

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
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

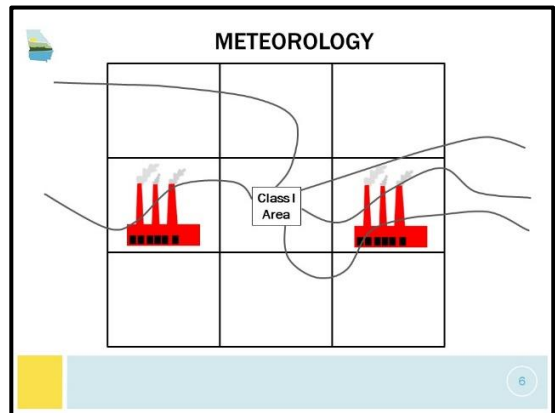
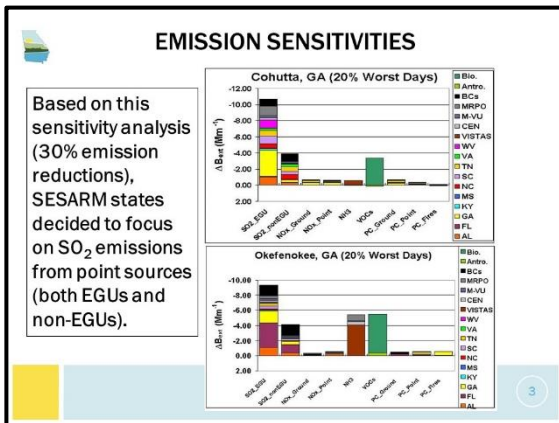
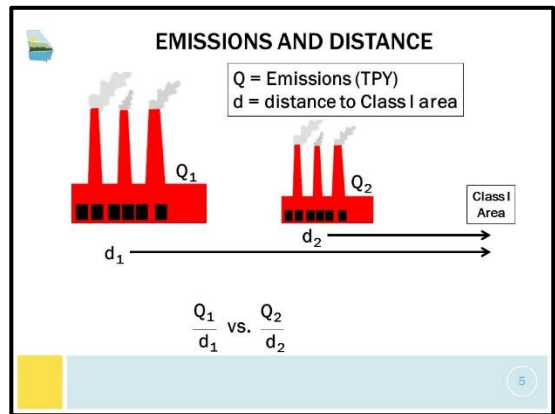
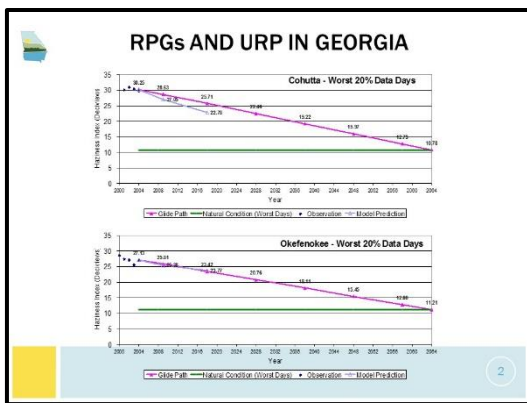
Georgia's Approach for Estimating Reasonable Progress in Round 1

