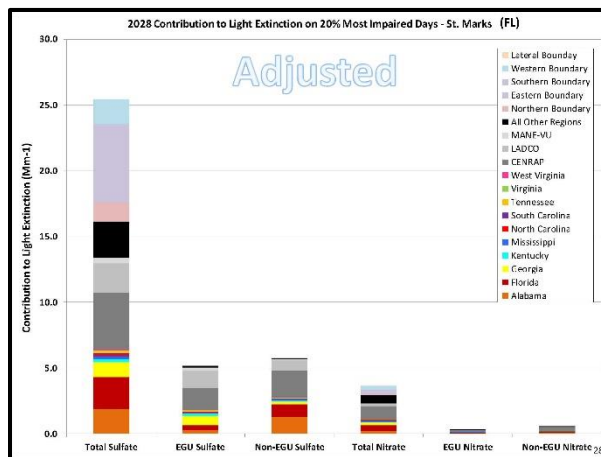
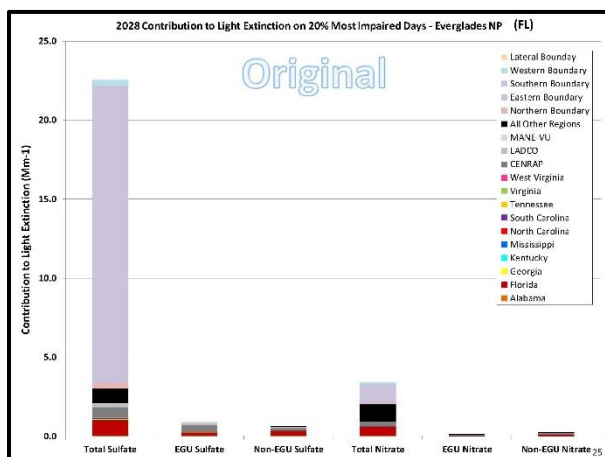
$$\text{where, NO}_x \text{ EGU Ratio} = \frac{(\text{Revised EGU NO}_x \text{ emissions})}{(\text{Original EGU NO}_x \text{ emissions})}$$

- Revised NEGU Nitrate PSAT Results  
= Original NEGU Nitrate PSAT Results \* NO<sub>x</sub> NEGU Ratio

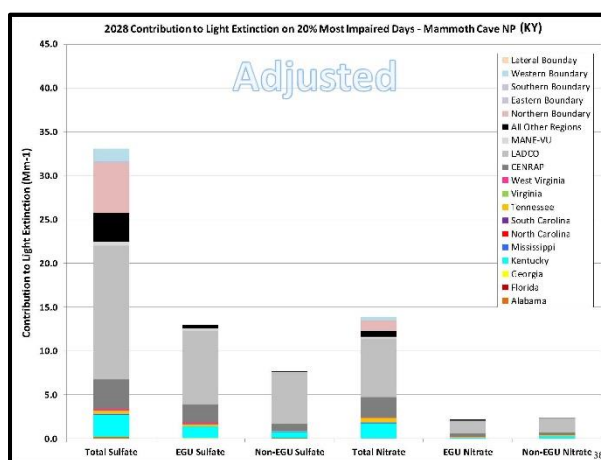
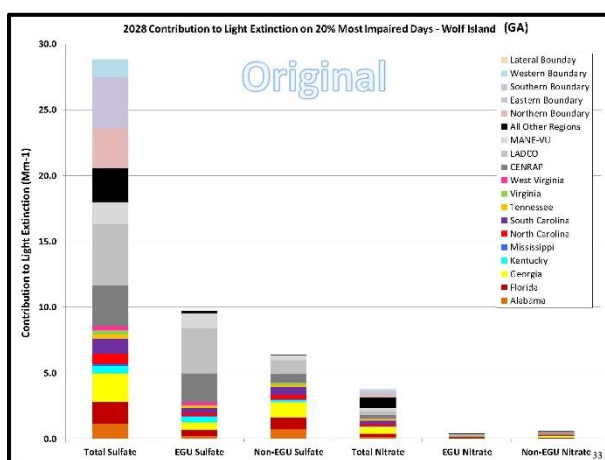
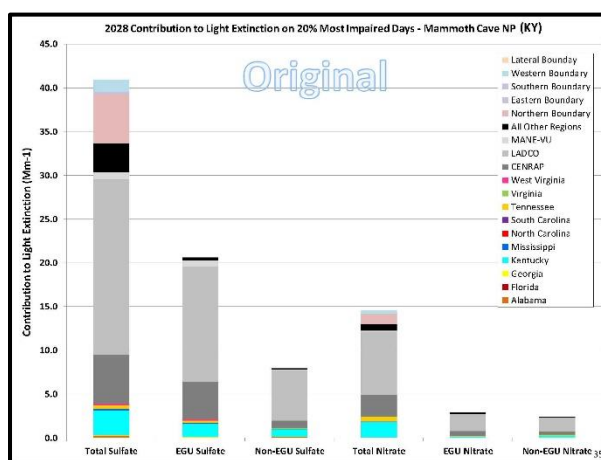
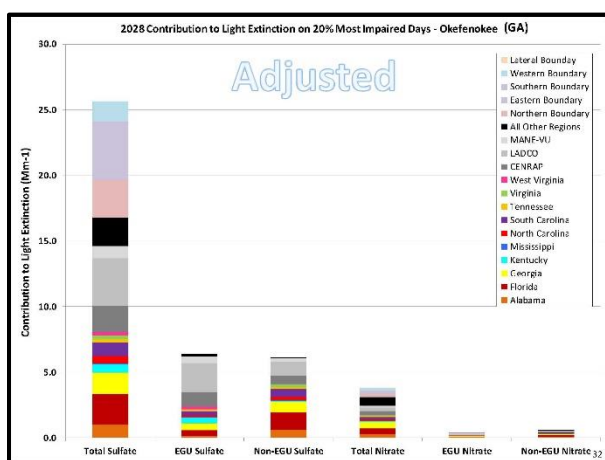
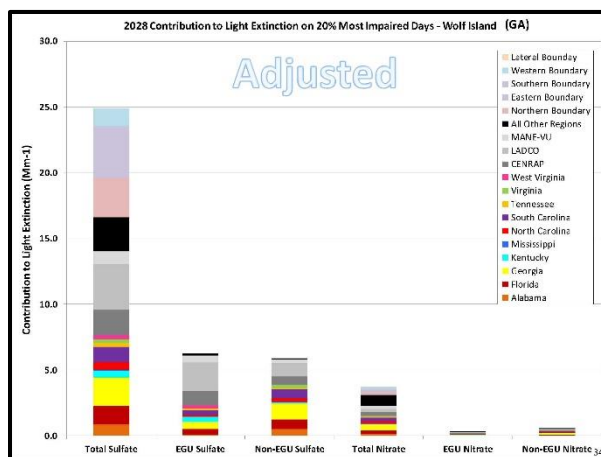
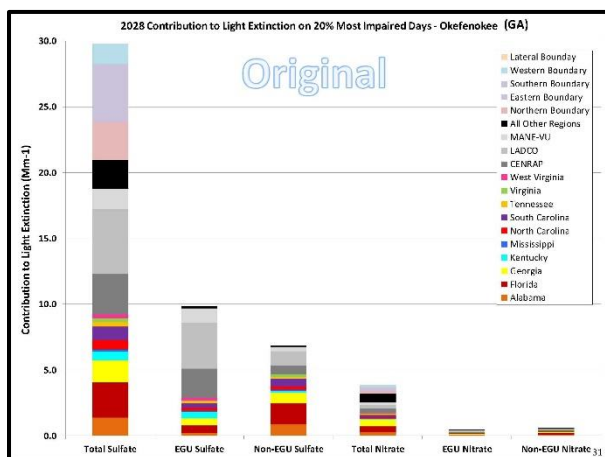
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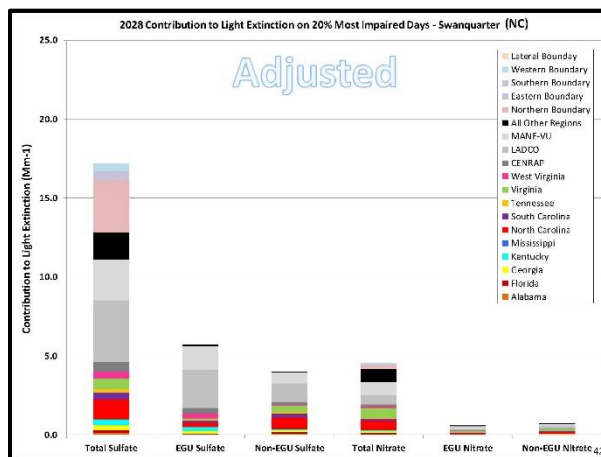
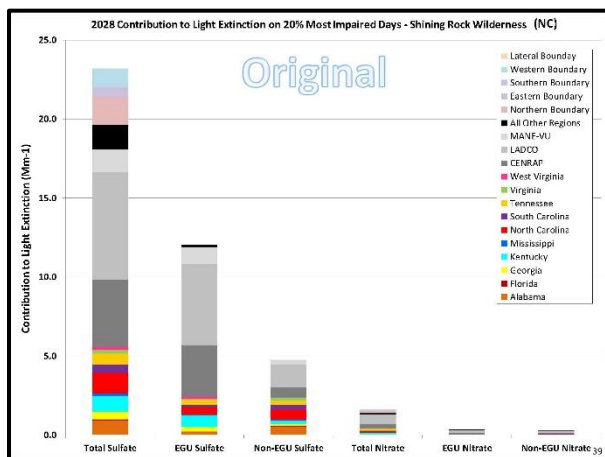
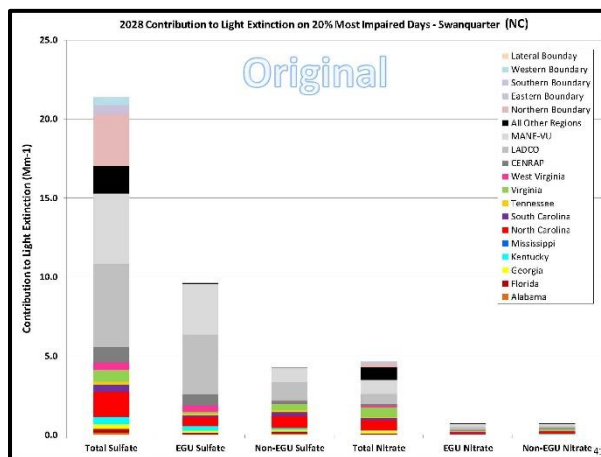
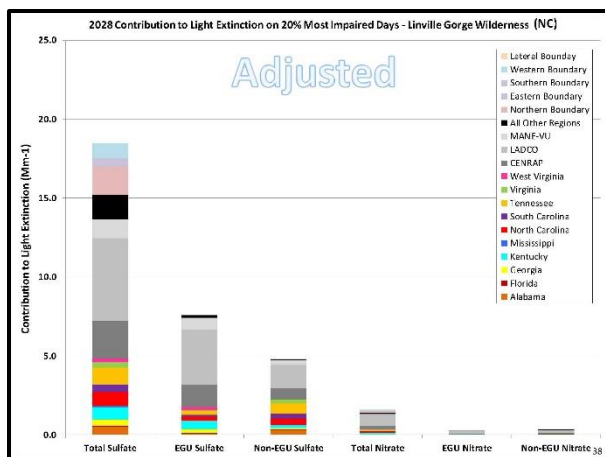
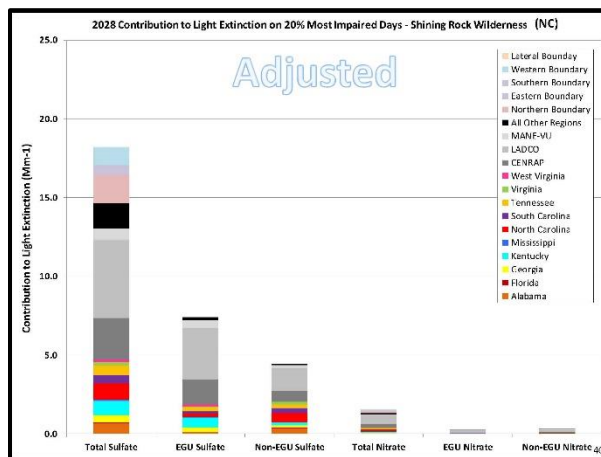
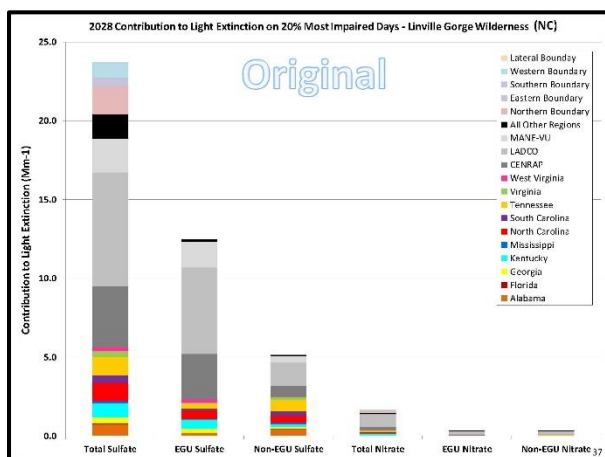
20



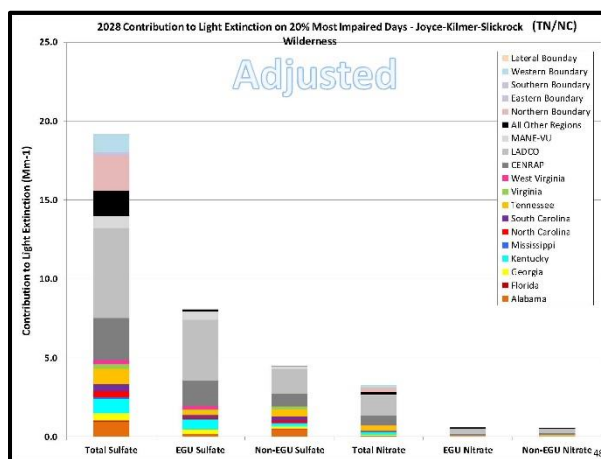
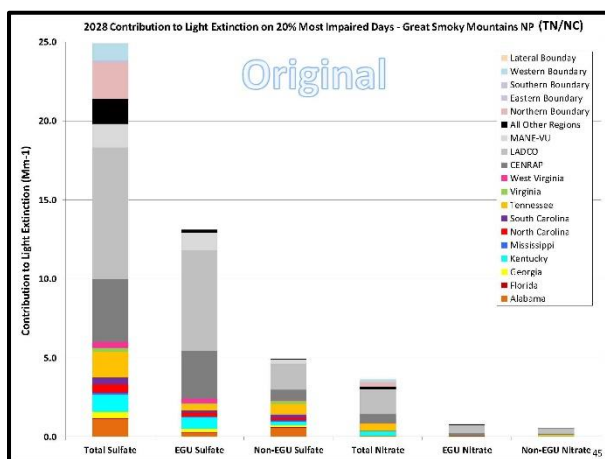
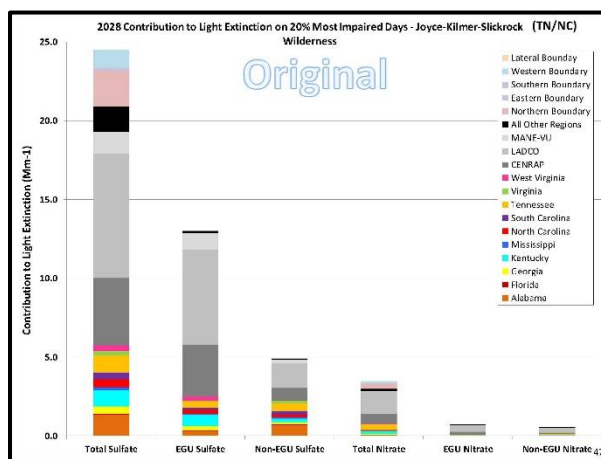
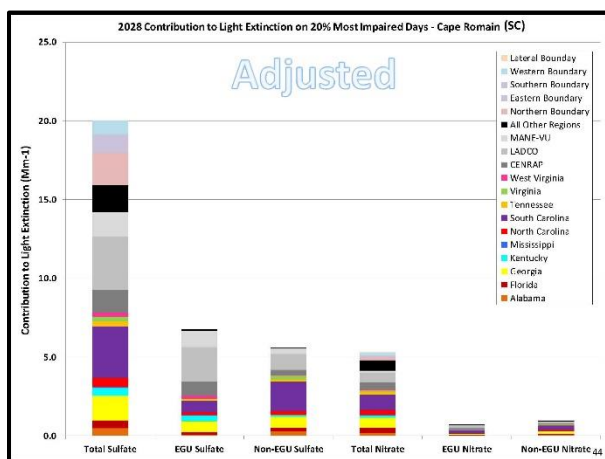
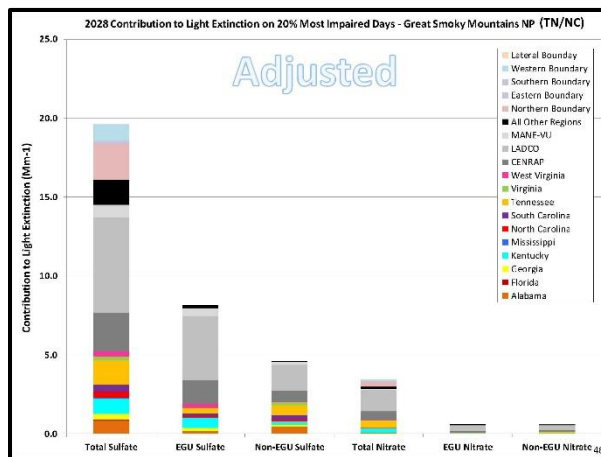
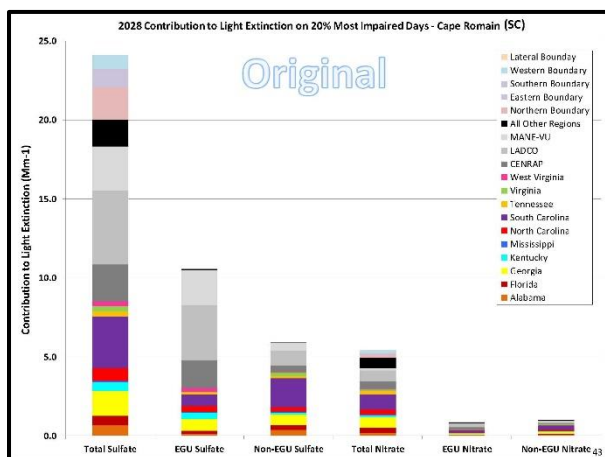


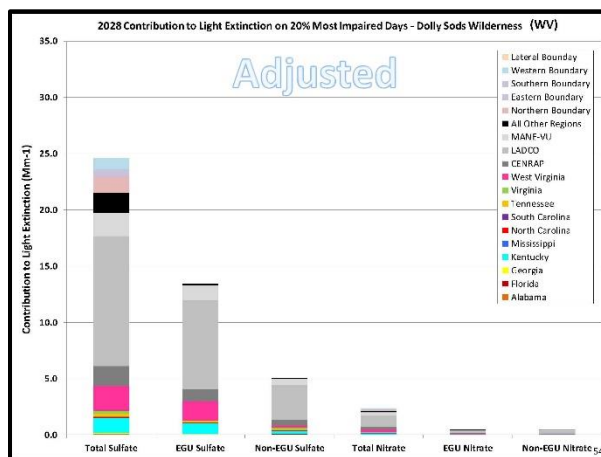
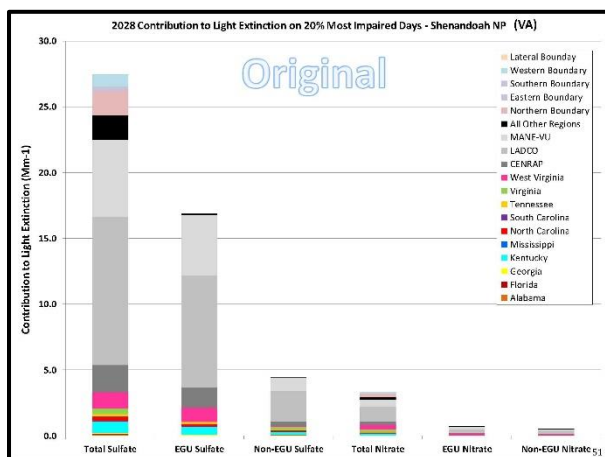
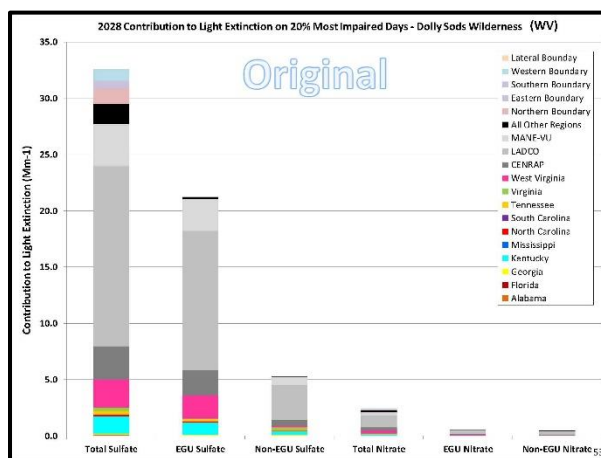
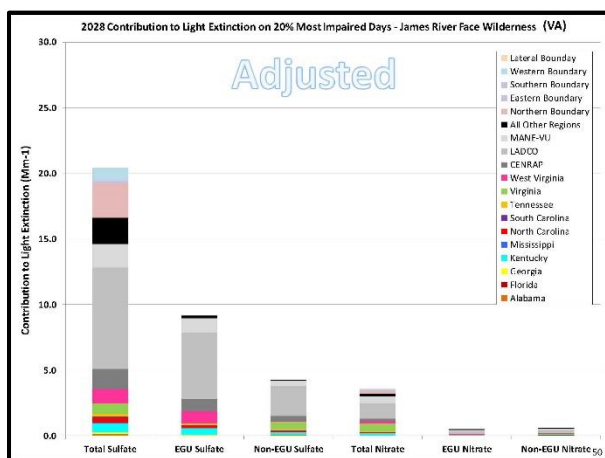
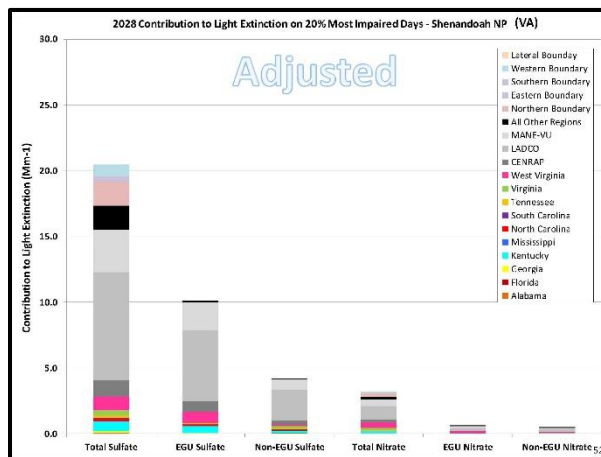
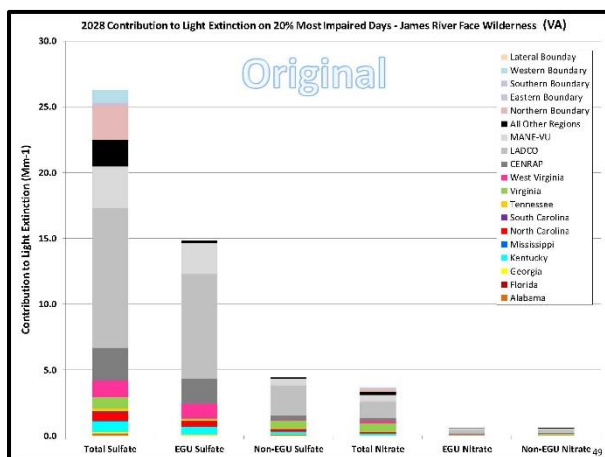


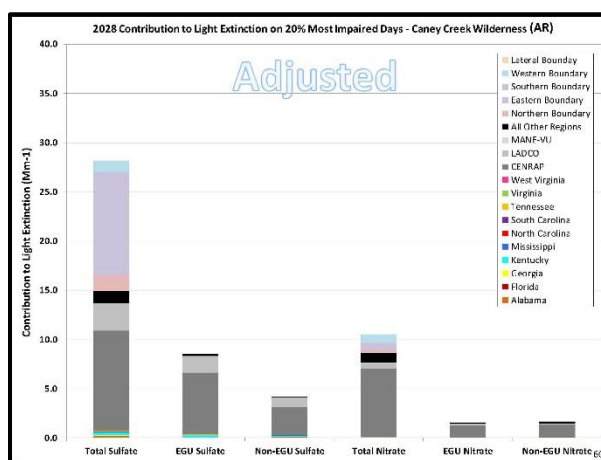
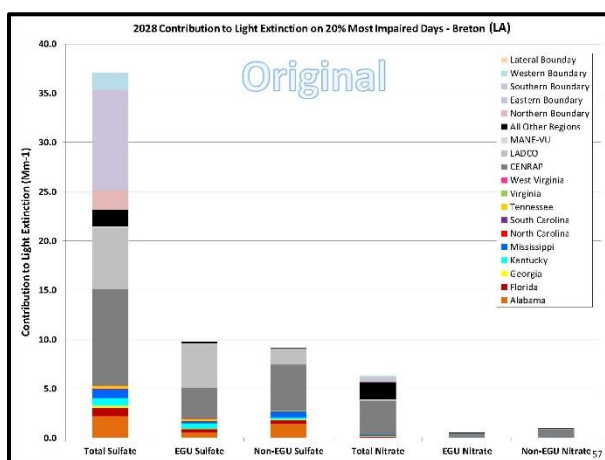
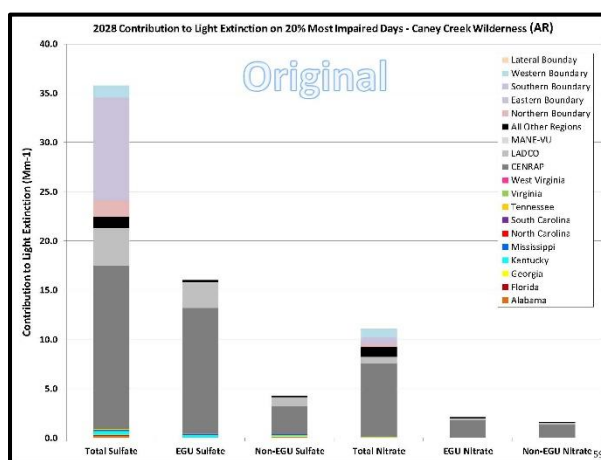
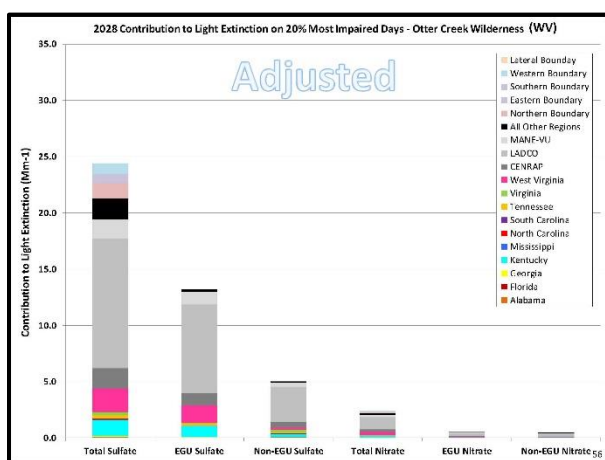
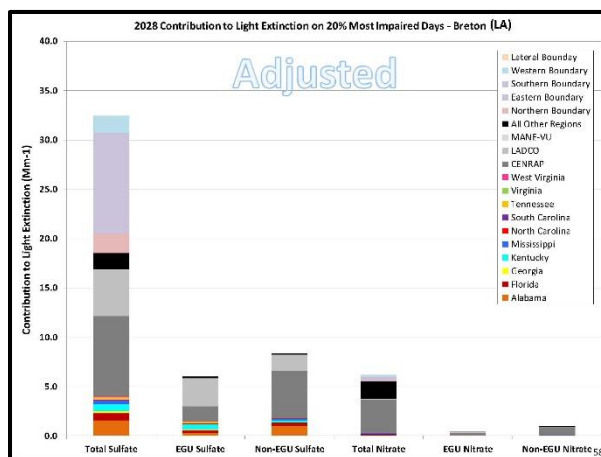
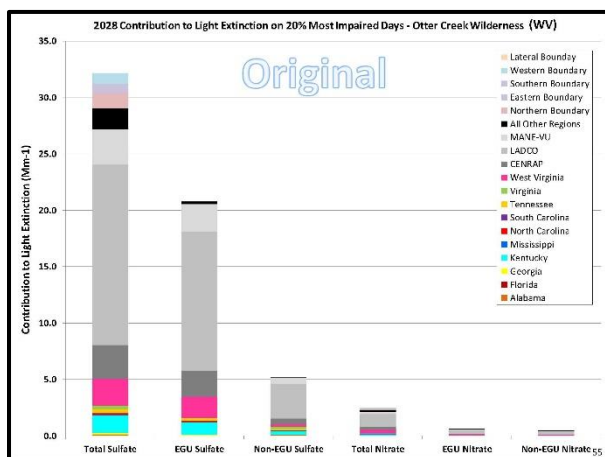


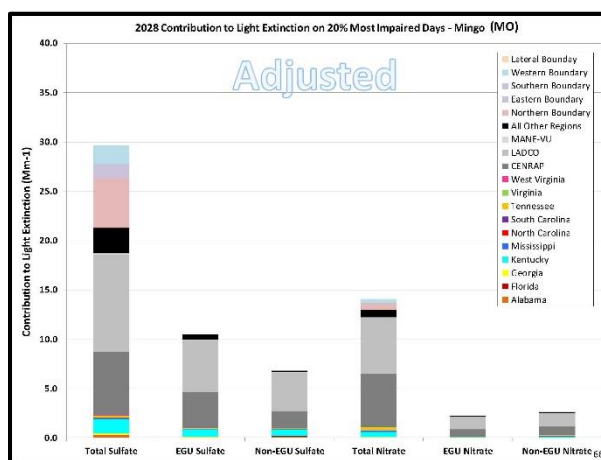
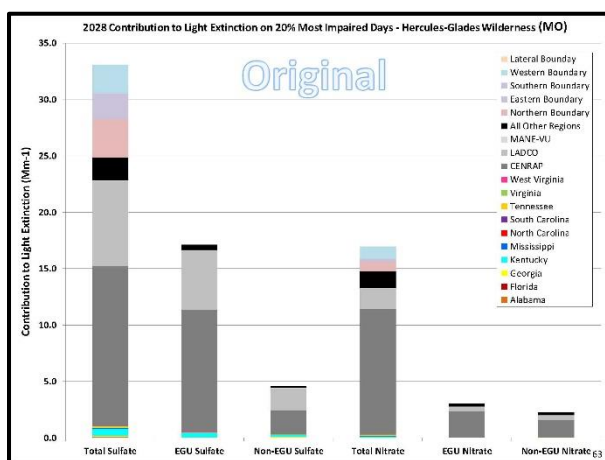
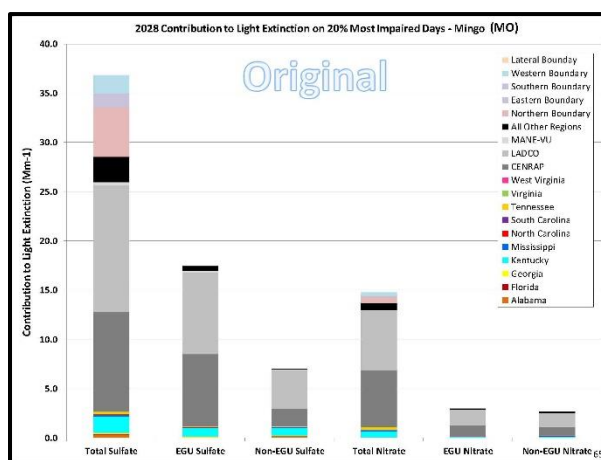
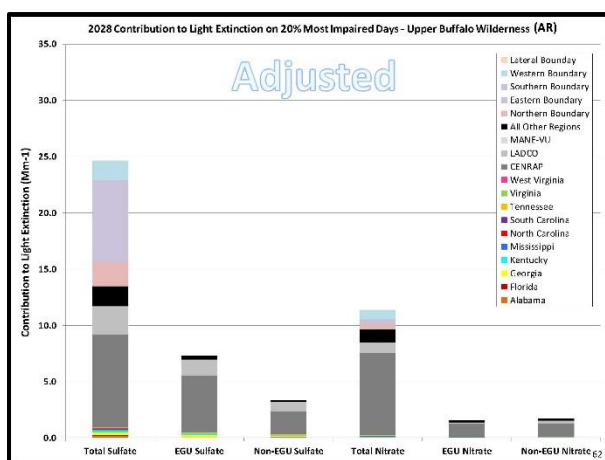
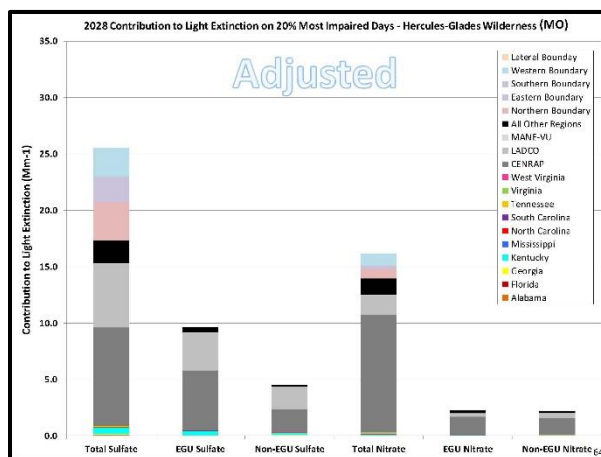
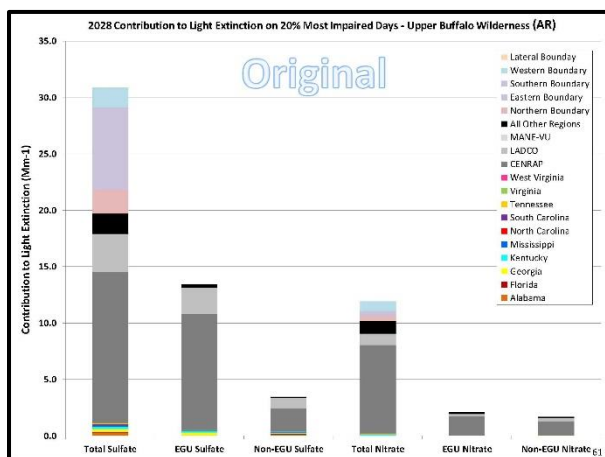


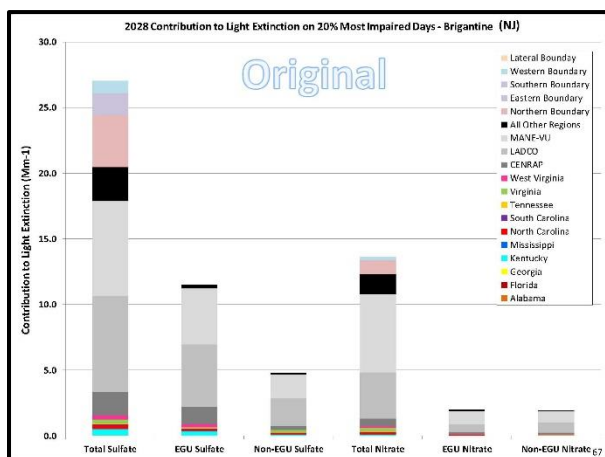








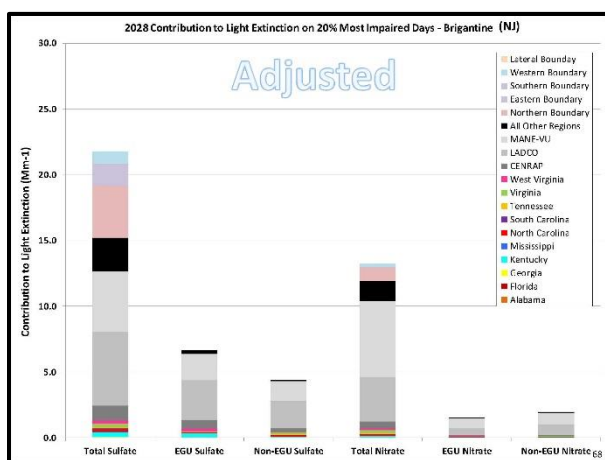




## Reasonable Progress Screening Approach

1. The VISTAS reasonable progress work started with AOI screening (Q/d \* EWRT) to rank facilities based on their sulfate and nitrate contributions at each Class I area.
2. These rankings were used to identify 87 individual facilities for PSAT tagging. PSAT tagging was used to determine the sulfate and nitrate contributions from each facility at each Class I area in the VISTAS\_12 domain.
3. Each individual VISTAS state will apply a PSAT contribution threshold based on the facility sulfate and facility nitrate impacts (separately, not combined) divided by the total impact of sulfate + nitrate from all point sources to determine which sources may need to be considered for a four-factor analysis.
  - If sulfate contribution  $\geq 1.00\%$   $\rightarrow$  SO<sub>2</sub> Four-Factor Analysis
  - If nitrate contribution  $\geq 1.00\%$   $\rightarrow$  NO<sub>x</sub> Four-Factor Analysis

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## Why 1% Threshold?

- In the Round 1 Regional Haze SIPs, many VISTAS states used the AOI approach and a 1% threshold on a Unit basis.
  - Round 2 uses the AOI/PSAT approach and a  $\geq 1.00\%$  PSAT threshold based on a Facility basis.
    - This will pull in more facilities compared to a Unit basis.
  - Round 2 uses 2028 emissions (lower than 2018)
    - This will pull in facilities with smaller visibility impacts (in Mm<sup>-1</sup>) compared to Round 1.
- This approach results in a reasonable number of sources that can be evaluated with limited state resources and focuses on the sources with the largest impacts.

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## Reasonable Progress Analysis

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## HYSPLIT Trajectories

- Trajectories were run using NAM-12 meteorology for the 20% most impaired days in 2011-2016 at 44 Class I areas.
  - Trajectories were run with starting heights of 100, 500, 1,000, and 1,500 meters.
  - Trajectories were run 72 hours backwards in time for each height at each location.
  - Trajectories were run with start times of 12AM (midnight of the start of the day), 6AM, 12PM, 6PM, and 12AM (midnight at the end of the day) local time.
- 44 Class I areas x 6 years x 24 days/year x 4 heights x 5 start times = **126,720 trajectories**

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### Area of Influence (AOI) Analysis

- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d)*EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the four-factor analysis
- Georgia Example:
  - Sources in Georgia, used  $\geq 2\%$  threshold
  - Sources outside Georgia, used  $\geq 4\%$  threshold

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### AOI Point Contributions for Wolf Island

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Brunswick Cellulose Inc.	27.9	3,554.5	294.2	2.94%	1.54%
FL	ROCK TENN CP, LLC	74.9	2,336.8	2,606.7	0.39%	8.55%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.53%
FL	JFA	105.1	651.8	2,094.5	0.09%	4.83%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,869.2	0.03%	2.65%
FL	WHITE SPRINGS AGRICULTURAL-CHEMICALS, INC.	173.6	112.4	2,745.0	0.01%	1.97%
SC	ALUMAX OF SOUTH CAROLINA	273.0	109.1	3,751.7	0.00%	1.84%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	0.38%	1.79%
FL	SVINOLITE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (0627010056)	845.3	8,172.5	41,595.8	0.07%	1.71%
SC	SAWYER COOPER CROSS GENERATING STATION	251.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	0.00%	1.55%
FL	ICI CHEMICAL HOLDINGS, INC.	118.5	37.7	898.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	521.6	582.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVERS	288.7	1,780.1	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	BERNCO NEWCASTLE CO/KEYSTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

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### AOI Point Contributions for Cohutta

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Ga Power Company - Plant Bowen	78.0	6,643.3	10,453.4	1.15%	15.58%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	430.1	8,806.8	30,536.3	0.13%	4.68%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Shiloh	487.1	12,280.3	23,117.2	0.10%	2.31%
IN	INDIANA POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.18%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	7,007.3	19,504.7	0.07%	2.18%
TN	TVA KINGSTON FOSIL PLANT	174.0	1,687.4	1,886.1	0.13%	2.17%
OH	General James M. Gavin Power Plant (0627010056)	512.0	8,122.5	41,595.8	0.02%	1.71%
TN	IVA CUMBERLAND CLASS PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Rio River Electric Corp. - Wilson Station	389.0	1,151.9	6,934.2	0.01%	1.07%
OH	Duke Energy Ohio, Wm. - Zimmers Station (1411090154)	454.6	2,150.0	22,133.9	0.06%	1.05%
GA	Ga Power Company - Plant Wansley	156.8	2,052.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co. - Ghent Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	Joppy Steam	486.9	4,706.5	20,509.3	0.07%	1.04%
GA	Mohawk Industries Inc.	32.9	66.5	71.1	0.07%	1.02%
TN	CASIMIR CHEMICAL COMPANY	289.8	6,900.3	6,420.2	0.09%	0.99%
MO	AMEREN MISSOURI-LABADE PLANT	695.4	9,885.5	41,740.3	0.01%	0.96%
IL	Newton	564.0	1,934.9	10,631.6	0.01%	0.91%
GA	Chemical Products Corporation	71.9	19.5	513.8	0.00%	0.89%
IN	INDIANA KENTUCKY ELECTRIC COOPERATION	444.4	6,188.5	9,038.1	0.09%	0.76%

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### Georgia Tagging for PSAT

- Sources in Georgia ( $\geq 2\%$  threshold)**
  - Ga Power Company - Plant Bowen
  - International Paper - Rome (aka TEMPLE INLAND)
  - International Paper - Savannah
  - Brunswick Cellulose Inc
  - Georgia-Pacific Consumer Products LP (Savannah River Mill)
- Sources outside Georgia ( $\geq 4\%$  threshold)**
  - INDIANA MICHIGAN POWER DBA AEP ROCKPORT (IN)
  - ROCK TENN CP, LLC (FL)
  - JFA (FL)

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### AOI Point Contributions for Okefenokee

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
FL	WHITE SPRINGS AGRICULTURAL-CHEMICALS, INC.	71.5	112.4	2,745.0	0.03%	14.63%
FL	ROCK TENN CP, LLC	64.8	2,336.8	2,606.7	0.88%	12.82%
FL	JFA	65.6	651.8	2,094.5	0.18%	6.60%
FL	SVINOLITE ELECTRIC COOPERATIVE, INC.	121.4	917.8	3,713.4	0.07%	3.25%
FL	ICI CHEMICAL HOLDINGS, INC.	56.8	37.7	898.9	0.01%	3.25%
FL	RAYONIER PERFORMANCE FIBERS LLC	63.4	2,327.1	562.0	0.90%	2.82%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	0.08%	2.81%
FL	DUKE ENERGY FLORIDA - WHITE PARTNERSHIP	153.5	1,830.7	1,520.4	0.14%	2.38%
FL	KESSELMER LLC	59.8	66.3	569.5	0.02%	1.96%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	205.0	2,489.8	5,306.4	0.06%	1.40%
AL	Sanders Laid Co.	384.6	121.7	7,951.1	0.00%	1.11%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,869.2	0.01%	1.05%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.05%	1.00%
GA	Brunswick Cellulose Inc.	75.3	1,554.5	294.2	0.34%	1.01%
SC	ALUMAX OF SOUTH CAROLINA	322.2	108.1	3,751.7	0.00%	0.97%
GA	PCA Valdosta Mill	112.7	1,032.6	485.7	0.09%	0.85%
SC	SANTÉE COOPER CROSS GENERATING STATION	348.1	3,273.5	4,281.2	0.05%	0.82%
FL	CITY OF GAINESVILLE GRU	111.7	410.0	881.4	0.03%	0.79%
SC	KAPSTONE CHARLESTON KRAFT LLC	314.0	2,355.8	1,863.7	0.06%	0.66%
GA	Ga Power Company - Plant Wansley	403.7	2,052.5	4,856.0	0.02%	0.65%

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### AOI Screening Summary

State	Threshold	Notes
AL	2%	Sulfate only
FL	5%	Sulfate or nitrate, plus Gulf Crist, Mosaic Bartow, Mosaic New Wales, and Mosaic Riverview
GA	2% - 4%	Sulfate or nitrate, 2% threshold for GA facilities, 4% threshold for facilities outside GA
KY	2%	Sulfate or nitrate
MS	2%	Sulfate or nitrate
NC	3%	Sulfate + nitrate
SC	2% - 5%	2% for sulfate, 5% for nitrate, plus Santee Cooper Winyah, International Paper Georgetown, and SCE&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2%	Sulfate or nitrate

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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## Facility Tags (KY, MS, NC, SC, TN, VA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO <sub>2</sub> (TPY)	NOx (TPY)
KY	VISTAS	21183-1381011	Blue Ridge Electric Corp. - Wilkes Station	5,554.13	1,351.33
KY	VISTAS	21091-7357411	Century Aluminum of KY LLC	5,044.13	107.58
KY	VISTAS	21177-1195711	Tennessee Valley Authority - Paragould Fossil Plant	3,011.01	3,114.72
KY	VISTAS	21145-5037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	19,094.72	2,087.14
MS	VISTAS	38079-5384311	Chemical Products Company - Pascagoula Refinery	741.92	1,584.17
MS	VISTAS	28059-5251011	Mississippi Power Company - Plant Victor - Daniel	231.52	3,829.72
NC	VISTAS	37037-7920511	Blue Ridge Paper Products - Cannon Mill	1,127.07	2,992.37
NC	VISTAS	37187-5693111	Dominion Paper Company, LLC	597.42	1,795.49
NC	VISTAS	37035-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.33
NC	VISTAS	37013-8473311	PCS Phosphate Company, Inc. - Aurora	4,845.93	495.58
NC	VISTAS	37023-8518011	SGL Carbon, LLC	261.44	21.69
NC	VISTAS	45019-4040111	PLUMASCO (SOUTH) CAROLINA	3,021.85	109.98
SC	VISTAS	45043-1508511	INTERNATIONAL PAPER GEORGETOWN, LLC	2,491.52	2,651.24
SC	VISTAS	45019-4973011	KAPITONE (1) ABILITON KRAFT, LLC	1,861.82	2,355.82
SC	VISTAS	45015-4170411	SANTIT COOPER EROS CITY RAILROAD STATION	4,241.17	3,771.47
SC	VISTAS	45043-5557611	SANTIT COOPER WYNNING OPERATING STATION	2,746.42	3,777.73
SC	VISTAS	45015-8107711	SCHEG WILLIAMS	392.43	892.72
TN	VISTAS	47033-4779111	Cermax - Knoxville Plant	121.47	171.50
TN	VISTAS	47165-3983111	EASTMAN CHEMICAL COMPANY	6,400.13	6,900.13
TN	VISTAS	47105-4122211	FATE & VLE, London	472.78	883.23
TN	VISTAS	47031-6196011	TVA BULL RUN FOSIL PLANT	622.54	964.18
TN	VISTAS	47165-4073311	TVA CUMBERLAND FOSIL PLANT	8,427.39	4,315.23
TN	VISTAS	47145-4973311	TVA KINGSTON FOSIL PLANT	1,889.05	1,887.18
VA	VISTAS	51027-4054811	Jewell Coker Company L.P.	5,090.95	5,201.14
VA	VISTAS	51580-4798711	Meadwestvaco Packaging Resource Group	2,115.11	1,985.50
VA	VISTAS	51013-5036011	Roanoke Cement Company	7,236.17	1,377.93

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## PSAT SO<sub>2</sub> and NOx Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 15 tags

→ 87 Total Facility Tags (both SO<sub>2</sub> and NOx)

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## Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO <sub>2</sub> (TPY)	NOx (TPY)
WV	VISTAS	54019-5271111	PLUMASCO AND HOT SUPPLY CO. LLC HARBISON	2,110.22	1,245.18
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWER-GUMTOWN PL	2,110.22	1,245.18
WV	VISTAS	54074-5795111	APPALACHIAN POWER COMPANY - JOINT ARKOS PLANT	10,984.24	4,878.18
WV	VISTAS	54073-5251011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,172.54	1,984.14
WV	VISTAS	54041-5000111	FOURBANE - COALBURN PLANT	0.15	511.02
WV	VISTAS	54033-5790711	FILES CREEK COALFIRE	0.15	643.35
WV	VISTAS	54033-5790511	GLADY COALFIRE	0.11	343.29
WV	VISTAS	54009-5000111	INGERSOLL MANUFACTURING COMPANY	16.55	140.88
WV	VISTAS	54061-1632011	LONGVIEW POWER	2,313.79	1,555.57
WV	VISTAS	54051-6023311	MITCHELL PLANT	5,372.45	2,719.62
WV	VISTAS	54053-6736111	MORGANSHAW POWER CO. - FORT MARTIN POWER	4,881.87	5,749.24
WV	VISTAS	54074-5790511	MORGANSHAW POWER CO. - COALFIRE PLANT	1,631.45	5,497.27
WV	VISTAS	54051-6736111	MORGANSHAW POWER CO. - COALFIRE PLANT	626.64	855.58
IL	CH2M	05053-1084111	ENHANCED AMERICAN INC. - INDEPENDENCE PLANT	22,050.48	34,131.11
CO	CH2M	29143-7163811	NEW MEXICO POWER PLANT - MARICOPA	16,243.71	4,784.18
MD	VAPE-VU	34001-7763611	Juko-Ruger Company	77,559.84	3,677.07
PA	VAPE-VU	42005-1865111	GENCO NEWMARKET COALFIRE STATION	56,938.21	6,578.17
PA	VAPE-VU	42013-3005211	HEMLOCK CITY GEN COALFIRE STATION	11,865.25	5,215.99
PA	VAPE-VU	42013-3005111	HEMLOCK CITY GEN COALFIRE STATION	8,880.25	2,554.04
IL	Midwest RPO	17127-7809111	Joplin Steam	20,529.28	4,765.33
IN	Midwest RPO	18173-5193111	Alcoa Warrick Power 7B Age Div of Al	5,071.28	11,558.59
IN	Midwest RPO	18053-7663111	Edison	23,117.29	12,380.24
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER CO. - APPALACHIAN	10,336.15	8,605.77
IN	Midwest RPO	18125-7362411	INDIANA POWER CO. - B. J. H. H. P. - B. J. H. H. P.	18,341.88	10,665.72
IN	Midwest RPO	18179-6103111	Sargeant Brown South Indiana Gas & Elec	7,644.24	1,578.53
IN	Midwest RPO	18053-7663111	Central Power Plant (Central Operating Company) (0541050000)	7,460.74	7,467.31
OH	Midwest RPO	19011-8010811	Cincinnati Power Plant (0515000000)	6,356.23	9,967.67
OH	Midwest RPO	19075-5794111	Duke Energy Ohio, Inc. - Premier Station (141006114)	27,133.94	7,445.67
OH	Midwest RPO	19075-5794111	Duke Energy Ohio, Inc. - Premier Station (141006114)	14,559.59	4,315.23
OH	Midwest RPO	19075-7993011	Ohio Valley Electric Corp. - River Creek Station (0527000000)	3,400.14	9,143.54

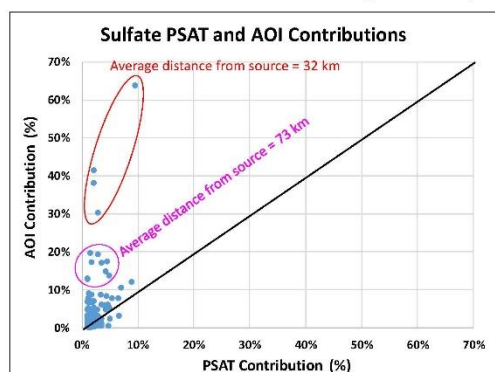
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## Facility Tags (AL, FL, GA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO <sub>2</sub> (TPY)	NOx (TPY)
AL	VISTAS	01057-5498111	Alcoa Nobel Chemicals, Inc.	5,335.72	29.14
AL	VISTAS	01027-1055111	Alta Power - Barry	6,033.14	2,275.78
AL	VISTAS	01174-1027111	American Midstream Chemicals, LLC	3,106.98	471.87
AL	VISTAS	01073-1018111	ARMSTRONG COMPANY, INC.	7,562.13	5,258.52
AL	VISTAS	01073-7440111	Columbia Operating Company, LLC	18,974.96	349.13
AL	VISTAS	01053-8551111	Escambia Operating Company, LLC	8,589.60	149.64
AL	VISTAS	01103-1600111	Fluor Steel Decatur, LLC	170.23	331.24
AL	VISTAS	01009-8057111	Formosa, LLC	7,991.09	121.71
AL	VISTAS	01027-1061611	Union Oil of California - Chunchula Gas Plant	2,573.15	349.23
FL	VISTAS	12225-7524111	BUCKEYE FLUORIDE, LIMITED PARTNERSHIP	1,520.42	1,830.77
FL	VISTAS	12086-9001111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.51	910.36
FL	VISTAS	12011-8408111	DUKE ENERGY (LICH) INC. (DUE)	5,309.41	2,489.83
FL	VISTAS	12086-9000111	FLUORIDE (LICH) INC. (LICH) (LICH)	13.09	1,035.1
FL	VISTAS	12033-7527111	GUJ POWER - GUJ	2,615.55	2,998.23
FL	VISTAS	12046-7527111	HOMESTEAD CITY UTILITIES	0.00	87.00
FL	VISTAS	12011-8407111	J/A	7,094.48	651.74
FL	VISTAS	12205-2172111	MOGAS PERTINER, LLC	7,900.62	310.42
FL	VISTAS	12057-7161111	MOGAS PERTINER, LLC	6,034.02	259.72
FL	VISTAS	12205-9198111	MOGAS PERTINER, LLC	4,425.53	141.03
FL	VISTAS	12089-8458111	RAYONIER PERFORMANCE FIBERS, LLC	561.97	2,327.18
FL	VISTAS	12089-7517111	ROCK TOWN CO., LLC	2,606.72	2,119.77
FL	VISTAS	12005-5154111	ROCK TOWN CO., LLC	2,590.88	1,464.88
FL	VISTAS	12129-2731711	SAIA-HASSIS CITY PLANT/GEN. STATION	2.85	121.48
FL	VISTAS	12085-5198111	TAHOE LLC (HCC COMPANY) (HCC)	6,084.93	2,665.02
FL	VISTAS	12089-8991111	TAHOE LLC (HCC COMPANY) (HCC)	9.98	879.78
FL	VISTAS	12047-7697111	WILLIAMS SPRINGS AGRICULTURAL CHEMICALS, INC.	3,187.77	112.41
GA	VISTAS	13127-7721011	Branswick Cellulose	284.20	1,554.51
GA	VISTAS	13015-7813011	Go Power Company - Plant Isom	10,453.41	5,641.75
GA	VISTAS	13103-5161111	Georgia-Pacific Consumer Products LP (Savannah River VIII)	3,465.15	351.12
GA	VISTAS	13103-1679811	International Paper - Savannah	3,465.33	3,560.73
GA	VISTAS	13115-5193111	TEWLE INLAND	1,791.00	1,773.33

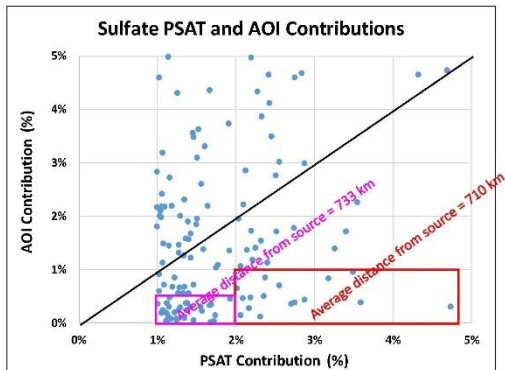
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## Sulfate AOI vs. Sulfate PSAT (≥ 1.00%)



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### Sulfate AOI vs. Sulfate PSAT ( $\geq 1.00\%$ )



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### Reasonable Progress Screening Approach

- Due to the amount of resources already invested in the AOI and PSAT analysis, **VISTAS plans to continue with our original reasonable progress analysis approach** for determining which sources will require a four-factor analysis.
- In cases where emissions decreased or increased at individual facilities being considered for a four-factor analysis, the facility contributions will be adjusted to be consistent with the lower/higher facility emissions before comparing to the PSAT contribution threshold.
- **EPA verbally stated this should be okay 2/6/2020.**

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### AOI vs. PSAT Summary

- AOI tends to overestimate impacts for facilities near the Class I area.
- AOI tends to underestimate impacts for facilities far away from the Class I area.
  - AOI uses 72-hour back trajectories, sulfate can last for weeks and travel hundreds to thousands of km.
- PSAT is the most reliable modeling tool for tracking facility contributions to visibility impairment at Class I areas.