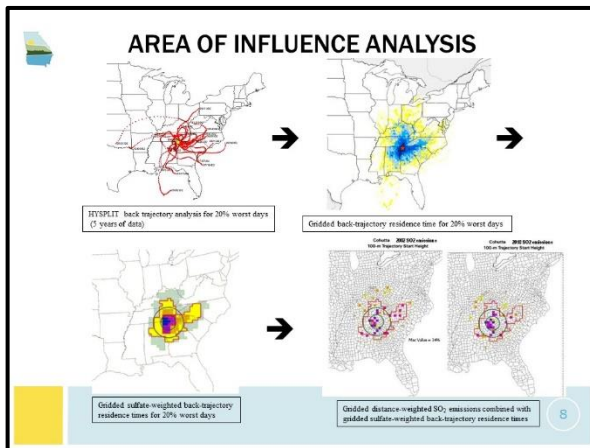
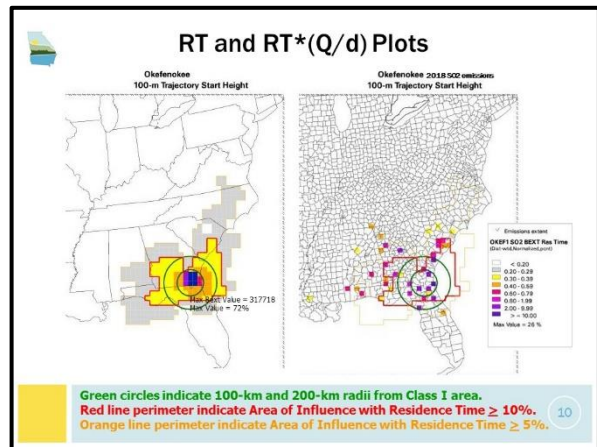
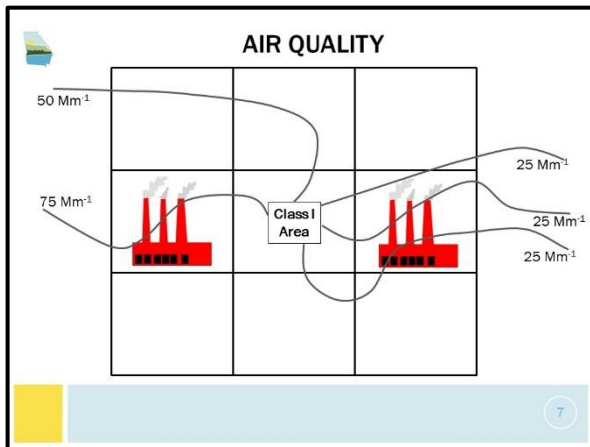
Jim Boylan
Manager, Planning & Support Program
Georgia EPD - Air Protection Branch

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

REASONABLE PROGRESS (RP)