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### Revised Facility Sulfate PSAT Results

- **Revised Facility Sulfate PSAT Results**  
 = Original Facility Sulfate PSAT Results  
 \*  $SO_2$  Ratio\_Facility \* Ratio\_Class\_I\_Area

$$\text{where, } SO_2 \text{ Ratio\_Facility} = \frac{\text{(Revised facility } SO_2 \text{ emissions)}}{\text{(Original facility } SO_2 \text{ emissions)}}$$

$$\text{where, Ratio\_Class\_I\_Area} = \frac{\text{(Original sulfate + nitrate point contribution)}}{\text{(Revised sulfate + nitrate point contribution)}}$$

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### Reasonable Progress Screening Approach

- The updated 2028 CAMx modeling will impact the **total sulfate and total nitrate impacts** from all sources at each Class I area since the  $SO_2$  and  $NO_x$  emissions have decreased.
- However, the **individual sulfate and total nitrate impacts** from the individual 87 tagged facilities should not change unless a facility has reduced or increased  $SO_2$  and/or  $NO_x$  emissions.
- Therefore, the percent contribution (facility sulfate impact/total impact of all point sources of sulfate + nitrate) will increase since the denominator will decrease; however, the order of the rankings from largest impact to smallest impact should not change unless one of those facilities reduced or increased emissions.

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### Revised Facility Nitrate PSAT Results

- **Revised Facility Nitrate PSAT Results**  
 = Original Facility Nitrate PSAT Results  
 \*  $NO_x$  Ratio\_Facility \* Ratio\_Class\_I\_Area

$$\text{where, } NO_x \text{ Ratio\_Facility} = \frac{\text{(Revised facility } NO_x \text{ emissions)}}{\text{(Original facility } NO_x \text{ emissions)}}$$

$$\text{where, Ratio\_Class\_I\_Area} = \frac{\text{(Original sulfate + nitrate point contribution)}}{\text{(Revised sulfate + nitrate point contribution)}}$$

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Facility State	Facility SDO	FACILITY_ID	SDT	FACILITY NAME	SDT	Risk	NCR
AL	VST05	19037-040811	ALCO	Nobel Chemicals Inc	1,000	1,000	1,000
AL	VST05	01027-505311	ALA Power - Barry		1,000	2,000	2,000
AL	VST05	01011-102101	Greco and Molok Chemicals, LLC		1,000	1,000	1,000
AL	VST05	01073-101871	PRIMORANCO CO-OP, INC.		1,000	1,000	1,000
AL	VST05	01053-744011	Performance Packaging Company, L		1,000	1,000	1,000
AL	VST05	01053-885111	Chemical Services, Inc.		1,000	1,000	1,000
AL	VST05	01103-100011	Nucor Steel Products, LLC		1,000	1,000	1,000
AL	VST05	01059-885711	Stevens Lead Co.		1,000	1,000	1,000
FL	VST05	01027-106111	Universal Chemicals - Chertok Gas Plant		6,000	6,000	6,000
FL	VST05	12123-752411	BUCKLEY LEAD & L, LIMITED PARTNERSHIP		1,000	1,000	1,000
FL	VST05	12088-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC		1,000	1,000	1,000
FL	VST05	11011-548611	BUCKLE FRANK LLOYD & CO		1,000	1,000	1,000
FL	VST05	11011-940011	LOHMEYER & SONS, L.P.		1,000	1,000	1,000
FL	VST05	11055-727111	GULF POWER, INC.		1,115	2,000	2,000
FL	VST05	12066-537211	HOMESTEAD CITY UTILITIES, INC.		1,000	1,000	1,000
FL	VST05	11011-548711	J.A.		1,000	1,000	1,000
FL	VST05	12105-717111	MOSAK FERTILIZERS, LLC		565	1,000	1,000
FL	VST05	11067-716111	MOSAK FERTILIZERS, LLC		565	1,000	1,000
FL	VST05	12105-910111	MOSAK FERTILIZERS, LLC		565	1,000	1,000
FL	VST05	12089-845811	RAYMOND PERFORMANCE FIBERS, LLC		1,000	1,000	1,000
FL	VST05	12089-757311	ROCK TOWN CO., LLC		1,000	1,000	1,000
FL	VST05	12050-518111	ROCK TOWN CO., LLC		1,000	1,000	1,000
FL	VST05	12119-273111	FLA-ALFA, A UNIT OF PULCHRA GENERATING STA.		1,000	1,000	1,000
FL	VST05	12089-530611	TAZZAR & L, CHEMICAL COMPANY (L) LLC		1,000	1,000	1,000
FL	VST05	12089-907311	LO-MAC MACH.		1,000	1,000	1,000
FL	VST05	12047-757011	OUT-IT SPINNING AND CURTAIN C/FIBERS, LLC		647	1,000	1,000
FL	VST05	12122-722111	Brumback LLC		1,000	1,000	1,000
FL	VST05	12015-781701	GO POWER CORP. - Hard Stone		1,000	1,000	1,000
FL	VST05	12103-516311	General-Pacific Corporation Products 1 (F) Savannah River Y-111		1,000	1,000	1,000
FL	VST05	13051-167011	International Trade - Savannah		1,000	1,000	1,000
FL	VST05	12115-330711	TESS & SONS		1,000	1,000	1,000

State	Class / Area	Ratio, Class / Area
AI	Sagey Wilderness Area (SPS)	1.587
FL	Chaschoutan Wilderness Area (CHAS)	1.235
FL	Levoglades NP (LVL)	1.390
FL	St Marks Wilderness Area (SMA)	1.360
GA	Joshua Wilderness Area (JOSH)	1.363
CA	Olefenekne Wilderness Area (OKEF)	1.517
CA	Wolf Island Wilderness (WOLF)	1.331
KY	Mammoth Cave NP (WACA)	2.229
NC	Linville Gorge Wilderness Area (LIGO)	1.412
NC	Shining Rock Wilderness Area (SHRO)	1.390
NC	Swanquarter Wilderness Area (SWAQ)	1.438
SC	Cape Roman Wilderness (ROMA)	1.401
TH/NC	Great Smoky Mountains NP (GSMV)	1.294
TH/NC	Jorge Kilmer-Slickard Wilderness (JOW)	1.402
VA	James River Face Wilderness (ARI)	1.416
VA	Shenandoah NP (SHEN)	1.463
VA	Smith Rock Wilderness (OSOS)	1.417
WV	Otter Creek Wilderness (OTCR)	1.412
AR	Caneey Creek Wilderness Area (CACR)	1.314
AR	Upper Buffalo Wilderness Area (PUBU)	1.490
LA	Breton Wilderness (BEL)	1.306
CA	Acadia National Park (ACAD)	1.402
ME	Moosehorn Wilderness FDM (U/OSOS)	1.417
MI	Seney Wilderness Area (SENE)	1.265
MO	Ironclad's Glades Wilderness Area (IRGL)	1.463
MO	Atop Wilderness Area (U/OSOS)	1.366
NH	Great Gulf Wilderness Area (GUGL)	1.456
NH	Presidential Range-Dyer River Wilderness (PRDR)	1.461
NH	Berkshire Wilderness Area (BRBS)	1.393
NH	Great Woods National Monument	1.474

Facility State	Facility ID	FACILITY STD	FACILITY NAME STD	502 Basis	Now Basis
KY	V0185	21183-558311	Big Rivers Electric Corp. - Wilkerson Station	1,000	1,000
KY	V0185	21191-735741	Cummins-Burnham of KY, LLC	0	1,000
KY	V0185	21197-1145721	Tennessee Valley Authority - Pauline Howell Plant	0	1,000
KY	V0185	21145-503701	Tennessee Valley Authority - TVA - Shawnee Fork Plant	0	1,000
KY	V0185	28618-638051	Tennessee Valley Authority - Pigeon Forge, Bolivar	1,000	1,000
VA	V0185	28058-2251014	Mississippi Power Company, Plant Virginia	1,000	1,000
NC	V0185	27037-7290514	Blue Ridge Paper Products, LLC - Marshall Mill	0	1,000
NC	V0185	27112-640471	Bonnie R. Power, LLC	0	1,000
NC	V0185	27375-837041	Duke Energy Carolinas - Cayah Steam Station	0	1,000
NC	V0185	27013-847931	PCS Pharmaceutical Company, Inc. - Asurea	1,000	1,000
NC	V0185	27032-551801	Solutia Corp.	1,000	1,000
NC	V0185	48013-484801	ALLCOAT CO. SOUTH CAROLINA	1,000	1,000
NC	V0185	45043-158051	INTERNAT. ONAP, RAPT GEORGETOWN W. V.	1,000	1,000
NC	V0185	45018-497151	KAPONTON CEMENT BRICK FACTORY	1,000	1,000
NC	V0185	41204-412041	KANTIC CO. INC. - KANTIC CO. AT GAS STATION	1,000	1,000
NC	V0185	45043-555761	STANTIC CO. INC. - KANTIC CO. AT GAS STATION	1,000	1,000
NC	V0185	45015-530271	SECBG WILLIAMS	1,000	1,000
TN	V0185	47039-497991	GenCorp - Knoxville Plant	1,000	1,000
TN	V0185	47128-398211	GENSTAY CHINA GAS COMPANY	1,000	1,000
TN	V0185	47105-4122121	TAIR & VLE - Joubert	0	1,000
TN	V0185	47003-619091	PLANT BULL RUN FOSSIL - PLANT	0	0
TN	V0185	47013-497931	PLANT CUMMINS - PLANT CUMMINS	1,000	1,000
TN	V0185	47145-497931	PLANT CUMMINS - PLANT CUMMINS	1,000	1,000
VA	V0185	51022-430481	Shell Chemical Company P.L.C.	1,000	1,000
VA	V0185	51388-571891	Redwoodbrook Packaging Resources Group	1,000	1,000
VA	V0185	51013-529041	Redwoodbrook Packaging Resources Group	1,000	1,000

- Revised Facility Sulfate PSAT Results  
 = Original Facility Sulfate PSAT Results  
 \* SO<sub>2</sub> Ratio Facility \* Ratio Class I Area

- Original Facility Sulfate PSAT Results = 1.46%

- **Revised Facility Sulfate PSAT Results**  

$$= 1.46\% * 0.665 \text{ (Slide 94)} * 1.382 \text{ (Slide 95)}$$

$$= 1.34\% \text{ (Slide 97)}$$

Facility State	Facility AzOD	FACILITY ID	NAME	ST	FACILITY NAME	ST	503 Ratio	NCR Ratio
WV	VSTAS	54835-32/1711	ALLEGANY VALLEY STEEL SUPPLY CO. LLC-HARISON	WV			0.84	0.84
WV	VSTAS	34049-486451	AMERICAN BITUMINOUS PRODUCTS COMPANY TOWN LK	WV			0.84	0.84
WV	VSTAS	47978-579811	APACALIC PETROLEUM COMPANY HILL TOP ARKAS PLANT	WV			0.84	0.84
WV	VSTAS	48773-297345	BURNHAM REFINERY WILSON STEAM POWER PLANT	WV			0.84	0.84
WV	VSTAS	46414-560031	CELEBRITY PETROLEUM CO. CELEBRITY BURNING ST	WV			1.000	1.000
WV	VSTAS	58333-579071	FILES REFS OF 63480	WV			1.000	1.000
WV	VSTAS	54033-579611	GLADYS GASOLINE	WV			1.000	1.000
WV	VSTAS	54093-532781	RINGSFORD MANUFACTURING COMPANY	WV			1.000	1.000
WV	VSTAS	53681-162211	LONGVIEW POWER	WV			1.000	1.000
WV	VSTAS	54053-690231	MATCHLESS PLANT	WV			1.000	1.000
WV	VSTAS	54051-577361	MONROESVILLE POWER CO. FORT MARTIN POWER	WV			0.82	0.87
WV	VSTAS	54038-478811	MUNICIONELLA TOWER-CEC-PL-ASLANIS POWERHSA	WV			0.84	0.84
WV	VSTAS	54037-571811	MUNICIONVILLE REFINERY ASLANIS RE	WV			0.84	0.84
WV	CRNAP	09528-108241	NORTH ARKAS REFINERY	WV			0.84	0.84
WV	CRNAP	29143-536311	NORTH MARIPO POWER PLANT MARTIN	WV			0.60	0.60
MD	VAE-VU	24801-776781	Lake Park Company	MD			4.000	4.000
PA	VAE-VU	42056-366311	GENCO MARLBOROUGH PETROSTATION STA	PA			0.82	0.82
PA	VAE-VU	42053-200111	HOMER CITY LG 19/ CENTER TWR	PA			0.762	0.99
PA	VAE-VU	42055-005111	NRG WOOD LEASE GENSEWARD GEN ST	PA			0.762	0.762
IN	Midwest DP	17121-768111	Joppat	IN			0.84	0.84
IN	Midwest DP	18173-531311	ALCO WARSAW POWER PLANT Div of AL	IN			0.788	0.77
IN	Midwest DP	18051-736311	Glaron	IN			0.842	0.842
IN	Midwest DP	18143-571211	INDIANA MARLBOROUGH PETROSTATION 1 UNIT APL HCC001A1	IN			0.84	0.84
IN	Midwest DP	18125-784111	INDIANA NADCO LBS PCWMAV & LBSA PLT H18R0000	IN			0.84	0.84
IN	Midwest DP	18126-516111	Sageco AS Brownstown Indiana Gas & Lte	IN			0.800	0.801
OH	Midwest DP	18051-811711	Genco Power Plant (Excluded) Operations Company (05410900001)	OH			0.84	0.84
OH	Midwest DP	18051-812011	Genco Power Plant (Excluded) Operations Company (05410900001)	OH			0.84	0.84
OH	Midwest DP	19035-878431	Genco Energy Ohio, Inc. 71mermer Station (1413066154)	OH			0.80	0.80
OH	Midwest DP	19035-811651	General Jameson, Inc. Gavin Power Plant (06247040000)	OH			0.81	0.81
OH	Midwest DP	19054-788111	Genco Power Plant (Excluded) Operations Company (05410900001)	OH			0.84	0.84

State	Facility ID	Facility Name	DISTANCE, km	Sulfur AO1%	Original Sulfur P501%	FINAL Revised Sulfur P501%	Nitrate AO 1%	Original Nitrate P501%	Nitrate AO51%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	3.311	1.611	2.22%	0.57%	0.04%	0.09%
OH	39053-8148511	General James M. Gavin Power Plant (0526720056)	680.9	0.38%	2.75%	1.59%	0.01%	0.09%	0.13%
IN	18147-8017211	INDIANA WICHAM POWER DBA AEP	398.7	5.72%	0.09%	0.59%	0.31%	0.23%	0.31%
IN	18051-7363111	Spencer	198.4	2.82%	2.12%	1.65%	0.27%	0.19%	0.18%
IN	18125-7362111	INDIANAPOLIS POWER & LIGHT- PETERSBURG	464.1	1.72%	1.91%	1.57%	0.23%	0.23%	0.16%
TX	47151-4951111	TWIA CUMBERLAND FOSSIL PLANT	229.9	3.18%	1.07%	1.86%	0.48%	0.12%	0.17%
MO	29143-5263811	NLM WARDMORE POWLR PLANT VARS'ON	314.5	1.48%	1.40%	1.14%	0.26%	0.08%	0.07%
KY	21183-5561511	Big Rivers Electric Corp - Wilson Station	345.5	1.99%	0.93%	1.29%	0.07%	0.04%	0.05%
Facilities That Dropped Off After Revision									
IL	17127-7808911	Yough Street	346.5	0.94%	1.51%	0.82%	0.75%	0.03%	0.02%
IN	17173-6181111	ALCOA WARRICK POWER PLT ACE DIVISION	396.3	1.94%	1.02%	0.41%	0.62%	0.02%	0.19%



### Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	0.364	16.370	2.22%	0.005	16.370	0.05%	
OH	39053-8148511	General James M. Gavin Power Plant	690.9	0.327	16.370	1.99%	0.021	16.370	0.13%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	0.327	16.370	1.99%	0.050	16.370	0.31%	
IN	18051-7363111	Gibson	458.7	0.270	16.370	1.65%	0.029	16.370	0.18%	
IN	18125-7362111	INDIANA VAPORIS POWER & LIGHT - PETERSBURG	404.1	0.258	16.370	1.57%	0.026	16.370	0.16%	
TN	47161-4879311	TVA CLIMBERLAND FOSSIL PLANT	328.9	0.242	16.370	1.48%	0.028	16.370	0.17%	
WV	29343-5363811	NLW MADRID POWER PLANT - VARS'ON	314.5	0.220	16.370	1.34%	0.012	16.370	0.07%	
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	845.5	0.211	16.370	1.29%	0.008	16.370	0.05%	
<b>Facilities That Dropped Off After REVISION</b>										
IL	17117-7208911	Joppe Steam	346.5	0.134	16.370	0.82%	0.002	16.370	0.02%	
IN	18173-8181111	ALCOA - WARRICK POWER PIT AGC DIV OF AL	596.3	0.066	16.370	0.41%	0.032	16.370	0.19%	

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### Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	3.02%	2.56%	3.30%	0.08%	0.00%	0.00%	
FL	12105-915811	MOSAIC FERTILIZER, LLC	304.7	2.21%	2.09%	2.62%	0.01%	0.00%	0.00%	
FL	12105-717711	MOSAIC FERTILIZER, LLC	303.3	2.26%	3.55%	2.60%	0.02%	0.00%	0.00%	
FL	12088-899911	FARMAC AMERICA LLC	61.7	0.16%	0.17%	0.23%	2.02%	0.76%	2.63%	

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### Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
FL	12017-640611	DURE ENERGY FLORIDA, INC. (DEF)	27.4	63.62%	9.55%	6.24%	1.95%	0.40%	0.23%	
GA	13015-2813011	Ga Power Company - Plant Bowen	637.2	0.03%	1.72%	2.28%	0.00%	0.02%	0.03%	
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	106.8	4.73%	0.96%	1.28%	0.24%	0.05%	0.07%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.03%	0.76%	1.01%	0.00%	0.04%	0.05%	
AL	01109-985711	Sanders Lead Co	471.2	0.15%	0.76%	1.00%	0.00%	0.01%	0.01%	
<b>Facilities That Dropped Off After REVISION</b>										
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.05%	1.47%	0.83%	0.00%	0.09%	0.04%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,099.6	0.03%	1.13%	0.53%	0.00%	0.04%	0.00%	
AL	01053-7440211	Escambia Operating Company LLC	530.7	0.21%	1.57%	0.41%	0.00%	0.01%	0.01%	

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### Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.04%	1.33%	3.30%	0.00%	1.33%	0.00%	
FL	12105-915811	MOSAIC FERTILIZER, LLC	304.7	0.03%	1.33%	2.62%	0.00%	1.33%	0.00%	
FL	12105-717711	MOSAIC FERTILIZER, LLC	303.3	0.03%	1.33%	2.60%	0.00%	1.33%	0.00%	
FL	12088-899911	FARMAC AMERICA LLC	61.7	0.00%	1.33%	0.23%	0.05%	1.33%	2.63%	

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### Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
FL	12017-640611	DURE ENERGY FLORIDA, INC. (DEF)	27.4	0.62%	10.09%	6.24%	0.03%	10.09%	0.23%	
GA	13015-2813011	Ga Power Company - Plant Bowen	637.2	0.23%	10.09%	2.28%	0.00%	10.09%	0.03%	
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	106.8	0.12%	10.09%	1.28%	0.00%	10.09%	0.07%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.10%	10.09%	1.01%	0.00%	10.09%	0.05%	
AL	01109-985711	Sanders Lead Co	471.2	0.10%	10.09%	1.00%	0.00%	10.09%	0.01%	
<b>Facilities That Dropped Off After REVISION</b>										
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.08%	10.09%	0.83%	0.00%	10.09%	0.04%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,099.6	0.05%	10.09%	0.53%	0.00%	10.09%	0.00%	
AL	01053-7440211	Escambia Operating Company LLC	530.7	0.04%	10.09%	0.41%	0.00%	10.09%	0.01%	

100

### St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD MWh	FINAL Revised Nitrate PSAT MWh	FINAL Revised Sulfate PSAT %
GA	13015-2813011	Ga Power Company - Plant Bowen	452.9	0.38%	3.59%	4.89%	0.01%	0.03%	0.03%	
FL	12005-535411	ROCKTENN CP LLC	140.8	8.54%	3.38%	4.60%	0.24%	0.09%	0.13%	
AL	01109-985711	Sanders Lead Co	255.9	3.06%	0.82%	1.12%	0.00%	0.00%	0.00%	
<b>Facilities That Dropped Off After REVISION</b>										
AL	01057-1056111	High Tension Battery	583.1	1.67%	1.45%	0.97%	0.03%	0.02%	0.03%	
AL	01053-7440211	Escambia Operating Company LLC	525.6	5.85%	3.55%	0.96%	0.01%	0.00%	0.00%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	908.4	0.13%	1.67%	0.80%	0.00%	0.01%	0.01%	
PA	47005-3866111	EPSON RE ROCKT CO/EPSTONF STA	1,751.0	0.29%	1.20%	0.65%	0.01%	0.00%	0.00%	
AL	01053-985111	Escambia Operating Company LLC	315.0	0.00%	1.68%	0.02%	0.00%	0.00%	0.00%	

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## St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
GA	13015-2813011	Ga Power Company - Plant Bowen	452.9	0.574	11.729	4.89%	0.004	11.729	0.03%	0.03%
FL	12005-535411	ROCKTENN CP LLC	149.8	0.540	11.729	4.60%	0.015	11.729	0.13%	0.13%
AL	01109-985711	Sanders Lead Co	255.9	0.131	11.729	1.12%	0.000	11.729	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>										
AL	01097-1056112	Wls Power - Barry	353.1	0.114	11.729	0.97%	0.003	11.729	0.03%	0.03%
AL	01053-7440211	Escambia Operating Company LLC	325.6	0.112	11.729	0.96%	0.000	11.729	0.02%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	908.4	0.094	11.729	0.80%	0.001	11.729	0.01%	0.01%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	1,751.0	0.076	11.729	0.65%	0.000	11.729	0.00%	0.00%
AL	01053-985112	Escambia Operating Company LLC	315.0	0.093	11.729	0.62%	0.000	11.729	0.00%	0.00%

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## Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	71.5	14.63%	4.32%	2.77%	0.03%	0.03%	0.03%	0.03%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	1.02%	1.74%	2.30%	0.05%	0.04%	0.05%	0.05%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	2.16%	1.64%	2.16%	0.14%	0.11%	0.14%	0.14%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.46%	2.19%	1.51%	0.01%	0.01%	0.01%	0.01%
FL	12089-753711	ROCK TENN CP, LLC	64.8	12.82%	1.00%	1.31%	0.88%	0.11%	0.15%	0.15%
SC	45015-4120411	Santee Cooper Cross Generating Station	348.1	0.85%	0.89%	1.18%	0.05%	0.03%	0.04%	0.04%
GA	13051-3679811	International Paper - Savannah	178.5	2.81%	0.79%	1.04%	0.08%	0.05%	0.06%	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.23%	0.78%	1.03%	0.00%	0.03%	0.04%	0.04%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	1,129.0	0.46%	7.05%	1.02%	0.01%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	921.9	0.09%	1.34%	0.83%	0.00%	0.01%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	915.7	0.55%	1.40%	0.65%	0.01%	0.02%	0.03%	0.03%

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## Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	1.71%	3.41%	2.44%	0.02%	0.05%	0.07%	0.07%
GA	13015-2813011	Ga Power Company - Plant Bowen	78.0	19.58%	1.56%	2.13%	1.15%	0.63%	0.04%	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	2.18%	1.05%	1.44%	0.07%	0.01%	0.02%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	4.68%	7.84%	1.37%	0.13%	0.08%	0.04%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	1.05%	2.06%	1.31%	0.06%	0.03%	0.04%	0.04%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.99%	0.92%	1.25%	0.09%	0.07%	0.09%	0.09%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	801.1	0.14%	2.06%	1.04%	0.00%	0.01%	0.01%	0.01%
IN	18051-7363111	Elcon	487.1	2.31%	1.35%	1.03%	0.10%	0.07%	0.07%	0.07%
<b>Facilities That Dropped Off After REVISION</b>										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	2.18%	1.29%	0.81%	0.16%	0.03%	0.02%	0.02%
TN	47145-4399112	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.10%	0.34%	0.13%	0.06%	0.02%	0.02%

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## Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	71.5	0.372	13.40%	2.77%	0.002	13.40%	0.01%	0.01%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	0.308	13.40%	2.30%	0.007	13.40%	0.05%	0.05%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	0.289	13.40%	2.16%	0.019	13.40%	0.14%	0.14%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.203	13.40%	1.51%	0.002	13.40%	0.01%	0.01%
FL	12089-753711	ROCK TENN CP, LLC	64.8	0.176	13.40%	1.31%	0.020	13.40%	0.15%	0.15%
SC	45015-4120411	Santee Cooper Cross Generating Station	348.1	0.158	13.40%	1.18%	0.006	13.40%	0.04%	0.04%
GA	13051-3679811	International Paper - Savannah	178.5	0.140	13.40%	1.04%	0.008	13.40%	0.06%	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.138	13.40%	1.03%	0.006	13.40%	0.04%	0.04%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	1,129.0	0.137	13.40%	1.02%	0.002	13.40%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	921.9	0.111	13.40%	0.83%	0.002	13.40%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	915.7	0.087	13.40%	0.65%	0.004	13.40%	0.03%	0.03%

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## Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	0.322	13.229	2.44%	0.009	13.229	0.07%	0.07%
GA	13015-2813011	Ga Power Company - Plant Bowen	78.0	0.282	13.229	2.13%	0.005	13.229	0.04%	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	0.190	13.229	1.44%	0.002	13.229	0.02%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	0.181	13.229	1.37%	0.005	13.229	0.04%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	0.173	13.229	1.31%	0.005	13.229	0.04%	0.04%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.165	13.229	1.25%	0.012	13.229	0.09%	0.09%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	801.1	0.187	13.229	1.04%	0.007	13.229	0.01%	0.01%
IN	18051-7363111	Elcon	487.1	0.137	13.229	1.03%	0.007	13.229	0.03%	0.03%
<b>Facilities That Dropped Off After REVISION</b>										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	0.111	13.229	0.81%	0.003	13.229	0.02%	0.02%
TN	47145-4399112	TVA KINGSTON FOSSIL PLANT	124.0	0.045	13.229	0.34%	0.002	13.229	0.02%	0.02%

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## Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Nitrate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NEGU Min	FINAL Restored Nitrate PSAT Min	FINAL Restored Sulfate PSAT %
FL	12089-753711	ROCK TENN CP, LLC	74.9	8.56%	1.79%	2.35%	0.39%	0.11%	0.14%	0.14%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	1.08%	1.78%	2.33%	0.03%	0.04%	0.05%	0.05%
GA	13127-3721011	Branzwick Cellulose Inc.	27.9	8.84%	1.34%	1.76%	2.94%	0.10%	0.13%	0.13%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	845.3	1.71%	2.51%	1.73%	0.02%	0.02%	0.02%	0.02%
GA	13051-3679811	International Paper - Savannah	85.9	7.53%	1.18%	1.54%	0.24%	0.07%	0.09%	0.09%
SC	45015-4120411	Santee Cooper Cross Generating Station	251.0	1.59%	0.99%	1.30%	0.09%	0.06%	0.08%	0.08%
FL	12031-640211	IPA	109.1	4.43%	0.86%	1.29%	0.09%	0.03%	0.06%	0.06%
SC	45015-4849411	ALLUMAX OF SOUTH CAROLINA	223.0	1.84%	0.95%	1.25%	0.00%	0.01%	0.01%	0.01%
PA	42005-3866111	ELCON NF MGMT CO/KEYSTONE STA	1,048.6	0.84%	2.97%	1.15%	0.01%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.07%	1.25%	0.76%	0.00%	0.02%	0.02%	0.02%
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	173.8	1.97%	1.05%	0.67%	0.01%	0.01%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	899.0	0.37%	1.38%	0.64%	0.00%	0.02%	0.03%	0.03%

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## Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12089-753711	ROCK TENN CP, LLC	74.9	0.304	12.957	2.35%	0.018	12.957	0.14%	
GA	13015-2813011	Ed Power Company - Plant Bowen	458.1	0.302	12.957	2.33%	0.007	12.957	0.05%	
GA	13127-8721011	Brunswick Cellulose Inc	27.9	0.228	12.957	1.76%	0.017	12.957	0.13%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	845.3	0.224	12.957	1.73%	0.003	12.957	0.02%	
GA	13051-3679811	International Paper - Savannah	85.9	0.200	12.957	1.54%	0.012	12.957	0.09%	
SC	45015-4120411	Santee Cooper Cross Generating Station	251.0	0.168	12.957	1.30%	0.011	12.957	0.08%	
FL	12031-440211	ROA	109.1	0.167	12.957	1.29%	0.008	12.957	0.06%	
SC	45015-4819411	ALUMAX OF SOUTH CAROLINA	233.0	0.163	12.957	1.25%	0.001	12.957	0.01%	
PA	42003-3866111	GLWON NL V G W T CO/KEYSTONE STA	1,048.0	0.149	12.957	1.15%	0.002	12.957	0.01%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.099	12.957	0.76%	0.002	12.957	0.02%	
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.6	0.087	12.957	0.67%	0.001	12.957	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	899.0	0.083	12.957	0.64%	0.004	12.957	0.03%	

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## Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	19.21%	2.87%	4.05%	0.68%	0.07%	0.10%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	379.2	5.90%	4.67%	3.46%	0.04%	0.01%	0.02%	
PA	42003-3866111	CFWON NF V G W T CO/KEYSTONE STA	567.5	0.94%	3.45%	1.82%	0.00%	0.00%	0.00%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	626.3	0.28%	0.95%	1.34%	0.00%	0.01%	0.02%	
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.11%	0.85%	1.20%	0.00%	0.01%	0.01%	
GA	13015-2813011	Ed Power Company - Plant Bowen	340.9	0.53%	0.80%	1.13%	0.02%	0.00%	0.00%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	1.18%	2.22%	1.10%	0.01%	0.07%	0.09%	
IN	18051-7363111	Gibson	582.3	0.67%	1.35%	1.07%	0.01%	0.07%	0.07%	
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	688.6	0.03%	1.11%	1.01%	0.00%	0.00%	0.00%	
VA	51077-4034811	Jewell Coke Company LIP	149.4	5.84%	0.73%	1.02%	0.01%	0.00%	0.00%	
<b>Facilities That Dropped Off After REVISION</b>										
AR	05063-1083411	ENTERGY ARKANSAS INC INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.86%	0.00%	0.01%	0.00%	
MO	24003-7763811	Luke Paper Company	463.8	0.23%	1.37%	0.84%	0.00%	0.00%	0.00%	
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CLDSBURG	550.5	0.30%	1.12%	0.82%	0.01%	0.07%	0.05%	
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	2.82%	1.00%	0.66%	0.03%	0.02%	0.03%	

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## Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	16.88%	3.57%	1.68%	2.60%	0.26%	0.33%	
IN	18051-7363111	Gibson	198.2	5.21%	2.16%	1.63%	1.26%	0.35%	0.33%	
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	89.9	6.72%	1.07%	1.43%	0.57%	0.66%	0.08%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	1.60%	0.86%	1.15%	0.15%	0.14%	0.19%	
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	312.7	0.66%	1.29%	1.14%	0.04%	0.07%	0.09%	
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CLDSBURG	182.9	3.09%	1.50%	1.04%	0.96%	0.40%	0.27%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	1.21%	1.43%	0.89%	0.14%	0.12%	0.12%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	406.5	1.45%	1.25%	0.81%	0.04%	0.02%	0.02%	
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.30%	1.15%	0.65%	0.04%	0.05%	0.02%	
IN	18173-8183111	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	2.00%	1.03%	0.40%	1.74%	0.82%	0.30%	
IN	18123-8166111	Egeco AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.00%	0.27%	0.06%	0.00%	

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## Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	0.522	12.884	4.05%	0.013	12.884	0.10%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	379.2	0.446	12.884	3.46%	0.007	12.884	0.07%	
PA	42003-3866111	CFWON NF V G W T CO/KEYSTONE STA	567.5	0.235	12.884	1.82%	0.000	12.884	0.00%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	626.3	0.172	12.884	1.34%	0.002	12.884	0.02%	
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.154	12.884	1.20%	0.001	12.884	0.01%	
GA	13015-2813011	Ed Power Company - Plant Bowen	340.9	0.146	12.884	1.13%	0.000	12.884	0.00%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	0.142	12.884	1.10%	0.012	12.884	0.09%	
IN	18051-7363111	Gibson	582.3	0.138	12.884	1.07%	0.008	12.884	0.07%	
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	688.6	0.131	12.884	1.01%	0.000	12.884	0.00%	
VA	51077-4034811	Jewell Coke Company LIP	149.4	0.132	12.884	1.02%	0.000	12.884	0.00%	
<b>Facilities That Dropped Off After REVISION</b>										
AR	05063-1083411	ENTERGY ARKANSAS INC INDEPENDENCE PLANT	856.4	0.112	12.884	0.86%	0.000	12.884	0.00%	
MO	24003-7763811	Luke Paper Company	463.8	0.109	12.884	0.84%	0.000	12.884	0.00%	
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CLDSBURG	550.5	0.108	12.884	0.82%	0.007	12.884	0.05%	
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	0.085	12.884	0.66%	0.003	12.884	0.03%	

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## Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	0.426	25.289	1.68%	0.085	25.289	0.33%	
IN	18051-7363111	Gibson	198.2	0.411	25.289	1.63%	0.084	25.289	0.33%	
KY	21183-5561611	Big Rivers Electric Corp - Wilson Station	89.9	0.361	25.289	1.43%	0.020	25.289	0.08%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	0.290	25.289	1.15%	0.049	25.289	0.19%	
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	312.7	0.280	25.289	1.14%	0.027	25.289	0.09%	
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CLDSBURG	182.9	0.264	25.289	1.04%	0.008	25.289	0.27%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	0.226	25.289	0.89%	0.030	25.289	0.12%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	406.5	0.204	25.289	0.81%	0.006	25.289	0.02%	
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.166	25.289	0.65%	0.005	25.289	0.02%	
IN	18173-8183111	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	0.100	25.289	0.40%	0.075	25.289	0.30%	
IN	18123-8166111	Egeco AB Brown South Indiana Gas & Ele	162.9	0.000	25.289	0.00%	0.000	25.289	0.00%	

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## Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate AOI %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	379.2	1.39%	3.26%	2.41%	0.01%	0.01%	0.01%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	579.4	0.47%	1.16%	1.43%	0.01%	0.02%	0.02%	
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	454.1	0.54%	0.83%	1.32%	0.02%	0.01%	0.02%	
GA	13015-2813011	Ed Power Company - Plant Bowen	241.6	1.79%	0.92%	1.20%	0.07%	0.01%	0.01%	
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	625.2	0.36%	1.37%	1.28%	0.00%	0.01%	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.70%	2.55%	1.27%	0.01%	0.07%	0.09%	
PA	42003-3866111	GLWON NL V G W T CO/KEYSTONE STA	637.8	0.49%	2.36%	1.23%	0.00%	0.00%	0.00%	
IN	18051-7363111	Gibson	554.2	0.29%	1.55%	1.23%	0.01%	0.07%	0.07%	
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	16.9	41.29%	2.14%	1.08%	6.65%	0.07%	0.10%	
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	1.37%	1.50%	1.05%	0.03%	0.01%	0.01%	
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.4	0.13%	1.74%	1.04%	0.00%	0.01%	0.01%	
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	126.9	4.43%	0.74%	1.04%	0.40%	0.02%	0.02%	
<b>Facilities That Dropped Off After REVISION</b>										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CLDSBURG	529.0	0.18%	1.12%	0.87%	0.01%	0.11%	0.08%	
IL	17127-7808911	Voggo Steam	582.4	0.23%	1.07%	0.59%	0.00%	0.01%	0.00%	

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## Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	397.3	0.297	12.313	2.41%	0.001	12.313	0.01%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	573.4	0.201	12.313	1.63%	0.003	12.313	0.02%		
TN	47161-4879311	TVA CUMBERLAND FOSSIL PLANT	454.1	0.162	12.313	1.32%	0.002	12.313	0.02%		
GA	13015-2813011	Ea Power Company - Plant Bowen	241.6	0.159	12.313	1.29%	0.001	12.313	0.01%		
VO	29143-5363811	NFW MADRID POWER PLANT-VARSTON	675.2	0.158	12.313	1.28%	0.001	12.313	0.01%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	473.3	0.156	12.313	1.27%	0.012	12.313	0.09%		
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	657.6	0.151	12.313	1.24%	0.000	12.313	0.00%		
IN	18051-7363111	Edison	554.2	0.151	12.313	1.23%	0.008	12.313	0.07%		
NC	37087-7920511	Blue Ridge Paper Products - Canton Mills	16.9	0.193	12.313	1.08%	0.012	12.313	0.10%		
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	0.129	12.313	1.05%	0.007	12.313	0.01%		
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.129	12.313	1.04%	0.001	12.313	0.01%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	326.9	0.128	12.313	1.04%	0.003	12.313	0.02%		
IL	17127-7808911	Popo Steam	579.0	0.107	12.313	0.82%	0.010	12.313	0.08%		
IL	17127-7808911	Popo Steam	582.4	0.073	12.313	0.59%	0.000	12.313	0.02%		

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## Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	640.2	0.375	10.894	3.44%	0.003	10.894	0.03%		
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	0.329	10.894	3.02%	0.007	10.894	0.06%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	651.5	0.219	10.894	2.01%	0.005	10.894	0.05%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.203	10.894	1.86%	0.007	10.894	0.08%		
MD	24001-7763811	Juke Paper Company	512.5	0.191	10.894	1.75%	0.008	10.894	0.07%		
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	568.6	0.186	10.894	1.71%	0.013	10.894	0.12%		
PA	42063-3005211	IONILR CITY GLN LP/CLNTLR TWP	620.1	0.151	10.894	1.38%	0.008	10.894	0.07%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.127	10.894	1.17%	0.005	10.894	0.05%		
GA	13015-2813011	Ea Power Company - Plant Bowen	810.6	0.112	10.894	1.03%	0.003	10.894	0.03%		
NC	37117-8049311	Dorstar Paper Company, LLC	89.0	0.109	10.894	1.00%	0.022	10.894	0.20%		
Facilities That Dropped Off After REVISION											
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	1,005.3	0.091	10.894	0.83%	0.005	10.894	0.04%		

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## Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	475.1	4.73%	4.69%	3.45%	0.05%	0.01%	0.01%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.64%	0.99%	1.38%	0.05%	0.07%	0.10%		
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	179.2	5.88%	0.93%	1.30%	0.16%	0.02%	0.02%		
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	711.0	0.27%	2.17%	1.12%	0.00%	0.00%	0.00%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	391.2	4.33%	2.27%	1.12%	0.14%	0.16%	0.22%		
GA	13015-2813011	Ea Power Company - Plant Bowen	166.2	3.61%	0.79%	1.11%	0.10%	0.01%	0.01%		
IN	18051-7363111	Edison	471.7	2.00%	1.29%	1.02%	0.11%	0.21%	0.21%		
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	3.63%	1.53%	1.00%	0.06%	0.01%	0.01%		
Facilities That Dropped Off After REVISION											
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	1.58%	1.36%	0.81%	0.05%	0.02%	0.01%		
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	453.0	2.16%	1.00%	0.72%	0.24%	0.23%	0.16%		
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	73.7	7.86%	2.48%	0.39%	0.57%	0.10%	0.03%		

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## Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
SC	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	29.3	36.18%	2.86%	3.73%	2.74%	0.25%	0.33%		
GA	13015-2813011	Ea Power Company - Plant Bowen	506.2	0.36%	2.71%	3.53%	0.01%	0.10%	0.14%		
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	39.1	17.07%	1.79%	2.33%	0.03%	0.02%	0.02%		
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	857.1	0.30%	4.74%	2.28%	0.00%	0.01%	0.01%		
SC	45015-4120411	SANTER COOPER CROSS GENERATING STATION	63.8	6.57%	1.73%	2.25%	0.45%	0.21%	0.27%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.84%	3.18%	2.17%	0.00%	0.03%	0.04%		
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.64%	0.35%	0.11%	0.15%		
SC	45043-6652811	SANTER COOPER WINTAH GENERATING STATION	51.4	4.60%	1.02%	1.33%	0.38%	0.13%	0.17%		
GA	13051-3679811	International Paper - Savannah	166.1	1.76%	0.99%	1.20%	0.04%	0.05%	0.06%		
Facilities That Dropped Off After REVISION											
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	776.2	0.11%	1.14%	0.69%	0.00%	0.04%	0.04%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	868.3	0.06%	1.18%	0.54%	0.00%	0.07%	0.08%		

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## Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	640.2	3.00%	6.66%	3.44%	0.08%	0.08%	0.07%		
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	37.89%	2.16%	3.02%	0.57%	0.08%	0.06%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	651.5	1.77%	2.74%	2.01%	0.06%	0.03%	0.05%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.35%	1.00%	1.86%	0.02%	0.03%	0.06%		
MD	24001-7763811	Juke Paper Company	512.5	0.43%	2.88%	1.75%	0.02%	0.05%	0.07%		
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	568.6	0.67%	1.19%	1.71%	0.08%	0.10%	0.12%		
PA	42063-3005211	IONILR CITY GLN LP/CLNTLR TWP	620.1	0.55%	1.27%	1.38%	0.05%	0.05%	0.07%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.64%	1.22%	1.17%	0.07%	0.03%	0.05%		
GA	13015-2813011	Ea Power Company - Plant Bowen	810.6	0.15%	0.74%	1.03%	0.00%	0.02%	0.03%		
NC	37117-8049311	Dorstar Paper Company, LLC	89.0	3.27%	0.72%	1.00%	2.02%	0.42%	0.20%		
Facilities That Dropped Off After REVISION											
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	1,005.3	0.54%	1.69%	0.83%	0.02%	0.03%	0.04%		

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## Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised ECU + NREGD Min	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
SC	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	29.3	0.52%	14.02%	3.73%	0.04%	14.02%	0.33%		
GA	13015-2813011	Ea Power Company - Plant Bowen	506.2	0.49%	14.02%	3.53%	0.01%	14.02%	0.14%		
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	39.1	0.327	14.02%	2.33%	0.003	14.02%	0.02%		
PA	42003-3866111	GLVON NL M/GW/T CO/KEYSTONE STA	857.1	0.320	14.02%	2.28%	0.002	14.02%	0.01%		
SC	45015-4120411	SANTER COOPER CROSS GENERATING STATION	63.8	0.316	14.02%	2.25%	0.038	14.02%	0.27%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.305	14.02%	2.17%	0.005	14.02%	0.04%		
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	0.230	14.02%	1.64%	0.021	14.02%	0.15%		
SC	45043-6652811	SANTER COOPER WINTAH GENERATING STATION	51.4	0.187	14.02%	1.33%	0.024	14.02%	0.17%		
GA	13051-3679811	International Paper - Savannah	166.1	0.180	14.02%	1.26%	0.009	14.02%	0.06%		
Facilities That Dropped Off After REVISION											
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	776.2	0.097	14.02%	0.69%	0.006	14.02%	0.04%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	868.3	0.076	14.02%	0.54%	0.012	14.02%	0.08%		

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## Great Smoky Mountains National Park (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	0.570	13.916	3.73%	0.003	13.916	0.07%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	0.183	13.916	1.32%	0.011	13.916	0.08%	
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	160.1	0.170	13.916	1.22%	0.007	13.916	0.05%	
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	688.2	0.166	13.916	1.19%	0.001	13.916	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	375.5	0.166	13.916	1.19%	0.035	13.916	0.25%	
IN	18051-7363111	Gibson	456.3	0.146	13.916	1.05%	0.037	13.916	0.27%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	0.136	13.916	0.98%	0.002	13.916	0.02%	
IN	18125-7262412	INDIANAPOLIS POWER & LIGHT - PETERSBURG	425.6	0.109	13.916	0.78%	0.028	13.916	0.20%	
AR	05083-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.100	13.916	0.72%	0.001	13.916	0.00%	
TN	47145-4379112	TVA KINGSTON FOSSIL PLANT	60.0	0.054	13.916	0.38%	0.004	13.916	0.03%	

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## James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	7.66%	5.44%	4.04%	0.14%	0.08%	0.11%	
WV	54093-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	2.76%	2.51%	3.65%	0.36%	0.12%	0.14%	
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	1.35%	1.92%	3.61%	0.04%	0.02%	0.06%	
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	3.87%	2.33%	2.26%	0.15%	0.03%	0.09%	
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.93%	0.13%	0.05%	0.11%	
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	337.1	2.98%	2.88%	1.51%	0.06%	0.03%	0.04%	
VA	51580-5798711	Westwestwaco Packaging Resource Group	46.5	12.64%	1.02%	1.45%	1.14%	0.15%	0.22%	
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.63%	0.66%	1.18%	0.16%	0.04%	0.04%	
WV	54051-6902311	MITCHELL PLANT	269.6	0.68%	0.97%	1.05%	0.03%	0.02%	0.04%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.89%	1.39%	0.92%	0.05%	0.05%	0.06%	
IN	18051-7363112	Gibson	779.4	0.59%	1.07%	0.87%	0.07%	0.01%	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	663.5	0.56%	1.33%	0.66%	0.03%	0.01%	0.02%	

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## Great Smoky Mountains National Park (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	7.75%	5.10%	3.73%	0.04%	0.07%	0.07%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	1.34%	0.94%	1.32%	0.02%	0.06%	0.08%	
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	160.1	6.01%	0.88%	1.22%	0.19%	0.04%	0.05%	
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	688.2	0.11%	2.31%	1.19%	0.00%	0.01%	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	375.5	4.66%	2.42%	1.19%	0.21%	0.19%	0.25%	
IN	18051-7363111	Gibson	456.3	1.75%	1.34%	1.05%	0.07%	0.27%	0.27%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	1.84%	1.50%	0.98%	0.09%	0.02%	0.02%	
IN	18125-7262412	INDIANAPOLIS POWER & LIGHT - PETERSBURG	425.6	1.48%	1.08%	0.78%	0.12%	0.23%	0.20%	
AR	05083-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.72%	0.02%	0.02%	0.00%	
TN	47145-4379112	TVA KINGSTON FOSSIL PLANT	60.0	7.38%	1.23%	0.38%	0.71%	0.08%	0.03%	

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## James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	0.582	14.404	4.04%	0.016	14.404	0.11%	
WV	54093-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	0.526	14.404	3.65%	0.020	14.404	0.14%	
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	0.520	14.404	3.61%	0.008	14.404	0.06%	
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	0.325	14.404	2.26%	0.007	14.404	0.05%	
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	0.278	14.404	1.93%	0.016	14.404	0.11%	
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	337.1	0.217	14.404	1.51%	0.005	14.404	0.04%	
VA	51580-5798711	Westwestwaco Packaging Resource Group	46.5	0.209	14.404	1.45%	0.031	14.404	0.22%	
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.170	14.404	1.18%	0.006	14.404	0.04%	
WV	54051-6902311	MITCHELL PLANT	269.6	0.156	14.404	1.05%	0.006	14.404	0.04%	
<b>Facilities That Dropped Off After REVISION</b>										
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	0.133	14.404	0.92%	0.009	14.404	0.06%	
IN	18051-7363112	Gibson	779.4	0.118	14.404	0.87%	0.007	14.404	0.01%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	663.5	0.096	14.404	0.66%	0.003	14.404	0.02%	

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## Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	475.1	0.473	13.694	3.45%	0.007	13.694	0.01%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.189	13.694	1.38%	0.014	13.694	0.10%	
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	179.2	0.178	13.694	1.30%	0.003	13.694	0.02%	
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	711.0	0.154	13.694	1.12%	0.000	13.694	0.00%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	391.2	0.154	13.694	1.12%	0.030	13.694	0.22%	
GA	13015-2813011	Ba Power Company - Plant Bowen	166.2	0.152	13.694	1.11%	0.001	13.694	0.01%	
IN	18051-7363111	Gibson	471.7	0.139	13.694	1.02%	0.029	13.694	0.21%	
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	0.137	13.694	1.00%	0.002	13.694	0.01%	
<b>Facilities That Dropped Off After REVISION</b>										
AR	05083-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	0.122	13.694	0.81%	0.001	13.694	0.01%	
IN	18125-7262412	INDIANAPOLIS POWER & LIGHT - PETERSBURG	452.0	0.099	13.694	0.72%	0.022	13.694	0.16%	
TN	47145-4379112	TVA KINGSTON FOSSIL PLANT	73.7	0.054	13.694	0.39%	0.004	13.694	0.03%	

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## Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EDU + NEDU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GENON NE M/GWT CO/KEYSTONE STA	249.8	11.83%	8.89%	4.81%	0.10%	0.03%	0.06%	
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	1.53%	2.32%	4.50%	0.06%	0.05%	0.17%	
WV	54093-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	189.7	4.60%	2.75%	4.14%	0.99%	0.37%	0.46%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	323.4	5.75%	4.88%	3.75%	0.14%	0.10%	0.14%	
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	4.97%	2.20%	2.20%	0.24%	0.18%	0.28%	
PA	42083-3005211	HOMER CITY GEN LP/ CENTER TWP	230.4	2.60%	1.56%	1.78%	0.13%	0.01%	0.06%	
MD	24201-1763811	Lake Paper Company	118.4	6.92%	2.70%	1.41%	0.23%	0.09%	0.14%	
PA	47063-3005111	NRC WHOLESALE FUEL/CFN/SEWARD CFN STA	715.5	1.80%	1.00%	1.17%	0.04%	0.07%	0.07%	
WV	54051-6902311	MITCHELL PLANT	251.8	1.46%	0.88%	1.01%	0.11%	0.08%	0.16%	
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.43%	0.55%	1.01%	0.16%	0.06%	0.06%	
<b>Facilities That Dropped Off After REVISION</b>										
WV	54062-6773611	MONONGAHELA POWER CO- FORT MARTIN POWER	184.4	2.41%	1.06%	0.97%	1.27%	0.47%	0.60%	
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	1.31%	1.28%	0.87%	0.11%	0.05%	0.06%	
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	395.6	2.09%	1.04%	0.84%	0.09%	0.09%	0.19%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	755.8	0.71%	1.46%	0.76%	0.03%	0.02%	0.03%	

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## Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
WV	54033-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	13.58%	4.94%	7.18%	1.36%	0.26%	0.31%
O-	39033-814851	General James M. Gavin Power Plant (06270-0056)	233.8	7.62%	6.56%	4.88%	0.10%	0.03%	0.05%
WV	54073-478281	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	4.64%	4.32%	4.19%	0.16%	0.07%	0.10%
O-	39081-811371	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	1.36%	2.14%	4.02%	0.03%	0.01%	0.03%
O-	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station (413090154)	416.9	1.40%	2.25%	1.49%	0.02%	0.04%	0.05%
WV	54051-690231	MITCHELL PLANT	144.2	1.45%	1.28%	1.42%	0.07%	0.02%	0.05%
PA	42005-186611	LITTON NF-MGMT CO/KEYSTONE STA	172.8	4.12%	2.43%	1.27%	0.01%	0.00%	0.00%
O-	39013-796301	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.62%	0.66%	1.18%	0.11%	0.02%	0.02%
WV	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	3.56%	1.45%	1.14%	0.11%	0.01%	0.03%
WV	54081-677361	MONONGAHELA POWER CO - FORT MARTIN POWER	75.8	6.53%	1.27%	1.13%	1.07%	0.18%	0.23%
KY	21145-603701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.12%	0.74%	1.05%	0.00%	0.01%	0.02%
Facilities That Dropped Off After REVISION									
IN	18051-786311	Elkhart	729.5	0.04%	1.24%	0.99%	0.02%	0.01%	0.01%
IN	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	676.3	0.44%	1.93%	0.97%	0.01%	0.02%	0.03%
IN	18125-786241	INDIANAPOLIS POWER & LIGHT - PETERSBURG	682.6	0.18%	1.05%	0.77%	0.02%	0.04%	0.03%
OH	39031-801081	Conesville Power Plant (0616000000)	242.3	0.71%	1.09%	0.00%	0.12%	0.08%	0.00%

## Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	Final Revised Sulfate PSAT %	Original Nitrate PSAT %	Final Revised Nitrate PSAT %	
WV	54033-627111	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	13.37%	4.49%	6.51%	1.81%	0.26%	0.31%
O-	39033-8148511	General James M. Gavin Power Plant (06270-0056)	214.2	10.46%	7.08%	5.25%	0.18%	0.04%	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	8.19%	4.39%	4.24%	0.30%	0.08%	0.12%
O-	39081-8113711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	1.94%	2.03%	3.81%	0.05%	0.02%	0.04%
O-	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (413090154)	397.6	1.12%	2.40%	1.58%	0.02%	0.06%	0.06%
WV	54051-6902311	MITCHELL PLANT	136.8	1.56%	1.40%	1.50%	0.06%	0.03%	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	4.36%	1.67%	1.31%	0.12%	0.02%	0.04%
O-	39013-7963011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.85%	0.71%	1.27%	0.20%	0.02%	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	825.5	0.18%	0.77%	1.09%	0.00%	0.01%	0.02%
IN	18051-7863111	Elkhart	709.7	0.24%	1.27%	1.01%	0.01%	0.05%	0.05%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	4.98%	1.14%	1.00%	0.92%	0.20%	0.24%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	656.7	0.64%	2.01%	1.00%	0.01%	0.03%	0.04%
PA	42005-1866111	LITTON NF-MGMT CO/KEYSTONE STA	186.5	1.73%	1.91%	1.00%	0.03%	0.00%	0.00%
Facilities That Dropped Off After REVISION									
IN	18125-7862411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.01%	0.03%
OH	39031-8010811	Conesville Power Plant (0616000000)	232.8	1.12%	1.07%	0.00%	0.17%	0.08%	0.00%

## Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
PA	42005-1866111	BEYOND NE V-GWYD CO/KEYSTONE STA	219.9	0.740	15.375	4.81%	0.009	15.375	0.06%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	0.692	15.375	4.50%	0.018	15.375	0.12%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	189.7	0.636	15.375	4.14%	0.070	15.375	0.46%
OH	39055-8148511	General James M. Gavin Power Plant (0627010056)	873.4	0.576	15.375	8.75%	0.027	15.375	0.14%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	0.339	15.375	2.20%	0.043	15.375	0.28%
PA	42063-3005211	HOMER CITY GEN LP/CENTER TWP	230.4	0.274	15.375	1.78%	0.010	15.375	0.06%
MD	24001-7763811	Luke Paper Company	118.4	0.216	15.375	1.41%	0.021	15.375	0.14%
PA	42063-3005111	NRC WHOLESALE GFN/SFWARD GFN STA	215.5	0.172	15.375	1.17%	0.003	15.375	0.02%
WV	54051-6902311	MITCHELL PLANT	251.8	0.155	15.375	1.01%	0.025	15.375	0.16%
OH	39053-7963011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.155	15.375	1.01%	0.009	15.375	0.06%
Facilities That Dropped Off After REVISION									
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	0.149	15.375	0.97%	0.093	15.375	0.02%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (413090154)	505.4	0.134	15.375	0.87%	0.009	15.375	0.06%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	295.6	0.130	15.375	0.84%	0.030	15.375	0.09%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	755.8	0.116	15.375	0.76%	0.004	15.375	0.03%

## Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	1.24%	19.07%	6.51%	0.95%	19.07%	0.31%
O-	39033-8148511	General James M. Gavin Power Plant (06270-0056)	214.2	1.00%	19.07%	5.25%	0.01%	19.07%	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	0.80%	19.07%	4.24%	0.02%	19.07%	0.12%
O-	39081-8113711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	0.77%	19.07%	3.81%	0.00%	19.07%	0.04%
O-	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (413090154)	397.6	0.30%	19.07%	1.58%	0.01%	19.07%	0.06%
WV	54051-6902311	MITCHELL PLANT	136.8	0.29%	19.07%	1.50%	0.01%	19.07%	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	0.24%	19.07%	1.31%	0.00%	19.07%	0.04%
O-	39013-7963011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.24%	19.07%	1.27%	0.00%	19.07%	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	825.5	0.20%	19.07%	1.09%	0.00%	19.07%	0.02%
IN	18051-7863111	Elkhart	709.7	0.19%	19.07%	1.01%	0.00%	19.07%	0.05%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	0.19%	19.07%	1.00%	0.04%	19.07%	0.24%
IN	18147-8017211	INDIANA MICHIGAN POWER CO DBA AEP ROCKPORT	656.7	0.19%	19.07%	1.00%	0.00%	19.07%	0.04%
PA	42005-1866111	LITTON NF-MGMT CO/KEYSTONE STA	186.5	0.19%	19.07%	1.00%	0.00%	19.07%	0.00%
Facilities That Dropped Off After REVISION									
IN	18125-7862411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	663.0	0.15%	19.07%	0.79%	0.00%	19.07%	0.03%
OH	39031-8010811	Conesville Power Plant (0616000000)	232.8	0.00%	19.07%	0.00%	0.00%	19.07%	0.00%

## Dolly Sods Wilderness Area (WV)

					DISTANCE_m	Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %
State	Facility ID	Facility Name							
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	83.6	1.350	19.345	7.18%	0.953	19.345	0.31%
O-	39033-8148511	General James M. Gavin Power Plant (06270-0056)	233.8	0.945	19.345	4.88%	0.009	19.345	0.05%
WV	54073-4782811	MONONGAHELA POWER CO-PEASANTS POWER	163.9	0.810	19.345	4.19%	0.020	19.345	0.10%
O-	39081-8113711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	0.778	19.345	4.02%	0.007	19.345	0.03%
O-	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (413090154)	416.9	0.788	19.345	1.49%	0.010	19.345	0.05%
WV	54051-6902311	MITCHELL PLANT	144.2	0.278	19.345	1.42%	0.009	19.345	0.05%
PA	42005-1866111	LITTON NF MGMT CO/KEYSTONE STA	172.8	0.246	19.345	1.27%	0.001	19.345	0.00%
O-	39013-7963011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.229	19.345	1.18%	0.003	19.345	0.02%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	0.221	19.345	1.14%	0.009	19.345	0.03%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	75.8	0.218	19.345	1.13%	0.044	19.345	0.23%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.204	19.345	1.05%	0.003	19.345	0.02%
Facilities That Dropped Off After REVISION									
IN	18051-7863111	Elkhart	729.5	0.192	19.345	0.99%	0.008	19.345	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	676.3	0.183	19.345	0.97%	0.006	19.345	0.03%
IN	18125-7862411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	682.6	0.149	19.345	0.77%	0.006	19.345	0.03%
OH	39031-8010811	Conesville Power Plant (0616000000)	242.3	0.000	19.345	0.00%	0.000	19.345	0.00%

## Non-VISTAS Class I Areas

- Only two VISTAS facilities have a contribution  $\geq 1.00\%$  at any non-VISTAS Class I Area
- **ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON (WV)**
  - Moosehorn Wilderness EDM (1.06% sulfate)
- **Tennessee Valley Authority (TVA) - Shawnee Fossil Plant (KY)**
  - Caney Creek Wilderness Area (1.09% sulfate)
  - Hercules-Glades Wilderness Area (1.95% sulfate)
  - Mingo Wilderness Area (1.47% sulfate)
  - Great Gulf Wilderness Area (1.03% sulfate)
  - Presidential Range-Dry River Wilderness (1.03% sulfate)

## Non-VISTAS Facilities ≥ 1.00%

State	FACILITY ID STD	FACILITY NAME STD	IMPACTED CLASS / AREAS
AL	05053-1081411	ST-1-HOT-A-MAGNUS INC-INDUSTRIAL PLANT	SHR
IN	18053-1761111	Edison	COHU, GRSV, JOYC, LIGO, MACA, OTCR, SHRO, SIPS
IN	18147-8017211	INDIANA MICRIGAN POWER JBA AEP (COOPCO)	COHU, GRSV, JOYC, LIGO, MACA, OTCR, SHRO, SIPS
IN	18125-7362111	INDIANAPOLIS POWER & LIGHT PETERSBURG	MACA, SIPS
MD	24003-7761311	Lake Paper Company	SHEN, SWAN
MD	24013-5355311	NEW MARIANO POWER PLANT MARIANO V	USO, MACA, SHRO, SIPS
OH	39083-8111711	Cardinal Power Plant Cardinal Operating Company (0641050002)	DOSO, JAR, OTCR, SHEN, SWAN
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	COHU, DOJO, JOYC, OTCR, SHRO
OH	39053-8148511	General James M. Gavin Power Plant (0577010096)	COHU, DOJO, GRSV, JAR, JOYC, LIGO, OKEF, OTCR, ROMVA, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39013-7987011	Ohio Valley Electric Corp., Kopper Creek Station (0577000003)	DOJO, JAR, OTCR, SHEN
PA	42005-3865111	EDISON NE MGMT CO/KEYSTONE STA	COHU, DOJO, GRSV, JAR, JOYC, LIGO, OKEF, OTCR, ROMVA, SHEN, SHRO, SIPS, SWAN, WOLF
PA	47053-1097311	COMFIR CITY GEN BY C/MTB TWP	SHEN, SWAN
PA	47053-1097311	TRIG W-HOLIFIELD GEN/STWARD CO'S STA	SHEN

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## Additional Considerations

- The final list of four-factor analysis sources will be determined in consultation with the FLMS, EPA, other states, and stakeholders.
- Some VISTAS states may perform additional four-factor analyses for sources not listed on Slide 134.
- States will verify projected SO<sub>2</sub> and NO<sub>x</sub> emissions with facilities. PSAT results can be adjusted to match.
- Some states may allow their facilities to take a permit limit that will result in adjusted PSAT impacts below the 1.00% threshold in lieu of performing a four-factor analysis.
- The large number of coal-fired EGU retirements and fuel switching from coal to natural gas need to be considered along with the sources selected for the four-factor analysis. States should not be penalized for early action.

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## VISTAS Facilities ≥ 1.00%

State	FACILITY ID STD	FACILITY NAME STD	IMPACTED CLASS / AREAS
AL	01109-967111	Sanders Lign. Co	CHAS, SAMA
FL	12123-761211	FLUORIDE FLORIDA, LIMITED PARTNERSHIP	OKEF
FL	12077-640511	PLANT ENERGY FLORIDA, INC. (OKEF)	CHAS
FL	12109-440111	REA	WOLF
FL	12109-717111	MOGAS FERTILIZER LLC	EVER
FL	12109-910811	MOGAS FERTILIZER, LLC	EVER
FL	12089-757111	ROCK TEND CO, LLC	OKEF, WOLF
FL	12065-555411	ROCKTOWN CO, LLC	SAMA
FL	12067-538511	AMPAC ELECTRIC COMPANY (TECO)	CHAS, EVER
FL	12066-889811	AMPAC AMERICA, LLC	EVER
FL	12067-601211	ROMA SPRINGS AGRICULTURAL CHEMICALS, INC.	OKEF
GA	13127-3771011	Bruceville Cellulose Inc.	WOLF
GA	13015-2513021	Ka Power Company - Flint Bowen	CHAS, COHU, JOYC, LIGO, OKEF, ROMVA, SAMA, SHRO, SWAN, WOLF
GA	13071-3298011	International Paper - Savannah	OKEF, ROMVA, WOLF
KY	21189-5555511	Rite Electric Corp. - Wilson Station	MACA, SIPS
KY	21145-6087011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, COHU, DOJO, OKEF, ROMVA, SHRO, SIPS, SWAN, WOLF
NC	31087-7520511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	37117-8048911	Durham Paper Company, LLC	SWAN
NC	31013-8087521	PCS Phosphate Company, Inc. - Axtion	SWAN
SC	45015-4814911	ALUMAX OF SOUTH CAROLINA	ROMVA, WOLF
SC	45015-4814911	INTERNATIONAL PAPER GEORGETOWN MILL	ROMVA
SC	45015-4814911	PORTLAND CEMENT PLANT WAFLE	ROMVA
SC	45015-4814911	SANTEE COOPER CROSS GENERATING STATION	OKEF, ROMVA, WOLF
SC	45015-4814911	SANTEE COOPER WINNAP GENERATING STATION	ROMVA
IN	47283-3553211	INDIANA CHEMICAL COMPANY	COHU, COHU, JOYC, LIGO, SHRO
TN	47051-8979311	YAN CLIMBERLAND FOSIL PLANT	USO, SHRO, SIPS
VA	54027-6034511	Jewell Coke Company LLP	USO
VA	54027-6034511	Mission Valley Packaging Resources Group	JAR
WV	54027-6034511	ALLEGHENY ENERGY SUPPLY CO, LLC-MERRIDEN	DOJO, JAR, OKEF, OTCR, SHEN, SWAN
WV	54027-6034511	APPALACHIAN POWER COMPANY - JOHN F. AMOS PLANT	DOJO, JAR, OTCR
WV	54027-6034511	MITCHILL PLANT	DOJO, JAR, OTCR, SHEN
WV	54027-6034511	MONROVIA POWER CO - FORT MARTIN POWER	DOJO, OTCR
WV	54027-6034511	MONROVIA POWER CO - FORT MARTIN POWER STA	DOJO, JAR, OTCR, SHEN, SWAN

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## Next Steps and Schedule

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## EPA Guidance (August 20, 2019)

- Many facilities already have effective emission control technologies in place. States will consider control options for these facilities on a case-by-case basis.
  - "For the purpose of SO<sub>2</sub> control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO<sub>2</sub> emission limit of the 2012 Mercury Air Toxics Standards (MATS) rule for power plants. The two limits in the rule (0.2 lb/MMBtu for coal-fired EGUs or 0.3 lb/MMBtu for EGUs fired with oil-derived solid fuel) are low enough that it is unlikely that an analysis of control measures for a source already equipped with a scrubber and meeting one of these limits would conclude that even more stringent control of SO<sub>2</sub> is necessary to make reasonable progress."
  - "For the purposes of SO<sub>2</sub> and NO<sub>x</sub> control measures, a combustion source (e.g., an EGU or industrial boiler or process heater) that, during the first implementation period, installed a FGD system that operates year-round with an effectiveness of at least 90 percent or by the installation of a selective catalytic reduction system that operates year-round with an overall effectiveness of at least 90 percent (in both cases calculating the effectiveness as the total for the system, including any bypassed flue gas), on a pollutant-specific basis."

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## Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed *
2028 Emissions Processing	Completed *
2028 CAMx Modeling	Completed *
2028 Visibility Projections	Completed *
2028 Deposition Projections	Late-May/Early-June, 2020 *
Final Reports and Documentation	Late July, 2020
Website Updates and Postings	Late July, 2020
End of Contract	September 30, 2020
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

\* References technical work completion. Draft reports to follow.

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### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
- For project and contract management questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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## **Appendix F-3k - VISTAS Regional Haze Project Update Stakeholder Briefing May 20, 2020**

# VISTAS Regional Haze Project Update



Stakeholder Briefing  
Jim Boylan  
May 20, 2020

## VISTAS Organization

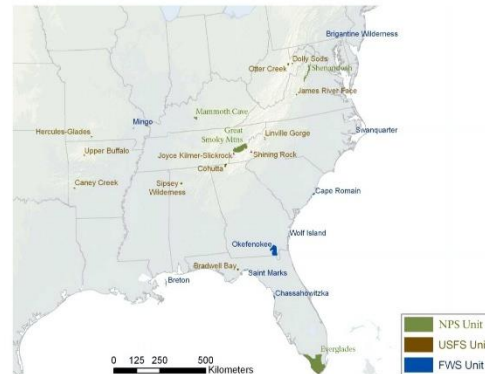
- State and Tribal Air Directors (STAD)
  - Policy Decisions
  - Michelle Walker Owenby (TN), Chair
- Coordinating Committee (CC)
  - Planning Recommendations
  - Jim Boylan (GA), Chair
- Technical Analysis Work Group (TAWG)
  - Technical Recommendations
  - Randy Strait (NC), Chair
- Project Manager
  - John Hornback (SESARM)

## Outline

- Background Information
- 2028 Emissions Updates
- 2028 Model Projections
- Adjusted 2028 PSAT Stacked Bar Charts
- Reasonable Progress Screening Analysis
- Next Steps & Schedule



## Class I Areas of Interest to VISTAS States



## Regional Haze Background Information

- Initial round of regional haze SIPs were due December 17, 2007
- Regional haze SIPs for second planning period due July 31, 2021
- EPA revised regional haze regulations
  - 40 CFR Part 51 and 40 CFR Part 52
  - Revisions effective January 10, 2017
- Current EPA regional haze guidance
  - December 20, 2018 – Tracking Visibility Progress
  - August 20, 2019 – Regional Haze SIPs for the Second Planning Period

## VISTAS Class I Areas

VISTAS FEDERAL CLASS I AREAS	
AL – Sipsey Wilderness Area (SIPS)	USDA Forest Service
FL – Chassahowitzka Wilderness Area (CHAS)	USDI Fish and Wildlife Service
FL – Everglades National Park (EVER)	USDI National Park Service
FL – Saint Marks Wilderness Area (SAMA)	USDI Fish and Wildlife Service
GA – Cohutta Wilderness Area (COHU)	USDA Forest Service
GA – Okefenokee Wilderness Area (OKEF)	USDI Fish and Wildlife Service
GA – Wolf Island Wilderness Area (WOLI)*	USDI Fish and Wildlife Service
KY – Mammoth Cave National Park (MACA)	USDI National Park Service
NC – Linville Gorge Wilderness Area (LIGO)	USDA Forest Service
NC – Shining Rock Wilderness Area (SHRO)	USDA Forest Service
NC – Swamquarter Wilderness Area (SWQA)	USDI Fish and Wildlife Service
SC – Cape Romain Wilderness Area (ROMA)	USDI Fish and Wildlife Service
TN/NC – Great Smoky Mountains National Park (GRSM)	USDI National Park Service
TN/NC – Joyce Kilmer-Slickrock Wilderness Area (JOYC)*	USDA Forest Service
VA – James River Face Wilderness Area (JARI)	USDA Forest Service
VA – Shenandoah National Park (SHEN)	USDI National Park Service
WV – Dolly Sods Wilderness Area (DOSO)	USDA Forest Service
WV – Otter Creek Wilderness Area (OTCR)*	USDA Forest Service

\*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

### VISTAS Air Quality Model

- Started with EPA's 2011/2028 modeling platform
  - Version 6.3el
  - CAMx v6.32
- Replaced CAMx v6.32 with CAMx v6.40
- Used 2011 meteorology
- Reasons for using EPA platform
  - Time limited
  - Budget limited
  - Most source sectors acceptably represented in EPA platform

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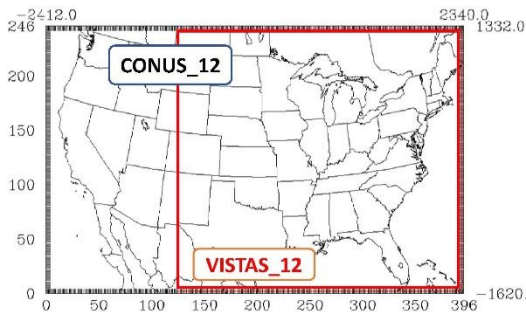
### Initial VISTAS vs. Updated EPA 2028 Emissions

- The table below compares the 2028 point emissions used by VISTAS vs. the latest 2028fh emissions used by EPA (projected from 2016). The emissions below are extracted from the VISTAS 12 modeling domain which covers the Eastern U.S.

Pollutant	VISTAS 2028 (tpy)	New EPA 2028 (tpy)	Change (tpy)	Change (%)
NOx	2,641,463.83	2,108,115.50	-533,348.33	-20.19%
SO2	2,574,542.02	1,400,287.10	-1,174,254.92	-45.61%

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### VISTAS Modeling Domains



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### Old ERTAC (2.7opt) vs. New ERTAC (16.0)

SO2	2.7opt 2028	16.0 2028	Δ SO2	Δ SO2
CENSARA	760,828.2	367,683.7	-393,144.5	-51.67%
LADCO	379,577.5	266,047.0	-113,530.5	-29.91%
MANE-VU	196,672.6	78,657.0	-118,015.6	-60.01%
VISTAS	273,582.1	161,502.5	-112,079.6	-40.97%
<b>TOTAL</b>	<b>1,783,376.5</b>	<b>976,471.2</b>	<b>-806,905.3</b>	<b>-45.25%</b>

NOx	2.7opt 2028	16.0 2028	Δ NOx	Δ NOx
CENSARA	354,795.1	244,499.3	-110,295.8	-31.09%
LADCO	198,966.9	166,429.4	-32,537.4	-16.35%
MANE-VU	83,432.5	56,315.3	-27,117.2	-32.50%
VISTAS	270,615.7	200,791.1	-69,824.6	-25.80%
<b>TOTAL</b>	<b>1,166,663.1</b>	<b>840,973.6</b>	<b>-325,689.5</b>	<b>-27.92%</b>

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### Initial VISTAS Emissions Updates

- Used EPA's 2011 base year emissions without change
- Updated EPA's Initial 2028 projection year emissions
  - EGU and major non-EGU sources
  - Removed Clean Power Plan assumptions
  - VISTAS – Adjusted for changes in fuels and facility operating plans
  - Non-VISTAS – Used ERTAC 2.7opt



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### VISTAS CC/TAWG Conclusions (January 2020)

- 2028 emission updates are necessary
  - **VISTAS States** – States will:
    - Update 2028 major source emissions projections (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, NH<sub>3</sub>, CO) at the facility and unit level
    - Add any new sources of significance
  - **LADCO States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.1 based on LADCO input
  - **All Other States** – SESARM will:
    - Replace ERTAC\_2.7 with ERTAC\_16.0
    - Verify accuracy of large SO<sub>2</sub> and NO<sub>x</sub> source emissions projections via contact with surrounding states/RPOs and update emissions as needed
- Additional 2028 air quality modeling is needed

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## Additional Modeling-Related Tasks

- Emissions processing
- Updated 2028 CAMx modeling (VISTAS\_12)
- Updated 2028 visibility projections
- Documentation

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## 2028 EGU & NEGU NO<sub>x</sub> Comparison

State	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	80,389.97	70,824.72	-11.9%	26,895.35	20,008.14	-25.6%	53,494.61	50,816.58	-5.0%
FL	68,006.19	70,010.40	2.9%	26,250.73	25,049.90	-4.6%	41,755.45	44,960.50	7.7%
GA	67,197.50	65,885.55	-2.0%	25,899.67	24,587.73	-5.1%	41,297.83	41,297.83	0.0%
KY	66,240.03	62,180.83	-6.2%	36,781.72	32,695.94	-11.1%	29,458.31	29,434.89	-0.1%
MS	52,159.32	46,853.62	-10.2%	18,279.53	12,208.89	-33.2%	33,879.79	34,644.73	2.3%
NC	65,883.97	58,933.80	-10.5%	27,842.23	20,977.65	-24.7%	38,021.74	37,956.15	-0.2%
SC	36,051.31	36,170.87	0.3%	10,522.78	10,707.42	1.8%	25,528.53	25,463.44	-0.3%
TN	45,879.07	42,954.25	-6.4%	10,086.01	7,814.13	-22.5%	35,793.06	35,140.12	-1.8%
VA	43,210.19	41,671.99	-3.6%	11,973.97	10,435.77	-12.8%	31,236.22	31,236.22	0.0%
WV	65,054.07	68,200.77	4.8%	46,721.77	49,874.15	6.7%	18,332.30	18,326.62	-0.0%
<b>VISTAS</b>	<b>590,051.60</b>	<b>563,636.80</b>	<b>-4.5%</b>	<b>241,253.76</b>	<b>214,359.73</b>	<b>-11.1%</b>	<b>348,797.84</b>	<b>349,277.07</b>	<b>0.1%</b>

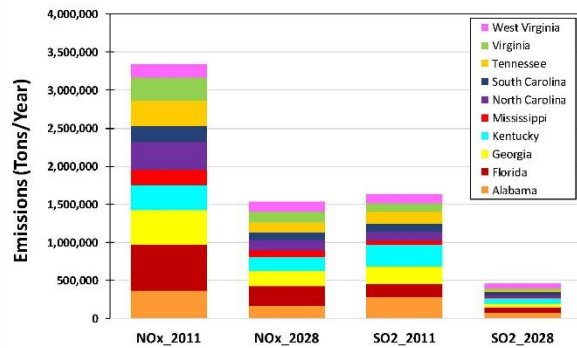
RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
VISTAS	590,051.60	563,636.80	-4.5%	241,253.76	214,359.73	-11.1%	348,797.84	349,277.07	0.1%
CENSARA	903,979.85	791,397.69	-12.5%	382,706.66	270,182.46	-29.4%	521,273.19	521,215.14	-0.0%
LADCO	548,866.74	491,345.00	-10.5%	244,035.26	186,513.52	-23.6%	304,831.49	304,831.49	0.0%
MANE VUJ	244,280.15	222,991.41	-8.7%	103,465.15	82,176.41	-20.6%	140,815.00	140,815.00	0.0%
WRAP	362,819.80	301,433.41	-16.9%	187,944.97	126,558.55	-32.7%	174,874.83	174,874.86	0.0%
<b>TOTAL</b>	<b>2,649,998.14</b>	<b>2,370,804.22</b>	<b>-10.5%</b>	<b>1,159,405.80</b>	<b>879,790.66</b>	<b>-24.1%</b>	<b>1,490,592.35</b>	<b>1,491,013.55</b>	<b>0.0%</b>

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## Recent 2028 Emissions Updates

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## VISTAS States Emissions: 2011 vs. 2028



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## 2028 EGU & NEGU SO<sub>2</sub> Comparison

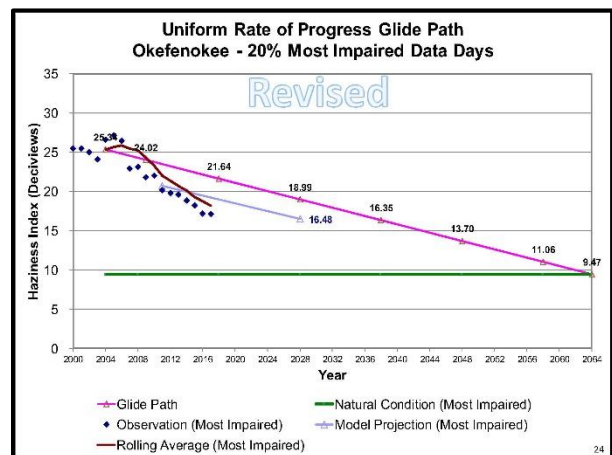
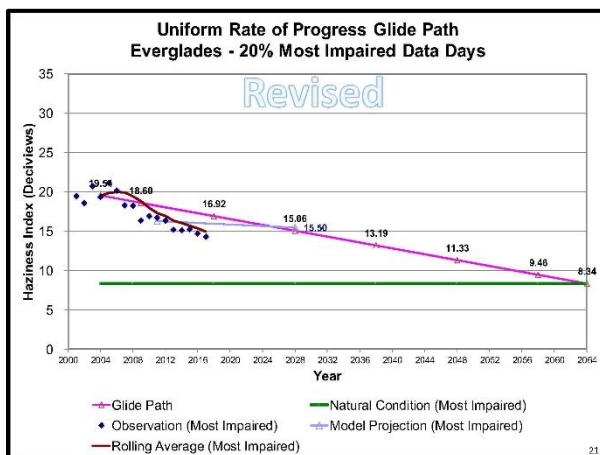
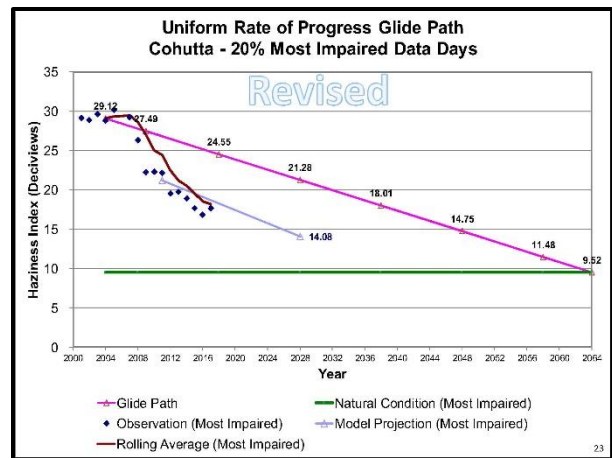
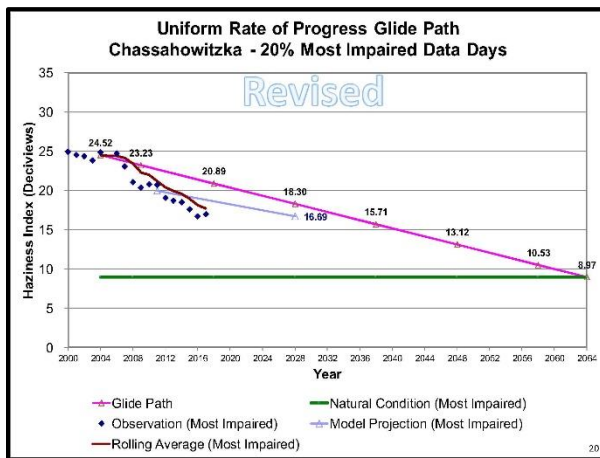
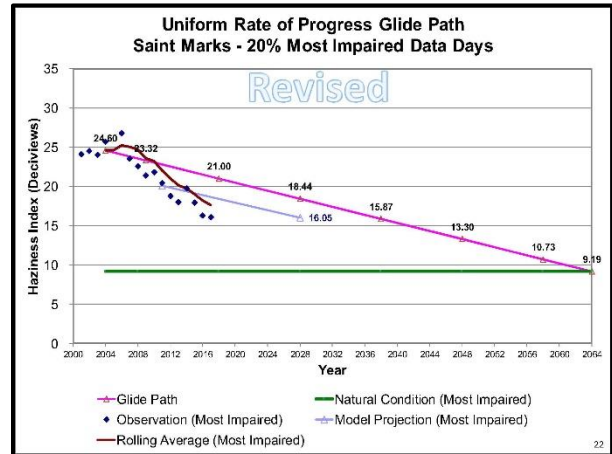
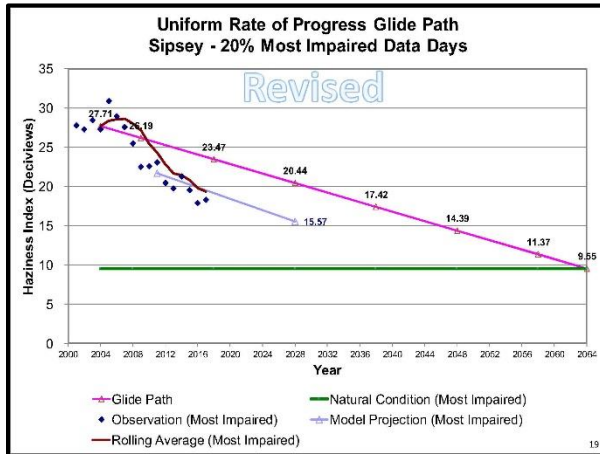
State	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	87,111.28	59,056.98	-32.2%	15,480.96	8,365.96	-46.0%	71,630.32	50,691.02	-29.2%
FL	63,501.23	52,982.68	-16.6%	28,547.41	24,004.67	-15.9%	34,953.82	28,978.01	-17.1%
GA	37,065.83	36,166.09	-2.4%	18,473.28	17,573.54	-4.9%	18,592.55	18,592.55	0.0%
KY	75,140.26	65,636.83	-12.6%	56,262.06	49,585.95	-11.9%	18,878.20	16,050.88	-15.0%
MS	21,234.31	8,405.06	-60.4%	6,984.57	3,236.28	-53.7%	14,249.74	5,168.78	-63.7%
NC	35,232.88	24,347.18	-30.9%	19,734.80	9,571.47	-51.5%	15,498.08	14,775.71	-4.7%
SC	29,600.85	29,601.25	0.0%	10,693.79	10,695.34	0.0%	18,907.05	18,905.91	-0.0%
TN	23,447.58	21,057.17	-10.2%	12,114.30	10,030.04	-17.2%	11,333.28	11,027.13	-2.7%
VA	19,839.18	18,551.32	-6.5%	3,264.09	1,976.23	-39.5%	16,575.09	16,575.09	0.0%
WV	63,404.07	53,715.79	-15.3%	57,826.67	47,744.49	-17.4%	5,575.41	5,971.30	7.1%
<b>VISTAS</b>	<b>455,577.46</b>	<b>369,520.35</b>	<b>-18.9%</b>	<b>229,383.91</b>	<b>182,783.96</b>	<b>-20.3%</b>	<b>226,193.55</b>	<b>186,736.39</b>	<b>-17.4%</b>

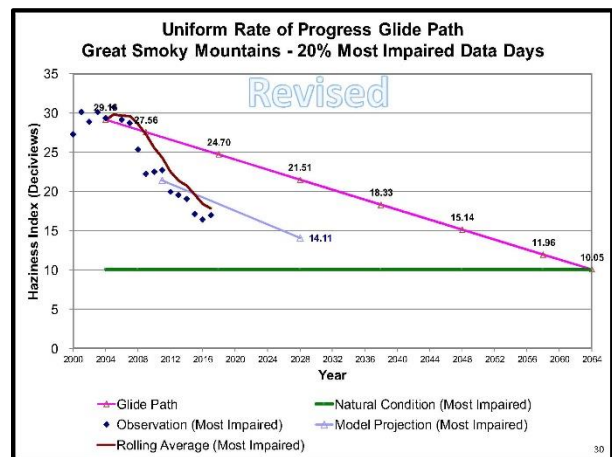
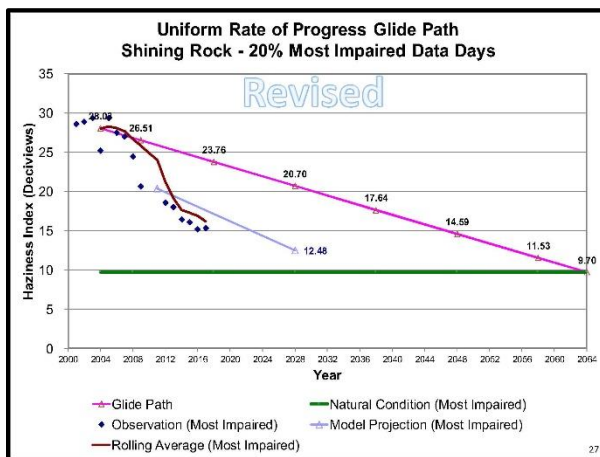
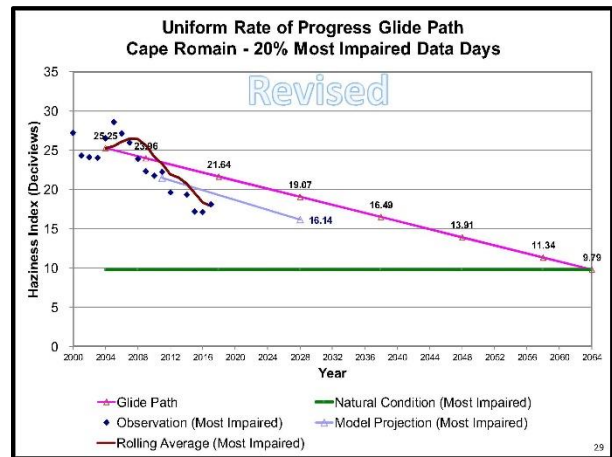
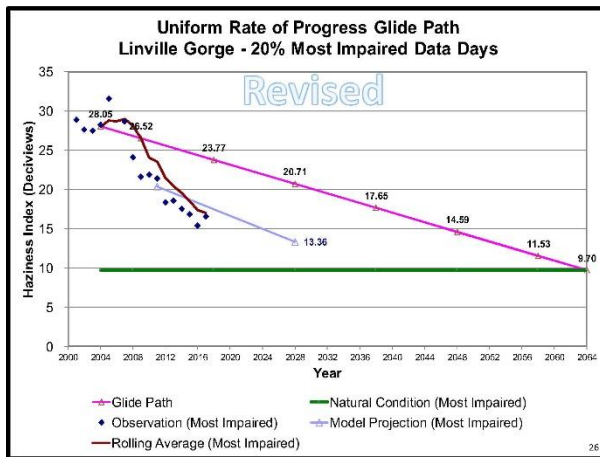
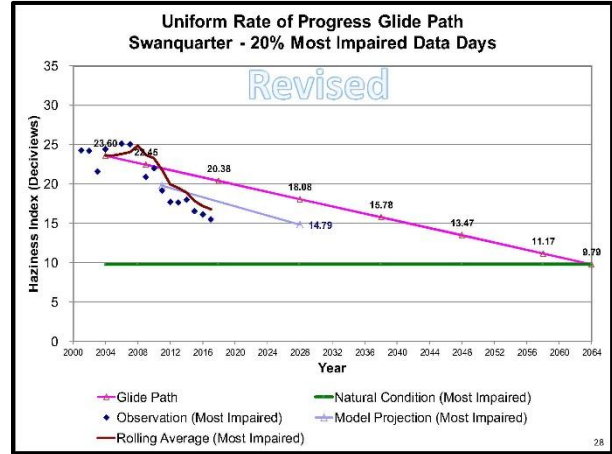
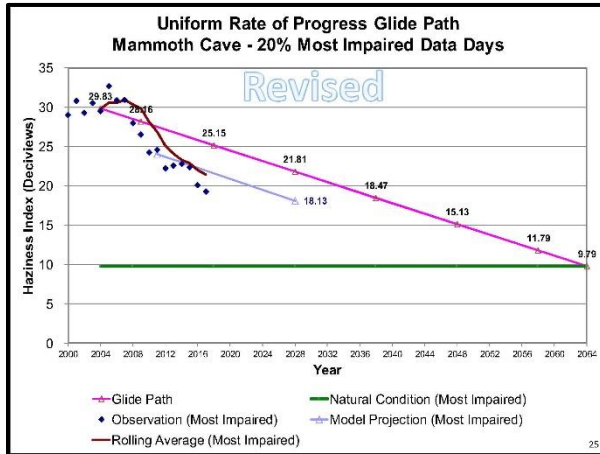
RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
VISTAS	455,577.46	369,520.35	-18.9%	229,383.91	182,783.96	-20.3%	226,193.55	186,736.39	-17.4%
CENSARA	1,012,946.59	621,321.29	-38.7%	773,625.13	382,000.54	-50.6%	239,321.46	239,320.75	-0.0%
LADCO	860,186.42	498,171.62	-24.5%	444,506.99	282,492.18	-36.4%	215,679.44	215,679.44	0.0%
MANE VUJ	270,810.83	149,439.76	-44.8%	203,661.43	95,074.20	-53.3%	67,149.39	54,365.55	-19.0%
WRAP	182,121.89	135,483.18	-25.6%	136,955.17	90,316.46	-34.1%	45,166.72	45,166.73	0.0%
<b>TOTAL</b>	<b>2,581,643.20</b>	<b>1,773,936.20</b>	<b>-31.3%</b>	<b>1,788,132.63</b>	<b>1,032,667.35</b>	<b>-42.2%</b>	<b>793,510.56</b>	<b>741,268.85</b>	<b>-6.6%</b>