- Area of Influence (Q/d^*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





SOURCE CONTRIBUTION AT OKEF

Plant	ID	SO2 Tons (2002) (2018)	CE	d (km)	Q/d	RT	RT*Q/d	0.134 Fraction	
FL SAINT JOHN'S RIVER	17	10,185	7,420	90	65.12	113.95	65.70	7486.4	0.5271
FL SAINT JOHN'S RIVER	16	11,078	5,862	90	65.12	80.33	65.70	5926.6	0.1325
FL JEFFERSON SMURFIT CORPORATION (US)	15	3,242	3,639	4	64.58	56.30	71.58	4093.5	0.0000
FL CEDAR BAY GENERATING COMPANY L P	GEN1	0	2,227	90	61.17	36.41	65.70	2360.1	0.0634
GA GEORGIA PACIFIC BRUNSWICK OPERATIONS	BR01	1,642	1,862	4	75.42	24.41	77.47	1744.6	0.0389
FL RAYONIER PERFORMANCE FIBERS LLC	6	1,075	1,256	0	63.34	19.83	71.58	1419.7	0.0317
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	1	10,912	6,779	95	121.83	55.64	22.94	1276.5	0.0285
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	2	12,775	6,568	95	121.83	53.42	22.94	1225.4	0.0274
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	66	1,140	1,496	0	69.66	21.39	48.81	1044.0	0.0233
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	67	996	1,368	0	69.66	18.69	48.81	912.3	0.0204
FL IFF CHEMICAL HOLDINGS, INC.	3	624	723	0	66.66	12.94	65.70	850.1	0.0190
FL GEORGIA-PACIFIC CORP PULP/PAPER MILL	15	3,703	4,339	0	125.35	34.48	22.94	790.9	0.0177
GA INTERNATIONAL PAPER SAVANNAH MILL	PRB3	1,640	18,318	4	179.34	47.76	15.53	743.9	0.0169
FL MILLENNIUM SPECIALTY CHEMICALS	8	505	560	0	60.48	9.76	65.70	641.5	0.0143
GA SAVANNAH ELECTRIC MONTOSH STEAM - ELEC	SG01	7,089	7,015	0	201.59	34.80	15.51	539.7	0.0120
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	PRB2	156	421	4	108.37	3.7	77.58	413.9	0.0094
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R	2	20,728	15,241	0	208.80	74.06	5.47	405.1	0.0090
GA SAVANNAH ELECTRIC KRAFT STEAM - ELECTRI	SG03	3,992	4,474	0	182.45	24.52	15.53	389.9	0.0085
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R	1	18,998	13,537	0	205.80	65.76	5.47	359.9	0.0080
GA GEORGIA POWER COMPANY MITCHELL STEAM E	SG05	4,173	4,930	0	206.79	23.94	14.43	344.0	0.0077
FL JEFFERSON SMURFIT CORPORATION (US)	6	247	300	0	84.42	4.66	71.58	333.3	0.0074
SC SCE&C CANADYS	001	6,214	6,203	0	208.33	17.62	16.79	295.9	0.0065
FL MILLENNIUM SPECIALTY CHEMICALS	5	237	259	0	60.48	4.45	65.70	292.7	0.0065
SC SCE&C CANADYS	002	6,588	5,144	0	206.35	17.42	16.79	292.4	0.0065
FL GEORGIA-PACIFIC CORP PULP/PAPER MILL	16	1,354	1,811	4	125.35	12.59	22.94	281.9	0.0064
FL ANCHOR GLASS CONTAINER CORPORATION	4	161	212	0	59.04	3.60	65.70	236.5	0.0053
FL ANCHOR GLASS CONTAINER CORPORATION	3	156	206	0	59.04	3.40	65.70	229.1	0.0051
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	PRB1	286	334	0	108.68	3.15	77.58	226.7	0.0050
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	RP01	285	333	0	106.22	3.14	71.58	224.6	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 SO₂ 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	SO2 Tons (2002) (2018)	CE	d (km)	Q/d	RT	RT*Q/d	0.134 Fraction	
GA GEORGIA PACIFIC BRUNSWICK OPERATIONS	BR01	1,642	1,862	4	75.42	24.41	77.47	1744.6	0.0389
FL SAINT JOHN'S RIVER	17	10,185	7,420	90	65.12	113.95	65.70	7486.4	0.5271
FL SAINT JOHN'S RIVER	16	11,078	5,862	90	65.12	80.33	65.70	5926.6	0.1325
FL JEFFERSON SMURFIT CORPORATION (US)	15	3,242	3,639	4	64.58	56.30	71.58	4093.5	0.0000
FL CEDAR BAY GENERATING COMPANY L P	GEN1	0	2,227	90	61.17	36.41	65.70	2360.1	0.0634
FL RAYONIER PERFORMANCE FIBERS LLC	6	1,075	1,256	0	63.34	19.83	71.58	1419.7	0.0317
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	1	10,912	6,779	95	121.83	55.64	22.94	1276.5	0.0285
FL SEMINOLE ELECTRIC COOPERATIVE, INC.	2	12,775	6,568	95	121.83	53.42	22.94	1225.4	0.0274
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	66	1,140	1,496	0	69.66	21.39	48.81	1044.0	0.0233
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	67	996	1,368	0	69.66	18.69	48.81	912.3	0.0204
FL IFF CHEMICAL HOLDINGS, INC.	3	624	723	0	66.66	12.94	65.70	850.1	0.0190
FL GEORGIA-PACIFIC CORP PULP/PAPER MILL	15	3,703	4,339	0	125.35	34.48	22.94	790.9	0.0177
GA INTERNATIONAL PAPER SAVANNAH MILL	PRB3	1,640	18,318	4	179.34	47.76	15.53	743.9	0.0169
FL MILLENNIUM SPECIALTY CHEMICALS	8	505	560	0	60.48	9.76	65.70	641.5	0.0143
GA SAVANNAH ELECTRIC MONTOSH STEAM - ELEC	SG01	7,089	7,015	0	201.59	34.80	15.51	539.7	0.0120
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	PRB2	156	421	4	108.37	3.7	77.58	413.9	0.0094
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R	2	20,728	15,241	0	208.80	74.06	5.47	405.1	0.0090
GA SAVANNAH ELECTRIC KRAFT STEAM - ELECTRI	SG03	3,992	4,474	0	182.45	24.52	15.53	389.9	0.0085
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL R	1	18,998	13,537	0	205.80	65.76	5.47	359.9	0.0080
GA GEORGIA POWER COMPANY MITCHELL STEAM E	SG05	4,173	4,930	0	206.79	23.94	14.43	344.0	0.0077
FL JEFFERSON SMURFIT CORPORATION (US)	6	247	300	0	84.42	4.66	71.58	333.3	0.0074
SC SCE&C CANADYS	001	6,214	6,203	0	208.33	17.62	16.79	295.9	0.0065
FL MILLENNIUM SPECIALTY CHEMICALS	5	237	259	0	60.48	4.45	65.70	292.7	0.0065
SC SCE&C CANADYS	002	6,588	5,144	0	206.35	17.42	16.79	292.4	0.0065
FL GEORGIA-PACIFIC CORP PULP/PAPER MILL	16	1,354	1,811	4	125.35	12.59	22.94	281.9	0.0064
FL ANCHOR GLASS CONTAINER CORPORATION	4	161	212	0	59.04	3.60	65.70	236.5	0.0053
FL ANCHOR GLASS CONTAINER CORPORATION	3	156	206	0	59.04	3.40	65.70	229.1	0.0051
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	PRB1	286	334	0	108.68	3.15	77.58	226.7	0.0050
GA JESUP MILL BAYONIER PERFORMANCE FIBERS	RP01	285	333	0	106.22	3.14	71.58	224.6	0.0050