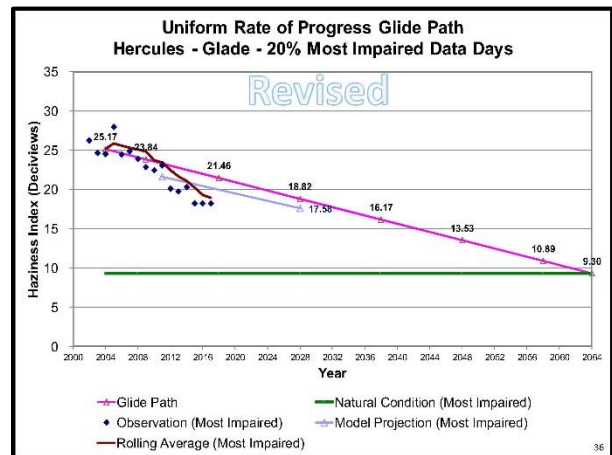
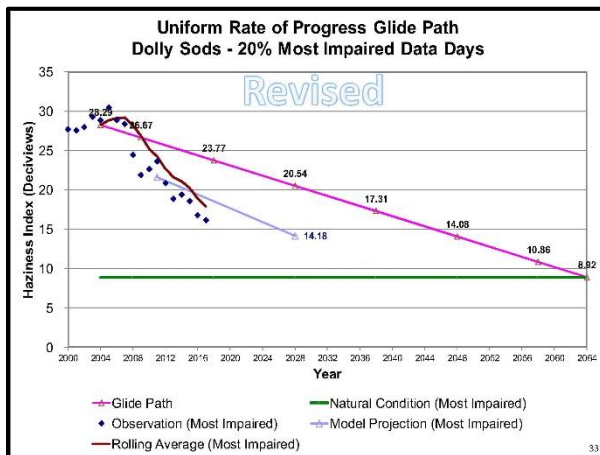
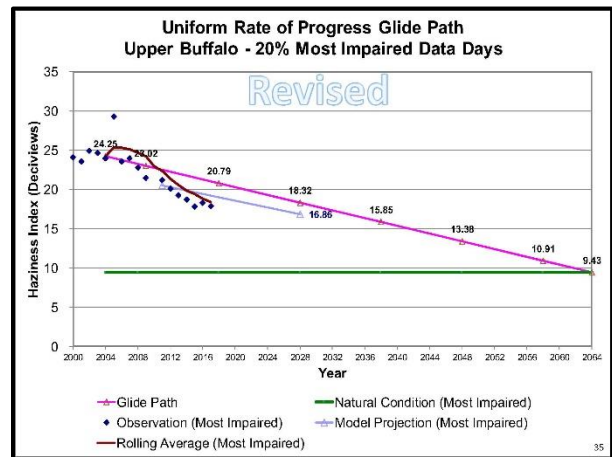
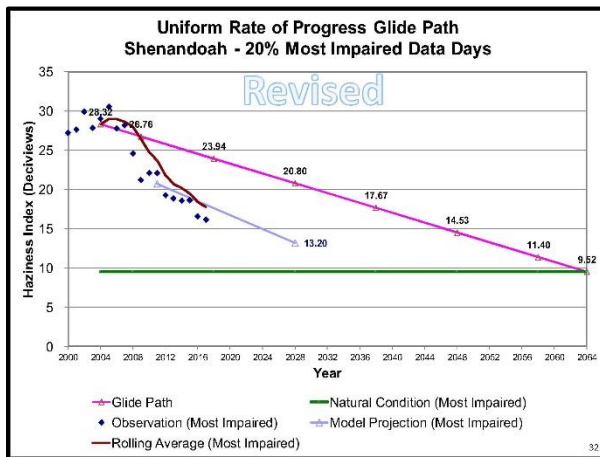
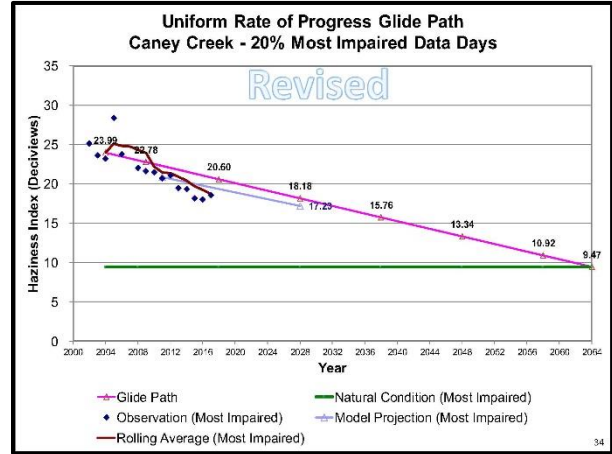
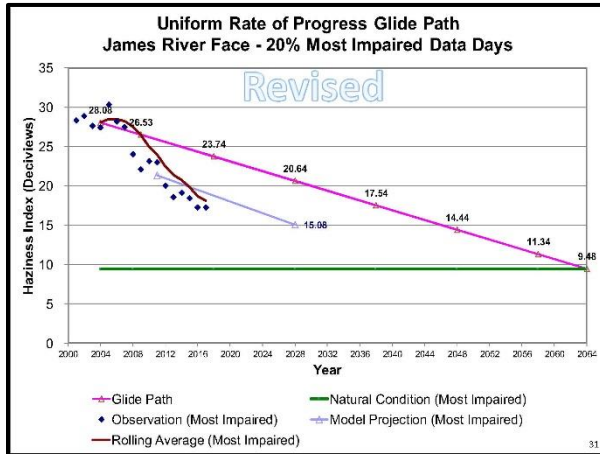
15

## 2028 Model Projections

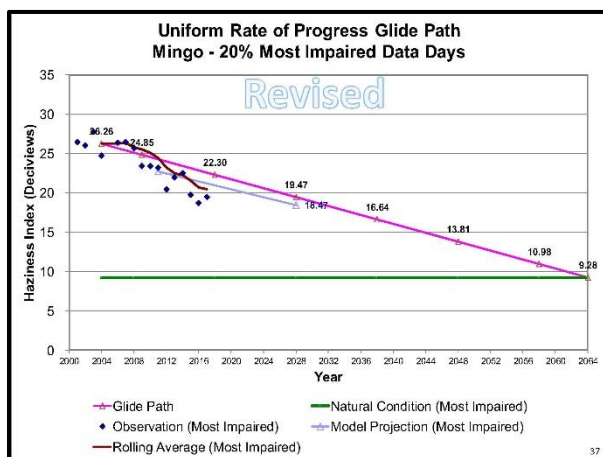
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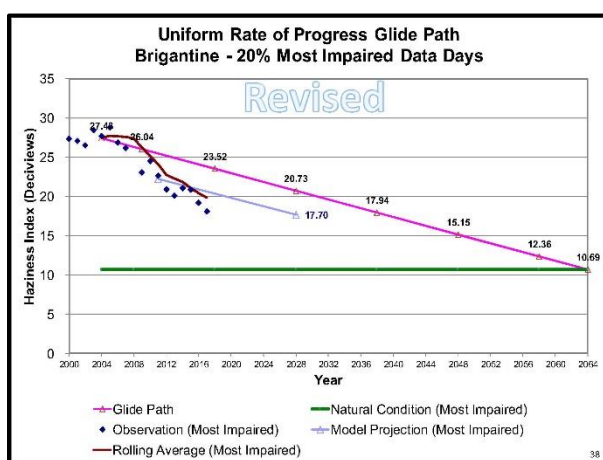




### PSAT Source Apportionment Modeling

- PSAT = Particulate Matter Source Apportionment Technology
- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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### PSAT SO<sub>2</sub> and NOx Tags (209)

#### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

#### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NOx for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

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## Adjusted 2028 PSAT Stacked Bar Charts

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### Revised State/RPO PSAT Results

#### • Revised EGU Sulfate PSAT Results

$$= \text{Original EGU Sulfate PSAT Results} * \text{SO}_2 \text{ EGU Ratio}$$

$$\text{where, SO}_2 \text{ EGU Ratio} = \frac{(\text{Revised EGU SO}_2 \text{ emissions})}{(\text{Original EGU SO}_2 \text{ emissions})}$$

#### • Revised NEGU Sulfate PSAT Results

$$= \text{Original NEGU Sulfate PSAT Results} * \text{SO}_2 \text{ NEGU Ratio}$$

$$\text{where, SO}_2 \text{ NEGU Ratio} = \frac{(\text{Revised NEGU SO}_2 \text{ emissions})}{(\text{Original NEGU SO}_2 \text{ emissions})}$$

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## Revised State/RPO PSAT Results

### • Revised EGU Nitrate PSAT Results

= Original EGU Nitrate PSAT Results \* NOx EGU Ratio

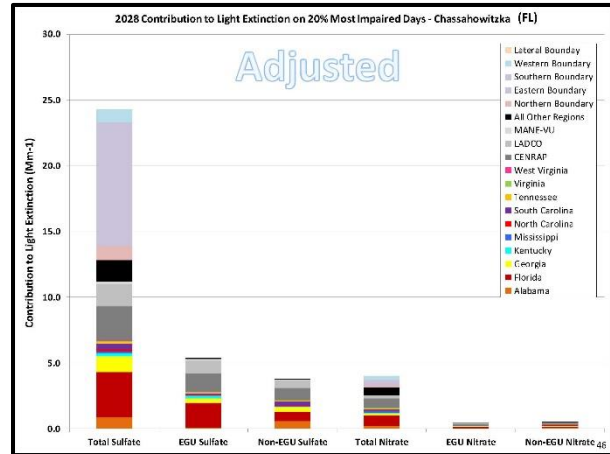
$$\text{where, NOx EGU Ratio} = \frac{(\text{Revised EGU NOx emissions})}{(\text{Original EGU NOx emissions})}$$

### • Revised NEGU Nitrate PSAT Results

= Original NEGU Nitrate PSAT Results \* NOx NEGU Ratio

$$\text{where, NOx NEGU Ratio} = \frac{(\text{Revised NEGU NOx emissions})}{(\text{Original NEGU NOx emissions})}$$

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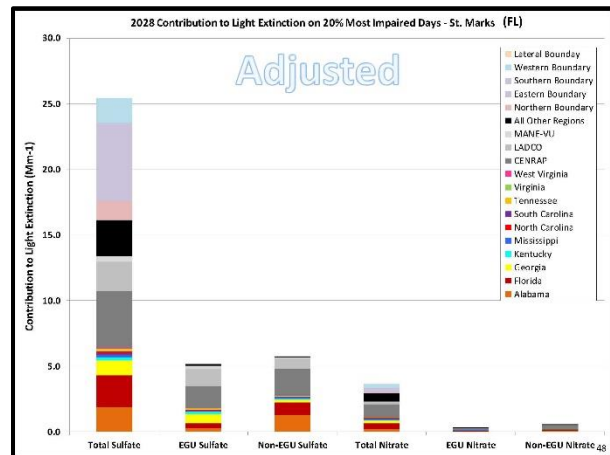
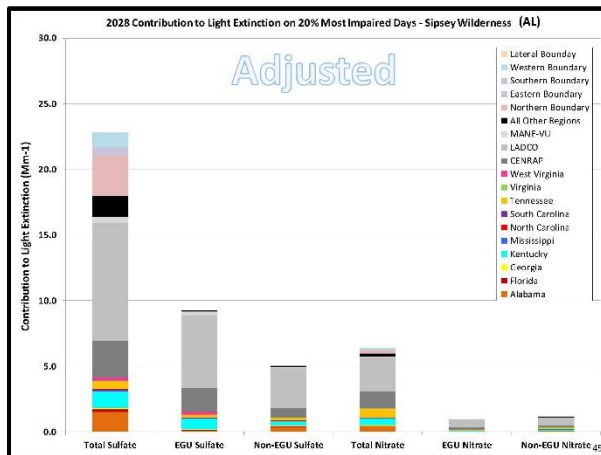
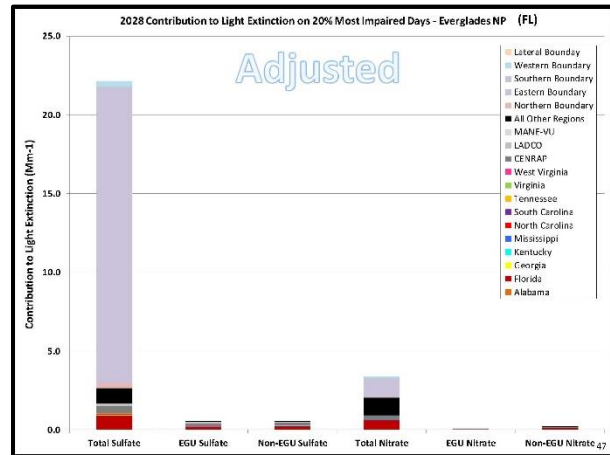
## PSAT Adjustment Ratios

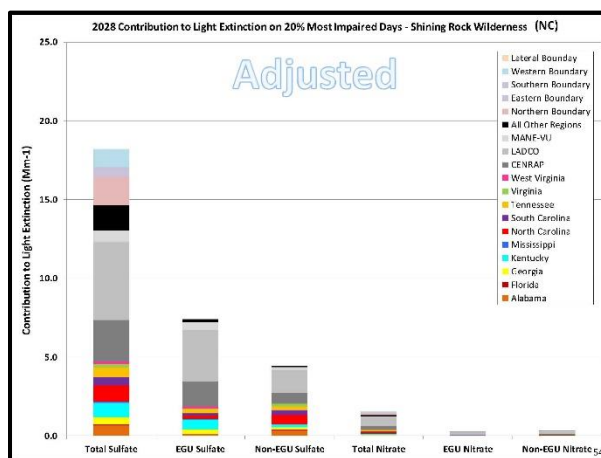
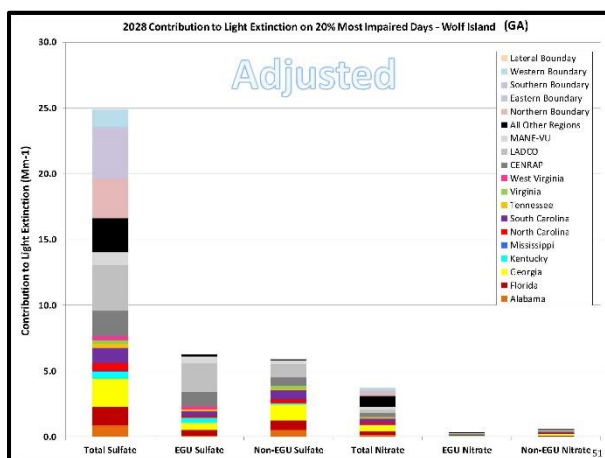
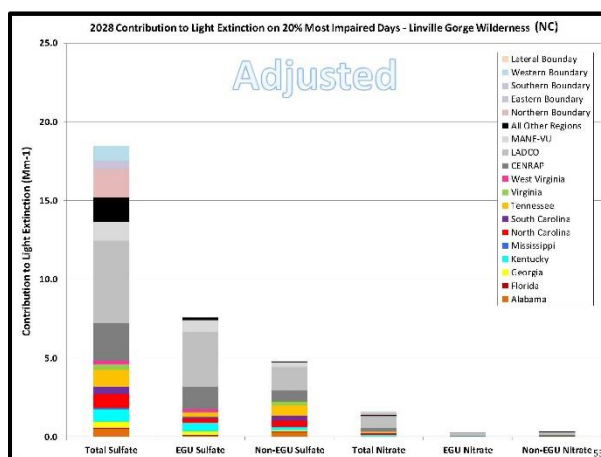
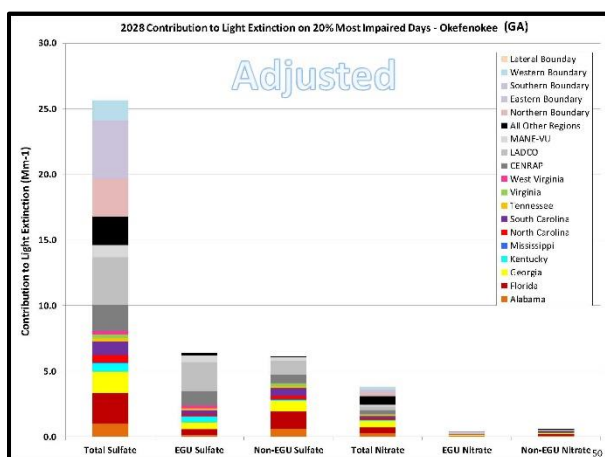
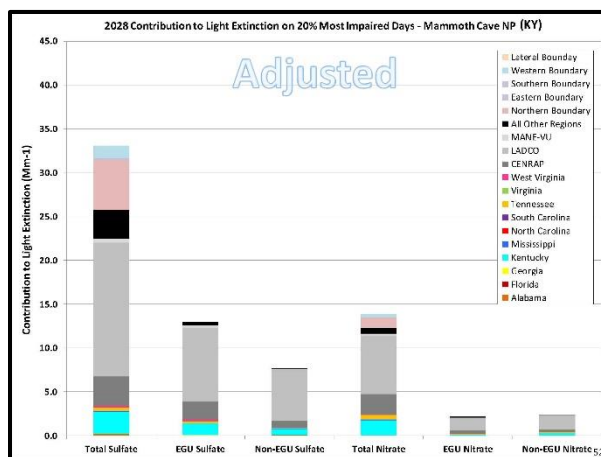
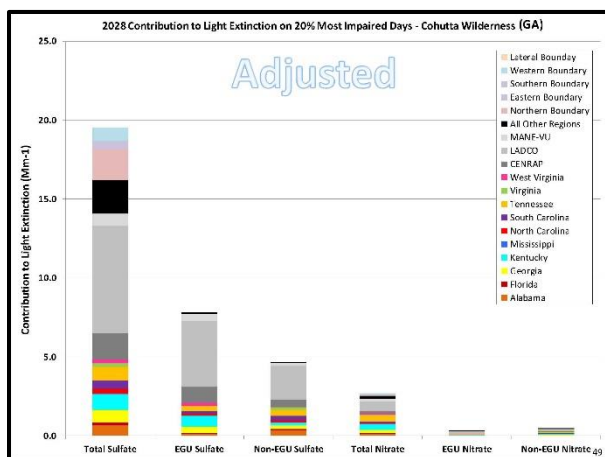
State/RPO	SO <sub>2</sub> EGU Ratio	SO <sub>2</sub> NEGU Ratio	NOx EGU Ratio	NOx NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	0.872	1.000
WV	0.826	1.071	1.067	1.000
CENSARA	0.494	1.000	0.706	1.000
LADCO	0.636	1.000	0.764	1.000
MANE-VU	0.467	0.810	0.794	1.000

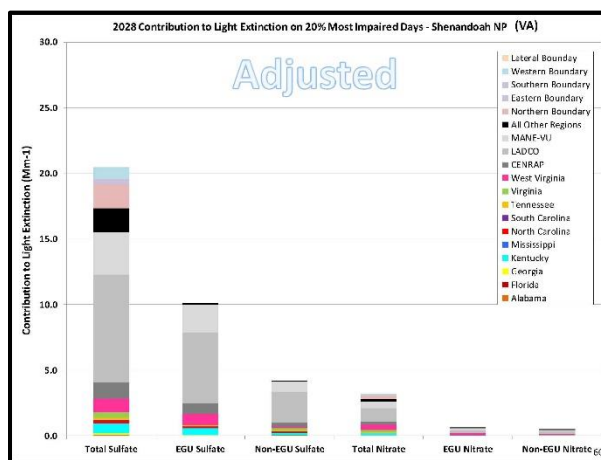
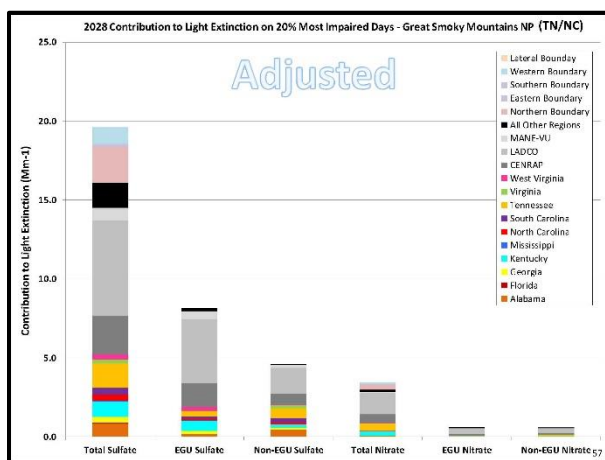
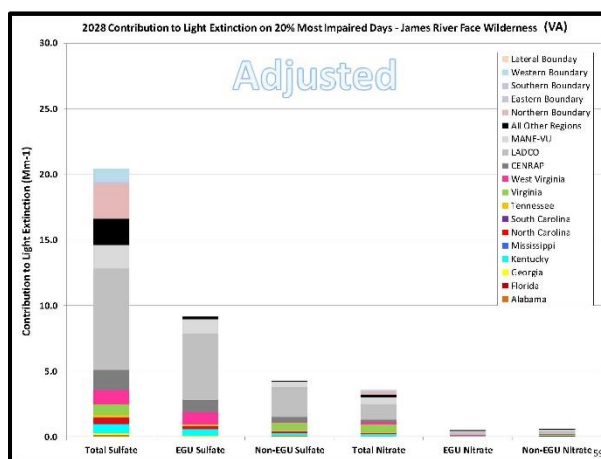
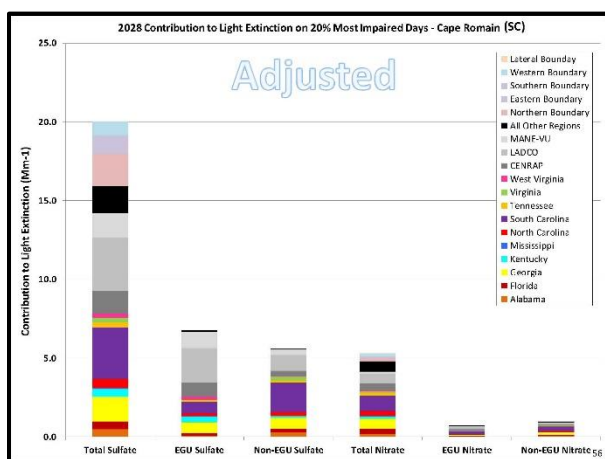
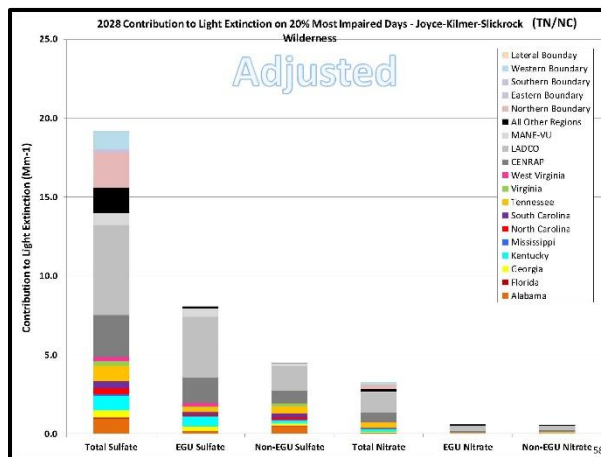
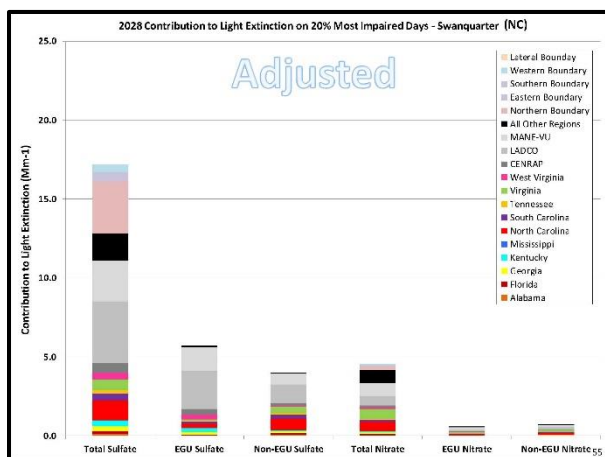
For detailed calculations, see [Handout - Roadmap](#) located at:

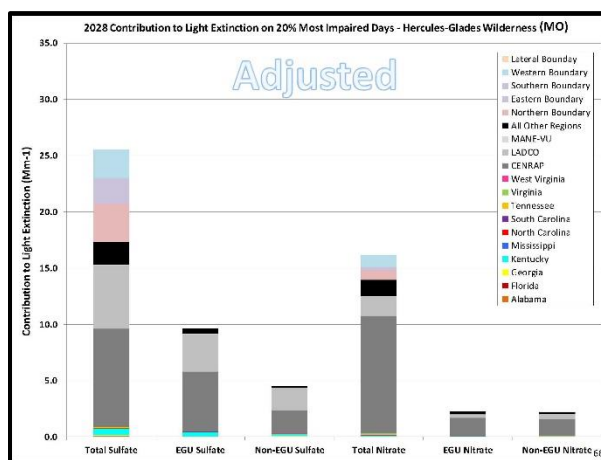
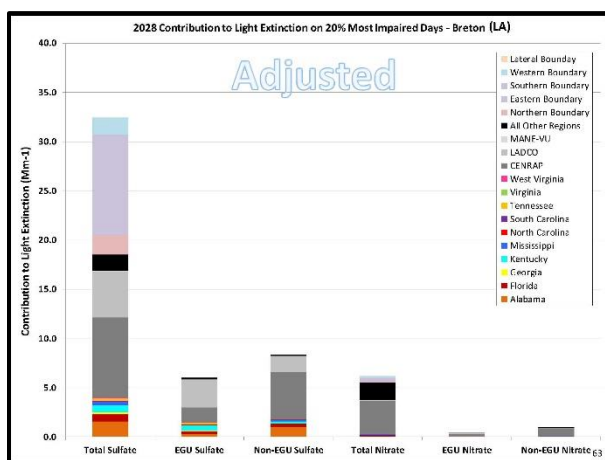
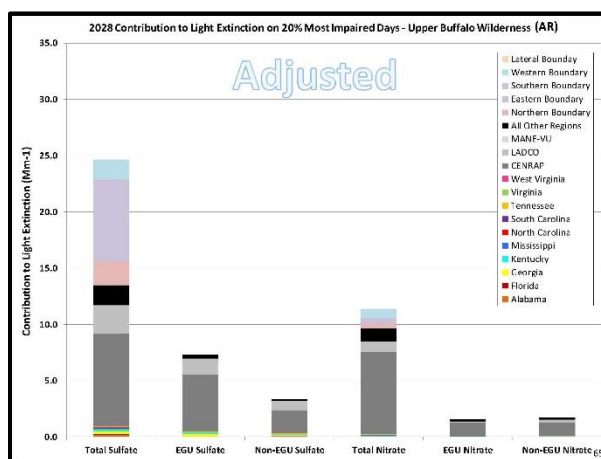
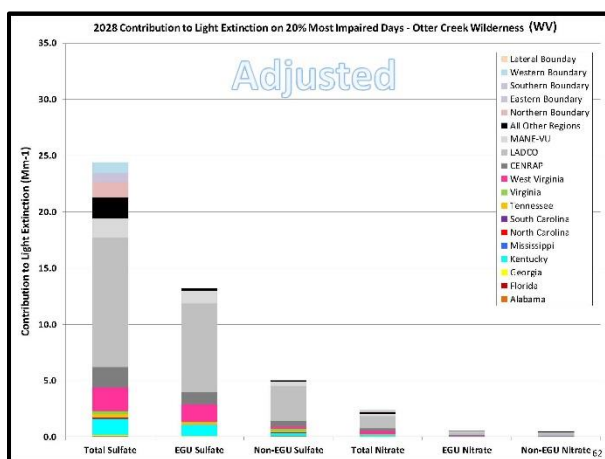
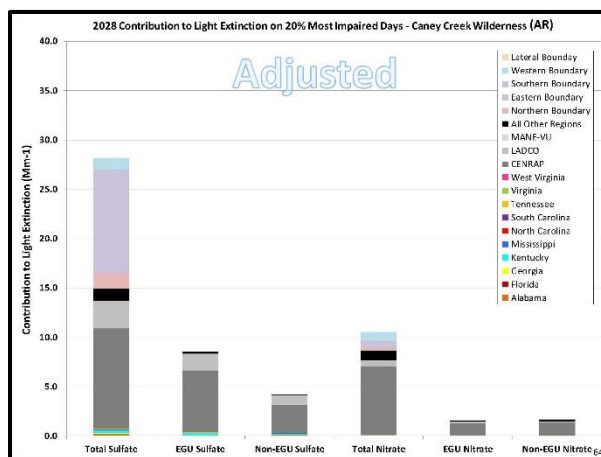
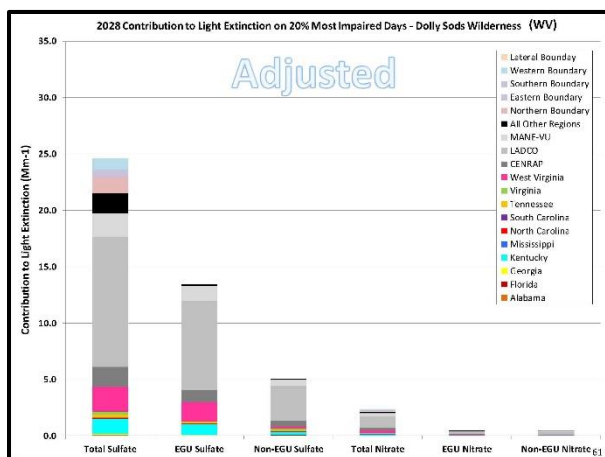
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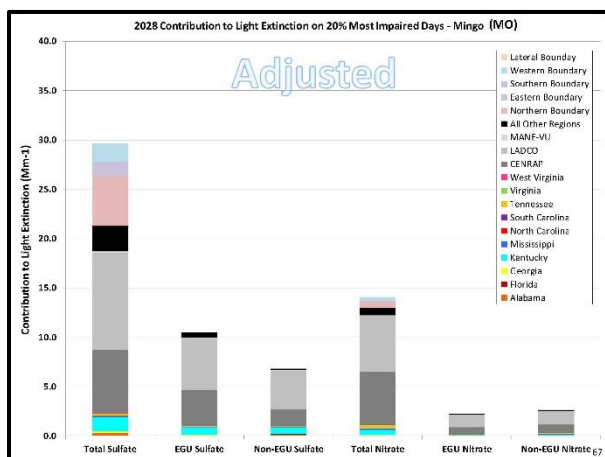
44







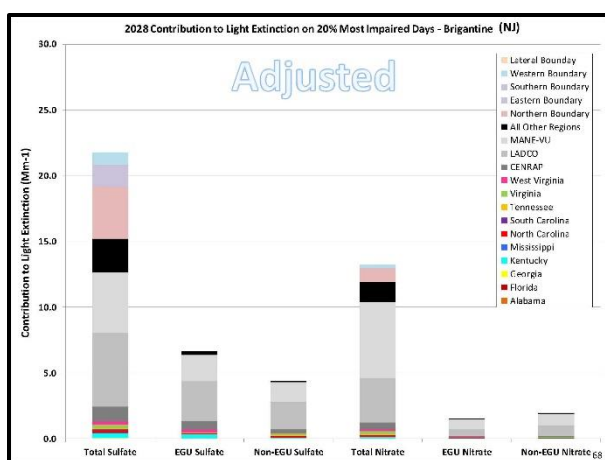




## Reasonable Progress Screening Approach

1. The VISTAS reasonable progress work started with AOI screening ( $Q/d * EWRT$ ) to rank facilities based on their sulfate and nitrate contributions at each Class I area.
2. These rankings were used to identify 87 individual facilities for PSAT tagging. PSAT tagging was used to determine the sulfate and nitrate contributions from each facility at each Class I area in the VISTAS\_12 domain.
3. Each individual VISTAS state will apply a PSAT contribution threshold based on the facility sulfate and facility nitrate impacts (separately, not combined) divided by the total impact of sulfate + nitrate from all point sources to determine which sources may need to be considered for a four-factor analysis.
  - If sulfate contribution  $\geq 1.00\%$   $\rightarrow$  SO<sub>2</sub> Four-Factor Analysis
  - If nitrate contribution  $\geq 1.00\%$   $\rightarrow$  NO<sub>x</sub> Four-Factor Analysis

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## Why 1% Threshold?

- In the Round 1 Regional Haze SIPs, many VISTAS states used the AOI approach and a 1% threshold on a Unit basis.
  - Round 2 uses the AOI/PSAT approach and a  $\geq 1.00\%$  PSAT threshold based on a Facility basis.
    - This will pull in more facilities compared to a Unit basis.
  - Round 2 uses 2028 emissions (lower than 2018)
    - This will pull in facilities with smaller visibility impacts (in Mm<sup>-1</sup>) compared to Round 1.
- This approach results in a reasonable number of sources that can be evaluated with limited state resources and focuses on the sources with the largest impacts.

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## Reasonable Progress Screening Analysis

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## Area of Influence (AOI) Analysis

- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d) * EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the four-factor analysis

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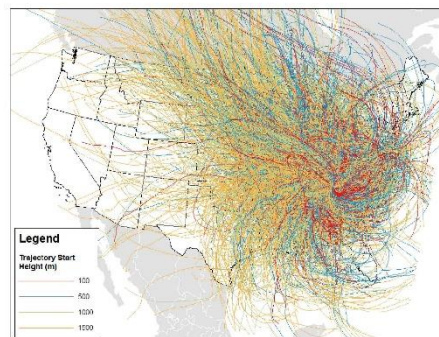


### HYSPLIT Trajectories

- Trajectories were run using NAM-12 meteorology for the 20% most impaired days in 2011-2016 at 44 Class I areas.
- Trajectories were run with starting heights of 100, 500, 1,000, and 1,500 meters.
- Trajectories were run 72 hours backwards in time for each height at each location.
- Trajectories were run with start times of 12AM (midnight of the start of the day), 6AM, 12PM, 6PM, and 12AM (midnight at the end of the day) local time.
- 44 Class I areas x 6 years x 24 days/year x 4 heights x 5 start times = **126,720 trajectories**

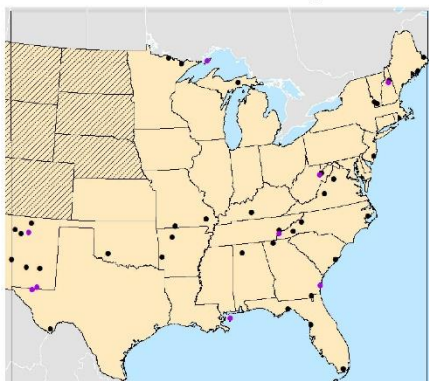
73

### All Trajectories at GRSM



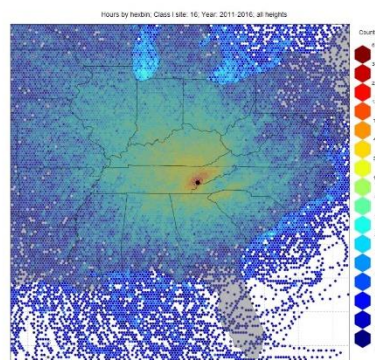
76

### Class I Areas Analyzed



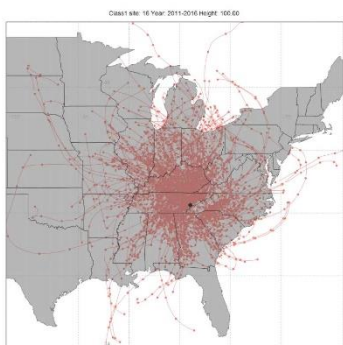
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### Residence Time for GRSM



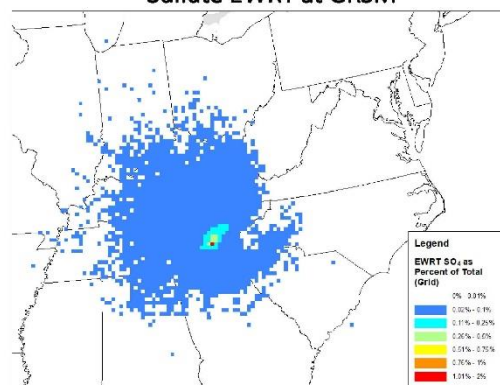
77

### 100 Meter Trajectories at GRSM



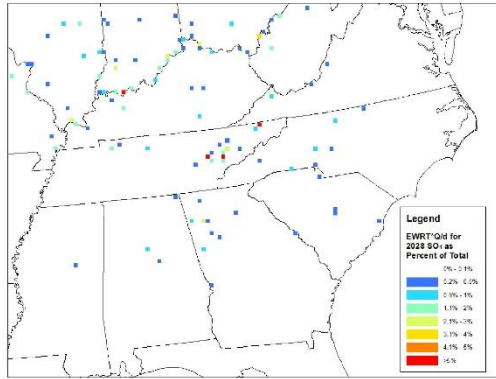
75

### Sulfate EWRT at GRSM



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### Sulfate Q/d\*EWRT at GRSM



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### AOI Point Contributions for Wolf Island

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Brunswick Cellulose Inc.	27.9	3,554.5	294.2	2.94%	8.54%
FL	ROCK TENN CP, LLC	74.9	2,336.8	2,606.7	0.39%	8.55%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.53%
FL	JFA	105.1	651.8	2,094.5	0.09%	4.83%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	351.5	1,860.2	0.03%	2.65%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS INC.	173.6	112.4	2,743.0	0.01%	1.97%
SC	ALUMAX OF SOUTH CAROLINA	273.0	108.1	3,751.7	0.00%	1.84%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	0.38%	1.79%
FL	SVINDLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (0627010056)	845.3	8,172.5	41,595.8	0.07%	1.71%
SC	SANTITE COOPER CROSS GENERATING STATION	251.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	0.00%	1.55%
FL	EL CHEMICAL HOLDINGS, INC.	118.5	37.7	898.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEFL)	296.6	2,480.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	521.6	582.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	1,780.1	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	BERNCO NE VIGINTI CO/KYNTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

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### AOI Point Contributions for Cohutta

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
GA	Ga Power Company - Plant Bowen	78.0	6,643.3	10,453.4	1.15%	19.58%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	420.1	8,895.8	30,536.3	0.13%	4.58%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Edison	487.1	12,280.3	23,117.2	0.10%	2.31%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.18%
KY	Kentucky Valley Authority (KVA) - Shawnee Fossil Plant	457.2	7,007.3	19,304.7	0.07%	2.18%
TN	TVA KNOXVILLE FOSSEL PLANT	134.0	1,887.4	1,886.1	0.13%	2.17%
OH	General James M. Gavin Power Plant (0627010056)	532.0	8,122.5	41,595.8	0.02%	1.71%
TN	TVA CUMBERLAND FOSSEL PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Big Rivers Electric Corp. - Wilson Station	369.0	1,151.9	6,934.7	0.01%	1.07%
OH	Duke Energy Ohio, Wm. L. Penner Station (1411080154)	454.6	7,150.0	22,133.9	0.06%	1.05%
GA	Ga Power Company - Plant Wansley	156.8	2,052.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co. - Chert Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	Joppy Steam	466.9	4,706.3	20,509.3	0.07%	1.04%
GA	Mohawk Industries Inc.	32.0	66.5	77.1	0.07%	1.02%
TN	ASIMAN CHEMICAL COMPANY	289.8	6,900.3	6,420.2	0.09%	0.99%
MO	MARTIN MICHIGAN POWER PLANT	692.4	9,882.5	41,740.3	0.03%	0.98%
IL	Newcom	584.0	1,934.9	10,631.6	0.01%	0.91%
GA	Chemical Products Corporation	71.9	19.5	513.8	0.00%	0.89%
IN	INDIANA KENTUCKY ELECTRIC CORPORATION	444.4	6,188.5	9,038.1	0.04%	0.78%

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### Georgia Tagging for PSAT

- Sources in Georgia (≥ 2% threshold)
  - Ga Power Company – Plant Bowen
  - International Paper – Rome (aka TEMPLE INLAND)
  - International Paper – Savannah
  - Brunswick Cellulose Inc
  - Georgia-Pacific Consumer Products LP (Savannah River Mill)
- Sources outside Georgia (≥ 4% threshold)
  - INDIANA MICHIGAN POWER DBA AEP ROCKPORT (IN)
  - ROCK TENN CP, LLC (FL)
  - JEA (FL)

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### AOI Point Contributions for Okefenokee

State	FACILITY NAME	DISTANCE (mi)	NO <sub>x</sub> 2028 (tons/year)	SO <sub>2</sub> 2028 (tons/year)	NO <sub>x</sub> Contribution	SO <sub>2</sub> Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS INC.	71.5	112.4	2,743.0	0.03%	14.63%
FL	ROCK TENN CP, LLC	64.8	2,336.8	2,606.7	0.88%	12.82%
FL	JFA	61.6	651.8	2,094.5	0.18%	6.69%
FL	SVINDLE ELECTRIC COOPERATIVE, INC.	121.4	917.8	3,713.4	0.07%	3.25%
FL	EL CHEMICAL HOLDINGS, INC.	56.8	37.7	898.9	0.01%	3.25%
FL	RAYONIER PERFORMANCE FIBERS LLC	63.4	2,327.1	562.0	0.50%	2.82%
GA	International Paper - Savannah	178.5	1,560.7	3,945.4	0.08%	2.61%
FL	DUKE ENERGY FLORIDA, INC. (DEFL)	153.5	1,830.7	1,520.4	0.14%	2.18%
FL	SWENSEN LLC	59.8	66.3	569.5	0.02%	1.96%
FL	DUKE ENERGY FLORIDA, INC. (DEFL)	205.0	2,480.8	5,306.4	0.06%	1.40%
AL	Sanders Road Co.	384.6	121.7	7,951.1	0.00%	1.11%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	197.2	351.5	1,860.2	0.01%	1.05%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.05%	1.02%
GA	Brunswick Cellulose Inc.	75.3	3,554.5	294.2	0.34%	1.01%
SC	ALUMAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA Waldo Mill	112.7	1,032.6	485.7	0.09%	0.85%
SC	SANTITE COOPER CROSS GENERATING STATION	348.1	3,273.5	4,281.2	0.05%	0.85%
FL	CITY OF GAINESVILLE, FL	111.7	410.0	881.4	0.03%	0.79%
SC	KAPSTONE CHARLESTON KRAFT LLC	314.0	2,355.8	1,863.7	0.06%	0.65%
GA	Ga Power Company - Plant Wansley	403.7	2,052.5	4,856.0	0.02%	0.65%

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### AOI Screening Summary

State	Threshold	Notes
AL	2%	Sulfate only
FL	5%	Sulfate or nitrate, plus Gulf Crist, Mosaic Bartow, Mosaic New Wales, and Mosaic Riverview
GA	2% - 4%	Sulfate or nitrate, 2% threshold for GA facilities, 4% threshold for facilities outside GA
KY	2%	Sulfate or nitrate
MS	2%	Sulfate or nitrate
NC	3%	Sulfate + nitrate
SC	2% - 5%	2% for sulfate, 5% for nitrate, plus Santee Cooper Winyah, International Paper Georgetown, and SCE&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2%	Sulfate or nitrate

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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NO<sub>x</sub> and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

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## Facility Tags (KY, MS, NC, SC, TN, VA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
KY	VISTAS	21183-2981011	Int. Jones Electric Corp. - Wilkes Marion	5,554.13	1,351.20
KY	VISTAS	21093-7352411	Century Aluminum of KY LLC	5,044.13	107.58
KY	VISTAS	21177-1195711	Tennessee Valley Authority - Paraglen Road Plant	3,011.01	3,114.72
KY	VISTAS	21145-5037011	Tennessee Valley Authority (TVA) - Shawnee Fork Plant	19,094.79	2,087.14
MS	VISTAS	28019-5184311	Chevron Products Company - Pascagoula Refinery	781.24	1,584.12
MS	VISTAS	28059-5251011	Mississippi Power Company - Plant Victor J. Daniel	231.52	3,829.72
NC	VISTAS	37037-7920511	Blue Ridge Paper Products - Cannon Mill	1,127.07	2,982.37
NC	VISTAS	37187-5693111	Dominion Paper Company, LLC	597.85	1,295.49
NC	VISTAS	37035-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.33
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	4,845.90	495.58
NC	VISTAS	37023-8518011	SGL Carbon, LLC	261.64	21.69
NC	VISTAS	45019-4040111	PLUMAS CO. 10011111 CAROLINA	3,031.85	108.98
SC	VISTAS	45043-1508511	INTERSTATE PAPER GEORGETOWN M.L.L.	2,781.52	2,651.24
SC	VISTAS	45018-4975011	KAPITONE C1 ABILITON KRAFT, LLC	1,881.84	2,355.82
SC	VISTAS	45015-4170411	SANTIT COOPER EROS OTTUMMI STATION	4,281.12	3,271.47
SC	VISTAS	45043-5557611	SANTIT COOPER WYVAIG WYVAIG STATION	2,746.42	3,777.53
SC	VISTAS	45015-8407711	SCB&G WILLIAMS	392.43	892.72
TN	VISTAS	47033-4979911	Cemex - Knoxville Plant	121.47	711.50
TN	VISTAS	47155-1983111	EASTMAN CHEMICAL COMPANY	6,400.15	6,900.13
TN	VISTAS	47105-4122211	TAI & LYLE, London	472.75	883.23
TN	VISTAS	47001-6196011	TVA BULL RUN TOSSE PLANT	622.54	964.18
TN	VISTAS	47155-4979911	TVA CUMBERLAND TOSSE PLANT	8,427.33	4,915.52
TN	VISTAS	47145-4979911	TVA KINGSTON TOSSE PLANT	1,889.05	1,887.18
VA	VISTAS	51027-4054811	Jewell Coker Company L.P.	5,090.05	5,201.4
VA	VISTAS	51580-4798711	Meadwestvaco Packaging Resource Group	2,115.21	1,985.50
VA	VISTAS	51013-5036011	Roanoke Cement Company	2,285.15	1,877.57

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## PSAT SO<sub>2</sub> and NO<sub>x</sub> Tags (209)

### Round 1 (122 tags)

- Total SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NO<sub>x</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO<sub>2</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NO<sub>x</sub> tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 50 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 20 tags

### Round 2 (87 tags)

- Non-EGU point SO<sub>2</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NO<sub>x</sub> for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO<sub>2</sub> and NO<sub>x</sub> for N/S/W/E boundaries = 8 tags
- SO<sub>2</sub> tags for individual VISTAS facilities = 10 tags
- NO<sub>x</sub> tags for individual VISTAS facilities = 16 tags
- SO<sub>2</sub> tags for individual non-VISTAS facilities = 17 tags
- NO<sub>x</sub> tags for individual non-VISTAS facilities = 10 tags

→ 87 Total Facility Tags (both SO<sub>2</sub> and NO<sub>x</sub>)

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## Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
WV	VISTAS	54015-6271111	ALLEGHENY ELECTRIC SUPPLY CO. LLC-HARISON	10,082.54	11,890.88
WV	VISTAS	54049-4945111	AMERICAN BITUMINOUS POWDER CO. LOWN PLT	2,210.25	2,245.18
WV	VISTAS	54049-4945111	AMERICAN BITUMINOUS POWDER CO. LOWN PLT	10,082.54	4,878.18
WV	VISTAS	54015-5257011	Donnan Resources, Inc. - MOUNT STORM POWER STATION	2,173.54	1,984.14
WV	VISTAS	54041-5960111	FERITRANS - CEMEX RUN CO. RD	6.12	511.02
WV	VISTAS	54033-5780711	FILES CREEK CO. 0340	6.15	643.35
WV	VISTAS	54033-5780711	GLADY CO. 0358	0.10	343.28
WV	VISTAS	54033-5780711	KINGSFORD MANUFACTURING COMPANY	16.52	140.88
WV	VISTAS	54061-1632011	LONGVIEW POWER	2,113.73	1,555.57
WV	VISTAS	54055-5202111	M-T-CELL PLANT	5,572.46	2,719.58
WV	VISTAS	54055-5773611	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,881.57	15,793.32
WV	VISTAS	54073-4742811	MONONGAHELA POWER CO. - PLASANT POWER STATION	18,817.45	5,497.37
WV	VISTAS	54055-5773611	MONONGAHELA POWER CO. - NORTH ASSOCIATES	826.84	855.35
AR	CENRAP	05635-1085411	ENERGY SERVICES INC. - INDEPENDENCE PLANT	22,050.49	14,335.18
AR	CENRAP	29143-1163811	INTELLIGENT POWER PLANT - MARTIN	16,783.71	4,944.18
MD	VA/NE-VU	24001-7763611	Lake Paper Company	27,059.44	3,667.08
PA	VA/NE-VU	42005-3651111	GENCO WILMONT COLEXTON STA	16,539.27	6,728.17
PA	VA/NE-VU	42005-3651111	HOMER CITY GEN CO/ CENTER TW	11,585.70	5,215.06
PA	VA/NE-VU	42005-3651111	NRS WHOLESALER/SEWARD GEN STA	8,880.22	2,254.04
IL	Midwest RPO	17117-7809111	Joplin Steam	20,652.48	4,705.35
IL	Midwest RPO	18173-5181111	Alcoa Warlick Power 70 Age Div of Al	5,071.58	11,558.55
IN	Midwest RPO	18053-7861111	Gilberton	23,117.23	12,280.34
IN	Midwest RPO	18147-8017111	INDIANA MICHIGAN POWER CORP - HICKSPEN	10,136.15	8,805.77
IN	Midwest RPO	18173-5181111	Indiana Michigan Power - Ft. Wayne, IN - FORT WAYNE	18,141.88	10,665.22
IN	Midwest RPO	18173-5181111	Sigeco AS Brown South Indiana Gas & Ele	7,544.74	3,783.13
OH	Midwest RPO	19031-8115711	Cardinal Power Plant (Cardinal Operating Company) (0041050000)	7,450.74	2,467.37
OH	Midwest RPO	19031-8115711	Cardinal Power Plant (001000000)	6,556.25	9,877.49
OH	Midwest RPO	19025-8294311	Duke Energy Ohio, Wm. - 17 Former Station (141309014)	27,133.54	7,145.25
OH	Midwest RPO	19053-6115511	General James M. Gavin Power Plant (0027040006)	41,595.81	8,122.53
OH	Midwest RPO	19053-7983011	Ohio Valley Electric Corp. - Kuyper Creek Station (0027000003)	3,400.14	9,143.84

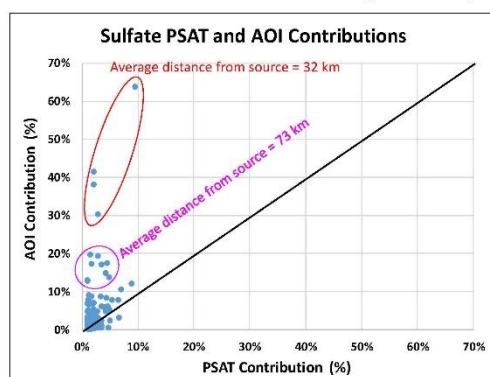
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## Facility Tags (AL, FL, GA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01097-5498111	Alco Nobel Chemicals Inc.	3,335.74	20.72
AL	VISTAS	01027-5505111	Ala Power - Berry	6,032.17	2,715.79
AL	VISTAS	01114-1078711	American Midstream Chemicals, LLC	3,105.58	475.87
AL	VISTAS	01073-1018711	BIRMINGHAM COALFARM, INC.	2,567.17	1,278.52
AL	VISTAS	01053-7480111	Paradise Operating Company, LLC	18,921.75	346.37
AL	VISTAS	01053-8551111	Scarbelle Operating Company, LLC	6,589.50	149.54
AL	VISTAS	01103-1000011	Nucor Steel Decatur, LLC	170.23	331.24
AL	VISTAS	01109-8057111	Sanders Lead Co.	7,951.02	121.72
AL	VISTAS	01073-8061111	Union Oil of California - Churchill Gas Plant	2,573.35	592.25
FL	VISTAS	12223-7524111	BUCKEYE FLOUIDA, LIMITED PARTNERSHIP	1,520.42	1,880.74
FL	VISTAS	12086-8001111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.51	910.39
FL	VISTAS	12017-8408111	DUKE ENERGY LOWE, NC, (RPO)	3,569.41	2,469.82
FL	VISTAS	12086-8000111	FLORIDA POWER & LIGHT (FPL)	13.09	270.83
FL	VISTAS	12033-7527111	GUJ POWER - Gist	2,515.55	2,998.35
FL	VISTAS	12036-7537711	HOMI STAD CITY UTILITIS	0.00	87.04
FL	VISTAS	12011-6407111	I-P-A	2,094.48	651.74
FL	VISTAS	12105-7177111	MOSKOW PFT-121, LLC	7,900.57	310.42
FL	VISTAS	12057-7161111	MOSKOW PFT-121, LLC	3,034.00	159.72
FL	VISTAS	12105-9198111	MOSKOW PFT-121, LLC	4,425.52	141.60
FL	VISTAS	12089-8458111	RAYONIER PERFORMANCE FIBERS, LLC	561.97	2,527.18
FL	VISTAS	12089-7537111	ROCKTENN CP, LLC	2,606.72	2,315.77
FL	VISTAS	12055-5154111	ROCKTENN CP, LLC	2,590.88	1,464.88
IL	VISTAS	17117-7809111	TAI & LYLE - COLUMBIA GENERATING STA.	2.88	171.48
IL	VISTAS	17015-5188111	TAI & LYLE - COLUMBIA COMPANY (1-1)	6,084.90	2,665.03
IL	VISTAS	12086-8000111	TAI & LYLE - COLUMBIA COMPANY, LLC	9.38	879.71
IL	VISTAS	12087-7597111	TAI & LYLE - COLUMBIA COMPANY, LLC	3,182.77	1,124.41
GA	VISTAS	13117-7721011	Brumfield Collieries, Inc.	294.20	1,554.53
GA	VISTAS	13015-2813011	Gas Power Company - Plant Newsum	10,453.41	5,641.37
GA	VISTAS	13103-2183111	Georgia-Pacific Consumer Products LP (Savannah River VIII)	1,866.15	851.52
GA	VISTAS	13015-2728111	International Paper - Savannah	3,955.35	5,560.72
GA	VISTAS	13115-5393111	TEV PLE INLAND	1,791.00	3,773.35

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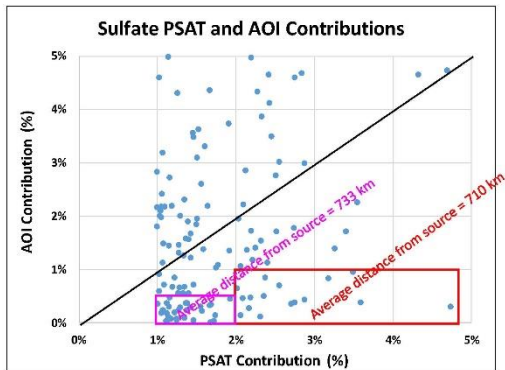
## Sulfate AOI vs. Sulfate PSAT (≥ 1.00%)



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### Sulfate AOI vs. Sulfate PSAT ( $\geq 1.00\%$ )



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### PSAT Reasonable Progress Screening

- Due to the amount of resources already invested in the AOI and PSAT analysis, **VISTAS does not plan to redo the original AOI or PSAT analyses.**
- In cases where emissions decreased or increased at individual facilities being considered for a four-factor analysis, the facility contributions will be adjusted to be consistent with the lower/higher facility emissions before comparing to the PSAT contribution threshold.
- **EPA verbally stated this should be okay 2/6/2020.**

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### AOI vs. PSAT Summary

- AOI tends to overestimate impacts for facilities near the Class I area.
- AOI tends to underestimate impacts for facilities far away from the Class I area.
  - AOI uses 72-hour back trajectories, sulfate can last for weeks and travel hundreds to thousands of km.
- PSAT is the most reliable modeling tool for tracking facility contributions to visibility impairment at Class I areas.