SOURCE CONTRIBUTION AT SAMA

Plant	ID	SO2 Tons		CE	d (km)	Qid	RT	0.1131.7	
		2002	2018					R	Fraction
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	2	20,728	16,241	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	71.40	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	621	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	9.33	75.55	644.1	0.0333
FL ST. MARK'S POWERS, 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	1	395	350	0	61.48	5.32	75.55	532.9	0.0286
GA GEORGIA POWER COMPANY, MITCHELL STEAM-ELEC	SG03	4,173	4,930	0	150.49	32.76	16.16	529.4	0.0274
FL GULF POWER COMPANY SCHOLZ ELECTRIC GENER	1	320	1,980	0	95.55	20.72	25.02	518.4	0.0268
FL GULF POWER COMPANY SCHOLZ ELECTRIC GENER	2	1,485	1,990	0	95.55	20.72	25.02	518.4	0.0268
AL EXXONMOBIL PRODUCTION COMPANY	014	15,420	14,695	0	325.51	45.14	10.91	492.5	0.0265
FL GULF POWER COMPANY - CRIST	6	10,889	12,421	0	298.97	47.56	11.11	481.6	0.0259
FL STONE CONTAINER CORPORATION	16	1,871	1,108	4	142.53	14.79	28.59	432.8	0.0218
AL SANDERS LEAD CO	003	4,048	7,303	0	258.30	28.48	12.50	356.0	0.0184
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	008	3,948	7,121	0	258.30	27.78	12.50	347.2	0.0179
FL PROGRESS ENERGY FLORIDA, INC. CRYSTAL RI	3	28,458	3,634	90	189.58	10.17	17.27	331.1	0.0171
GA LONGLEAF ENERGY STATION	BO14	0	3,297	0	154.62	20.88	12.60	305.5	0.0136
GA LONGLEAF ENERGY STATION	BO15	0	3,297	0	154.62	20.88	12.60	305.2	0.0136
GA GEORGIA PACIFIC CORPORATION, CEDAR SPRIN	U501	2,257	2,533	4	149.70	15.92	12.89	218.1	0.0118
FL FLORIDA CRUSHED STONE CO., INC	16	2,869	2,884	4	237.91	12.12	17.27	209.3	0.0108
GA GEORGIA PACIFIC CORPORATION, CEDAR SPRIN	U500	2,164	2,428	4	149.70	15.22	12.89	209.1	0.0108
FL GULF POWER COMPANY LANISING SMITH PLANT	2	6,742	1,662	0	148.23	7.12	28.59	203.5	0.0105
AL ALABAMA POWER COMPANY - BARRY	004	7,601	9,120	0	148.23	6.27	28.59	199.2	0.0101
FL SAINT JOHN'S RIVER	17	10,185	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 LANISING SMITH PLANT	1	8,564	915	0	148.23	6.13	28.59	175.3	0.0091
FL GULF POWER COMPANY - CRIST	7	21,548	4,648	90	298.97	15.56	11.11	172.0	0.0083

SOURCE CONTRIBUTION AT COHU, P2

CAIR = Reasonable Progress for EGU's

Plant	ID	SO2 Tons		CE	d (km)	Qid	RT	0.1131.7	
		2002	2018					R	Fraction
AL TVA - WIDOWS CREEK	006	4,455	4,707	0	103.54	45.46	20.39	907.0	0.0123
AL TVA - WIDOWS CREEK	003	4,466	4,620	0	103.54	44.67	20.39	910.8	0.0121
AL TVA - WIDOWS CREEK	007	4,699	4,650	0	103.54	43.95	20.39	896.1	0.0119
SC DUKE ENERGY LEE	003	4,384	4,274	0	201.57	36.09	22.06	796.1	0.0106
TN ALUMINUM COMPANY OF AMERICA - SOUTH PLAN	16	1,856	2,370	0	125.75	18.85	33.77	636.5	0.0084
TN ALUMINUM COMPANY OF AMERICA - SOUTH PLAN	17	1,817	2,300	0	125.75	18.45	33.77	623.1	0.0083
GA GEORGIA POWER COMPANY, WANLEY STEAM-ELEC	SG06	28,741	3,282	94	168.08	10.05	13.06	266.4	0.0036
GA GEORGIA POWER COMPANY, WANLEY STEAM-ELEC	SG05	28,741	3,282	94	168.08	10.05	13.06	266.4	0.0036
GA MOHAWK INDUSTRIES - SOUTH HAMILTON STREE	BL06	125	200	0	31.93	6.20	33.51	222.9	0.0029
GA MOHAWK INDUSTRIES - SOUTH HAMILTON STREE	BL07	122	200	0	31.93	6.20	33.51	222.9	0.0029
TN EASTMAN CHEMICAL COMPANY	82152	16,855	16,729	4	270.21	61.91	8.43	521.9	0.0069
AL ALABAMA POWER COMPANY - GORGAS	004	8,150	9,854	0	268.85	36.65	13.76	504.3	0.0067
SC DUKE ENERGY LEE	001	2,386	4,347	0	201.57	21.56	22.06	475.7	0.0063
SC DUKE ENERGY LEE	002	2,443	4,140	0	201.57	20.54	22.06	453.1	0.0060
TN U.S. DEPARTMENT OF ENERGY Y-12 PLANT	002	2,354	2,336	4	137.55	16.99	24.66	418.9	0.0056
AL ALABAMA POWER COMPANY - GORGAS	005	9,443	8,091	0	268.85	30.09	13.76	414.1	0.0055
GA MOHAWK INDUSTRIES - SOUTH HAMILTON STREE	BL05	354	261	4	67.32	6.18	28.87	368.4	0.0054