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### Original Facility PSAT Contributions

- **Original Facility Sulfate PSAT Contributions (%)**  

$$= \frac{\text{Facility Sulfate PSAT Contributions (Mm}^{-1}\text{)}}{\text{Total Sulfate + Nitrate Point Contribution (Mm}^{-1}\text{)}}$$
- **Original Facility Nitrate PSAT Contributions (%)**  

$$= \frac{\text{Facility Nitrate PSAT Contributions (Mm}^{-1}\text{)}}{\text{Total Sulfate + Nitrate Point Contribution (Mm}^{-1}\text{)}}$$

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### PSAT Reasonable Progress Screening

- The **facility sulfate and nitrate contributions (Mm<sup>-1</sup>)** from the individual 87 tagged facilities should not change unless a facility has reduced or increased SO<sub>2</sub> and/or NO<sub>x</sub> emissions.
- The updated 2028 CAMx modeling will impact the **total sulfate and total nitrate contribution** from point sources at each Class I area since the SO<sub>2</sub> and NO<sub>x</sub> emissions have decreased.
  - The facility percent contribution will increase even if the facility emissions do not change since the denominator will decrease

**Facility Sulfate Contribution (%) =**

$$\frac{\text{Facility Sulfate Impact (Mm}^{-1}\text{)}}{\text{Total Impact of All Point Sources of Sulfate + Nitrate (Mm}^{-1}\text{)}}$$

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### Revised Facility Sulfate PSAT Results

- **Revised Facility Sulfate PSAT Results**  

$$= \text{Original Facility Sulfate PSAT Results} \times \text{SO}_2 \text{ Ratio}_{\text{Facility}} \times \text{Ratio}_{\text{Class I Area}}$$

$$\text{where, } \text{SO}_2 \text{ Ratio}_{\text{Facility}} = \frac{(\text{Revised facility SO}_2 \text{ emissions})}{(\text{Original facility SO}_2 \text{ emissions})}$$

$$\text{where, } \text{Ratio}_{\text{Class I Area}} = \frac{(\text{Original sulfate + nitrate point contribution})}{(\text{Revised sulfate + nitrate point contribution})}$$

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- Revised Facility Nitrate PSAT Results  
 = Original Facility Nitrate PSAT Results  
 \* NOx Ratio\_Facility \* Ratio\_Class\_I\_Area

(Revised facility NOx emissions)

where,  $NO_x \text{ Ratio}_{Facility} = \dots\dots\dots$

(Original facility NOx emissions)

(Original sulfate + nitrate point contribution)

where,  $Ratio\_Class\_I\_Area = \dots\dots\dots$

(Revised sulfate + nitrate point contribution)

## Facility Ratios (WV, AR, MO, MD, PA, IL, IN, OH)

[illegible]

### Facility Ratios (AL, FL, GA)

Facility State	Facility ID#	FACILITY ID#	FACILITY NAME	SDS Ratio	NRC Ratio
AL	VFOZS	01091-9240811	KNO Nobel Chemicals Inc.	1.000	1.000
AL	VFOZS	01022-1056311	Alfa Power - Barry	0.400	1.000
AL	VFOZS	01178-1030111	Aluminum Metal Industries, LLC	0.800	1.000
AL	VFOZS	01075-1017111	PRIVIMEX/CMC COMPANY, INC.	1.000	1.000
AL	VFOZS	01013-7440011	Pascadena Pipeforming Company, LLC	0.133	1.000
AL	VFOZS	01050-980111	General Chemicals, Inc.	0.800	1.000
AL	VFOZS	01103-1000111	Messer Steel Service, LLC	1.000	1.000
AL	VFOZS	01309-985711	Sanders Lead Co.	1.000	1.000
AL	VFOZS	00027-0081611	General Chemicals, Inc. Chatsworth Gas Plant	0.600	1.000
AL	VFOZS	12323-235111	BUCKEYE FLO-LO, LIMITED PARTNERSHIP	1.000	1.000
AL	VFOZS	12088-900011	KEMCO CONSTRUCTION MATERIALS F.L.C.	1.000	1.000
AL	VFOZS	01011-648011	INDUS PHARMACY & CHEMICALS	0.800	1.000
AL	VFOZS	10888-009111	LO-MED, CHEMICALS, LIGHT (P) LTD.	1.000	1.000
AL	VFOZS	12053-257211	LOU POWER - CHH	1.000	1.000
AL	VFOZS	12008-7537111	LOMIST/STAD CITY UTIL. CO.	1.800	1.000
AL	VFOZS	17081-162011	LOMIST/STAD CITY UTIL. CO.	1.800	1.000
AL	VFOZS	12405-217711	MOSAC FERT-4218, LLC	0.560	1.000
AL	VFOZS	12057-716111	MOSAC FERT-4218, LLC	0.560	1.000
AL	VFOZS	12070-2194111	MOSAC FERT-4218, LLC	0.570	1.000
AL	VFOZS	12080-848511	RAYONEX PERFORMANCE FIBERS, LLC	1.000	1.000
AL	VFOZS	12080-7617111	RAYONEX PERFORMANCE FIBERS, LLC	1.000	1.000
AL	VFOZS	12005-535111	ROCKWELL CORP. LLC	1.000	1.000
AL	VFOZS	12179-271111	VALIA-AMERICA, INC. CUMBERLAND GENERATING STATION	1.000	1.000
AL	VFOZS	12085-5180111	VALIA-AMERICA, INC. CUMBERLAND (F.L.C.)	1.000	1.000
AL	VFOZS	12085-6709111	VALIA-AMERICA, LLC	1.000	1.000
AL	VFOZS	12047-709911	WIT SPININGS AREA CULTURAL CHEMICALS INC.	0.400	1.000
AL	VFOZS	12127-7270111	Whitworth Chemicals, LLC	0.800	1.000
AL	VFOZS	01015-2613011	WIT Power Company - Plant Newton	0.000	1.000
GA	VFOZS	13403-536311	Georgia-Pacific Consumer Products, LLC (Seawater River VIII)	1.000	1.000
GA	VFOZS	13053-336311	Georgia-Pacific Consumer Products, LLC (Seawater)	1.000	1.000
GA	VFOZS	13315-539311	FEWEL, LLC	1.000	1.000

### Class I Area Ratios

State	Class Area	Ratio	Class Area
AI	Sipsey Wilderness Area (SPS)	1.387	
FL	Chassachowitzka Wilderness Area (CHAS)	1.325	
FL	LovelandNP (LVNL)	1.250	
FL	St Marks Wilderness Area (SAMA)	1.362	
GA	Cohutta Wilderness Area (COHU)	1.363	
GA	Okefenokee Wilderness Area (OKFE)	1.317	
GA	Wolf Island Wilderness (WOLF)	1.311	
NC	Murrells Creek NP (WACA)	1.397	
NC	Linville Grove Wilderness Area (LIGO)	1.111	
NC	Shining Rock Wilderness Area (SHRO)	1.410	
NC	Swanquarter Wilderness Area (SWAN)	1.398	
NC	Crane Swamp Wilderness (CRAN)	1.402	
TN/NC	Great Smoky Mountains NP (GSMV)	1.394	
Th/NC	Joyce Kilmer-Slickrock Wilderness (JKSL)	1.401	
VA	James River Wilderness Area (JARI)	1.416	
VA	Shenandoah NP (SHNL)	1.463	
WV	Point State Wilderness (POSD)	1.417	
WV	Otter Creek Wilderness (OTCR)	1.412	
AR	Caneys Creek Wilderness Area (CACR)	1.338	
AR	Upper Buffalo Wilderness Area (UPBU)	1.400	
AR	Benton Watershed (BENT)	1.358	
VE	Acadia National Park (ACAD)	1.492	
VI	Moosehorn Wilderness FDM (VMOOS)	1.417	
MT	Seney Wilderness Area (SENF)	1.265	
MT	Helicote Gulch Wilderness Area (HIGU)	1.450	
MO	Missouri National Area (VMOG)	1.360	
NH	Great Gulf Wilderness Area (GGUL)	1.463	
NH	Presidential Range Dry River Wilderness (PRDR)	1.493	
NJ	Berkshire Wilderness Area (BRBS)	1.351	
NJ	Brook Woods Wilderness (BWOD)	1.471	

### Facility Ratios (KY, MS, NC, SC, TN, VA)

Facility Status	Facility ID#	FACILITY ID#	Facility Name	STO	502 Ratio	Notes
XY	VST05	21183-53581813	Big Water Electric Corp - Wilson Station		1,000	1,000
XY	VST05	21091-7357441	Century Aluminum of KY LLC		0.441	1,000
XY	VST04S	21177-5159271	Consolidated Aluminum of Kentucky - Escalade Roll Plant		0.0345	1,000
XY	VST04S	21145-50115011	Consolidated Aluminum of Kentucky - Escalade Roll Plant		0.0345	1,000
YS	VST05	28019-8184311	Chemura Products Company, Petrochemical, Borden		1,000	1,000
YS	VST04S	28059-5251011	Mississippi Power Company, Plant Vicksburg, Javelin		1,000	1,000
NC	VST04S	73087-7500511	Black Ridge Paper Products, Central Mill		1,000	1,000
NC	VST04S	73117-8040511	Bonnie Springs Paper, Central Mill		1,000	1,000
NC	VST04S	73125-8040511	Duke Energy Carolinas, LLC - Marshall Steam Station		0.841	71.1
NC	VST04S	73130-8479311	PMSC Chemical Company, Inc. - Aurora		1,000	1,000
NC	VST04S	73202-8513511	PMSC Chemical Company, Inc. - Aurora		1,000	1,000
NC	VST04S	45015-4548011	ALUMAC OF SOUTH CAROLINA		1,000	1,000
NC	VST04S	45049-5595311	INTERSTATE ANTIM APPR GEORGETOWN W. I.		1,000	1,000
NC	VST04S	45018-4973011	KAPTONITE CARBON STRAP L		1,000	1,000
NC	VST04S	45019-4120411	KAPTONITE COOPER W/TRANS W/HEATING STATION		1,000	1,000
NC	VST04S	45043-5557611	KAPTONITE COOPER W/TRANS W/HEATING STATION		1,000	1,000
NC	VST04S	45016-3862711	KCEES WYNNE		1,000	1,000
NC	VST04S	47039-4074911	Kemper - Knoxville Plant		1,000	1,000
NC	VST04S	47153-3981211	KEMPER - KNOXVILLE PLANT		1,000	1,000
NC	VST04S	47105-4129211	FASTI & WELLS, JOSEPH		0.827	26.0
NC	VST04S	47010-6109111	YVA BULL RUN TOSSEI, F-PLANT		0.000	0.000
NC	VST04S	47161-4072911	CLUMBER AND SONS, INC.		1,000	1,000
NC	VST04S	47145-4979111	YVA BULL RUN TOSSEI, F-PLANT		0.000	0.000
NC	VST04S	51012-4014811	Intellicore Company, L.P.		1,000	1,000
NC	VST04S	53540-5976111	Redwoodbridge Packaging Resource Group		1,000	1,000
NC	VST04S	51023-5079911	Redwoodbridge Packaging Resource Group		1,000	1,000

### EXAMPLE: New Madrid Power at SIPS

- **Revised Facility Sulfate PSAT Results**  

$$= \text{Original Facility Sulfate PSAT Results} \times \text{SO}_2 \text{ Ratio}_{\text{Facility}} \times \text{Ratio}_{\text{Class}_1 \text{Area}}$$
- **Original Facility Sulfate PSAT Results = 1.46%**
- **Revised Facility Sulfate PSAT Results**  

$$= 1.46\% \times 0.665 \text{ (Slide 100)} \times 1.382 \text{ (Slide 101)}$$

$$= 1.34\% \text{ (Slide 103)}$$

For detailed calculations, see [Handout - Roadmap](https://www.metro4-sesarm.org/content/vistas-regional-haze-program) located at:  
<https://www.metro4-sesarm.org/content/vistas-regional-haze-program>



### Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	0.364	16.370	2.22%	0.009	16.370	0.005%	
OH	39053-8148511	General James M. Gavin Power Plant	650.9	0.327	16.370	1.99%	0.021	16.370	0.13%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	0.327	16.370	1.99%	0.050	16.370	0.31%	
IN	18051-7363111	Gibson	438.7	0.270	16.370	1.65%	0.029	16.370	0.18%	
IN	18125-7363111	INDIANA POLARIS POWER & LIGHT - PETERSBURG	464.1	0.255	16.370	1.57%	0.026	16.370	0.16%	
TN	47161-4879311	TVA CLUMBERLAND FOSSIL PLANT	328.9	0.242	16.370	1.48%	0.008	16.370	0.17%	
WV	29343-5363831	NLW MADRID POWER PLANT - WARS'ON	314.5	0.220	16.370	1.34%	0.012	16.370	0.07%	
KY	21189-5561611	Big Rivers Electric Corp - Wilson Station	345.5	0.211	16.370	1.29%	0.008	16.370	0.05%	

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### St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
GA	13015-2813011	Ea Power Company - Plant Bowen	452.9	0.574	11.729	4.83%	0.004	11.729	0.03%	
FL	12005-535411	ROCKTECH CP LLC	140.8	0.540	11.729	4.60%	0.015	11.729	0.13%	
AL	01109-985711	Randers Lead Co	255.9	0.131	11.729	1.12%	0.000	11.729	0.00%	

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### Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
FL	12017-6406311	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	0.629	10.092	6.24%	0.023	10.092	0.23%	
GA	13015-2813011	Ea Power Company - Plant Bowen	637.2	0.230	10.092	2.23%	0.003	10.092	0.03%	
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	106.8	0.129	10.092	1.28%	0.007	10.092	0.07%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.102	10.092	1.01%	0.005	10.092	0.05%	
AL	01109-985711	Randers Lead Co	471.2	0.101	10.092	1.00%	0.001	10.092	0.01%	

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### Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
DH	39053-8148511	General James M. Gavin Power Plant	512.0	0.322	13.229	2.44%	0.009	13.229	0.07%	
GA	13015-2813011	Ea Power Company - Plant Bowen	78.0	0.282	13.229	2.13%	0.005	13.229	0.04%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	0.190	13.229	1.44%	0.002	13.229	0.02%	
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	0.181	13.229	1.37%	0.005	13.229	0.04%	
DH	39023-8294911	Duke Energy Ohio, Wm. H. Zimmer Station	454.6	0.173	13.229	1.31%	0.005	13.229	0.04%	
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.165	13.229	1.25%	0.012	13.229	0.09%	
PA	42003-3866111	SENON NF & GW T CO/KEYSTONE STA	801.1	0.137	13.229	1.04%	0.002	13.229	0.01%	
IN	18051-7363111	Gibson	487.1	0.137	13.229	1.03%	0.002	13.229	0.01%	

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### Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.044	3.333	3.30%	0.000	3.333	0.00%	
FL	12105-915811	MOSAC FERTILIZER, LLC	304.7	0.035	3.333	2.62%	0.000	3.333	0.00%	
FL	12105-717711	MOSAC FERTILIZER LLC	303.3	0.035	3.333	2.60%	0.000	3.333	0.00%	
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.003	3.333	0.23%	0.035	3.333	2.63%	

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### Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Restored Sulfate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT Min <sup>3</sup>	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Sulfate PSAT %	FINAL Restored EGU + NREGD Min <sup>3</sup>	FINAL Restored Nitrate PSAT %
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	71.5	0.372	13.400	2.77%	0.002	13.400	0.01%	
GA	13015-2813011	Ea Power Company - Plant Bowen	458.1	0.308	13.400	2.30%	0.007	13.400	0.05%	
GA	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	0.289	13.400	2.16%	0.019	13.400	0.14%	
DH	39053-8148511	General James M. Gavin Power Plant	909.1	0.203	13.400	1.51%	0.002	13.400	0.01%	
FL	12089-753711	ROCK TECH CP, LLC	84.8	0.176	13.400	1.31%	0.020	13.400	0.15%	
SC	45015-4120411	SANTER COOPER CROSS GENERATING STATION	348.1	0.158	13.400	1.18%	0.006	13.400	0.04%	
GA	13051-3679811	International Paper - Savannah	178.5	0.140	13.400	1.04%	0.008	13.400	0.06%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.138	13.400	1.03%	0.006	13.400	0.04%	
PA	42003-3866111	SENON NF & GW T CO/KEYSTONE STA	1,129.6	0.137	13.400	1.02%	0.002	13.400	0.01%	

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### Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
FL	12089-753711	ROCK TENN CP, LLC	74.9	0.304	12.957	2.35%	0.018	12.957	0.14%
GA	13015-2813011	Ea Power Company - Plant Bowen	458.1	0.302	12.957	2.33%	0.007	12.957	0.05%
GA	13127-8721011	Brunswick Cellulose Inc	27.9	0.228	12.957	1.76%	0.017	12.957	0.13%
OH	39053-8148511	General James M. Gwin Power Plant (0627010056)	845.3	0.224	12.957	1.73%	0.003	12.957	0.02%
GA	13051-3679811	International Paper - Savannah	85.9	0.200	12.957	1.54%	0.012	12.957	0.09%
SC	45015-4120411	Santee Cooper Cross Generating Station	251.0	0.168	12.957	1.30%	0.011	12.957	0.08%
FL	12031-640211	RA	109.1	0.167	12.957	1.29%	0.008	12.957	0.06%
SC	45015-4819411	ALUMAX OF SOUTH CAROLINA	223.0	0.163	12.957	1.25%	0.001	12.957	0.01%
PA	42003-3866131	GLVON NL M/GW/T CO/KLYSTONL STA	1,048.6	0.149	12.957	1.15%	0.002	12.957	0.01%

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### Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
OH	39053-8148511	General James M. Gwin Power Plant (0627010056)	397.3	0.297	12.313	2.42%	0.001	12.313	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	573.4	0.201	12.313	1.63%	0.009	12.313	0.02%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	454.1	0.162	12.313	1.32%	0.002	12.313	0.02%
GA	13015-2813011	Ea Power Company - Plant Bowen	241.6	0.159	12.313	1.29%	0.001	12.313	0.01%
VO	79143-5363811	NFW MADRID POWER PLANT-VARSTON	625.2	0.158	12.313	1.28%	0.001	12.313	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	473.3	0.156	12.313	1.27%	0.012	12.313	0.09%
PA	42003-3866131	GLVON NL M/GW/T CO/KLYSTONL STA	637.8	0.151	12.313	1.23%	0.000	12.313	0.00%
IN	18051-7363111	Gibson	554.2	0.151	12.313	1.23%	0.008	12.313	0.07%
NC	37087-7929511	Blue Ridge Paper Products - Canton Mill	16.9	0.133	12.313	1.08%	0.012	12.313	0.10%
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1113030154)	406.7	0.129	12.313	1.05%	0.007	12.313	0.01%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.129	12.313	1.04%	0.001	12.313	0.01%
TN	47163-5982311	EASTMAN CHEMICAL COMPANY	126.9	0.128	12.313	1.04%	0.009	12.313	0.02%

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### Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	0.426	25.289	1.68%	0.085	25.289	0.33%
IN	18051-7363111	Gibson	198.2	0.411	25.289	1.63%	0.084	25.289	0.33%
KY	21145-6037011	Eg Rivers Electric Corp. - Wilson Station	89.9	0.361	25.289	1.43%	0.030	25.289	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	0.290	25.289	1.15%	0.049	25.289	0.19%
VO	79143-5363811	NFW MADRID POWER PLANT-VARSTON	312.7	0.280	25.289	1.14%	0.022	25.289	0.09%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	182.9	0.264	25.289	1.04%	0.068	25.289	0.27%

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### Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
PA	42003-3866131	GENON NE M/GW/T CO/KEYSTONE STA	640.2	0.375	10.894	3.44%	0.009	10.894	0.03%
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	0.329	10.894	3.02%	0.007	10.894	0.06%
OH	39053-8148511	General James M. Gwin Power Plant (0627010056)	651.5	0.239	10.894	2.01%	0.005	10.894	0.05%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.203	10.894	1.86%	0.007	10.894	0.08%
MD	24001-7763811	Luke Paper Company	512.5	0.191	10.894	1.75%	0.008	10.894	0.07%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- MARION	568.6	0.186	10.894	1.71%	0.013	10.894	0.12%
WV	54033-6005211	IONILR CITY GLN LP/CLNLR TWP	620.1	0.151	10.894	1.34%	0.008	10.894	0.07%
PA	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.127	10.894	1.17%	0.005	10.894	0.05%
GA	13015-2813011	Ea Power Company - Plant Bowen	810.6	0.112	10.894	1.03%	0.009	10.894	0.03%
NC	37117-8049311	Dormtar Paper Company, LLC	89.0	0.109	10.894	1.00%	0.022	10.894	0.20%

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### Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
TN	47163-5982311	EASTMAN CHEMICAL COMPANY	81.9	0.522	12.884	4.05%	0.013	12.884	0.10%
OH	39053-8148511	General James M. Gwin Power Plant (0627010056)	379.2	0.446	12.884	3.46%	0.007	12.884	0.05%
PA	42003-3866131	GENON NE M/GW/T CO/KEYSTONE STA	567.5	0.235	12.884	1.87%	0.000	12.884	0.00%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	628.3	0.172	12.884	1.34%	0.002	12.884	0.02%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.154	12.884	1.20%	0.001	12.884	0.01%
GA	13015-2813011	Ea Power Company - Plant Bowen	340.9	0.146	12.884	1.13%	0.000	12.884	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	0.142	12.884	1.10%	0.012	12.884	0.09%
IN	18051-7363111	Gibson	582.3	0.138	12.884	1.07%	0.008	12.884	0.07%
VO	79143-5363811	NFW MADRID POWER PLANT-VARSTON	688.6	0.134	12.884	1.04%	0.000	12.884	0.00%
VA	51027-4034811	Bewell Coke Company LLP	149.4	0.132	12.884	1.02%	0.000	12.884	0.00%

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### Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>	FINAL Revised EGU + NREGD Min <sup>3</sup>	FINAL Revised Nitrates PSAT Min <sup>3</sup>	FINAL Revised Sulfate PSAT Min <sup>3</sup>
SC	45015-4973611	KAYSTONE CHARLESTON KRAFT LLC	79.3	0.523	14.028	3.73%	0.046	14.028	0.33%
GA	13015-2813011	Ea Power Company - Plant Bowen	508.2	0.495	14.028	3.53%	0.019	14.028	0.14%
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	39.1	0.327	14.028	2.33%	0.009	14.028	0.02%
PA	42003-3866131	GLVON NL M/GW/T CO/KLYSTONL STA	857.1	0.320	14.028	2.28%	0.002	14.028	0.01%
SC	45015-4120411	Santee Cooper Cross Generating Station	61.8	0.316	14.028	2.25%	0.038	14.028	0.27%
OH	39053-8148511	General James M. Gwin Power Plant (0627010056)	701.0	0.305	14.028	2.17%	0.005	14.028	0.04%
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	0.230	14.028	1.64%	0.021	14.028	0.15%
SC	45043-6662811	Santee Cooper Wintah Generating Station	51.4	0.187	14.028	1.33%	0.024	14.028	0.17%
GA	13051-3679811	International Paper - Savannah	166.1	0.180	14.028	1.28%	0.009	14.028	0.06%

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## Great Smoky Mountains National Park (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	0.570	13.916	3.73%	0.003	13.916	0.01%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	0.183	13.916	1.32%	0.011	13.916	0.08%		
TN	47163-3982311	EASTMAN CHEMICAL COMPANY POWER STA	160.1	0.170	13.916	0.22%	0.007	13.916	0.00%		
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	688.2	0.166	13.916	1.19%	0.001	13.916	0.01%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	375.5	0.166	13.916	1.19%	0.035	13.916	0.25%		
IN	18051-7363111	Gibson	456.3	0.146	13.916	1.05%	0.037	13.916	0.22%		

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## Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	249.8	0.740	15.375	4.81%	0.003	15.375	0.06%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	0.692	15.375	4.50%	0.018	15.375	0.12%		
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	189.7	0.636	15.375	4.14%	0.070	15.375	0.46%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	323.4	0.576	15.375	3.75%	0.027	15.375	0.14%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	0.339	15.375	2.20%	0.043	15.375	0.28%		
PA	42063-3005211	HOMER CITY GEN LP/CENTER TWP	230.4	0.271	15.375	1.78%	0.010	15.375	0.06%		
MD	24001-7763811	Luke Paper Company	118.4	0.216	15.375	1.41%	0.021	15.375	0.14%		
PA	42063-3005111	WVC WHOLESALE GEN/SWARD GEN STA	215.5	0.172	15.375	1.12%	0.003	15.375	0.02%		
WV	54051-6902311	MITCHELL PLANT	251.8	0.155	15.375	1.01%	0.019	15.375	0.18%		
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.155	15.375	1.01%	0.009	15.375	0.06%		

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## Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	475.1	0.473	13.694	3.45%	0.007	13.694	0.01%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.189	13.694	1.38%	0.014	13.694	0.10%		
TN	47163-3982311	EASTMAN CHEMICAL COMPANY POWER STA	179.2	0.178	13.694	1.30%	0.009	13.694	0.02%		
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	711.0	0.154	13.694	1.12%	0.000	13.694	0.00%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	391.2	0.154	13.694	1.12%	0.030	13.694	0.22%		
GA	13015-3813011	Ela Power Company - Plant Bowen	166.2	0.152	13.694	1.11%	0.001	13.694	0.01%		
IN	18051-7363111	Gibson	471.7	0.139	13.694	1.02%	0.029	13.694	0.21%		
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	0.137	13.694	1.00%	0.002	13.694	0.01%		

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## Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	1.350	19.349	7.18%	0.959	19.349	0.31%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	233.8	0.945	19.349	4.82%	0.009	19.349	0.05%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	0.810	19.349	4.13%	0.020	19.349	0.10%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	0.778	19.349	4.02%	0.007	19.349	0.03%		
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	0.788	19.349	3.99%	0.010	19.349	0.05%		
WV	54051-6902311	MITCHELL PLANT	144.2	0.276	19.349	1.42%	0.009	19.349	0.05%		
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	172.8	0.246	19.349	1.27%	0.001	19.349	0.02%		
OH	39025-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.229	19.349	1.18%	0.003	19.349	0.02%		
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	213.8	0.221	19.349	1.14%	0.006	19.349	0.03%		
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	75.8	0.218	19.349	1.13%	0.044	19.349	0.23%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.204	19.349	1.05%	0.003	19.349	0.02%		

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## James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	0.582	14.404	4.04%	0.016	14.404	0.11%		
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	0.526	14.404	3.65%	0.020	14.404	0.14%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	0.520	14.404	3.61%	0.008	14.404	0.06%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	0.325	14.404	2.26%	0.007	14.404	0.05%		
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	0.278	14.404	1.93%	0.016	14.404	0.11%		
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	337.1	0.217	14.404	1.51%	0.005	14.404	0.04%		
VA	51580-5798711	Meadowcroft Packaging Resource Group	46.5	0.209	14.404	1.45%	0.031	14.404	0.22%		
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.170	14.404	1.18%	0.006	14.404	0.04%		
WV	54051-6902311	MITCHELL PLANT	269.6	0.156	14.404	1.09%	0.006	14.404	0.04%		

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## Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %	FINAL Revised EGU + NREGU MWh <sup>1</sup>	FINAL Revised Nuclear PSBT MWh <sup>1</sup>	FINAL Revised Sulfur PSBT %	FINAL Revised Nuclear PSBT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	1.242	19.077	6.51%	0.959	19.077	0.31%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	1.001	19.077	5.25%	0.011	19.077	0.06%		
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	0.809	19.077	4.24%	0.023	19.077	0.12%		
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	0.737	19.077	3.81%	0.008	19.077	0.04%		
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	0.302	19.077	1.58%	0.012	19.077	0.06%		
WV	54051-6902311	MITCHELL PLANT	136.8	0.297	19.077	1.56%	0.010	19.077	0.05%		
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	0.249	19.077	1.31%	0.007	19.077	0.04%		
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.242	19.077	1.27%	0.004	19.077	0.02%		
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	825.5	0.207	19.077	1.09%	0.003	19.077	0.02%		
IN	18051-7363111	Gibson	709.7	0.193	19.077	1.01%	0.009	19.077	0.05%		
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	0.192	19.077	1.00%	0.046	19.077	0.24%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	655.7	0.191	19.077	1.00%	0.007	19.077	0.04%		
PA	42003-3866111	GENCON NE M/GMT CO/KEYSTONE STA	186.5	0.190	19.077	1.00%	0.001	19.077	0.02%		

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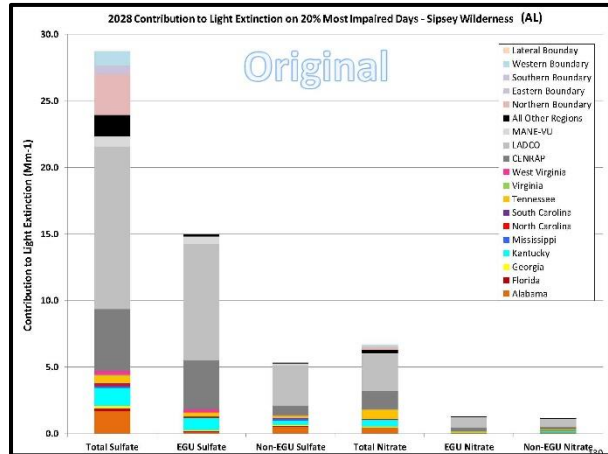
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## Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed *
2028 Emissions Processing	Completed *
2028 CAMx Modeling	Completed *
2028 Visibility Projections	Completed *
2028 Deposition Projections	Late May/Early June 2020 *
Final Reports and Documentation	Late July 2020
Website Updates and Postings	Late July 2020
End of Contract	September 30, 2020
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

\* References technical work completion. Draft reports to follow.

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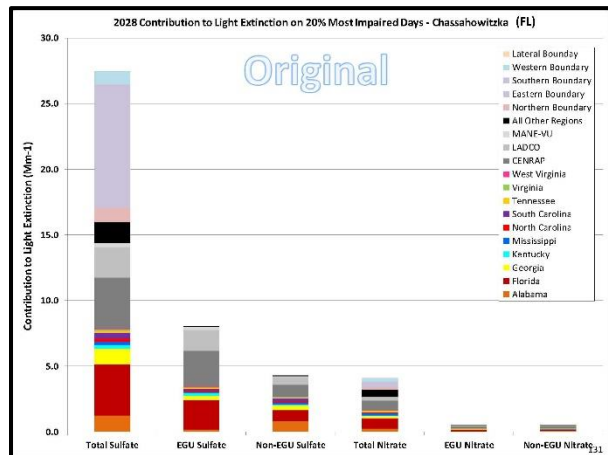


## Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
- For project and contract management questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))

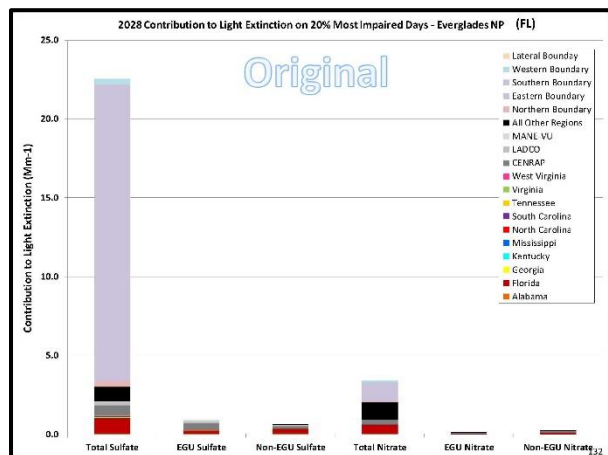


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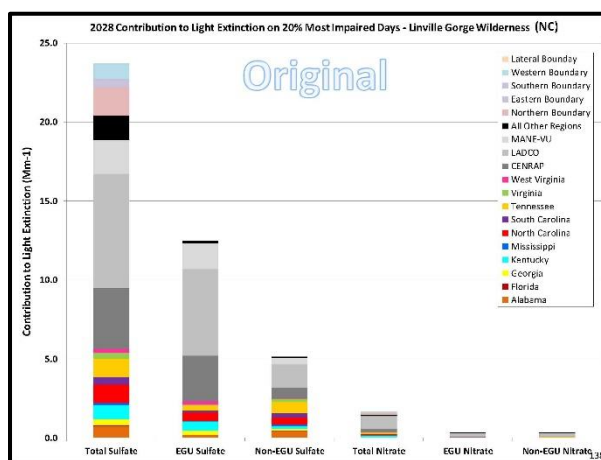
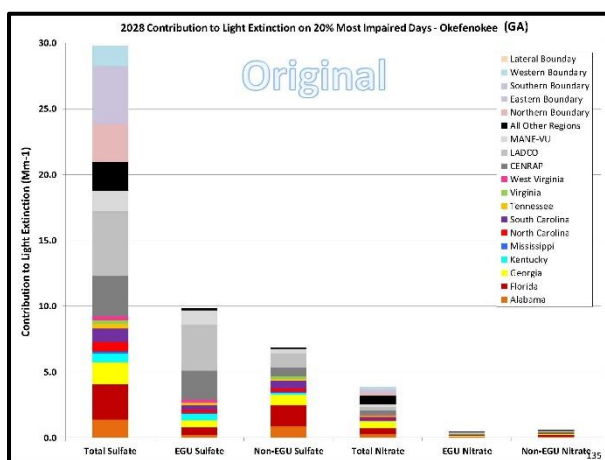
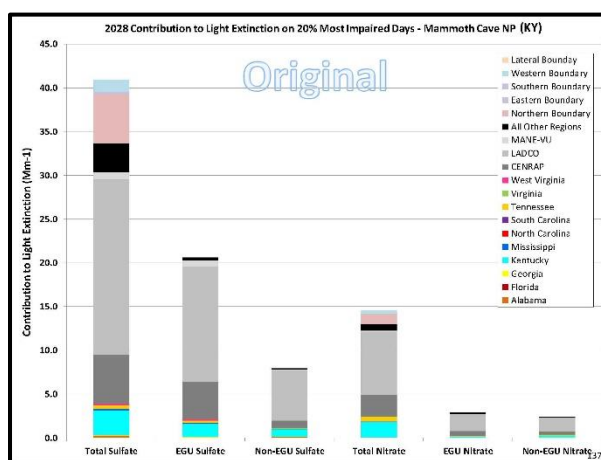
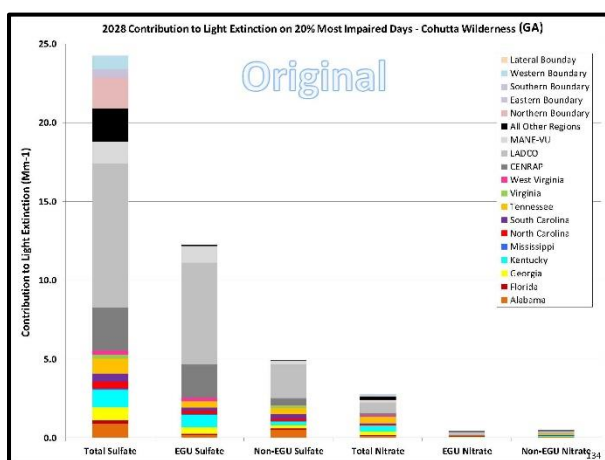
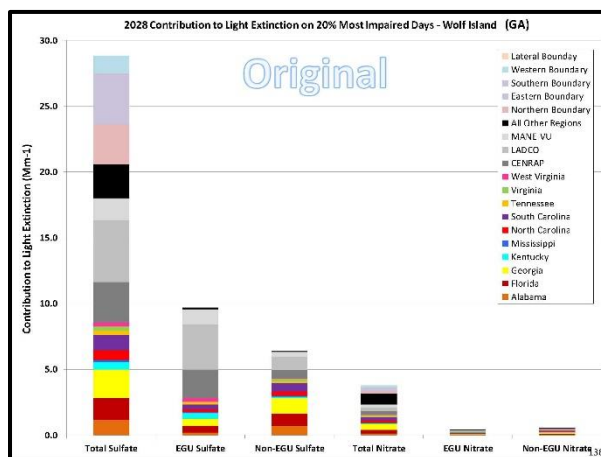
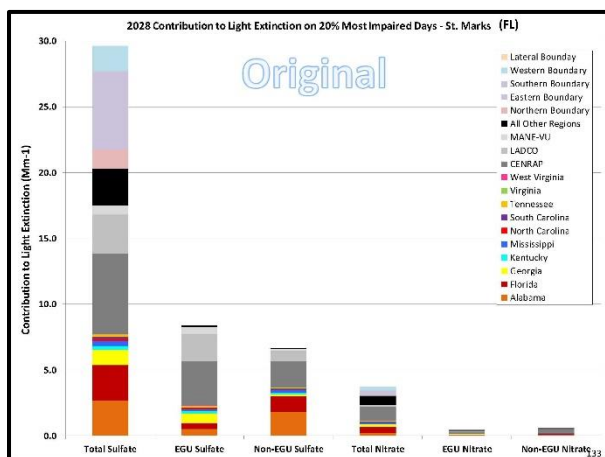


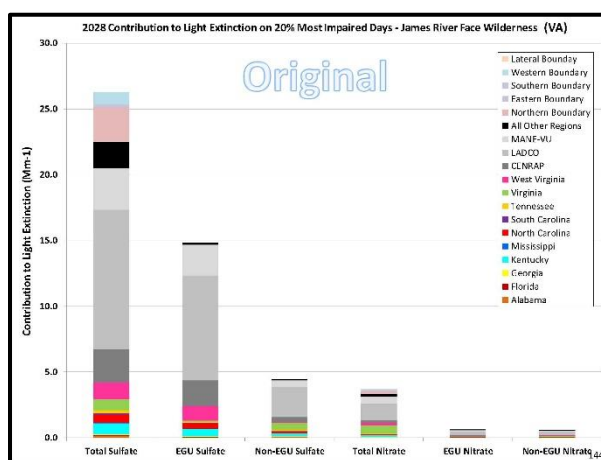
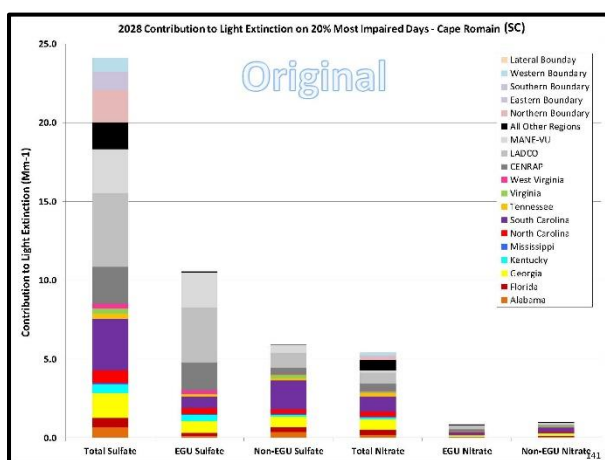
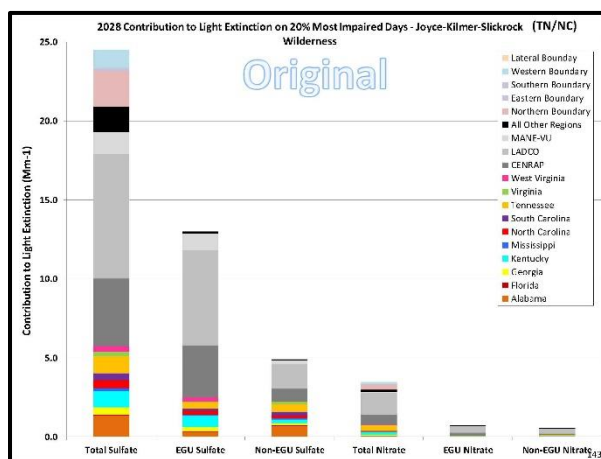
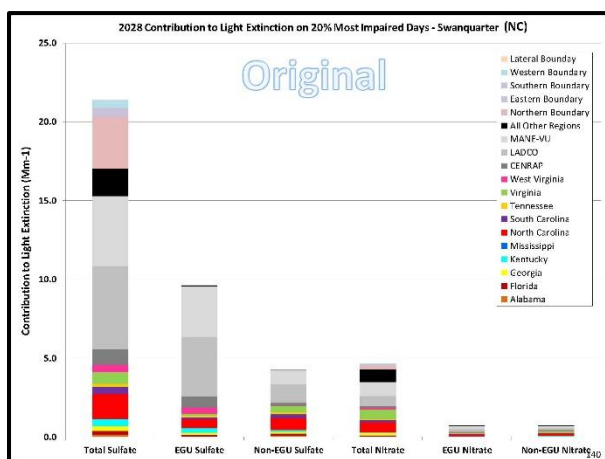
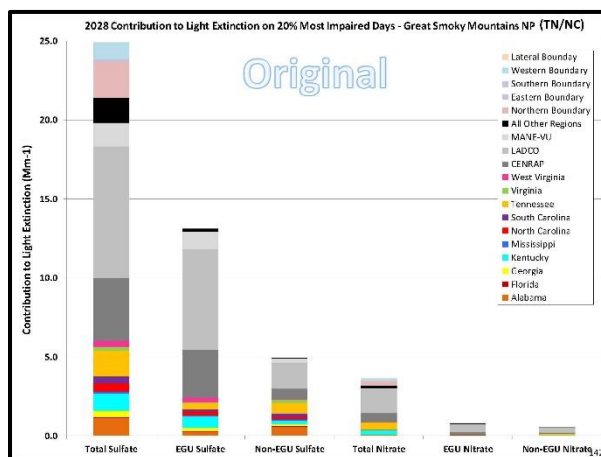
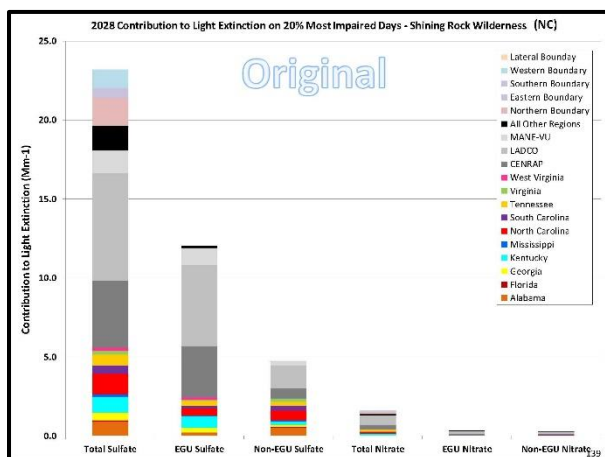
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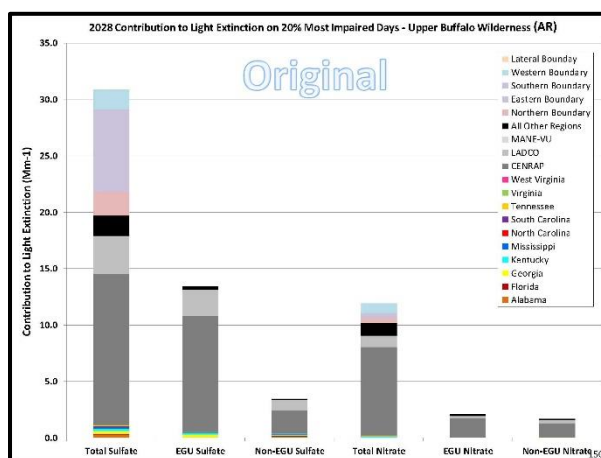
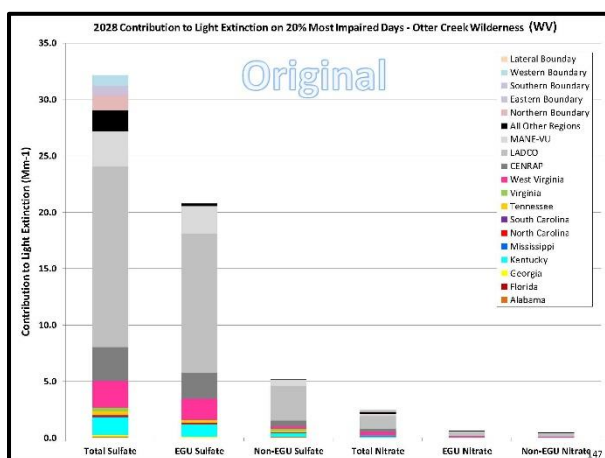
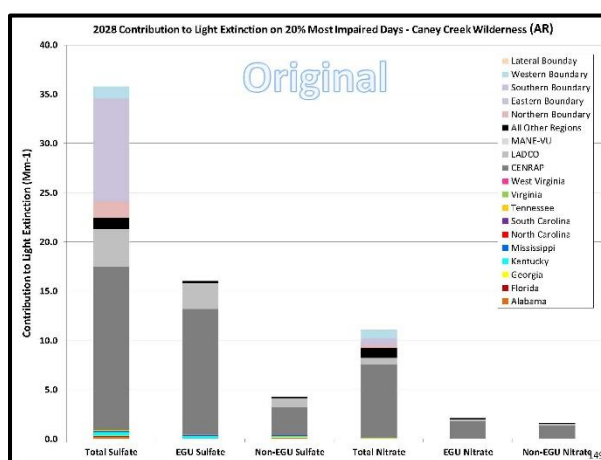
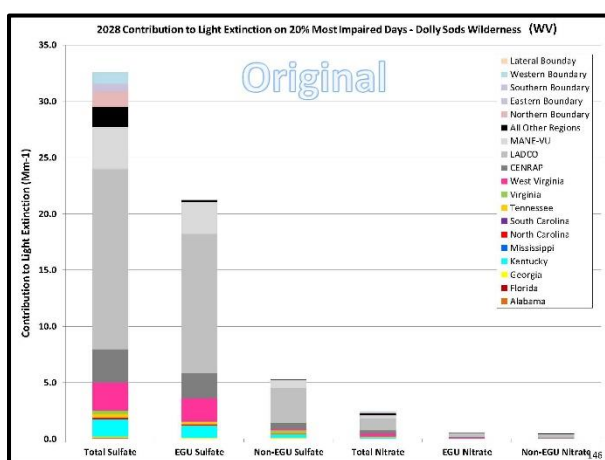
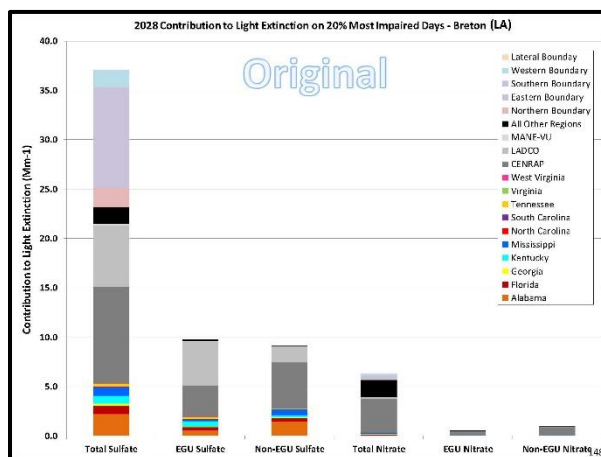
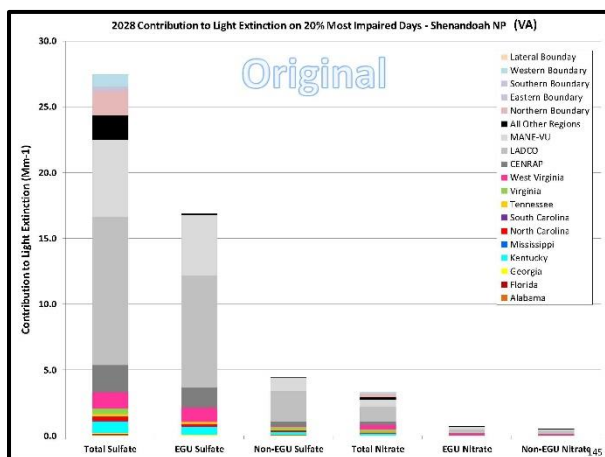
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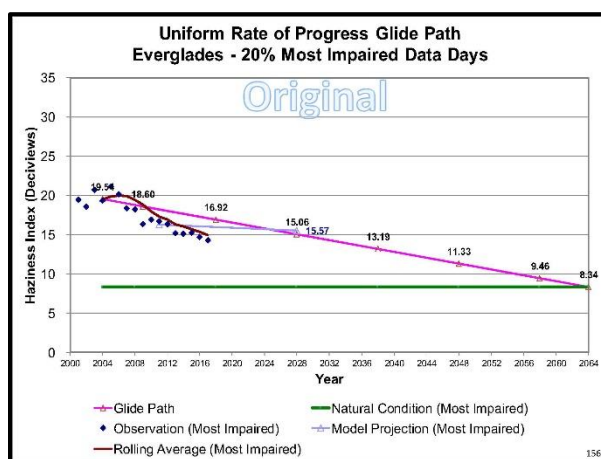
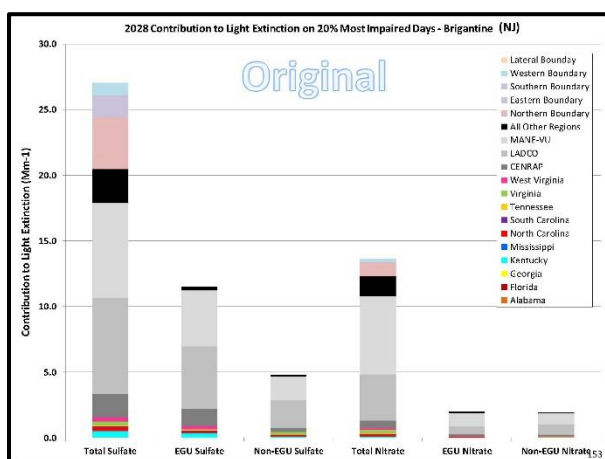
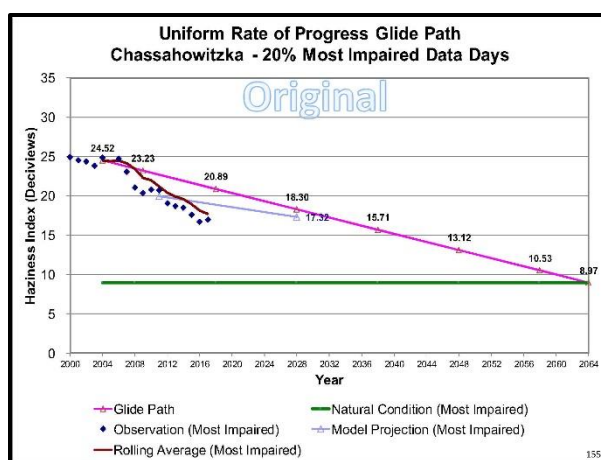
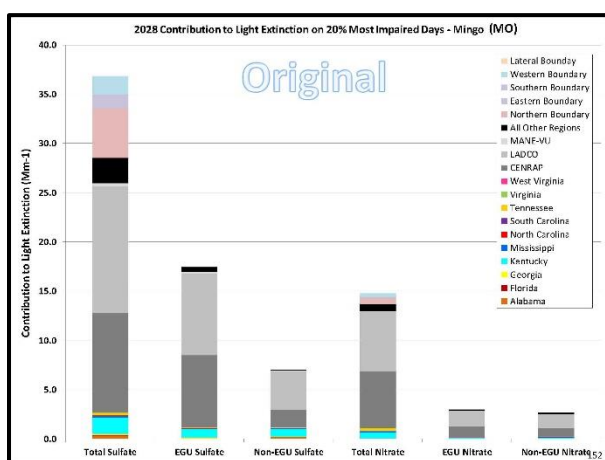
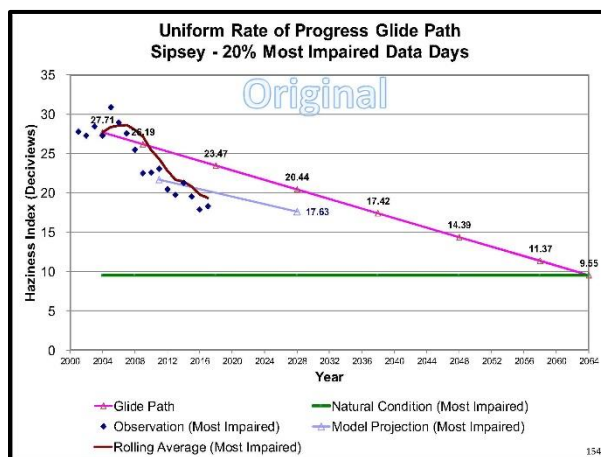
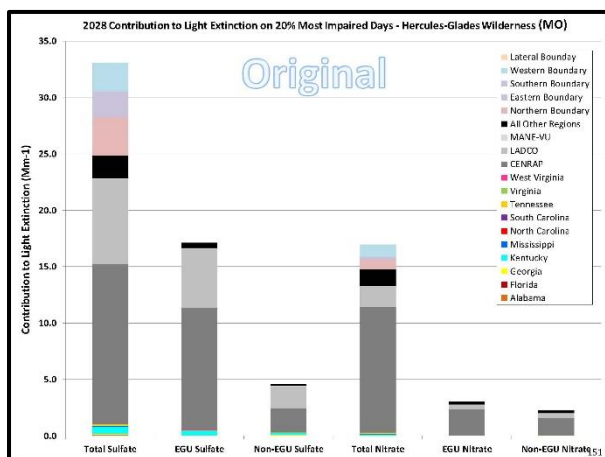