SOURCE CONTRIBUTION AT SAMA, P2

Plant	ID	SO2 Tons		CE	d (km)	Qid	RT	0.1131.7	
		2002	2018					R	Fraction
FL SEMINOLE ELECTRIC COOPERATIVE, INC	2	12,775	6,598	95	247.26	26.35	6.49	176.8	0.0086
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	66	1,480	1,460	0	139.26	10.74	15.50	154.4	0.0081
FL STONE CONTAINER CORPORATION	19	687	804	0	140.69	5.71	28.69	163.3	0.0084
FL SAINT JOHN'S RIVER	16	11,076	6,892	90	253.61	23.19	6.62	153.5	0.0079
FL STONE CONTAINER CORPORATION	17	714	847	0	140.69	5.31	28.59	151.2	0.0078
FL STONE CONTAINER CORPORATION	15	629	735	4	140.69	5.22	28.59	149.5	0.0077
GA GEORGIA PACIFIC CORPORATION, CEDAR SPRIN	R402	4,477	1,726	0	149.70	11.53	12.89	146.6	0.0077
FL WHITE SPRINGS AGRICULTURAL CHEMICALS INC	67	1,485	1,398	0	139.26	9.43	15.50	143.6	0.0074
AL CONTINENTAL CARBON COMPANY	010	4,226	5,848	0	271.89	21.51	6.63	142.6	0.0074
AL ALABAMA POWER COMPANY - BARRY	008	24,676	6,790	90	382.77	17.74	8.01	142.1	0.0073
GA INTERSTATE PAPER, SAVANNAH MILL	PR10	7,545	3,078	4	366.34	23.45	5.81	137.1	0.0073
FL GEORGIA PACIFIC CORP - PULP/PAPER MILL	15	3,703	4,329	0	243.67	17.76	6.49	115.3	0.0060
FL GULF POWER COMPANY - CRIST	4	2,464	3,038	0	298.98	10.16	11.11	112.9	0.0058
AL ALABAMA POWER COMPANY - BARRY	003	3,970	5,235	0	382.77	13.88	8.01	109.6	0.0057
AL ALABAMA POWER COMPANY - BARRY	002	3,550	5,145	0	382.77	13.44	8.01	107.7	0.0056
GA SAVANNAH ELECTRIC MONTOSH STEAM - ELEC	SG01	7,069	7,015	0	390.33	16.44	5.81	107.2	0.0055
TX MILLER BROWNING CO	001	6,675	6,073	0	164.29	6.52	18.18	102.3	0.0055
AL ALABAMA ELECTRIC COOPERATIVE - CHARLES R	003	6,676	6,072	90	390.33	12.98	8.01	103.2	0.0053
FL GULF POWER COMPANY - CRIST	5	2,711	2,766	0	298.88	9.25	11.11	102.8	0.0053
AL ALABAMA ELECTRIC COOPERATIVE - CHARLES R	004	7,241	4,965	90	390.63	12.71	8.01	101.8	0.0053
FL TAMPA ELECTRIC COMPANY BIG BEND STATION	4	3,985	4,023	0	307.91	15.99	8.23	96.6	0.0051
FL CITY OF GAINESVILLE GRU DEEBHAVEN GENER	5	6,969	1,662	0	176.03	6.07	16.38	99.4	0.0051
FL TAMPA ELECTRIC COMPANY BIG BEND STATION	3	2,977	4,875	0	307.89	15.83	8.23	96.6	0.0051
GA PACKAGING CORPORATION OF AMERICA - VALDO	017	556	633	0	106.83	6.17	15.90	98.2	0.0051