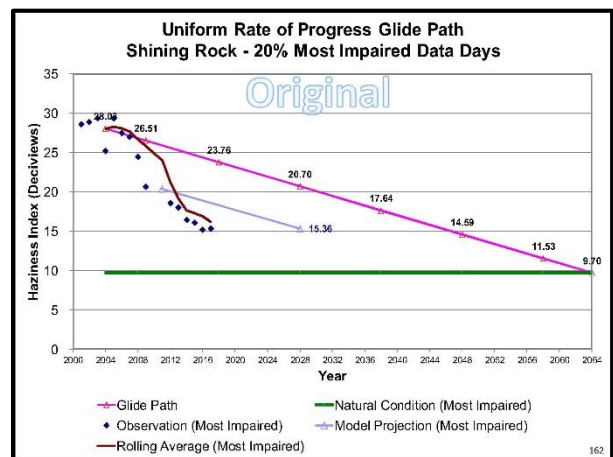
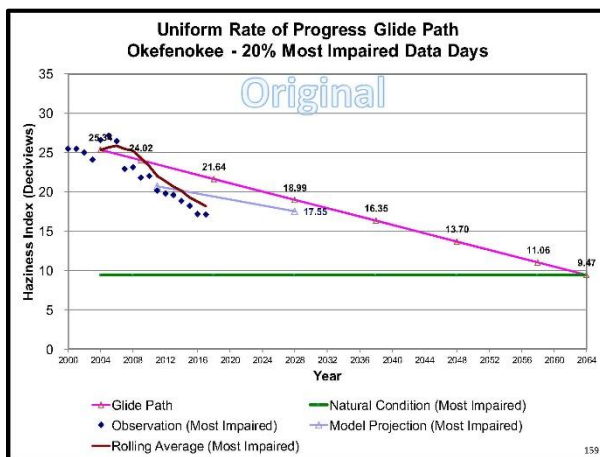
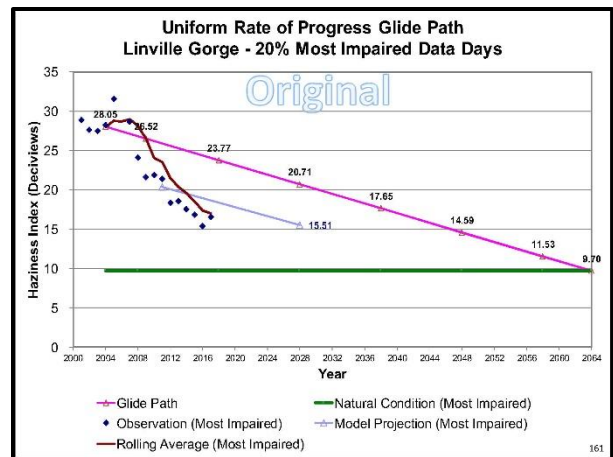
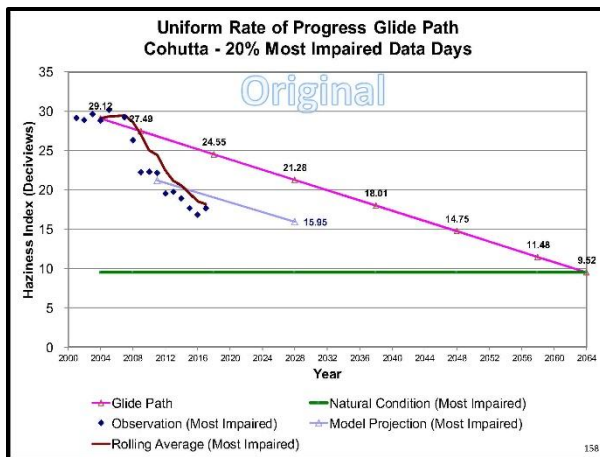
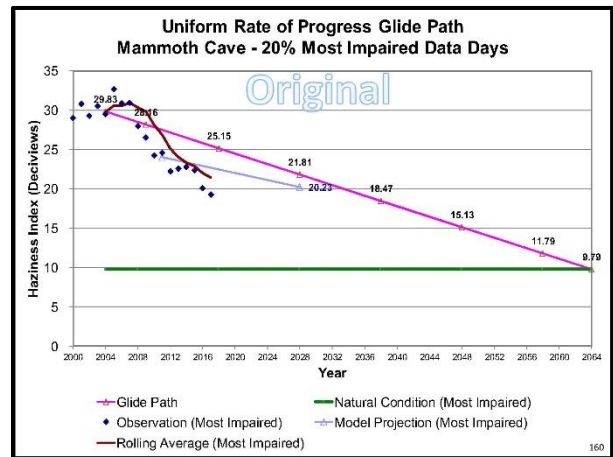
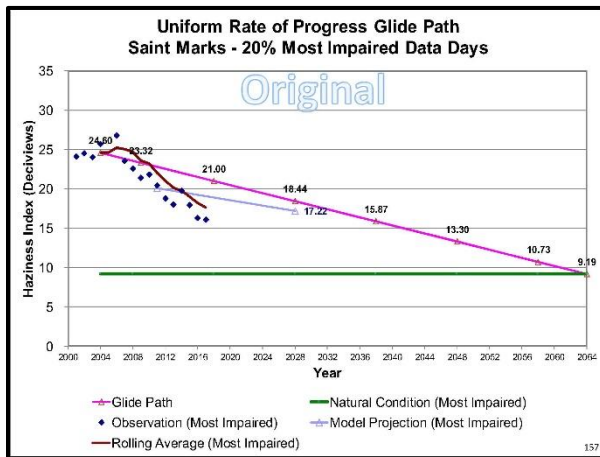




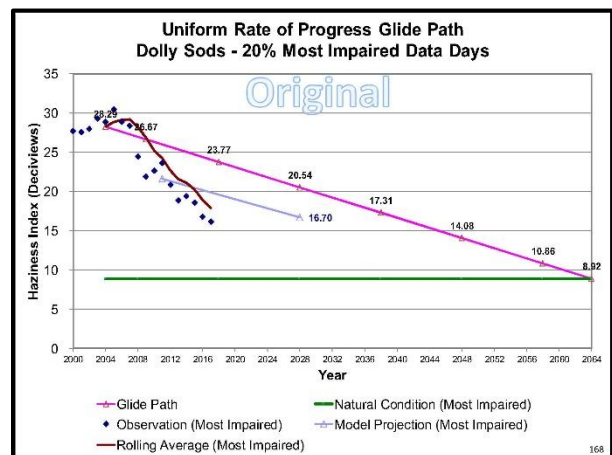
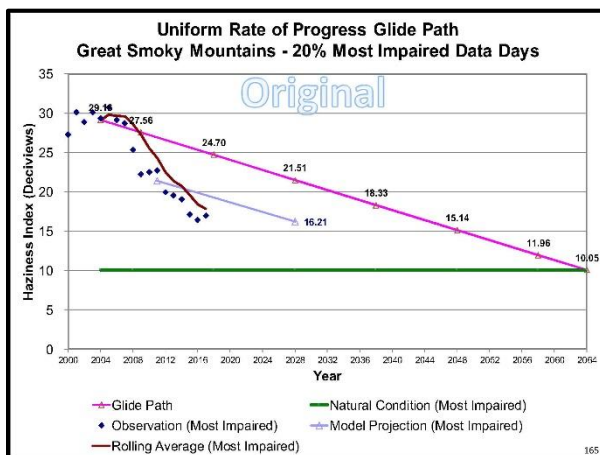
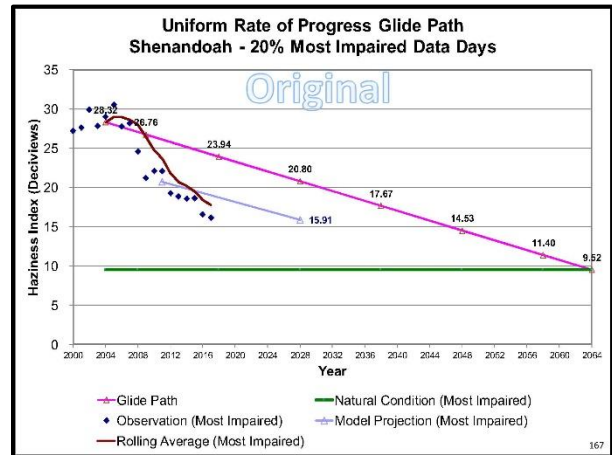
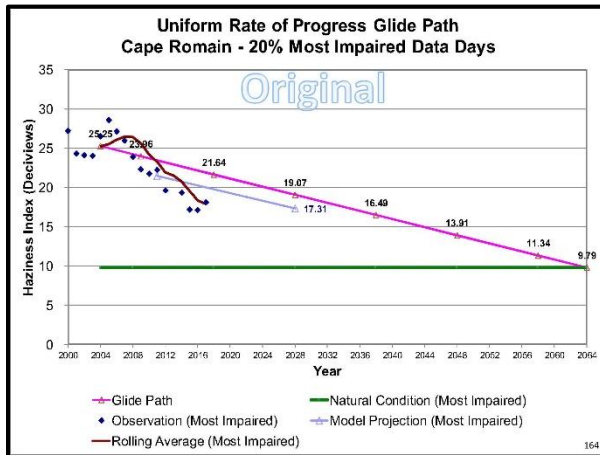
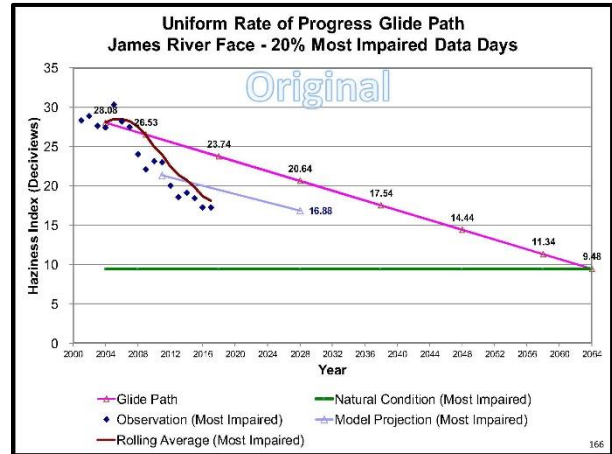
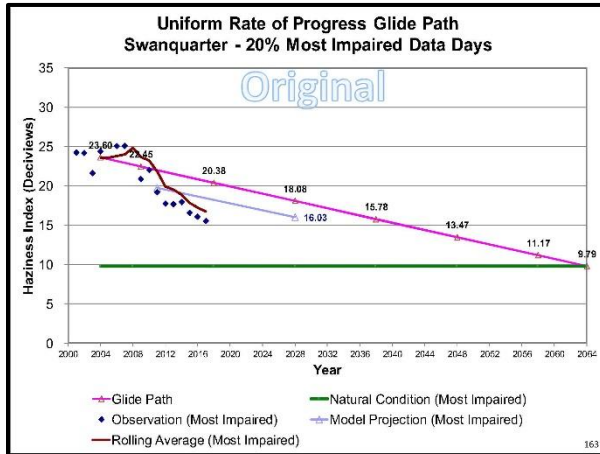


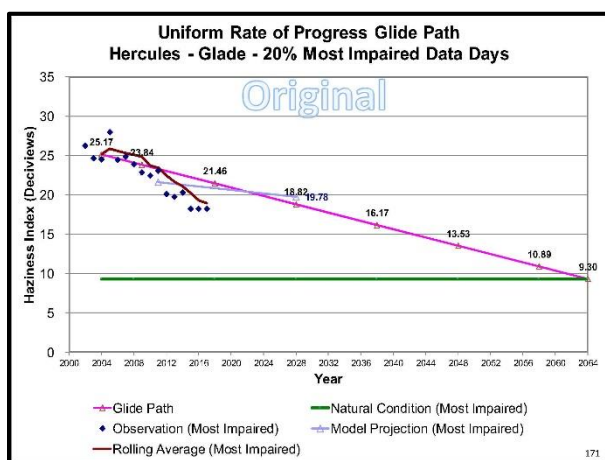
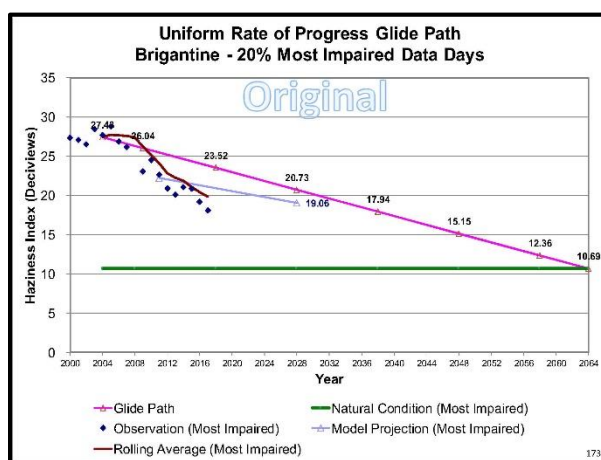
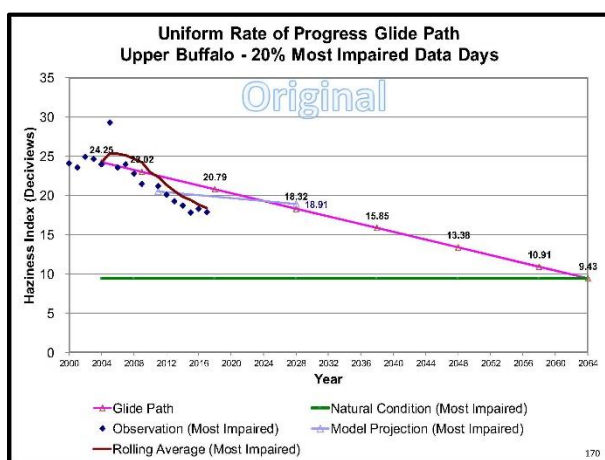
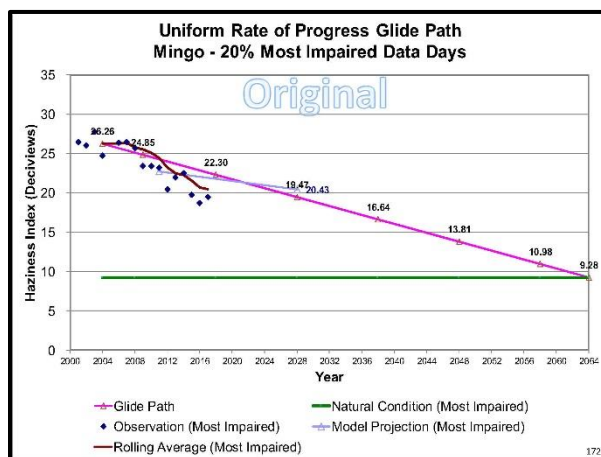
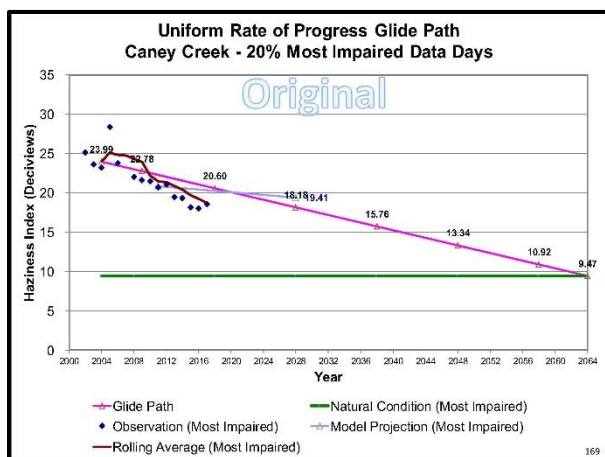












**Sipsey Wilderness Area (AL)**

State	Facility ID	Facility Name	DISTANCE, km	Sulfate AOI %	Sulfate AOI % Original	Sulfate PSAT %	Sulfate PSAT % Original	Nitrate AOI %	Nitrate PSAT %	Nitrate PSAT % Original	Final Revised Nitrate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.2	3.31%	1.61%	2.22%	0.57%	0.04%	0.05%		
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	650.9	0.38%	2.75%	1.59%	0.01%	0.09%	0.13%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	5.72%	4.09%	1.99%	0.31%	0.23%	0.31%		
IN	18051-7363111	Gibson	418.7	2.85%	2.12%	1.65%	0.27%	0.19%	0.18%		
IN	18123-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	1.72%	2.19%	1.57%	0.23%	0.23%	0.16%		
TN	47161-4979311	TVA CLIMBERLAND FOSSIL PLANT	238.9	3.18%	1.07%	1.48%	0.48%	0.12%	0.17%		
VO	25163-5363811	VLAV MADRID POWER PLANT - VARIOUS	314.5	1.48%	1.40%	1.14%	0.25%	0.08%	0.07%		
KY	21183-5561811	Big Rivers Electric Corp - Wilson Station	343.5	1.99%	0.93%	1.29%	0.07%	0.04%	0.05%		
<b>Facilities That Dropped Off After REVISION</b>											
IL	17122-7808911	Joplin Steam	346.5	1.94%	1.51%	0.87%	0.75%	0.03%	0.02%		
IN	18178-8181111	ALCOA - WARRICK POWER PLT AGC DIV OF AL	396.3	0.91%	1.07%	0.41%	0.62%	0.52%	0.19%		

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## Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12017-640631	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	63.62%	9.55%	6.24%	1.95%	0.00%	0.23%
GA	13015-2813011	Ba Power Company - Plant Bowen	637.2	0.03%	1.72%	2.28%	0.00%	0.02%	0.03%
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	106.8	4.73%	0.96%	1.28%	0.24%	0.05%	0.07%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.03%	0.76%	1.01%	0.00%	0.04%	0.05%
AL	01109-985711	Sanders Lead Co	471.2	0.15%	0.76%	1.00%	0.00%	0.03%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
AR	05063-1081411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.05%	1.47%	0.83%	0.00%	0.09%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,099.6	0.03%	1.23%	0.53%	0.00%	0.04%	0.06%
AL	01053-7440221	Escambia Operating Company LLC	530.7	0.21%	1.57%	0.41%	0.00%	0.01%	0.01%

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## Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	1.71%	3.41%	2.44%	0.02%	0.05%	0.07%
GA	13015-2813011	Ba Power Company - Plant Bowen	78.0	10.58%	1.56%	2.13%	1.15%	0.03%	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	2.18%	1.05%	1.44%	0.07%	0.01%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	4.68%	2.84%	1.37%	0.13%	0.03%	0.04%
DH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	1.05%	2.06%	1.31%	0.06%	0.03%	0.04%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.99%	0.92%	1.25%	0.09%	0.07%	0.09%
PA	42003-3866111	GENON NF MGMT CO/KRYSTONF STA	801.1	0.14%	2.06%	1.04%	0.00%	0.01%	0.01%
IN	18051-7363111	Gibson	487.1	2.31%	1.35%	1.03%	0.10%	0.02%	0.02%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	2.18%	1.19%	0.84%	0.16%	0.03%	0.02%
TN	47145-4379121	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.10%	0.93%	0.13%	0.06%	0.02%

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## Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	3.02%	2.56%	3.30%	0.08%	0.00%	0.00%
FL	12105-915811	MOSAC FERTILIZER, LLC	304.7	2.21%	2.09%	2.62%	0.01%	0.00%	0.00%
FL	12105-717711	MOSAC FERTILIZER LLC	389.3	2.26%	3.55%	2.60%	0.00%	0.00%	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.36%	0.17%	0.23%	2.02%	0.76%	2.63%

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## Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	71.5	14.63%	4.32%	2.77%	0.03%	0.01%	0.01%
GA	13015-2813011	Ba Power Company - Plant Bowen	458.1	1.02%	1.74%	2.33%	0.05%	0.04%	0.05%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	2.18%	1.64%	2.16%	0.14%	0.11%	0.14%
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.46%	2.19%	1.51%	0.01%	0.01%	0.01%
FL	12089-753711	ROCK TENN CP, LLC	64.8	12.82%	1.00%	1.31%	0.88%	0.11%	0.19%
SC	45015-4120411	SANTE COOPER CROSS GENERATING STATION	348.1	0.85%	0.89%	1.18%	0.05%	0.03%	0.04%
GA	13051-3679811	International Paper - Savannah	178.5	2.81%	0.79%	1.04%	0.08%	0.05%	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.23%	0.78%	1.03%	0.00%	0.03%	0.04%
PA	42003-3866111	GENON NF MGMT CO/KRYSTONF STA	1,129.0	0.46%	2.09%	1.02%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
DH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	871.9	0.09%	1.34%	0.83%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	915.7	0.53%	1.40%	0.65%	0.01%	0.02%	0.03%

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## St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
GA	13015-2813011	Ba Power Company - Plant Bowen	453.9	0.38%	3.59%	4.83%	0.01%	0.03%	0.03%
FL	12005-535411	ROCKTENN CP LLC	140.8	8.54%	3.38%	4.60%	0.24%	0.09%	0.13%
AL	01109-985711	Sanders Lead Co	255.9	0.06%	0.82%	1.12%	0.00%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
AL	01097-1086111	Ala Power - Berry	382.1	1.47%	2.43%	0.97%	0.03%	0.02%	0.02%
AL	01053-7440211	Escambia Operating Company LLC	375.4	5.92%	3.53%	0.95%	0.01%	0.02%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	908.4	0.33%	1.67%	0.80%	0.00%	0.01%	0.01%
PA	42003-3866111	GENON NF MGMT CO/KRYSTONF STA	1,251.0	0.29%	1.29%	0.65%	0.01%	0.02%	0.02%
AL	01053-7440211	Escambia Operating Company LLC	315.0	0.05%	1.68%	0.02%	0.00%	0.02%	0.02%

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## Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
FL	12089-753711	ROCK TENN CP, LLC	74.9	8.56%	1.79%	2.35%	0.39%	0.11%	0.14%
GA	13015-2813011	Ba Power Company - Plant Bowen	458.1	1.08%	1.78%	2.33%	0.03%	0.04%	0.05%
GA	13127-3721011	Brunswick Cellulose Inc	27.9	8.84%	1.34%	1.70%	2.94%	0.10%	0.13%
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	845.3	1.71%	2.51%	1.73%	0.02%	0.02%	0.02%
GA	13051-3679811	International Paper - Savannah	85.9	7.53%	1.18%	1.54%	0.24%	0.07%	0.09%
SC	45015-4120411	SANTE COOPER CROSS GENERATING STATION	251.0	1.59%	0.99%	1.30%	0.09%	0.06%	0.08%
FL	12031-440211	IEA	105.1	4.43%	0.96%	1.29%	0.09%	0.03%	0.06%
SC	45015-4894911	ALLIANCE OF SOUTH CAROLINA	223.0	1.84%	0.95%	1.25%	0.00%	0.01%	0.01%
PA	42003-3866111	GENON NF MGMT CO/KRYSTONF STA	1,048.6	0.84%	2.07%	1.15%	0.01%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
DH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.07%	1.25%	0.76%	0.00%	0.02%	0.02%
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	173.6	1.97%	1.05%	0.67%	0.01%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	899.0	0.37%	1.38%	0.64%	0.00%	0.02%	0.03%

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## Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	16.88%	3.57%	2.68%	2.60%	0.26%	0.33%
IN	18051-7363111	Gibson	158.2	5.21%	2.16%	1.63%	1.20%	0.35%	0.33%
KY	21185-5561611	Big Rivers Electric Corp. - Wilson Station	89.9	6.73%	1.07%	1.43%	0.37%	0.66%	0.08%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	1.60%	0.86%	1.15%	0.15%	0.14%	0.19%
VO	25143-5363811	NEW MADRID POWER PLANT-VARSTON	512.7	0.66%	1.29%	1.14%	0.04%	0.07%	0.09%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETTUSBURG	182.9	3.09%	1.50%	1.04%	0.96%	0.40%	0.27%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	1.21%	1.43%	0.89%	0.14%	0.12%	0.12%
OH	39053-8148511	General James M. Gavin Power Plant	406.5	1.45%	1.25%	0.81%	0.04%	0.02%	0.02%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.30%	1.25%	0.65%	0.04%	0.05%	0.02%
IN	18173-8183112	ALCOA - WARRICK POWER PLT AGC DIV OF AL	136.1	2.05%	1.03%	0.40%	1.74%	0.82%	0.30%
IN	18125-8166111	Egyce AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.60%	0.27%	0.06%	0.00%

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## Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GEVON NE M/GM/T CO/KEYSTONE STA	640.2	3.00%	6.66%	3.41%	0.08%	0.08%	0.03%
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	37.89%	2.16%	3.02%	0.57%	0.05%	0.06%
OH	39053-8148511	General James M. Gavin Power Plant (0627010065)	651.5	1.77%	2.74%	2.01%	0.06%	0.03%	0.05%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.35%	1.00%	1.86%	0.02%	0.03%	0.08%
MD	74001-7763811	Luke Paper Company	512.5	0.43%	2.88%	1.75%	0.02%	0.05%	0.07%
WV	54033-6271711	ALLIANT ENERGY SUPPLY CO, LLC- HARRISON	568.6	0.67%	1.19%	1.71%	0.08%	0.10%	0.12%
CA	42063-3005211	IONILR CITY GLN LP/ (CNLIR) WP	620.1	0.55%	1.27%	1.38%	0.05%	0.05%	0.07%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.84%	1.22%	1.17%	0.07%	0.03%	0.05%
GA	13015-2813011	Ea Power Company - Plant Bowen	810.6	0.15%	0.74%	1.03%	0.00%	0.02%	0.03%
NC	37117-8049311	Bonstar Paper Company, LLC	89.0	2.27%	0.72%	1.00%	1.02%	0.14%	0.20%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1,005.3	0.34%	1.69%	0.83%	0.02%	0.03%	0.04%

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## Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	19.21%	2.87%	4.05%	0.66%	0.07%	0.10%
OH	39053-8148511	General James M. Gavin Power Plant (0627010065)	379.2	5.92%	4.67%	3.46%	0.04%	0.01%	0.02%
PA	42003-3866111	GEVON NE M/GM/T CO/KEYSTONE STA	567.5	0.94%	3.49%	1.82%	0.00%	0.00%	0.00%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	626.3	0.28%	0.95%	1.34%	0.00%	0.01%	0.02%
TN	47161-4879311	TVA CLUMBERLAND FOSSIL PLANT	516.6	0.11%	0.85%	1.30%	0.00%	0.01%	0.01%
GA	13015-2813011	Ea Power Company - Plant Bowen	349.9	0.33%	0.80%	1.13%	0.02%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	303.5	1.38%	2.22%	1.10%	0.01%	0.07%	0.09%
IN	18051-7363111	Gibson	382.3	0.67%	1.25%	1.07%	0.01%	0.07%	0.07%
VO	25143-5363811	NEW MADRID POWER PLANT-VARSTON	698.6	0.03%	1.11%	1.01%	0.00%	0.00%	0.00%
VA	51027-4034811	Jewell Coke Company LLP	149.4	5.94%	0.73%	1.02%	0.01%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.86%	0.00%	0.01%	0.00%
MD	24021-7763811	Luke Paper Company	463.8	0.23%	1.37%	0.84%	0.00%	0.00%	0.00%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETTUSBURG	550.5	0.36%	1.12%	0.82%	0.01%	0.07%	0.05%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.3	2.62%	1.00%	0.66%	0.03%	0.02%	0.03%

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## Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
SC	45013-4973611	KAPSTONE CHARLESTON KRAFT LLC	29.3	30.18%	2.86%	3.73%	2.74%	0.25%	0.33%
GA	13015-2813011	Ea Power Company - Plant Bowen	506.2	0.36%	2.71%	3.53%	0.01%	0.10%	0.14%
SC	45015-4834911	ALURAK OF SOUTH CAROLINA	19.1	12.07%	1.79%	2.33%	0.03%	0.02%	0.03%
PA	42003-3866111	GEVON NE M/GM/T CO/KEYSTONE STA	827.3	0.30%	4.74%	2.28%	0.00%	0.01%	0.01%
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	63.8	6.57%	1.73%	2.25%	0.45%	0.21%	0.27%
OH	39053-8148511	General James M. Gavin Power Plant (0627010065)	701.0	0.84%	3.18%	2.17%	0.00%	0.03%	0.04%
SC	45043-5496611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.64%	0.35%	0.11%	0.15%
GA	45043-6452811	SANTEE COOPER WINYAH GENERATING STATION	51.4	4.60%	1.02%	1.33%	0.38%	0.13%	0.17%
CA	13015-3479811	International Paper - Savannah	166.1	1.76%	0.99%	1.28%	0.04%	0.05%	0.06%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	776.2	0.11%	1.14%	0.69%	0.00%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	868.3	0.06%	1.18%	0.54%	0.00%	0.07%	0.08%

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## Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant	397.3	1.39%	3.26%	2.41%	0.01%	0.01%	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	573.4	0.47%	1.16%	1.63%	0.01%	0.02%	0.02%
TN	47161-4879311	TVA CLUMBERLAND FOSSIL PLANT	454.1	0.54%	0.93%	1.32%	0.02%	0.01%	0.02%
GA	13015-2813011	Ea Power Company - Plant Bowen	241.6	1.70%	0.82%	1.19%	0.07%	0.01%	0.01%
VO	25143-5363811	NEW MADRID POWER PLANT-VARSTON	625.7	0.36%	1.37%	1.28%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.70%	2.55%	1.27%	0.01%	0.07%	0.09%
PA	42003-3866111	GEVON NE M/GM/T CO/KEYSTONE STA	657.6	0.49%	2.36%	1.23%	0.00%	0.00%	0.00%
IN	18051-7363111	Gibson	524.2	0.29%	1.35%	1.23%	0.01%	0.07%	0.07%
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill (1113020154)	16.9	41.29%	2.14%	1.08%	6.65%	0.07%	0.10%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	1.37%	1.59%	1.05%	0.03%	0.01%	0.01%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.13%	1.74%	1.04%	0.00%	0.01%	0.01%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	126.9	4.43%	0.74%	1.04%	0.40%	0.02%	0.03%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETTUSBURG	529.0	0.18%	1.72%	0.82%	0.01%	0.11%	0.08%
IL	17127-7608911	Topco Sclerol	582.4	0.23%	1.07%	0.59%	0.00%	0.01%	0.02%

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## Great Smoky Mountains National Park (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010065)	400.5	2.75%	5.10%	3.73%	0.04%	0.02%	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	1.34%	0.94%	1.32%	0.02%	0.06%	0.08%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	160.1	6.01%	0.88%	1.27%	0.13%	0.04%	0.05%
PA	42003-3866111	GEVON NE M/GM/T CO/KEYSTONE STA	688.2	0.11%	2.51%	1.19%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	4.66%	2.42%	1.19%	0.21%	0.19%	0.25%
IN	18051-7363111	Gibson	456.3	1.75%	1.94%	1.05%	0.07%	0.77%	0.77%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	1.84%	1.50%	0.98%	0.09%	0.02%	0.02%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETTUSBURG	435.6	1.48%	1.08%	0.78%	0.12%	0.29%	0.20%
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.72%	0.02%	0.01%	0.00%
TN	47163-3982311	TVA KINGSTON FOSSIL PLANT	80.0	2.38%	1.23%	0.88%	0.71%	0.08%	0.03%

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## Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	475.1	4.73%	4.69%	3.45%	0.05%	0.01%	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.84%	0.99%	1.38%	0.05%	0.07%	0.10%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	179.2	5.88%	0.93%	3.30%	0.36%	0.62%	0.02%
PA	42003-3866111	GENON NE V.G.V.T CO/KEYSTONE STA	711.0	0.27%	2.17%	1.12%	0.00%	0.00%	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	391.2	4.33%	2.27%	1.12%	0.14%	0.36%	0.22%
GA	13015-2813011	Isa Power Company - Plant Bowen	166.2	3.61%	0.79%	1.11%	0.10%	0.61%	0.01%
IN	18051-7363111	Gibson	471.7	2.00%	1.29%	1.02%	0.11%	0.23%	0.21%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	3.63%	1.53%	1.00%	0.06%	0.01%	0.01%
<b>Facilities That Dropped Off After REVISION</b>									
AR	05062-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	1.58%	1.36%	0.81%	0.05%	0.02%	0.01%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	453.0	2.16%	1.00%	0.72%	0.14%	0.23%	0.16%
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	78.7	7.68%	1.24%	0.39%	0.57%	0.30%	0.03%

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## Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	13.58%	4.94%	7.18%	1.36%	0.26%	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	233.8	7.62%	6.56%	4.88%	0.10%	0.03%	0.05%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	4.64%	4.32%	4.19%	0.16%	0.07%	0.10%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	1.36%	2.14%	4.02%	0.03%	0.01%	0.03%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	1.40%	2.25%	1.69%	0.02%	0.04%	0.05%
WV	54051-6902311	MITCHELL PLANT	144.2	1.45%	1.28%	1.42%	0.07%	0.02%	0.05%
PA	42003-3866111	GENON NE V.G.V.T CO/KEYSTONE STA	172.8	4.12%	2.43%	1.27%	0.01%	0.00%	0.00%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.62%	0.66%	1.18%	0.11%	0.02%	0.02%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	3.56%	1.45%	1.14%	0.11%	0.01%	0.03%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	79.8	6.33%	1.27%	1.13%	1.07%	0.18%	0.23%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.12%	0.74%	1.05%	0.00%	0.01%	0.02%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18051-7363111	Gibson	729.5	0.04%	1.24%	0.90%	0.02%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ASP ROCKPORT	676.3	0.44%	1.93%	0.97%	0.01%	0.02%	0.03%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	682.6	0.18%	1.05%	0.77%	0.02%	0.04%	0.03%
OH	39051-8010811	Kenesville Power Plant (0616000000)	242.3	0.71%	1.09%	0.00%	0.17%	0.05%	0.00%

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## James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	7.66%	5.41%	4.04%	0.14%	0.08%	0.11%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	207.6	2.76%	2.51%	3.65%	0.38%	0.32%	0.14%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	1.35%	1.92%	3.61%	0.04%	0.02%	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	3.87%	2.33%	2.26%	0.15%	0.69%	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.93%	0.13%	0.05%	0.11%
PA	42003-3866111	GENON NE V.G.V.T CO/KEYSTONE STA	317.1	2.98%	2.88%	1.51%	0.06%	0.03%	0.04%
VA	51580-5798711	Meadowcroft Packaging Resource Group	46.5	12.64%	1.02%	1.45%	1.14%	0.15%	0.22%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.63%	0.66%	1.18%	0.16%	0.04%	0.04%
WV	54051-6902311	MITCHELL PLANT	269.6	0.68%	0.97%	1.08%	0.03%	0.02%	0.04%
<b>Facilities That Dropped Off After REVISION</b>									
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.69%	1.39%	0.92%	0.05%	0.06%	0.06%
IN	18051-7363111	Gibson	729.4	0.59%	1.02%	0.82%	0.02%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	663.5	0.56%	1.33%	0.66%	0.03%	0.01%	0.02%

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## Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	17.37%	4.49%	6.51%	1.81%	0.26%	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	10.46%	7.08%	5.25%	0.18%	0.04%	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	8.19%	4.39%	4.24%	0.30%	0.08%	0.12%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	1.94%	2.03%	3.81%	0.05%	0.02%	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	1.12%	2.40%	1.58%	0.02%	0.06%	0.06%
WV	54051-6902311	MITCHELL PLANT	138.8	1.56%	1.40%	1.56%	0.06%	0.03%	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	4.36%	1.67%	1.31%	0.12%	0.02%	0.04%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.85%	0.71%	1.27%	0.20%	0.02%	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	826.5	0.18%	0.77%	1.09%	0.00%	0.01%	0.02%
IN	18051-7363111	Gibson	709.7	0.24%	1.27%	1.01%	0.03%	0.05%	0.05%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	4.98%	1.14%	1.00%	0.92%	0.20%	0.24%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	655.7	0.64%	2.01%	1.00%	0.01%	0.03%	0.04%
PA	42003-3866111	GENON NE V.G.V.T CO/KEYSTONE STA	186.5	3.73%	1.91%	1.00%	0.03%	0.00%	0.00%
<b>Facilities That Dropped Off After REVISION</b>									
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.04%	0.03%
OH	39051-8010811	Kenesville Power Plant (0616000000)	212.8	1.12%	1.67%	0.00%	0.17%	0.05%	0.00%

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## Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GENON NE V.G.V.T CO/KEYSTONE STA	249.8	11.83%	8.89%	4.81%	0.10%	0.05%	0.06%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	1.53%	2.32%	4.50%	0.06%	0.05%	0.12%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	189.7	4.60%	2.75%	8.14%	0.99%	0.37%	0.46%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	373.4	5.75%	4.88%	3.75%	0.14%	0.10%	0.14%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	4.97%	2.20%	2.20%	0.24%	0.18%	0.28%
PA	42003-3866111	HOMER CITY GEN LP/CENTER TWP	230.1	2.60%	1.56%	1.78%	0.13%	0.04%	0.06%
MD	24001-7763811	Luke Paper Company	118.4	6.90%	2.20%	1.41%	0.23%	0.09%	0.14%
PA	42003-3866111	NRC WHOLESALE GEN/SFWARD GEN STA	215.5	1.80%	1.00%	1.17%	0.04%	0.02%	0.02%
WV	54051-6902311	MITCHELL PLANT	251.8	1.46%	0.88%	1.01%	0.11%	0.08%	0.16%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.43%	0.55%	1.01%	0.16%	0.06%	0.06%
<b>Facilities That Dropped Off After REVISION</b>									
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.97%	1.27%	0.47%	0.60%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	1.31%	1.28%	0.87%	0.11%	0.05%	0.06%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	295.6	2.09%	1.04%	0.84%	0.09%	0.09%	0.19%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	755.8	0.71%	1.46%	0.76%	0.03%	0.02%	0.03%

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## **Appendix F-3l - VISTAS Regional Haze Project Update to EPA Region 3, Region 4, and OAQPS -July 30, 2020**

# VISTAS Regional Haze Project Update



EPA Region 4, Region 3, and OAQPS Briefing  
Jim Boylan  
July 30, 2020

## Why 1% Threshold?

- In the Round 1 Regional Haze SIPs, many VISTAS states used the AOI approach and a 1% threshold on a Unit basis.
  - Round 2 uses the AOI/PSAT approach and a  $\geq 1.00\%$  PSAT threshold based on a Facility basis.
    - This pulled in more facilities compared to a Unit basis.
  - Round 2 uses 2028 emissions (lower than 2018)
    - This pulled in more facilities with smaller visibility impacts (in  $\text{Mm}^{-1}$ ) compared to Round 1.
- This approach results in a reasonable number of sources that can be evaluated with limited state resources and focuses on the sources and pollutants with the largest impacts.

## Outline

- Reasonable Progress Screening Approach
- Area of Influence
- PSAT Results
- Initial List of Sources
- EPA Discussion



## Area of Influence (AOI) Analysis

- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula:  $(Q/d) * \text{EWRT}$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most impaired days
- Can use contributions to rank and screen facilities for the four-factor analysis

## Reasonable Progress Screening Approach

1. The VISTAS reasonable progress work started with AOI screening ( $Q/d * \text{EWRT}$ ) to rank sectors and facilities based on their sulfate and nitrate contributions at each Class I area.
2. These rankings were used to identify 87 individual facilities for PSAT tagging. PSAT tagging was used to determine the sulfate and nitrate contributions from each facility at each Class I area in the VISTAS\_12 domain.
3. Each individual VISTAS state will apply a PSAT contribution threshold based on the facility sulfate and facility nitrate impacts (separately, not combined) divided by the total impact of sulfate + nitrate from all point sources to determine which sources may need to be considered for a four-factor analysis.
  - If sulfate contribution  $\geq 1.00\% \rightarrow \text{SO}_2$  Four-Factor Analysis
  - If nitrate contribution  $\geq 1.00\% \rightarrow \text{NO}_x$  Four-Factor Analysis

## AOI Source Categories for WOLF

SOURCE CATEGORY	NO <sub>x</sub>	SO <sub>2</sub>	TOTAL
NONPOINT	1.7%	2.8%	4.4%
NONROAD_MAR	2.9%	1.5%	4.4%
NONROAD_OTHER	3.3%	0.3%	3.6%
ONROAD	5.7%	0.7%	6.4%
POINT	7.3%	67.9%	75.2%
PT_FIRES_PRESCRIBED	0.9%	5.1%	6.0%
<b>TOTAL</b>	<b>21.8%</b>	<b>78.2%</b>	<b>100.0%</b>

## AOI Screening Summary

State	Threshold	Notes
AL	2%	Sulfate only
FL	5%	Sulfate or nitrate, plus Gulf Crist, Mosaic Bartow, Mosaic New Wales, and Mosaic Riverview
GA	2% - 4%	Sulfate or nitrate, 2% threshold for GA facilities, 4% threshold for facilities outside GA
KY	2%	Sulfate or nitrate
MS	2%	Sulfate or nitrate
NC	3%	Sulfate + nitrate
SC	2% - 5%	2% for sulfate, 5% for nitrate, plus Santee Cooper Winyah, International Paper Georgetown, and SCE&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2% - 2%	Sulfate or nitrate

Each VISTAS state selected their threshold based on their state-specific situation and will document the selection process in their SIP.

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## Facility Tags (KY, MS, NC, SC, TN, VA)

Facility State	Facility BPO	FACILITY ID STD	FACILITY NAME STD	SO2 (TPY)	NOx (TPY)
KY	VISTAS	21189-536011	Ingersoll Electric Corp. - Wilson Station	5,334.16	1,131.95
KY	VISTAS	21091-752411	Century Aluminum of KY LLC	5,044.16	197.66
KY	VISTAS	21177-510671	Tennessee Valley Authority - Paradise Fossil Plant	3,011.01	3,114.52
KY	VISTAS	21145-401701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	19,304.75	2,007.34
MS	VISTAS	28059-538811	Chevron Products Company - Pascagoula Refinery	761.60	1,534.12
MS	VISTAS	28059-625101	Mississippi Power Company, Plant Victor J. Daniel	231.52	3,829.72
NC	VISTAS	37087-720511	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-804511	Dominion Paper Company, LLC	687.45	1,786.45
NC	VISTAS	37035-837041	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.31
NC	VISTAS	37013-847931	PCS Phosphate Company, Inc. - Aurora	4,845.90	495.58
NC	VISTAS	37023-851801	SGL Carbon - LLC	261.64	21.09
SC	VISTAS	45015-404911	ALUMAX OF SOUTH CAROLINA	3,751.49	108.08
SC	VISTAS	45043-509811	INTERNATIONAL PAPER GEORGETOWN MILL	2,767.52	2,031.26
SC	VISTAS	45019-497611	KAPSTONE CHARLESTON KRAFT LLC	1,863.45	2,355.82
SC	VISTAS	45013-417041	Santee Cooper Cross Generating Station	4,261.17	3,273.47
SC	VISTAS	45043-665281	Santee Cooper Winyah Generating Station	2,546.86	1,772.53
SC	VISTAS	45015-830671	SCE&G WILLIAMS	392.48	992.73
TN	VISTAS	47091-497911	Cemex - Knoxville Plant	1,211.47	711.50
TN	VISTAS	47163-198211	EASTMAN CHEMICAL COMPANY	6,900.33	6,900.33
TN	VISTAS	47105-412921	TATE & LYLE, Loudon	477.76	883.25
TN	VISTAS	47001-619601	TVA BULL RUN FOSSIL PLANT	6,222.54	964.16
TN	VISTAS	47163-497911	TVA CUMBERLAND FOSSIL PLANT	8,427.23	4,916.10
TN	VISTAS	47145-497911	TVA KINGSTON FOSSIL PLANT	1,586.09	1,687.38
VA	VISTAS	51027-404811	Jewell Coke Company LP	5,090.95	520.17
VA	VISTAS	51280-578711	Meadwestvaco Packaging Resource Group	2,115.11	1,985.69
VA	VISTAS	51023-503611	Roundbay Cement Company	2,250.17	1,972.57

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## AOI Point Contributions for Wolf Island

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
GA	Brunswick Cellulose Inc	27.9	1,554.5	294.2	2.94%	8.84%
FL	ROCK TENN CP, LLC	74.9	2,316.8	2,606.7	0.39%	8.56%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.93%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	105.1	651.3	2,094.5	0.09%	4.43%
GA	White Springs Agricultural Chemicals, Inc.	109.9	351.5	1,860.2	0.03%	2.65%
SC	ALUMAX OF SOUTH CAROLINA	173.6	112.4	2,745.0	0.01%	1.97%
FL	RAYONIER PERFORMANCE FIBERS LLC	223.0	108.1	3,751.7	0.00%	1.84%
FL	REMNOLD ELECTRIC COOPERATIVE, INC.	77.4	2,327.1	562.0	0.38%	1.79%
FL	General James M. Gavin Power Plant (0627010056)	181.4	917.8	3,713.4	0.02%	1.77%
OH	Santee Cooper Cross Generating Station	845.3	8,122.5	41,595.8	0.02%	1.71%
SC	Santee Cooper Cross Generating Station	251.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	0.00%	1.55%
FL	IFF CHEMICAL HOLDINGS, INC.	118.5	37.7	898.9	0.00%	1.22%
FL	DUKE ENERGY FLORIDA, INC. (DEP)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	458.1	6,643.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	521.6	582.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	1,780.3	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	30.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	SENON NE MGMT. CO/KEYSTONE STA	1,048.6	6,578.5	56,335.2	0.01%	0.84%

By setting the AOI threshold at GA's levels, a reasonable number of tags and facilities were identified and 35.0% of the total sulfate + nitrate point contribution was captured.

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## Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility BPO	FACILITY ID STD	FACILITY NAME STD	SO2 (TPY)	NOx (TPY)
WV	VISTAS	54013-627171	ALLEGHENY ENERGY SUPPLY CO. LLC-HARRISON	10,082.54	11,830.08
WV	VISTAS	54049-486411	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	2,210.25	1,245.10
WV	VISTAS	54079-678911	APPALACHIAN POWER COMPANY - JOHN AMOS PLANT	10,584.24	4,878.10
WV	VISTAS	54023-625701	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,123.64	1,984.14
WV	VISTAS	54041-690031	EQUITRANS - COPELY RUN CS 70	0.10	511.06
WV	VISTAS	54083-670711	FILES CREEK 6C4340	0.15	643.35
WV	VISTAS	54083-670611	GLADY 6C4350	0.11	343.29
WV	VISTAS	54089-632781	KINGSFORD MANUFACTURING COMPANY	16.96	140.88
WV	VISTAS	54061-163201	LONGVIEW POWER	2,313.73	1,556.57
WV	VISTAS	54051-690211	MICHELL PLANT	5,372.40	2,729.42
WV	VISTAS	54061-677611	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,883.87	13,743.32
WV	VISTAS	54073-478281	MONONGAHELA POWER CO. - PLEASANTS POWER STA	16,817.43	5,497.37
WV	VISTAS	54061-677811	MORGANTOWN ENERGY ASSOCIATES	328.64	655.38
AR	CENRAP	05063-108411	ENTERGY ARKANSAS INC. INDEPENDENCE PLANT	32,659.48	14,113.10
MO	CENRAP	19143-536381	NEW MADRID POWER PLANT-MADRID	16,783.71	4,394.10
MD	MANE-VU	24001-776381	Lux Paper Company	22,639.84	3,607.00
PA	MANE-VU	42005-366111	SENON NE MGMT. CO/KEYSTONE STA	56,335.25	6,578.47
PA	MANE-VU	42063-300521	HOMER CITY GEN LP/ CENTER TWP	11,865.70	5,215.96
PA	MANE-VU	42063-300511	NRG WHOLESALE GEN/SEWARD GEN STA	8,880.26	2,254.04
IL	Midwest BPO	17127-780811	Joppa Steam	20,599.28	4,766.35
IN	Midwest BPO	18173-818111	Alcoa Warrick Power PB Agc Div of AL	5,671.26	11,158.55
IN	Midwest BPO	18051-796311	Gibson	23,117.28	12,280.34
IN	Midwest BPO	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	30,536.53	8,806.77
IN	Midwest BPO	18125-782411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	18,141.88	10,665.27
IN	Midwest BPO	18129-616611	Sigeco AB Brown South Indiana Gas & Ele	7,644.70	1,578.59
OH	Midwest BPO	39081-811571	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	7,460.79	2,467.31
OH	Midwest BPO	39011-801081	Ceresville Power Plant (0616000000)	6,154.23	5,957.87
OH	Midwest BPO	39025-629411	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	22,113.80	7,149.57
OH	Midwest BPO	39053-814811	General James M. Gavin Power Plant (0627010056)	41,595.81	8,122.51
OH	Midwest BPO	39033-796301	Ohio Valley Electric Corp. - Sugar Creek Station (0627000003)	3,400.14	9,143.04

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## Facility Tags (AL, FL, GA)

Facility State	Facility BPO	FACILITY ID STD	FACILITY NAME STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01091-540811	Akzo Nobel Chemicals Inc	3,135.72	20.71
AL	VISTAS	01092-505611	Ala Power - Barry	6,601.17	2,275.76
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	3,106.38	425.87
AL	VISTAS	01073-101871	DRUMMOND COMPANY, INC.	2,362.17	1,228.55
AL	VISTAS	01053-740011	Escombria Operating Company LLC	18,574.39	349.32
AL	VISTAS	01053-985111	Escombria Operating Company LLC	8,585.80	149.64
AL	VISTAS	01103-100011	Nucor Steel Decatur LLC	170.28	331.24
AL	VISTAS	01109-985711	Sanders Lead Co	7,951.06	121.71
AL	VISTAS	01057-106111	Union Oil of California - Chunchula Gas Plant	2,575.15	348.25
FL	VISTAS	12223-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1,520.42	1,830.75
FL	VISTAS	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.52	910.36
FL	VISTAS	12105-910811	DUKE ENERGY FLORIDA, INC. (DEP)	5,305.41	2,489.85
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (FPL)	11.09	110.63
FL	VISTAS	12033-752711	GULF POWER - Crist	2,615.65	2,998.28
FL	VISTAS	12086-352711	HOMESTEAD CITY UTILITIES	0.00	97.09
FL	VISTAS	12011-640211	JEA	2,054.48	601.77
FL	VISTAS	12105-717711	MOSAIC FERTILIZER LLC	7,900.67	810.42
FL	VISTAS	12057-716411	MOSAIC FERTILIZER, LLC	3,034.06	159.71
FL	VISTAS	12105-910811	MOSAIC FERTILIZER, LLC	4,425.56	141.62
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS LLC	561.57	2,527.10
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	2,608.72	2,316.77
FL	VISTAS	12005-155411	ROCK TENN CP LLC	2,190.88	1,464.89
FL	VISTAS	12129-773711	TALLAHASSEE CITY JORDON GENERATING STA.	2.86	121.46
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	6,084.90	2,665.03
FL	VISTAS	12086-899911	TARMAC AMERICA LLC	9.38	879.70
FL	VISTAS	12047-709711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	3,157.77	112.41
GA	VISTAS	13127-772101	Brunswick Cellulose Inc	794.20	1,554.51
GA	VISTAS	13015-281301	Ga Power Company - Plant Bowen	10,453.42	6,643.32
GA	VISTAS	13103-538311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13013-507811	International Paper - Savannah	1,565.38	1,560.17
GA	VISTAS	13113-539311	TEMPLE INLAND	1,791.00	1,773.33

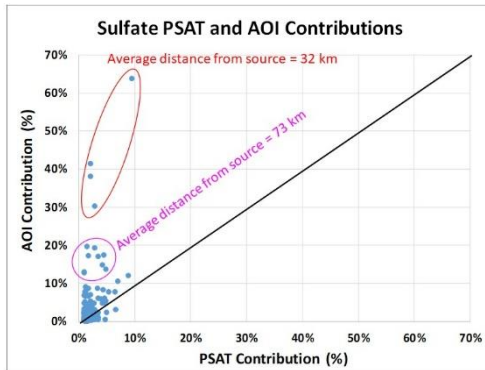
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## PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO<sub>2</sub> tagging
- Used for further evaluation of AOI results
- Refines information on contributions to visibility impairment
- Can be used to adjust future year visibility projections to account for additional emission controls
- VISTAS contract with ERG allows for up to 250 tags

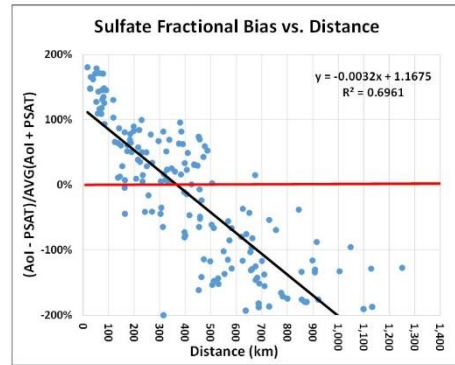
12

### Sulfate AOI vs. Sulfate PSAT ( $\geq 1.00\%$ )



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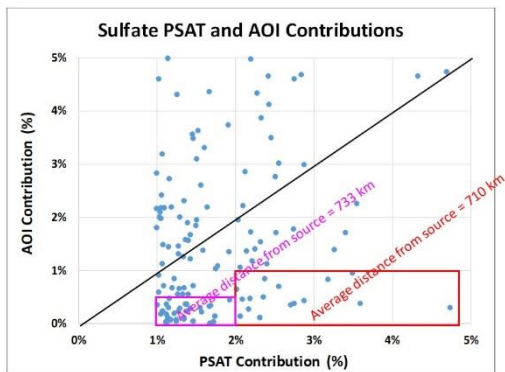
### Sulfate Fractional Bias vs. Distance



FB = 100% means that the Aol value is 3x the PSAT value.

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### Sulfate AOI vs. Sulfate PSAT ( $\geq 1.00\%$ )



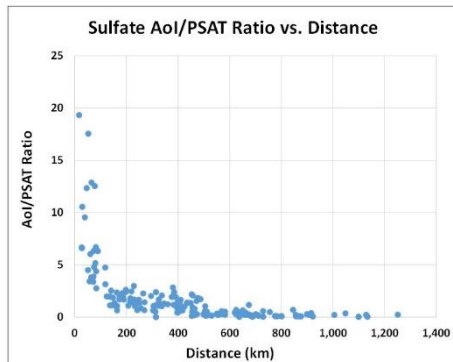
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### AOI vs. PSAT Summary

- AOI tends to overestimate impacts for facilities near the Class I area. This brought in more nearby sources.
- AOI tends to underestimate impacts for facilities far away from the Class I area. This may miss some far away sources, but they are likely being captured by other Class I areas that are closer to those sources.
- PSAT is the most reliable modeling tool for tracking facility contributions to visibility impairment at Class I areas.

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### Sulfate AOI/PSAT Ratio vs. Distance



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### PSAT Reasonable Progress Screening

- The **facility sulfate and nitrate contributions** ( $\text{Mm}^{-1}$ ) from the individual 87 tagged facilities should not change unless a facility has reduced or increased  $\text{SO}_2$  and/or  $\text{NO}_x$  emissions.
- The updated 2028 CAMx modeling will impact the **total sulfate and total nitrate contribution** from point sources at each Class I area since the  $\text{SO}_2$  and  $\text{NO}_x$  emissions have decreased.
  - The facility percent contribution will increase even if the facility emissions do not change since the denominator will decrease

**Facility Sulfate Contribution (%) =**

$$\frac{\text{Facility Sulfate Impact (Mm}^{-1}\text{)} \downarrow \uparrow}{\text{Total Impact of All Point Sources of Sulfate + Nitrate (Mm}^{-1}\text{)} \downarrow}$$

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### Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	897.7	0.964	16.970	2.22%	0.009	16.970	0.03%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	690.9	0.327	16.370	1.99%	0.021	16.370	0.13%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	0.327	16.370	1.99%	0.050	16.370	0.31%
IN	18051-7363111	Gibson	448.7	0.270	16.370	1.65%	0.029	16.370	0.18%
IN	18125-7363411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	0.258	16.370	1.57%	0.026	16.370	0.16%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	228.9	0.242	16.970	1.48%	0.038	16.970	0.17%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	314.5	0.220	16.370	1.34%	0.012	16.370	0.07%
KY	21189-5561611	Big Rivers Electric Corp. - Wilson Station	845.5	0.211	16.970	1.29%	0.008	16.970	0.09%

8 Facilities Identified for Reasonable Progress Analysis addressing more than 13.5% of the entire sulfate plus nitrate point source visibility impact in 2028.

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### St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
GA	13015-2813011	Ga Power Company - Plant Bowen	492.9	0.574	11.729	4.89%	0.004	11.729	0.03%
FL	12005-535411	ROCKTECH CP LLC	140.8	0.540	11.729	4.60%	0.015	11.729	0.13%
AL	01109-985711	Sanders Lead Co	255.9	0.131	11.729	1.12%	0.000	11.729	0.00%

3 Facilities Identified for Reasonable Progress Analysis addressing more than 10.6% of the entire sulfate plus nitrate point source visibility impact in 2028.

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### Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
FL	12017-540611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	0.629	10.092	5.24%	0.023	10.092	0.03%
GA	13015-2813011	Ga Power Company - Plant Bowen	637.2	0.230	10.092	2.28%	0.003	10.092	0.03%
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	106.8	0.129	10.092	1.28%	0.007	10.092	0.07%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1,098.0	0.102	10.092	1.01%	0.005	10.092	0.09%
AL	01109-985711	Sanders Lead Co	471.2	0.101	10.092	1.00%	0.001	10.092	0.01%

5 Facilities Identified for Reasonable Progress Analysis addressing more than 11.8% of the entire sulfate plus nitrate point source visibility impact in 2028.

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### Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	0.322	13.229	2.44%	0.009	13.229	0.07%
GA	13015-2813011	Ga Power Company - Plant Bowen	78.0	0.282	13.229	2.13%	0.005	13.229	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	497.2	0.190	13.229	1.44%	0.002	13.229	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	0.181	13.229	1.37%	0.005	13.229	0.04%
OH	39025-8294311	Pulse Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	0.173	13.229	1.31%	0.005	13.229	0.04%
TN	47169-8982811	EASTMAN CHEMICAL COMPANY	269.8	0.165	13.229	1.23%	0.012	13.229	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	801.1	0.137	13.229	1.04%	0.002	13.229	0.01%
IN	18051-7363111	Gibson	487.1	0.137	13.229	1.02%	0.002	13.229	0.02%

8 Facilities Identified for Reasonable Progress Analysis addressing more than 12.0% of the entire sulfate plus nitrate point source visibility impact in 2028.

23

### Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
FL	12097-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.044	1.333	9.30%	0.000	1.333	0.00%
FL	12108-919811	MOSAIC FERTILIZER, LLC	304.7	0.035	1.333	2.42%	0.000	1.333	0.00%
FL	12108-717711	MOSAIC FERTILIZER LLC	303.3	0.035	1.333	2.40%	0.000	1.333	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.003	1.333	0.23%	0.035	1.333	2.63%

4 Facilities Identified for Reasonable Progress Analysis addressing more than 11.2% of the entire sulfate plus nitrate point source visibility impact in 2028.

21

### Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	71.5	0.372	13.400	2.77%	0.002	13.400	0.01%
GA	13015-2813011	Ga Power Company - Plant Bowen	458.1	0.308	13.400	2.30%	0.007	13.400	0.05%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	133.5	0.289	13.400	2.16%	0.019	13.400	0.14%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.203	13.400	1.51%	0.002	13.400	0.01%
FL	12089-753711	ROCK TENDR CP, LLC	64.8	0.176	13.400	1.31%	0.020	13.400	0.13%
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	348.1	0.158	13.400	1.18%	0.006	13.400	0.04%
GA	13051-3679811	International Paper - Savannah	178.9	0.140	13.400	1.04%	0.008	13.400	0.06%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	939.4	0.138	13.400	1.03%	0.006	13.400	0.04%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,129.0	0.137	13.400	1.02%	0.002	13.400	0.01%

9 Facilities Identified for Reasonable Progress Analysis addressing more than 14.3% of the entire sulfate plus nitrate point source visibility impact in 2028.

24



### Wolf Island Wilderness (GA)

				DISTANCE_m	FINAL Revised Sulfate PSAT Mm <sup>-3</sup>	FINAL Revised Nitrate PSAT Mm <sup>-3</sup>	FINAL Revised EGU + HEGU Mm <sup>-3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
State	Facility ID	Facility Name								
FL	12089-753711	ROCK TENN CP, LLC		74.9	0.304	12.957	2.33%	0.018	12.957	0.14%
GA	13015-2813011	Ga Power Company - Plant Bowen		458.1	0.302	12.957	2.33%	0.007	12.957	0.05%
GA	13127-8721011	Brunswick Cellulose Inc		27.9	0.228	12.957	1.76%	0.017	12.957	0.13%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)		845.3	0.224	12.957	1.73%	0.003	12.957	0.02%
GA	13051-3679811	International Paper - Savannah		85.9	0.200	12.957	1.54%	0.012	12.957	0.09%
SC	45015-4120411	Santee Cooper Cross GENERATING STATION		251.0	0.168	12.957	1.30%	0.011	12.957	0.08%
FL	12081-440211	SEA		109.1	0.147	12.957	1.19%	0.008	12.957	0.06%
SC	45015-4894911	ALUMAX OF SOUTH CAROLINA		229.0	0.162	12.957	1.23%	0.001	12.957	0.01%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA		1,048.6	0.149	12.957	1.15%	0.002	12.957	0.01%

9 Facilities Identified for Reasonable Progress Analysis addressing more than 14.7% of the entire sulfate plus nitrate point source visibility impact in 2028.

25

### Shining Rock Wilderness Area (NC)



12 Facilities Identified for Reasonable Progress Analysis addressing more than 15.9% of the entire sulfate plus nitrate point source visibility impact in 2028.

28

### Mammoth Cave NP (KY)

			DISTANCE_m	FINAL Revised Sulfate PSAT Mm <sup>-3</sup>	FINAL Revised EGU + HEGU Mm <sup>-3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Mm <sup>-3</sup>	FINAL Revised Nitrate PSAT %	
State	Facility ID	Facility Name							
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	0.426	25.289	1.68%	0.085	25.289	0.33%
IN	18051-7363111	Gilson	198.2	0.411	25.289	1.67%	0.084	25.289	0.33%
KY	21183-5561611	Big Rivers Electric Corp. - Wilson Station	89.9	0.361	25.289	1.43%	0.020	25.289	0.08%
KY	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	0.290	25.289	1.13%	0.049	25.289	0.19%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	312.7	0.289	25.289	1.14%	0.022	25.289	0.09%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	182.9	0.264	25.289	1.05%	0.068	25.289	0.27%

6 Facilities Identified for Reasonable Progress Analysis addressing more than 8.1% of the entire sulfate plus nitrate point source visibility impact in 2028.

26

### Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name		DISTANCE_m	FINAL Revised Sulfate PSAT Mm <sup>-3</sup>	FINAL Revised Nitrate PSAT Mm <sup>-3</sup>	FINAL Revised EGU + HEGU Mm <sup>-3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA		640.2	0.375	10.894	3.44%	0.009	10.894
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora		52.5	0.329	10.894	3.02%	0.007	10.894
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)		651.5	0.219	10.894	2.01%	0.005	10.894
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)		659.6	0.203	10.894	1.86%	0.007	10.894
MD	24001-7763811	Luke Paper Company		512.5	0.191	10.894	1.75%	0.008	10.894
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON		568.6	0.186	10.894	1.71%	0.013	10.894
VA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP		620.1	0.151	10.894	1.38%	0.008	10.894
WV	54078-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA		625.7	0.127	10.894	1.17%	0.005	10.894
GA	13015-2813011	Ga Power Company - Plant Bowen		810.6	0.112	10.894	1.03%	0.003	10.894
NC	37117-8049911	Domtar Paper Company, LLC		69.0	0.109	10.894	1.00%	0.022	10.894

10 Facilities Identified for Reasonable Progress Analysis addressing more than 18.4% of the entire sulfate plus nitrate point source visibility impact in 2028.

29

### Linville Gorge Wilderness Area (NC)

				DISTANCE_m	FINAL Revised Sulfate PSAT Mm <sup>-3</sup>	FINAL Revised EGU + HEGU Mm <sup>-3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
State	Facility ID	Facility Name								
TN	47163-5982311	EASTMAN CHEMICAL COMPANY		81.9	0.522	12.884	4.05%	0.013	12.884	0.10%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)		329.2	0.446	12.884	3.46%	0.002	12.884	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA		567.5	0.235	12.884	1.82%	0.000	12.884	0.00%
KY	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant		626.3	0.172	12.884	1.34%	0.002	12.884	0.02%
KY	21183-5561611	Big Rivers Electric Corp. - Wilson Station		516.6	0.154	12.884	1.20%	0.001	12.884	0.01%
GA	13015-2813011	Ga Power Company - Plant Bowen		340.9	0.146	12.884	1.13%	0.000	12.884	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT		503.5	0.142	12.884	1.10%	0.012	12.884	0.09%
IN	18051-7363111	Gilson		582.3	0.138	12.884	1.07%	0.008	12.884	0.07%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON		688.6	0.134	12.884	1.05%	0.000	12.884	0.00%
VA	51027-4034811	Jewell Coke Company LLP		140.4	0.132	12.884	1.02%	0.000	12.884	0.00%

10 Facilities Identified for Reasonable Progress Analysis addressing more than 17.2% of the entire sulfate plus nitrate point source visibility impact in 2028.

27

### Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Mm <sup>-3</sup>	FINAL Revised Nitrate PSAT Mm <sup>-3</sup>	FINAL Revised EGU + HEGU Mm <sup>-3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
SC	45015-4979311	KAPSTONE CHARLESTON KRAFT LLC	29.3	0.523	14.028	3.73%	0.046	14.028	0.33%
GA	13015-2813011	Ga Power Company - Plant Bowen	506.2	0.495	14.028	3.53%	0.019	14.028	0.14%
SC	45015-4894911	ALUMAX OF SOUTH CAROLINA	19.1	0.327	14.028	2.33%	0.003	14.028	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	857.1	0.320	14.028	2.28%	0.002	14.028	0.01%
SC	45015-4120411	Santee Cooper Cross GENERATING STATION	63.8	0.316	14.028	2.25%	0.008	14.028	0.27%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.305	14.028	2.17%	0.005	14.028	0.04%
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	0.230	14.028	1.64%	0.021	14.028	0.15%
SC	45043-6652811	Santee Cooper WINYAH GENERATING STATION	51.4	0.187	14.028	1.33%	0.024	14.028	0.17%
GA	13051-3679811	International Paper - Savannah	166.1	0.180	14.028	1.28%	0.009	14.028	0.06%

9 Facilities Identified for Reasonable Progress Analysis addressing more than 20.6% of the entire sulfate plus nitrate point source visibility impact in 2028.

30

## Great Smoky Mountains National Park (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	0.520	13.916	3.72%	0.003	13.916	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	0.189	13.916	1.82%	0.011	13.916	0.08%
TN	47169-3982311	EASTMAN CHEMICAL COMPANY	160.1	0.170	13.916	1.22%	0.007	13.916	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	688.2	0.166	13.916	1.19%	0.001	13.916	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	375.5	0.166	13.916	1.19%	0.035	13.916	0.25%
IN	18051-7363111	Gibson	456.3	0.146	13.916	1.05%	0.037	13.916	0.27%

6 Facilities Identified for Reasonable Progress Analysis addressing more than 9.7% of the entire sulfate plus nitrate point source visibility impact in 2028.

31

## Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	249.8	0.740	15.375	4.81%	0.009	15.375	0.06%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	0.692	15.375	4.50%	0.018	15.375	0.12%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	189.7	0.636	15.375	4.14%	0.070	15.375	0.46%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	323.4	0.576	15.375	3.75%	0.022	15.375	0.14%
WV	54078-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	0.389	15.375	2.20%	0.048	15.375	0.28%
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	230.4	0.274	15.375	1.78%	0.010	15.375	0.06%
MD	24001-7763811	Luke Paper Company	118.4	0.216	15.375	1.41%	0.021	15.375	0.14%
PA	42063-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	215.3	0.172	15.375	1.12%	0.003	15.375	0.02%
WV	54001-6902311	MITCHELL PLANT	281.8	0.155	15.375	1.01%	0.009	15.375	0.06%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.155	15.375	1.01%	0.009	15.375	0.06%

10 Facilities Identified for Reasonable Progress Analysis addressing more than 25.7% of the entire sulfate plus nitrate point source visibility impact in 2028.

34

## Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	425.1	0.473	13.694	3.45%	0.002	13.694	0.01%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.189	13.694	1.88%	0.014	13.694	0.10%
TN	47169-3982311	EASTMAN CHEMICAL COMPANY	179.2	0.178	13.694	1.30%	0.003	13.694	0.02%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	711.0	0.154	13.694	1.12%	0.000	13.694	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	391.2	0.154	13.694	1.12%	0.030	13.694	0.22%
GA	13015-2813011	Ga Power Company - Plant Bowen	166.2	0.152	13.694	1.11%	0.001	13.694	0.01%
IN	18051-7363111	Gibson	471.7	0.139	13.694	1.02%	0.029	13.694	0.21%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	0.137	13.694	1.00%	0.002	13.694	0.01%

8 Facilities Identified for Reasonable Progress Analysis addressing more than 11.5% of the entire sulfate plus nitrate point source visibility impact in 2028.

32

## Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	1.390	19.349	7.18%	0.059	19.349	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	233.8	0.945	19.349	4.88%	0.009	19.349	0.05%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	0.810	19.349	4.19%	0.020	19.349	0.10%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	0.778	19.349	4.02%	0.007	19.349	0.03%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	416.9	0.288	19.349	1.43%	0.010	19.349	0.05%
WV	54051-6902311	MITCHELL PLANT	144.2	0.276	19.349	1.42%	0.009	19.349	0.05%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	172.8	0.260	19.349	1.27%	0.001	19.349	0.00%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.229	19.349	1.18%	0.003	19.349	0.02%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	0.221	19.349	1.14%	0.006	19.349	0.03%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	79.8	0.218	19.349	1.13%	0.044	19.349	0.23%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.204	19.349	1.05%	0.003	19.349	0.02%

11 Facilities Identified for Reasonable Progress Analysis addressing more than 29.0% of the entire sulfate plus nitrate point source visibility impact in 2028.

35

## James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	0.582	14.404	4.04%	0.016	14.404	0.11%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	207.6	0.526	14.404	3.63%	0.020	14.404	0.14%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	0.520	14.404	3.61%	0.008	14.404	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	0.325	14.404	2.26%	0.007	14.404	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	0.278	14.404	1.93%	0.016	14.404	0.12%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	337.1	0.217	14.404	1.51%	0.005	14.404	0.04%
VA	51180-5798711	Meadowlands Packaging Resources Group	46.9	0.209	14.404	1.48%	0.031	14.404	0.22%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.170	14.404	1.18%	0.006	14.404	0.04%
WV	54051-6902311	MITCHELL PLANT	269.6	0.156	14.404	1.08%	0.006	14.404	0.04%

9 Facilities Identified for Reasonable Progress Analysis addressing more than 20.7% of the entire sulfate plus nitrate point source visibility impact in 2028.

33

## Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + HEGU Mm <sup>3</sup>
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	1.242	19.077	6.51%	0.059	19.077	0.31%
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	1.001	19.077	5.25%	0.011	19.077	0.06%
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.8	0.809	19.077	4.24%	0.023	19.077	0.12%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	0.727	19.077	3.81%	0.008	19.077	0.04%
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	397.5	0.302	19.077	1.58%	0.012	19.077	0.06%
WV	54051-6902311	MITCHELL PLANT	136.8	0.297	19.077	1.54%	0.010	19.077	0.05%
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	0.249	19.077	1.31%	0.007	19.077	0.04%
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.242	19.077	1.27%	0.004	19.077	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	826.5	0.207	19.077	1.09%	0.003	19.077	0.02%
IN	18051-7363111	Gibson	709.7	0.193	19.077	1.01%	0.009	19.077	0.05%
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	0.192	19.077	1.00%	0.046	19.077	0.24%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	655.7	0.191	19.077	1.00%	0.007	19.077	0.04%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	186.5	0.190	19.077	1.00%	0.001	19.077	0.00%

13 Facilities Identified for Reasonable Progress Analysis addressing more than 30.6% of the entire sulfate plus nitrate point source visibility impact in 2028.

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## Non-VISTAS Class I Areas

- Only two VISTAS facilities have a contribution  $\geq 1.00\%$  at any non-VISTAS Class I Area
- ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON (WV)**
  - Moosehorn Wilderness EDM (1.06% sulfate)
- Tennessee Valley Authority (TVA) - Shawnee Fossil Plant (KY)**
  - Caney Creek Wilderness Area (1.09% sulfate)
  - Hercules-Glades Wilderness Area (1.95% sulfate)
  - Mingo Wilderness Area (1.47% sulfate)
  - Great Gulf Wilderness Area (1.03% sulfate)
  - Presidential Range-Dry River Wilderness (1.03% sulfate)

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## Non-VISTAS Facilities $\geq 1.00\%$

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
AR	05083-1081411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	SHRO
IN	18053-7983111	Gibson	COHU, GRSM, JOYC, LIGO, MACA, OTCR, SHRO, SIPS
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	COHU, GRSM, JOYC, LIGO, MACA, OTCR, SHRO, SIPS
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	MACA, SIPS
MD	24003-7763811	Luke Paper Company	SHEN, SWAN
MO	29148-5563811	NEW MADRID POWER PLANT-MARSTON	LIGO, MACA, SHRO, SIPS
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	DOSO, JARI, OTCR, SHEN, SWAN
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	COHU, DOSO, JOYC, OTCR, SHRO
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	COHU, DOSO, GRSM, JARI, JOYC, LIGO, OKEF, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39053-7983011	Ohio Valley Electric Corp., Eyer Creek Station (0627000003)	DOSO, JARI, OTCR, SHEN
PA	42005-1886111	GENON NE MGMT CO/KEYSTONE STA	COHU, DOSO, GRSM, JARI, JOYC, LIGO, OKEF, OTCR, ROMA, SHEN, SHRO, SWAN, WOLF
PA	42063-3005211	WOMER CITY GEN LP/CENTER TWP	SHEN, SWAN
PA	42063-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	SHEN

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## Summary for VISTAS Class I Areas

VISTAS FEDERAL CLASS I AREAS	Number of Facilities	Percent of Point Sulfate + Nitrate
AL - Sipsey Wilderness Area (SIPS)	8	13.5%
FL - Chassahowitzka Wilderness Area (CHAS)	5	11.8%
FL - Everglades National Park (EVER)	4	11.2%
FL - Saint Marks Wilderness Area (SAMA)	3	10.6%
GA - Cohutta Wilderness Area (COHU)	8	12.0%
GA - Okefenokee Wilderness Area (OKEF)	9	14.3%
GA - Wolf Island Wilderness Area (WOLF)*	9	14.7%
KY - Mammoth Cave National Park (MACA)	6	8.1%
NC - Linville Gorge Wilderness Area (LIGO)	10	17.2%
NC - Shining Rock Wilderness Area (SHRO)	12	15.9%
NC - Swanquarter Wilderness Area (SWAN)	10	18.4%
SC - Cape Romain Wilderness Area (ROMA)	9	20.6%
TN/NC - Great Smoky Mountains National Park (GRSM)	6	9.7%
TN/NC - Joyce Kilmer-Slickrock Wilderness Area (JOYC)*	8	11.5%
VA - James River Face Wilderness Area (JARI)	9	20.7%
VA - Shenandoah National Park (SHEN)	10	25.7%
WV - Dolly Sods Wilderness Area (DOSO)	11	29.0%
WV - Otter Creek Wilderness Area (OTCR)*	13	30.6%
<b>AVERAGE</b>	<b>8.3</b>	<b>16.4%</b>

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## Thoughts for Discussion

- VISTAS used a screening approach with Aol (various thresholds) and PSAT (1.00% threshold). This resulted in an average of 8\* facilities per Class I area and accounts for an average of 16.4% of the point source sulfate + nitrate contributions. This should be more than adequate especially accounting for all the other recent emission controls that are already built into our 2028 emission projections (next slide).
- The VISTAS focus is on significant emission impacts on Class I areas, not on the number of facilities evaluated in each state.
- Some facilities may be interested in taking permit limits resulting in adjusted PSAT impacts below the 1.00% threshold, thus avoiding the four-factor analysis.
- We are uncertain of the documentation required to apply the four factor analysis off-ramps (e.g., MATS) discussed in the August 2019 guidance.
- We are not aware of the triggers that might require incorporation of permit conditions into the Regional Haze SIPs.

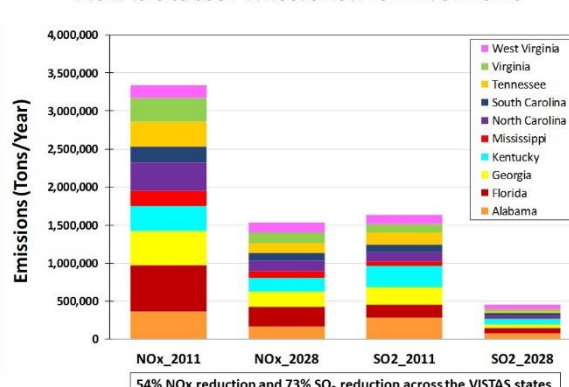
41

## VISTAS Facilities $\geq 1.00\%$

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
AL	01109-9857111	Sanders Lead Co	CHAS, SAMA
FL	12123-7534211	BUCKEYE FLORIDA LIMITED PARTNERSHIP	OKEF
FL	12031-6400111	DUKE ENERGY FLORIDA, INC. (DEF)	CHAS
FL	12031-6402111	IEA	WOLF
FL	12103-5717711	MOSAIC FERTILIZER LLC	EVER
FL	12103-5718111	MOSAIC FERTILIZER, LLC	EVER
FL	12089-7537111	ROCK TENN CP, LLC	OKEF, WOLF
FL	12085-5554111	ROCKTENN CO, LLC	SAMA
FL	12053-5388611	TAMPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12089-8999111	TARIMAC AMERICA LLC	EVER
FL	12040-7697111	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	OKEF
GA	13141-2712101	Biovonka Cellulose, Inc.	WOLF
GA	13015-2813021	Ga Power Company - Plant Bowen	CHAS, COHU, JOYC, LIGO, OKEF, ROMA, SAMA, SHRO, SWAN, WOLF
GA	13021-3679811	International Paper - Savannah	OKEF, ROMA, WOLF
KY	21185-5561811	Big Rivers Electric Corp. - Wilson Station	MACA, SIPS
KY	21145-4037021	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, COHU, DOSO, GRSM, HESL, JOYC, LIGO, MACA, MING, OKEF, OTCR, PRDR, SHRO, SIPS
NC	37087-7202511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	37117-8049311	Domtar Paper Company, LLC	SWAN
NC	37011-8479111	PCS Phosphate Company, Inc. - Aurora	SWAN
SC	45015-4843411	ALLSTATE OF SOUTH CAROLINA	ROMA, WOLF
SC	45043-5698811	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45019-4973821	KAPSTONE CHARLESTON KRAFT LLC	ROMA
SC	45024-4228411	SANTEE COOPER CROSBY GENERATING STATION	OKEF, ROMA, WOLF
SC	45043-6652821	SANTEE COOPER WINNIE GENERATING STATION	ROMA
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	COHU, GRSM, JOYC, LIGO, SHRO
TN	47161-4879311	TVA CUMBERLAND FOSSIL PLANT	LIGO, SHRO, SIPS
VA	51017-4034811	Jewell Coke Company LLP	JARI
VA	51580-5798711	Meadwestvaco Packaging Resource Group	JARI
WV	54001-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JARI, MING, OTCR, SHEN, SWAN
WV	54078-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	DOSO, JARI, OTCR
WV	54051-6902311	MITCHELL PLANT	DOSO, JARI, OTCR, SHEN
WV	54061-6778611	MONONGAHELA POWER CO - FORT MARTIN POWER	DOSO, OTCR
WV	54073-6782611	MONONGAHELA POWER COMPANY-SANTS POWER STA	DOSO, JARI, OTCR, SHEN, SWAN

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## VISTAS States Emissions: 2011 vs. 2028



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### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Co-chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - TAWG – Doris McLeod ([doris.mcleod@deg.virginia.gov](mailto:doris.mcleod@deg.virginia.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
  - CC – Jimmy Johnston ([james.johnston@tn.gov](mailto:james.johnston@tn.gov))
- For project and contract management questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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## **Appendix F-3m - VISTAS Regional Haze Project Update, August 4, 2020**



# VISTAS Regional Haze Project Update



EPA, FLM, RPO Briefing  
Jim Boylan  
August 4, 2020

1

## Overview

- During the QA process, an issue was identified with the emissions used in the CAMx modeling that was previously presented on May 20, 2020
- The emissions inventory was correct, but some SO<sub>2</sub> and NO<sub>x</sub> emissions from EGUs were dropped during the SMOKE processing
- This issues does not impact any of the PSAT modeling or adjustments to the PSAT modeling
- This issue does impact the projected visibility in 2028 for comparison to the URP glide slope

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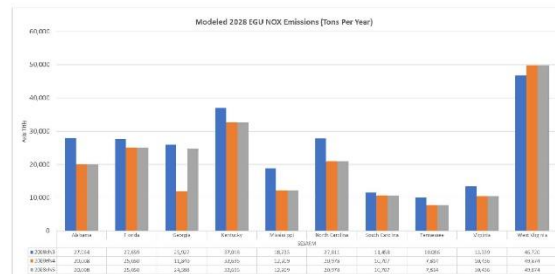
## Outline

- Recent Issue with 2028 Modeling
- Updated 2028 Model Projections
- Next Steps & Schedule



2

## VISTAS 2028 EGU NO<sub>x</sub>

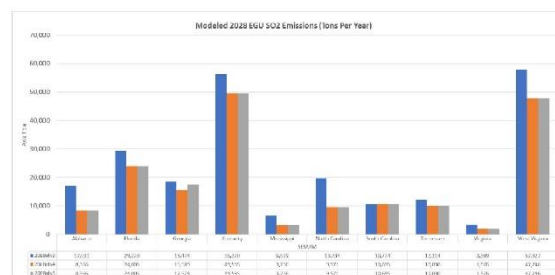


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## Recent Issue with 2028 Modeling

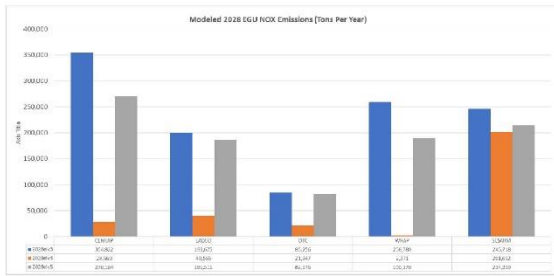
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## VISTAS 2028 EGU SO<sub>2</sub>



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### RPO 2028 EGU NOx

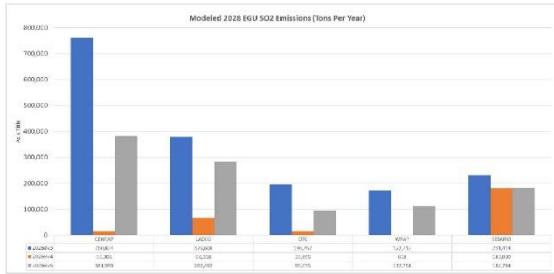


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## Updated 2028 Model Projections

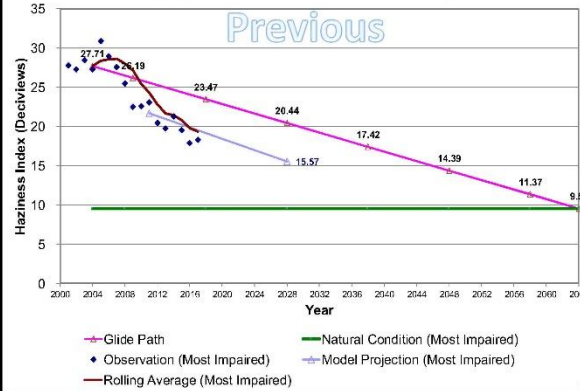
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### RPO 2028 EGU SO<sub>2</sub>



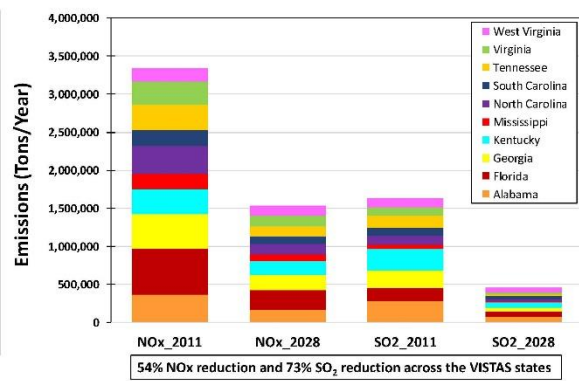
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### Uniform Rate of Progress Glide Path Sipsey - 20% Most Impaired Data Days



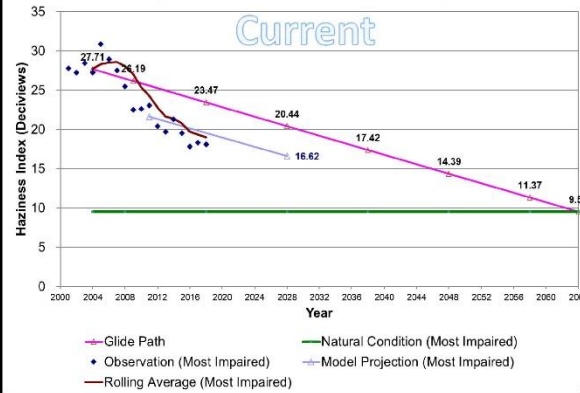
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### VISTAS States Emissions: 2011 vs. 2028

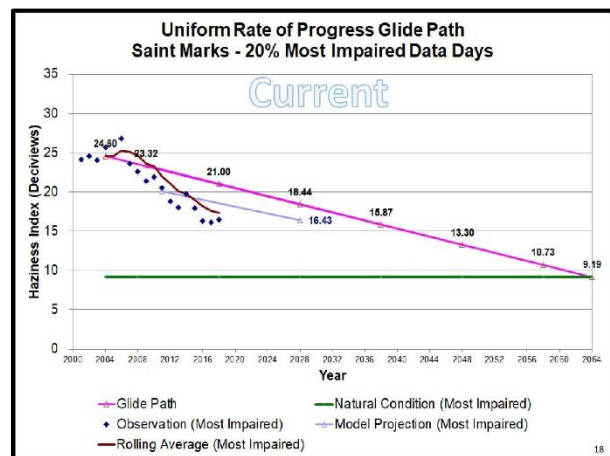
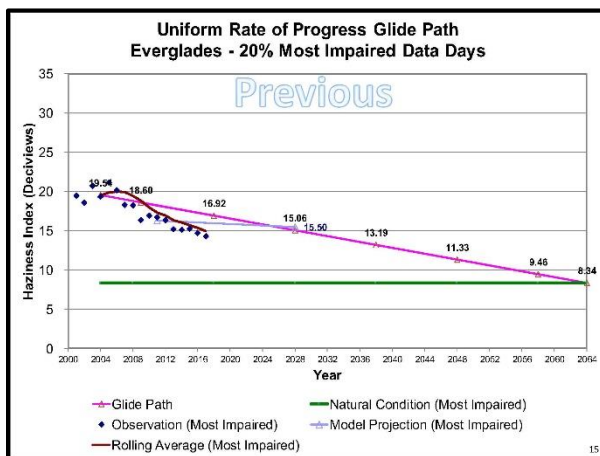
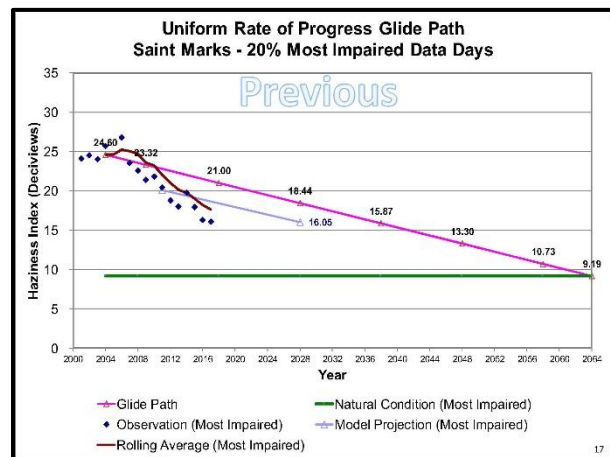
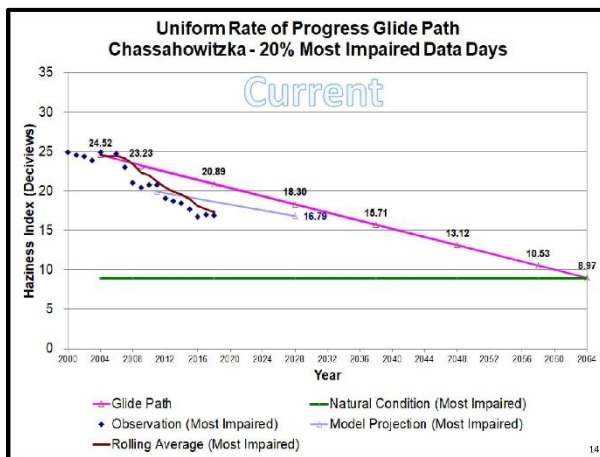
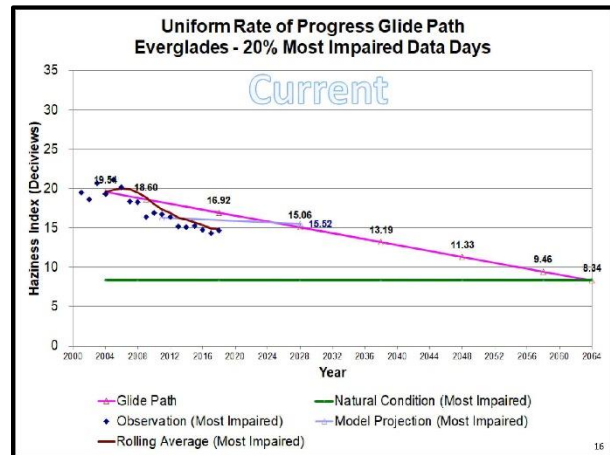
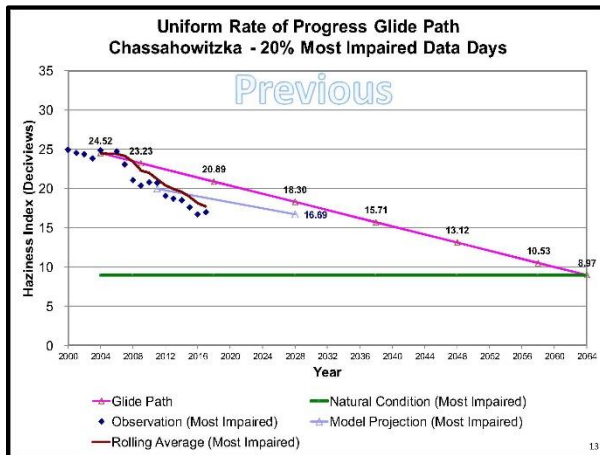


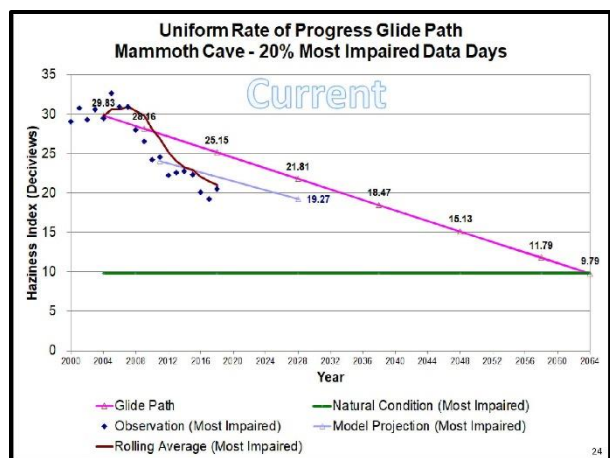
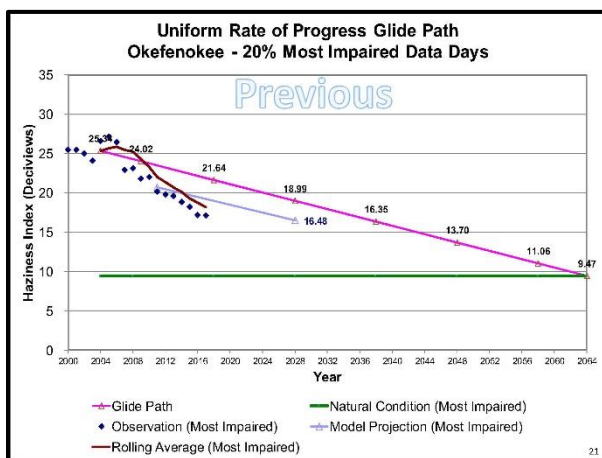
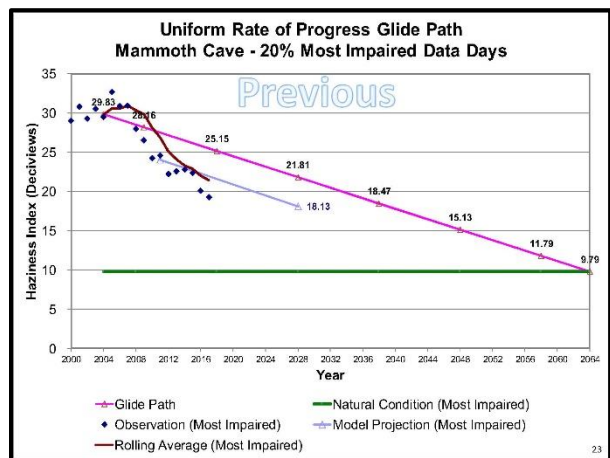
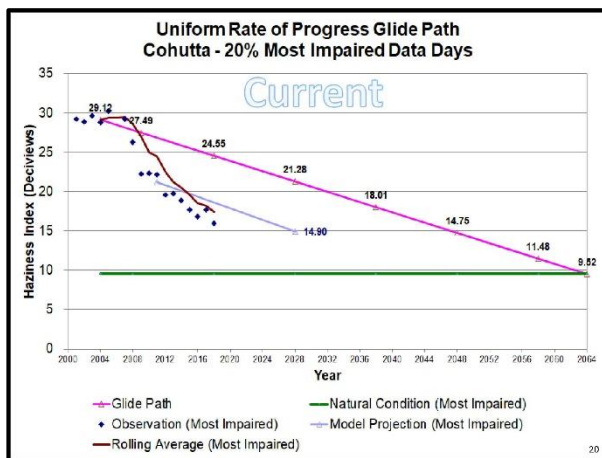
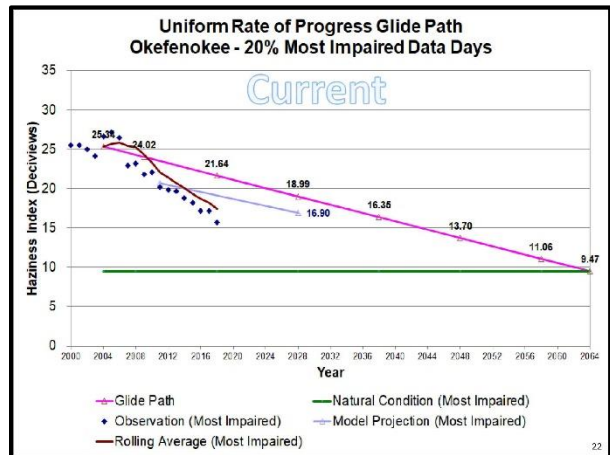
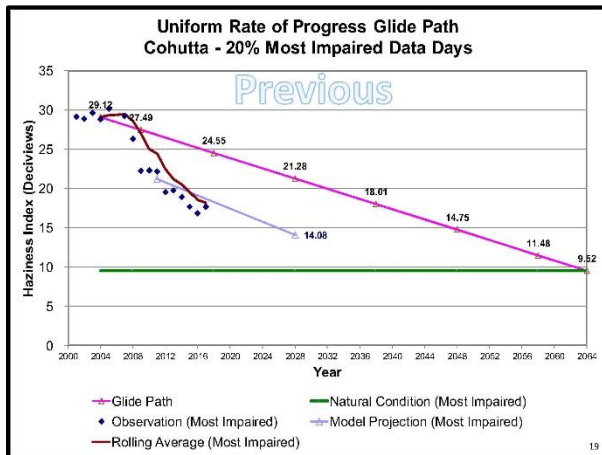
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### Uniform Rate of Progress Glide Path Sipsey - 20% Most Impaired Data Days



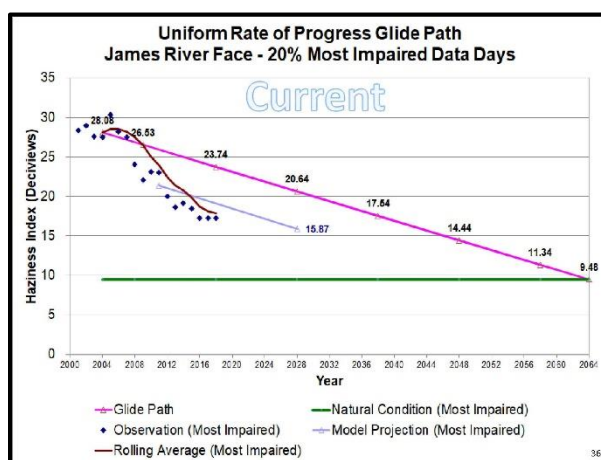
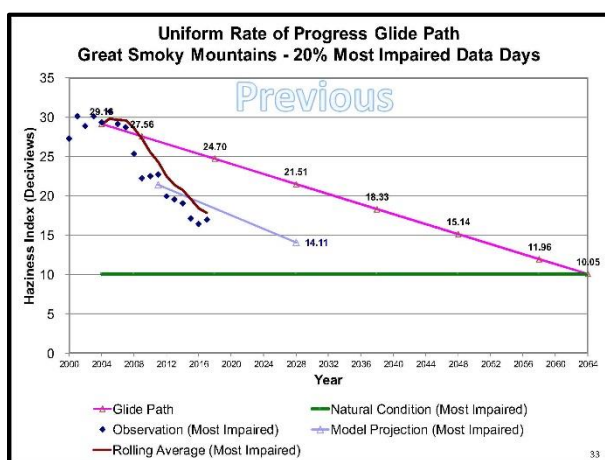
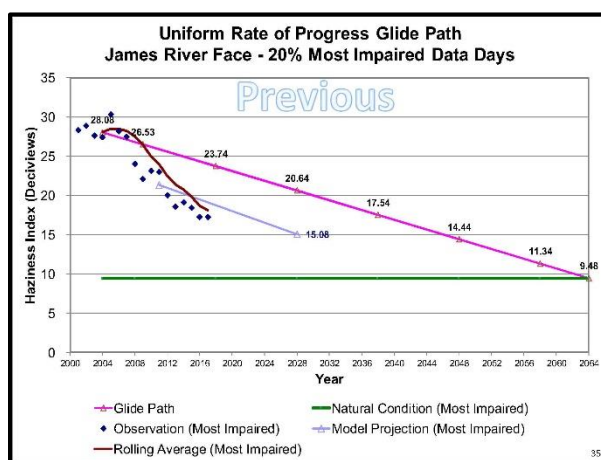
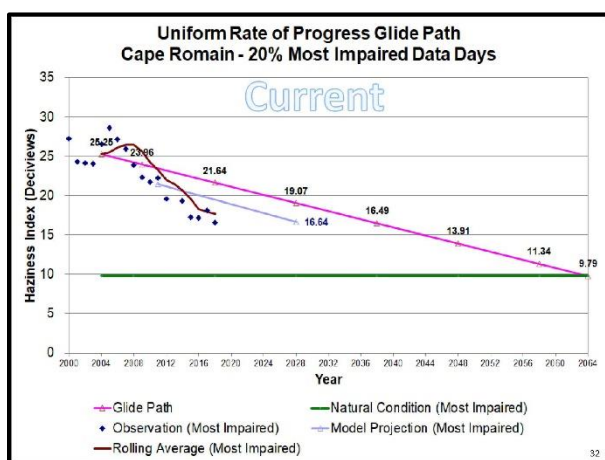
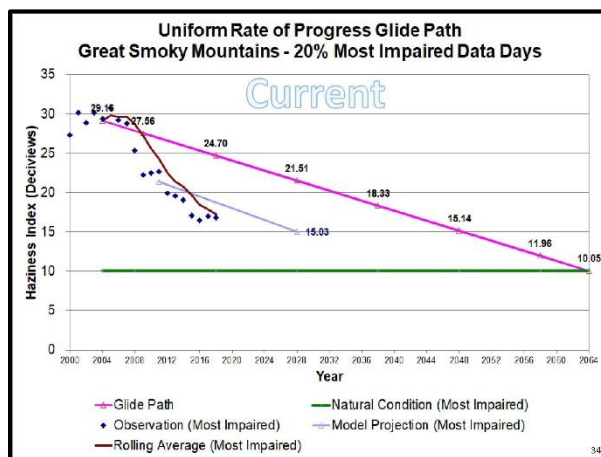
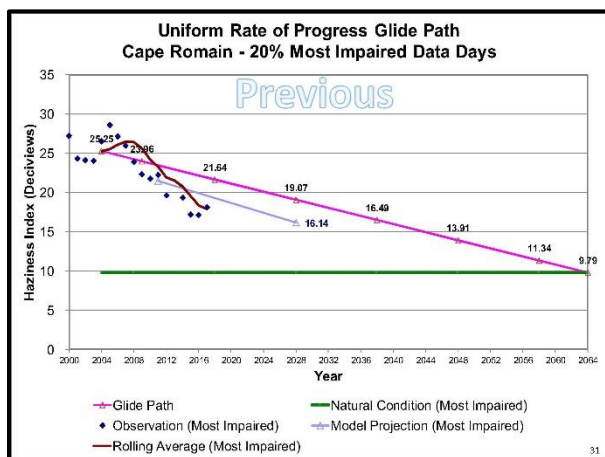
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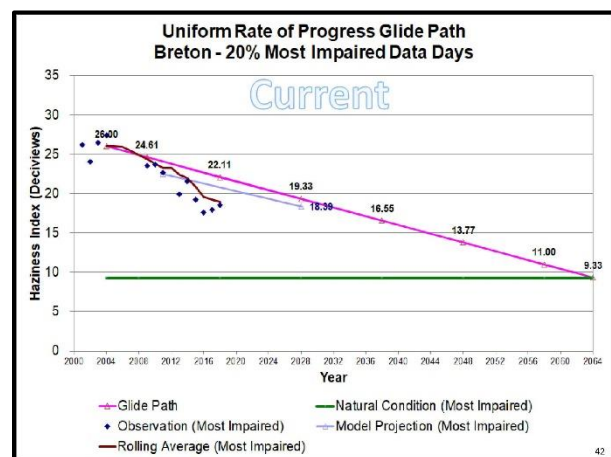
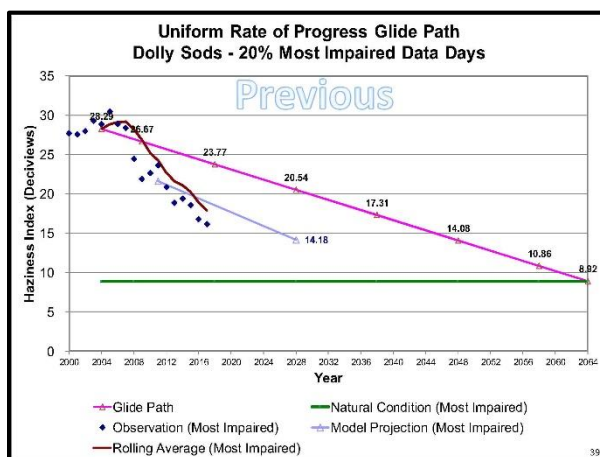
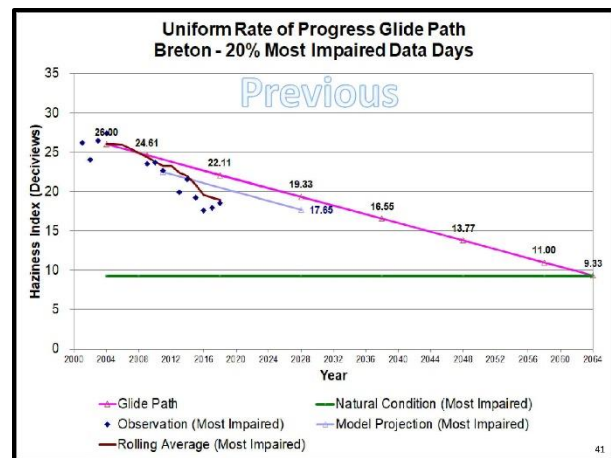
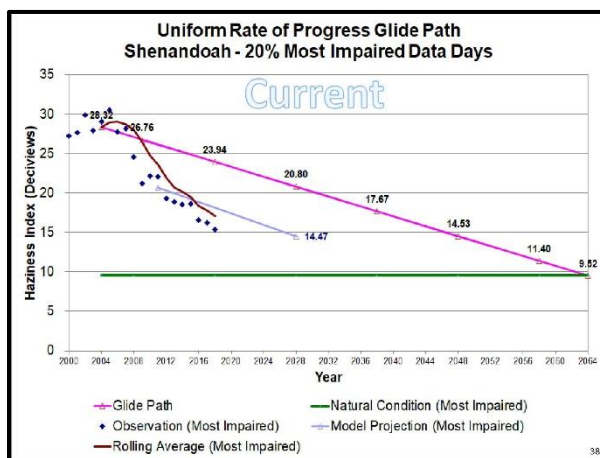
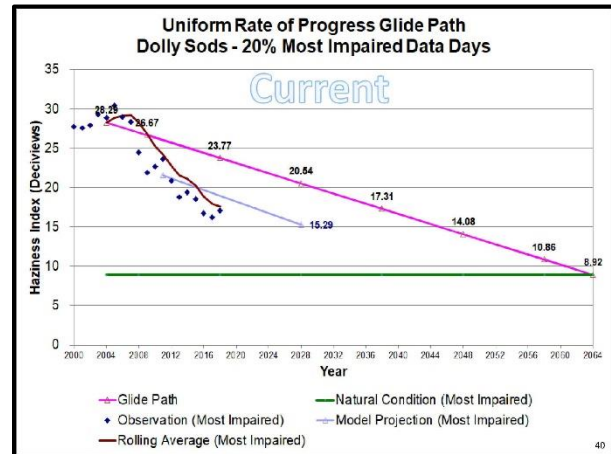
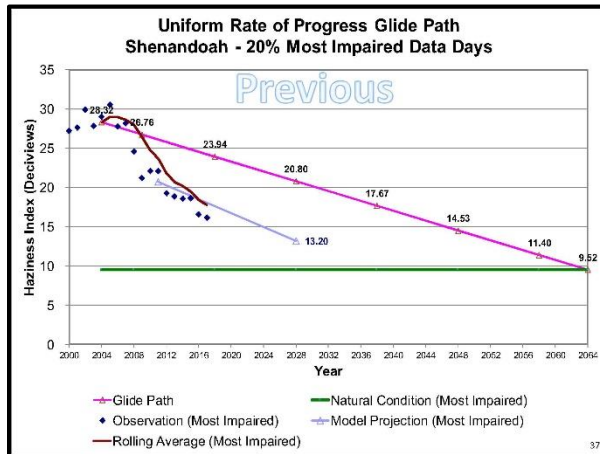


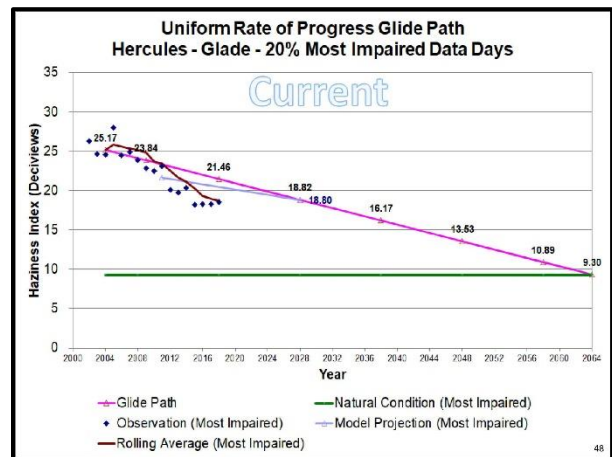
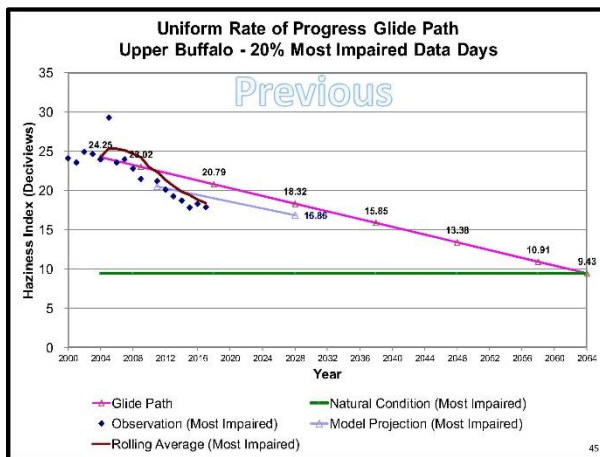
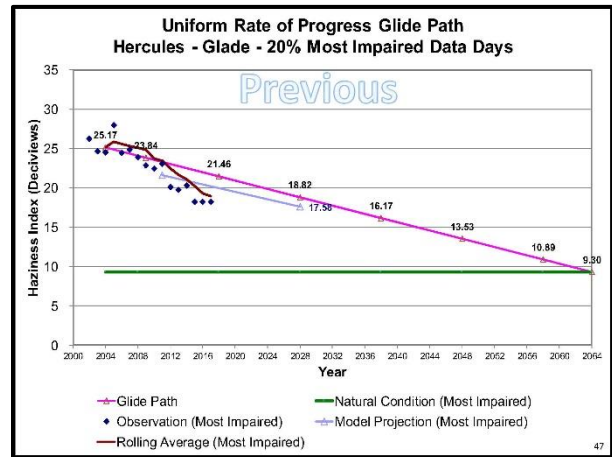
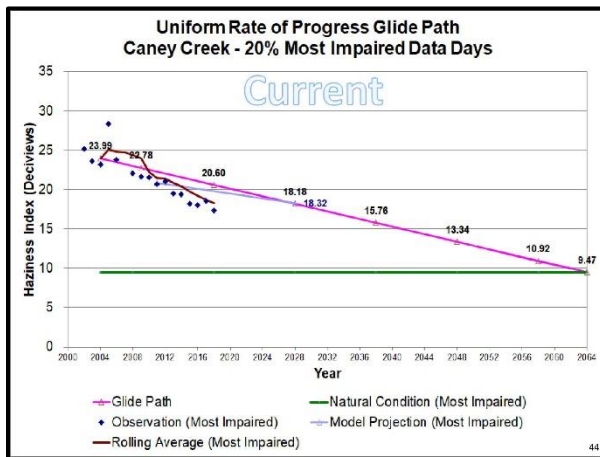
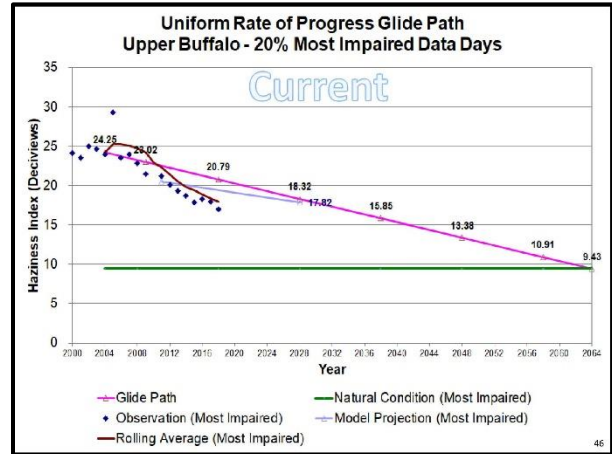
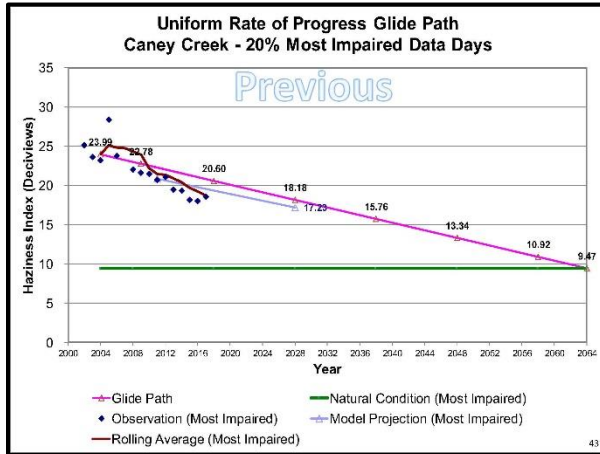


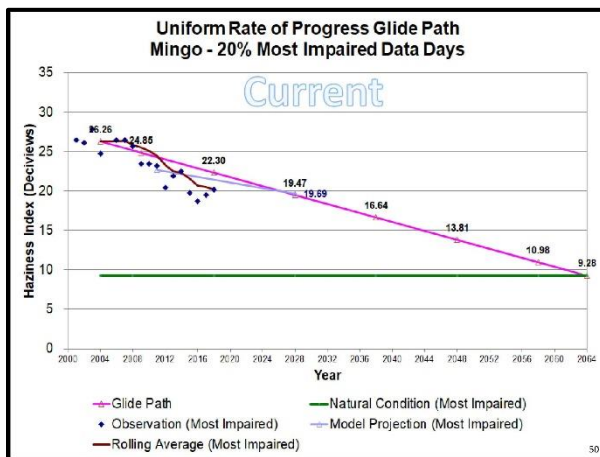
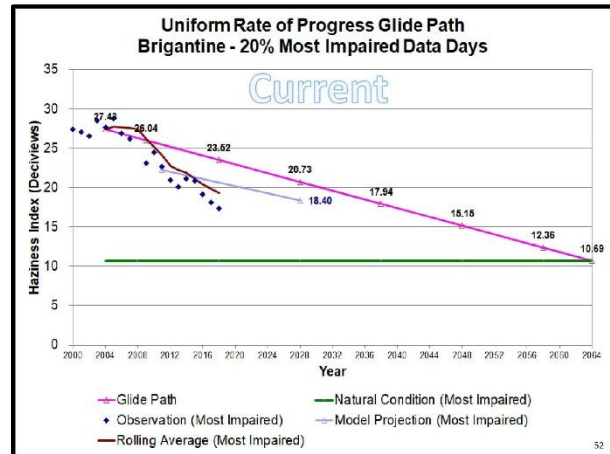
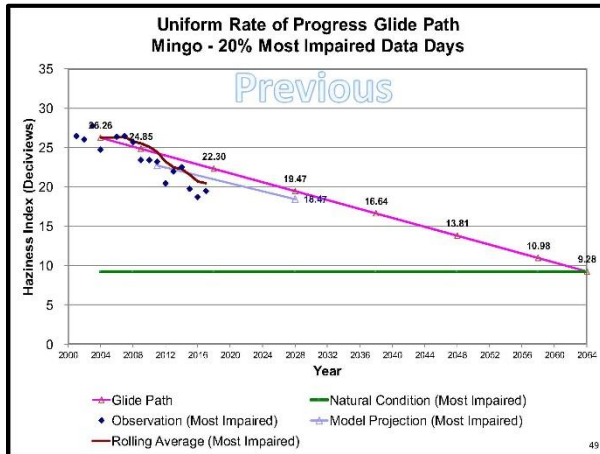






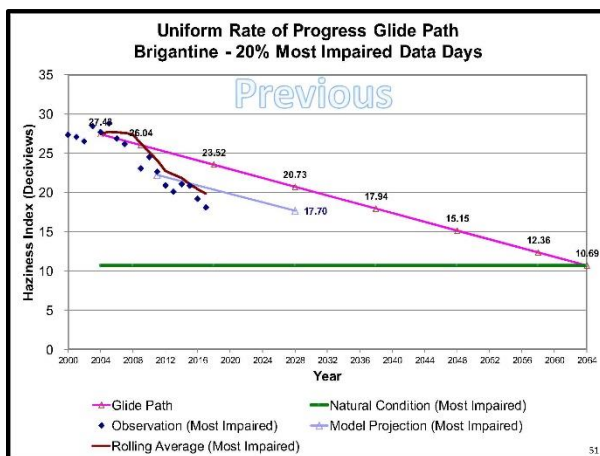






## Next Steps and Schedule

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### Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed*
2028 Emissions Processing	Completed*
2028 CAMx Modeling	Completed*
2028 Visibility Projections	Completed*
2028 Deposition Projections	Early August 2020
Final Reports and Documentation	Late August 2020
Website Updates and Postings	Late August 2020
End of Contract	September 30, 2020
<b>Regional Haze SIPs Due to EPA</b>	<b>July 31, 2021</b>

\* References technical work completion. Draft reports to follow.

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### Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Co-chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - TAWG – Doris McLeod ([doris.mcleod@deq.virginia.gov](mailto:doris.mcleod@deq.virginia.gov))
  - CC – Jim Boylan ([james.boylan@dnr.ga.gov](mailto:james.boylan@dnr.ga.gov))
  - CC – Jimmy Johnston ([james.johnston@tn.gov](mailto:james.johnston@tn.gov))
- For project and contract management questions, contact the Project Manager:
  - John Hornback ([hornback@metro4-sesarm.org](mailto:hornback@metro4-sesarm.org))



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## **Appendix F-3n - EPA Region 4 Fall 2020 Air Director's Meeting-Regional Haze Update October 26, 2020**

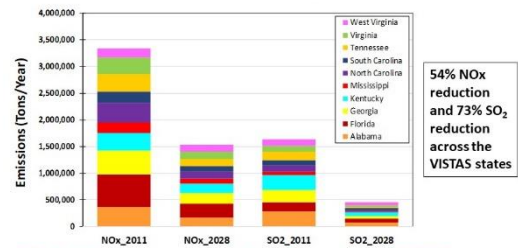
## VISTAS II Regional Haze Project Update



Jim Boylan (GA DNR), Randy Strait (NC DAQ), Doris McLeod (VA DEQ), Jimmy Johnston (TN DEC), Chad LaFontaine (Metro 4/SESARM), and John Hornback (Metro 4/SESARM)

EPA Region 4 Fall 2020 Air Director's Meeting  
October 26, 2020

## Emission Inventories



- "Task 2A Emission Inventory Updates Report (Aol and PSAT)"
- "Task 2B Emission Inventory Updates Report (2028 Visibility Estimates)"
- "Conversion of Task 2A 2028 Point Source Modeling Files for Emissions Processing with SMOKE (Task 3A)"
- "Conversion of the Task 2B 2028 Point Source Remodeling Files for Emissions Processing with SMOKE (Task 3B)"

## Project Background

- Goal was to provide states with technical information needed to draft their regional haze SIPs
- Project started in December 2017
- Expenses are less than 80% of budget
- Initial tasks: RFP, bids, contractor selection, contract development, work plan, QAPP, and modeling protocol
- Contractor support provided by:



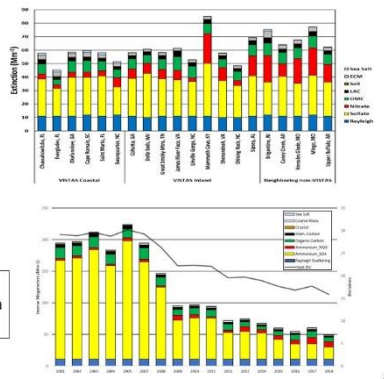
## Air Quality Modeling

- "2011el and 2028el CAMx Benchmarking Report Task 6 Benchmark Report #1 Covering Benchmark Runs #1 and #2"
- "2011el CAMx Version 6.32 and 6.40 Comparison Report Task 6 Benchmark Report Number #2 Covering Benchmark Run #3"
- "2028 CAMx Version 6.32 and 6.40 Comparison Report Task 6 Benchmark Report #4 Covering Benchmark Run #4"
- "2011el CAMx Version 6.40 12km VISTAS and EPA 12km Continental Grid Comparison Report Benchmark Report Task 6 Benchmark Report #3 Covering Benchmark Run #5"
- "2028elv3 CAMx Version 6.40 12km VISTAS and EPA 12km Continental Grid Comparison Report Benchmark Report Number #6 for Task 6"
- "2028 Emissions Version V3 and V5 Comparison Report Benchmark Report Task 6 Benchmark Report #6 Covering Benchmark Run #7"



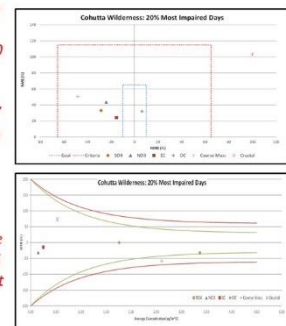
## Data Acquisition and Analysis

- "Task 4 Report"
- IMPROVE
- AQS
- NADP
- CASTNET
- WBAN



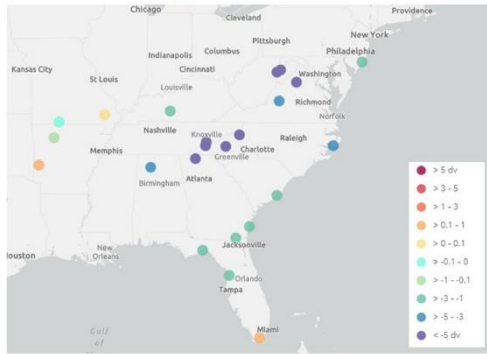
## Model Performance Evaluation

- "Model Performance Evaluation for Particulate Matter and Regional Haze of the CAMx 6.40 Modeling System and the VISTAS II 2011 Updated Modeling Platform for Task 8.0"
- "Model Performance Evaluation for Ozone of the CAMx 6.40 Modeling System and the VISTAS II 2011 Updated Modeling Platform (Task 8.0)"
- "Deposition Model Performance Evaluation Southeastern VISTAS II Regional Haze Analysis Project (Task 8.1)"



## Future Year Projections

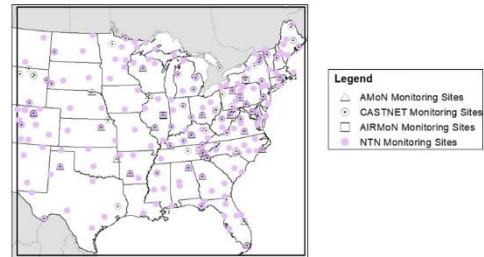
- "Future Year Model Projections Task 9a"



7

## Deposition Projections

- Wet and dry deposition projections for  $\text{SO}_2$ ,  $\text{SO}_4^{2-}$ ,  $\text{NO}_3^-$ ,  $\text{NH}_4^+$ ,  $\text{Cl}^-$

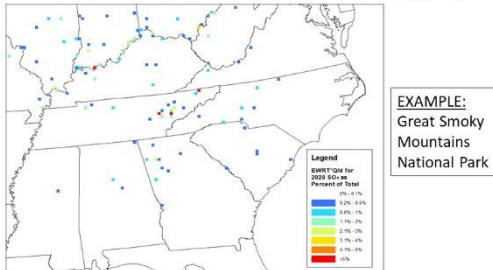


- "Wet and Dry Deposition Calculations Task 9.1"

10

## Area of Influence

- States used Aol results for the VISTAS and nearby Class I areas to identify 87 sources for PSAT tagging



- "Area of Influence Analysis Southeastern VISTAS II Regional Haze Analysis Project - Documentation Report for Task 5"

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## Final Project Report

- Covers everything in previous slides:
  - Task 2 – Emissions Inventories
  - Task 3 – Emissions Processing
  - Task 4 – Data Acquisition and Analysis
  - Task 5 – Area of Influence
  - Task 6 – 2011 and 2028 Photochemical Modeling
  - Task 7 – PSAT Tagging
  - Task 8 – Model Performance Evaluation
  - Task 9 – Visibility and Deposition Projections
- Task 10 – Data Handling Sharing
- Task 11 – Extraction of State-Specific modeling, IC/BC, and meteorology

11

## PSAT Tagging

- Identified facilities with sulfate or nitrate point source contributions  $\geq 1.00\%$



- "Particulate Source Apportionment Technology Modeling Results Task 7"

9

## Consultation & Communication

- FLMs and EPA
  - Multiple VISTAS presentations on technical work
- Non-VISTAS states
  - Multiple VISTAS presentations on technical work
  - Letters to non-VISTAS states from SESARM
- VISTAS states
  - State to state phone calls and e-mails
  - Letters to VISTAS states from other VISTAS states
- Stakeholders
  - One VISTAS presentation on technical work
  - Letters to specific facilities from home states

12

## 4-Factor Analysis

- States will evaluate certain sources and emissions to determine if reasonable controls are in place or available
- Considers four important factors:
  - Potential costs of compliance (\$/ton, \$/Mm<sup>-1</sup>)
  - Time necessary for compliance
  - Energy and non-air quality environmental impacts of compliance
  - Remaining useful life of sources subject to this analysis

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## FLM Consultation Requirements

### 40 CFR 51.308(i)(2) (in pertinent part):

...The State must provide the Federal Land Manager with an opportunity for consultation, in person at a point early enough in the State's policy analyses of its long-term strategy emission reduction obligation so that information and recommendations provided by the Federal Land Manager can meaningfully inform the State's decisions on the long-term strategy. The opportunity for consultation will be deemed to have been early enough if the consultation has taken place at least 120 days prior to holding any public hearing or other public comment opportunity on an implementation plan (or plan revision) for regional haze required by this subpart. The opportunity for consultation on an implementation plan (or plan revision) or on a progress report must be provided no less than 60 days prior to said public hearing or public comment opportunity....

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## SIP Template Outline

- |   |  |
|---|--|
| 1. Introduction   | 7. 2028 Model Projections                                |
| 2. Natural Background Conditions and Assessment of Baseline, Modeling Base Period, and Current Conditions | 8. Long-Term Strategy                                    |
| 3. Glidpaths to Natural Conditions in 2064  | 9. Reasonable Progress Goals                             |
| 4. Types of Emissions Impacting Visibility Impairment   | 10. Monitoring Strategy                                  |
| 5. Regional Haze Modeling Methods and Inputs  | 11. Consultation Process                                 |
| 6. Model Performance Evaluations  | 12. Comprehensive Periodic Implementation Plan Revisions |
|   | 13. Determination of the Adequacy of the Existing Plan   |
|   | 14. Progress Report                                      |
|   | APPENDICES   |

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## Tentative Timeline\*

Dates	Milestone
Week of 11/2/2020	Send redacted template to EPA R4 and R3. Redacted sections to include those dealing with reasonable progress facility selection and four-factor analysis results. Would like to receive feedback on missing analyses or "show stoppers."
11/5/2020 – 12/4/2020	EPA review period
12/7/2020 – 12/15/2020	SIP template workgroup to address EPA's comments
12/15/2020 – 1/15/2021	Develop state-specific draft
1/15/2021 – 1/30/2021	States to address EPA's comments
1/30/2020 – 4/30/2020	Consultation period for FLMs (may vary by state)
4/30/2021 – 5/30/2021	Address FLM comments
5/30/2021 – 6/30/2021	Public comment period
6/30/2021 – 7/31/2021	Address public comment and finalize package for submission
7/31/2021	Regional Haze SIP due to EPA

\*Timeline is subject to change due to state-specific resources and issues.

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## Current Work Topics

- Cost thresholds for four-factor analyses: workgroup in place to evaluate available information
- Use of off-ramps for four-factor analyses
- Inclusion of various requirements in the SIP as opposed to federally enforceable permits such as construction permits or state operating permits
- NPS and NPCA source listings: some states are in an ongoing dialogue with these groups
- EPA Region 4 source list analysis
- Communications with other states outside of VISTAS for information on facilities impacting VISTAS Class I areas
- How to address face-to-face consultation requirement with FLMs in light of the pandemic? (next slide)

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## Contacts for Further Information

- For general, technical, and SIP-related questions, contact the TAWG and CC Co-chairs:
  - TAWG – Randy Strait ([randy.strait@ncdenr.gov](mailto:randy.strait@ncdenr.gov))
  - TAWG – Doris McLeod ([doris.mcleod@deq.virginia.gov](mailto:doris.mcleod@deq.virginia.gov))
  - CC – Jim Boylan ([james.boyland@dnr.ga.gov](mailto:james.boyland@dnr.ga.gov))
  - CC – Jimmy Johnston ([james.johnston@tn.gov](mailto:james.johnston@tn.gov))
- For project and contract management questions, contact the Project Manager:
  - Chad LaFontaine ([clafontaine@metro4-sesarm.org](mailto:clafontaine@metro4-sesarm.org))



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**Appendix F-3o - FLM Consultation Letters**  
**January 23, 2025**





Alabama Department of Environmental Management  
[adem.alabama.gov](http://adem.alabama.gov)

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

January 23, 2025

**Via Electronic Mail**

Mr. Tim Allen  
U.S. Fish & Wildlife Service  
[tim\\_allen@fws.gov](mailto:tim_allen@fws.gov)

**Re: Federal Land Manager Consultation - Regional Haze SIP**

Dear Mr. Allen:

Under the U.S. Environmental Protection Agency's Regional Haze Rule, each state must submit a State Implementation Plan (SIP) that provides for reasonable progress towards achieving natural visibility conditions in Class I areas, including Class I areas in other states. Alabama has within its borders one Class I area subject to the reasonable progress requirements: the Sipsey Wilderness Area located within the Bankhead National Forest in northwest Alabama.

Pursuant to 40 CFR 51.308(i)(2), Alabama must provide the Federal Land Managers (FLMs) with an opportunity for consultation on the Regional Haze SIP no less than 60 days prior to the start of the public comment period on the SIP. With this letter, the Alabama Department of Environmental Management (ADEM) is providing the U.S. Fish & Wildlife Service with Alabama's draft Regional Haze SIP for the second implementation period to begin the 60-day FLM consultation period. ADEM requests that you provide any comments on the SIP by March 23, 2025. ADEM will include a summary of all FLM comments received in the Prehearing SIP submittal and will address all FLM comments in the final SIP submittal.

We look forward to your review and comment on the draft Regional Haze SIP. Should you or your staff have any questions, please feel free to contact Larry Brown at [lwb@adem.alabama.gov](mailto:lwb@adem.alabama.gov) or by phone at 334-271-7878.

Sincerely,

Aubrey H. White, P.E.  
Chief, Air Division  
Alabama Department of Environmental Management

AHW: lbb  
Enclosures





**Alabama Department of Environmental Management**  
**adem.alabama.gov**

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

January 23, 2025

**Via Electronic Mail**

Ms. Melanie Peters  
National Park Service  
[melanie\\_peters@nps.gov](mailto:melanie_peters@nps.gov)

**Re: Federal Land Manager Consultation - Regional Haze SIP**

Dear Ms. Peters:

Under the U.S. Environmental Protection Agency's Regional Haze Rule, each state must submit a State Implementation Plan (SIP) that provides for reasonable progress towards achieving natural visibility conditions in Class I areas, including Class I areas in other states. Alabama has within its borders one Class I area subject to the reasonable progress requirements: the Sipsey Wilderness Area located within the Bankhead National Forest in northwest Alabama.

Pursuant to 40 CFR 51.308(i)(2), Alabama must provide the Federal Land Managers (FLMs) with an opportunity for consultation on the Regional Haze SIP no less than 60 days prior to the start of the public comment period on the SIP. With this letter, the Alabama Department of Environmental Management (ADEM) is providing the National Park Service with Alabama's draft Regional Haze SIP for the second implementation period to begin the 60-day FLM consultation period. ADEM requests that you provide any comments on the SIP by March 23, 2025. ADEM will include a summary of all FLM comments received in the Prehearing SIP submittal and will address all FLM comments in the final SIP submittal.

We look forward to your review and comment on the draft Regional Haze SIP. Should you or your staff have any questions, please feel free to contact Larry Brown at [lwb@adem.alabama.gov](mailto:lwb@adem.alabama.gov) or by phone at 334-271-7878.

Sincerely,

Aubrey H. White, P.E.  
Chief, Air Division  
Alabama Department of Environmental Management

AHW: lbb  
Enclosures







Alabama Department of Environmental Management  
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Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

January 23, 2025

**Via Electronic Mail**

Ms. Melanie Pitrolo  
U.S. Forest Service  
[melanie.pitrolo@usda.gov](mailto:melanie.pitrolo@usda.gov)

**Re: Federal Land Manager Consultation - Regional Haze SIP**

Dear Ms. Pitrolo:

Under the U.S. Environmental Protection Agency's Regional Haze Rule, each state must submit a State Implementation Plan (SIP) that provides for reasonable progress towards achieving natural visibility conditions in Class I areas, including Class I areas in other states. Alabama has within its borders one Class I area subject to the reasonable progress requirements: the Sipsey Wilderness Area located within the Bankhead National Forest in northwest Alabama.

Pursuant to 40 CFR 51.308(i)(2), Alabama must provide the Federal Land Managers (FLMs) with an opportunity for consultation on the Regional Haze SIP no less than 60 days prior to the start of the public comment period on the SIP. With this letter, the Alabama Department of Environmental Management (ADEM) is providing the U.S. Forest Service with Alabama's draft Regional Haze SIP for the second implementation period to begin the 60-day FLM consultation period. ADEM requests that you provide any comments on the SIP by March 23, 2025. ADEM will include a summary of all FLM comments received in the Prehearing SIP submittal and will address all FLM comments in the final SIP submittal.

We look forward to your review and comment on the draft Regional Haze SIP. Should you or your staff have any questions, please feel free to contact Larry Brown at [lwb@adem.alabama.gov](mailto:lwb@adem.alabama.gov) or by phone at 334-271-7878.

Sincerely,

Aubrey H. White, P.E.  
Chief, Air Division  
Alabama Department of Environmental Management

AHW: lbb  
Enclosures

c: Bret Anderson [bret.a.anderson@usda.gov](mailto:bret.a.anderson@usda.gov)

**Birmingham Branch**  
110 Vulcan Road  
Birmingham, AL 35209-4702  
(205) 942-6168  
(205) 941-1603 (FAX)

**Decatur Branch**  
2715 Sandlin Road, S.W.  
Decatur, AL 35603-1333  
(256) 353-1713  
(256) 340-9359 (FAX)



**Mobile Branch**  
2204 Perimeter Road  
Mobile, AL 36615-1131  
(251) 450-3400  
(251) 479-2593 (FAX)

**Mobile-Coastal**  
3664 Dauphin Street, Suite B  
Mobile, AL 36608  
(251) 304-1176  
(251) 304-1189 (FAX)



**Alabama Department of Environmental Management**  
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1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
(334) 271-7700 ■ FAX (334) 271-7950

January 17, 2025

**Via Electronic Mail**

Acting Regional Administrator Jeaneanne Gettle  
Region IV, U.S. Environmental Protection Agency  
[Gettle.Jeaneanne@epa.gov](mailto:Gettle.Jeaneanne@epa.gov)

**Re: Federal Land Manager Consultation - Regional Haze SIP**

Dear Ms. Gettle:

Under the U.S. Environmental Protection Agency's Regional Haze Rule, each state must submit a State Implementation Plan (SIP) that provides for reasonable progress towards achieving natural visibility conditions in Class I areas, including Class I areas in other states. Alabama has within its borders one Class I area subject to the reasonable progress requirements: the Sipsey Wilderness Area located within the Bankhead National Forest in northwest Alabama.

Pursuant to 40 CFR 51.308(i)(2), Alabama must provide the Federal Land Managers (FLMs) with an opportunity for consultation on the Regional Haze SIP no less than 60 days prior to the start of the public comment period on the SIP. The Alabama Department of Environmental Management (ADEM) has provided the FLMs with Alabama's draft Regional Haze SIP for the second implementation period to begin the 60-day FLM consultation period. Additionally, ADEM is providing EPA Region IV with a copy of the draft SIP. Please provide any comments on the SIP by March 17, 2025.

We look forward to your review and comment on the draft Regional Haze SIP. Should you or your staff have any questions, please feel free to contact Larry Brown at [LWB@adem.alabama.gov](mailto:LWB@adem.alabama.gov) or by phone at 334-271-7878.

Sincerely,

Aubrey H. White, P.E.  
Chief, Air Division  
Alabama Department of Environmental Management

AHW: lbb  
Enclosures

c: Michele Notarianni [Notarianni.Michele@epa.gov](mailto:Notarianni.Michele@epa.gov)



## **Appendix F-4**

### **State & VISTAS Consultation Documentation with MANE-VU**





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January 27, 2018

David Foerter  
Ozone Transport Commission  
444 N Capitol St NW Ste 322  
Washington DC 20001-1529

RE: MANE-VU Regional Haze Consultation

Dear Mr. Foerter:

This correspondence is being sent to you on behalf of the state air pollution control agencies in Alabama, Florida, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia (the seven VISTAS states). Comments are offered herein in response to the following documents:

- *Selection of States for MANE-VU Regional Haze Consultation (2018) – 9/5/2017*
- *Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) States Concerning a Course of Action in Contributing States Located Upwind of MANE-VU Toward Assuring Reasonable Progress for the Second Regional Haze Implementation Period (2018-2028)*

As you know, the MANE-VU states have made available the documents above and have held four consultation calls with the seven VISTAS states and other states. Thank you for sharing your thoughts during these calls and especially for taking time to explain the technical assessment in detail.

At this time, it is not possible for the seven VISTAS states to provide a detailed technical response to the MANE-VU requests. However, this letter provides some initial thoughts and concerns for your consideration.

### Timing.

The MANE-VU states have indicated their intent to file their regional haze SIPs by the original July 2018 deadline that EPA has more recently adjusted to July 31, 2021. The ten VISTAS states are working toward completion of their regional haze technical analysis in mid-2019 with the intention of submitting regional haze SIPs by July 2021. The differing schedules have resulted in the seven VISTAS states being asked to assess the MANE-VU analysis without the benefit of the forthcoming VISTAS technical work.

On January 18, 2018, EPA announced its decision to revisit aspects of the 2017 Regional Haze Rule Revisions.<sup>1</sup> While the extent of the new review is uncertain, the potential exists that EPA could modify certain existing regional haze provisions prior to the SIP submittal deadline; hence possibly affecting state obligations under the rule.

The MANE-VU states should allow time for EPA to complete its revisit to the rule and for the VISTAS analysis to be completed and shared before submitting SIPs incorporating any new emission control presumptions directed at the VISTAS states.

#### Technical Analysis – Inventories, Modeling, and Evaluation.

The MANE-VU states' analysis used emission inventories that are inconsistent with the recent EPA regional haze modeling platform. These inventories do not fully reflect emission reductions expected from southeastern EGUs by 2028 and perhaps from other sources as well. Modeling results derived from use of the outdated emissions inventory may not allow conclusive determinations of impacts, if any, from VISTAS states on Class I areas in the MANE-VU region. Additionally, the analyses may not meet EPA's SIP approval criteria.

In many cases, the sources of the alleged contributions to downwind receptors are located thousands of miles away from the MANE-VU Class I areas. The MANE-VU states used the CALPUFF model and the Q/d screening approach to identify contributions that they allege are significant. CALPUFF should not be used for transport distances greater than 300 km since there are serious conceptual concerns with the use of puff dispersion models for very long-range transport which can result in overestimations of surface concentrations by a factor of three to four.<sup>2</sup>

The preamble to the recent Revisions to the Guideline on Air Quality Models that modified appendix W of 40 CFR part 51 states, in part, "the EPA has fully documented the past and current concerns related to the regulatory use of the CALPUFF modeling system and believes that these concerns, including the well documented scientific and technical issues with the modeling system, support the EPA's decision to remove it as a preferred model in appendix A of the *Guideline*."<sup>3</sup>

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<sup>1</sup> <https://www.epa.gov/visibility/epas-decision-revisit-aspects-2017-regional-haze-rule-revisions>

<sup>2</sup> *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (December 1998)

<sup>3</sup> *Federal Register*, Vol. 82, No. 10, Tuesday, January 17, 2017, Page 5195

The reliability of the Q/d screening approach diminishes over distance and especially beyond 300 km. If the MANE-VU states wish to evaluate emission impacts more than 300 km downwind from sources, a scientifically reliable approach is essential such as the CAMx model with the PSAT source apportionment method.

In response to our stated concerns about inaccuracies in the MANE-VU analysis during the December 18, 2018 technical call, the MANE-VU states suggested that the seven VISTAS states could reassess contributions using their own information to correct the MANE-VU analysis. The VISTAS states intend to conduct a thorough technical review of emission impacts during their forthcoming analysis. However, it is incumbent on the MANE-VU states to correct the errors inherent in their own analysis and reassess the states with which consultation is necessary.

The MANE-VU “ask” includes year-round use of effective control technologies on EGUs; a four-factor analysis on sources with potential for visibility impacts of  $3.0 \text{ Mm}^{-1}$  or greater at any MANE-VU Class I area; establishment of an ultra-low sulfur fuel oil standard; updated permits, enforceable agreements, and/or rules to lock in lower emission rates for EGUs and other large emission sources that have recently reduced emissions or are scheduled to do so; and efforts to decrease energy demand through use of energy efficiency and increased use of combined heat and power and other clean distributed generation technologies. This “ask” fails to recognize fully the improved controls, fuel switches, retirements, and energy demand reductions that have already been achieved in the Southeast. Further, the MANE-VU states suggest that the Southeast adopt control measures that would produce little if any visibility improvement at MANE-VU Class I areas. The MANE-VU states should refine their analyses and establish a sound basis for any actions requested of the seven VISTAS states and incorporated such expectations in MANE-VU SIPs.

#### Permanent and Enforceable.

Regional haze SIPs (including the reasonable progress goals that are set for each Class I area) should only include emission reductions that are permanent, quantifiable, and enforceable. Therefore, the MANE-VU states should only include in their regional haze SIPs emission control presumptions for the seven VISTAS states that are clearly necessary and effective and have been made permanent and enforceable via state rulemaking or permit revisions. To include emission controls that are not permanent and enforceable in MANE-VU states’ SIPs would be inconsistent with the Clean Air Act and the Regional Haze Rule and could result in adverse comments from the seven VISTAS states during the MANE-VU regional haze SIP public comment period.

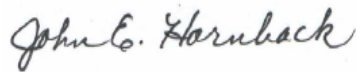
David Foerter  
January 27, 2018  
Page 4 of 4

The VISTAS states will be initiating technical work in the spring of 2018. When that work is completed, we will provide the MANE-VU states with a summary of our analysis. Early results may be available as early as late 2018 and certainly by the spring of 2019.

Please note that this letter is not intended to cover every issue that may be of concern to the seven VISTAS states. Any or all states represented by this letter may submit state-specific comments to you.

Thank you for your consideration of these concerns. We welcome further conversations at appropriate times as our collective work progresses.

Sincerely,

A handwritten signature in dark ink, reading "John E. Hornback". The signature is written in a cursive, slightly slanted style.

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

Copies: VISTAS States Air Pollution Control  
Agency Directors