SOURCE CONTRIBUTION AT COHU

CAIR = Reasonable Progress for EGU's

Plant	ID	SO2 Tons		CE	d (km)	Qid	RT	0.7146	
		2002	2018					R	Fraction
TN BOWATER INC	001	1,837	2,530	4	32.47	77.92	82.90	645.6	0.0117
TN INTERTRADE HOLDINGS, INC	001	1,837	2,530	4	32.47	77.92	82.90	645.6	0.0117
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG04	14,024	827	95	149.41	4.63	39.01	200.0	0.0029
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG05	15,175	818	95	149.41	5.48	39.01	218.6	0.0028
GA GEORGIA POWER COMPANY, BOWEN STEAM-ELEC	SG04	42,634	3,147	95	78.34	40.17	44.32	178.0	0.0026
GA GEORGIA POWER COMPANY, BOWEN STEAM-ELEC	SG03	42,634	3,147	95	78.34	39.01	44.32	172.8	0.0026
GA INLAND PAPERBOARD & PACKAGING, INC - LIN	F4	3,263	3,696	4	87.55	42.22	78.87	332.0	0.0042
GA GEORGIA POWER COMPANY, HAMMOND STEAM-ELEC	SG04	10,060	1,728	95	88.75	10.47	78.87	163.4	0.0024
GA GEORGIA POWER COMPANY, BOWEN STEAM-ELEC	SG03	35,265	4,432	95	78.34	31.66	44.32	133.6	0.0024
GA GEORGIA POWER COMPANY, BOWEN STEAM-ELEC	SG04	35,265	4,432	95	78.34	31.66	44.32	133.6	0.0024
AL TVA - WIDOWS CREEK	008	9,181	10,185	90	103.54	98.37	20.39	200.5	0.0266
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG05	5,008	6,060	0	149.41	45.46	39.01	179.4	0.0025
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG04	4,842	4,500	0	149.41	43.50	39.01	176.2	0.0026
TN TVA BULL RUN FOSSIL PLANT	001	36,729	8,657	90	144.05	60.10	24.66	148.0	0.0197
TN E. I. DU PONT DE NEMOURS AND COMPANY	0002	1,286	1,173	0	67.08	17.48	83.31	145.6	0.0193
GA GEORGIA POWER COMPANY, SCHERER STEAM-ELEC	SG04	20,771	1,331	95	206.59	6.44	10.72	121.0	0.0099
GA GEORGIA POWER COMPANY, SCHERER STEAM-ELEC	SG04	20,771	1,331	95	206.59	6.44	10.72	121.0	0.0099
GA GEORGIA POWER COMPANY, SCHERER STEAM-ELEC	SG01	25,266	1,313	95	206.59	6.36	10.72	68.1	0.0050
GA GEORGIA POWER COMPANY, SCHERER STEAM-ELEC	SG02	24,966	1,294	95	206.59	6.31	10.72	67.7	0.0050
AL TVA - WIDOWS CREEK	009	8,588	6,712	90	103.54	64.83	20.39	1321.8	0.0175
TN A.E. STALEY MANUFACTURING COMPANY	005	3,005	2,962	4	109.35	27.27	38.49	1049.7	0.0139
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG03	3,233	3,916	0	149.41	26.21	39.01	1046.0	0.0138
GA INLAND PAPERBOARD & PACKAGING, INC - LIN	F2	1,623	1,448	4	87.65	13.14	78.87	369.0	0.0137
GA MOHNT VERNON MILLS, INC - APPAREL FABRIC	EU04	934	828	4	67.72	12.22	79.07	953.6	0.0126
AL TVA - WIDOWS CREEK	005	4,122	4,839	0	103.54	46.73	20.39	952.9	0.0126
AL TVA - WIDOWS CREEK	004	4,667	4,820	0	103.54	46.63	20.39	950.8	0.0126
AL TVA - WIDOWS CREEK	002	4,031	4,821	0	103.54	46.56	20.39	949.4	0.0126
GA GEORGIA POWER COMPANY, YATES STEAM-ELECT	SG02								

SOURCE CONTRIBUTION AT COHU

CAIR = Reasonable Progress for EGU's

Plant	CAIR	0.7145	0.1167
TN BOWATER HOLDINGS, INC.	001 1 837 2,630 4 52.47 77.92 80.90 649.5	0.0857	0.0959
GA GEORGIA POWER COMPANY-YATES-STEAM-ELECT	SG01 40,924 827 0 149.91 5.23 39.91 200.0	0.0026	0.0026
GA GEORGIA POWER COMPANY-YATES-STEAM-ELECT	SG06 15,172 818 55 140.41 5.48 39.91 218.6	0.0029	0.0029
GA GEORGIA POWER COMPANY-BOWEN-STEAM-ELECT	SG04 49,634 9,147 0 78.34 40.17 44.30 176.0	0.0036	0.0036
GA GEORGIA POWER COMPANY-BOWEN-STEAM-ELECT	SG05 49,663 9,666 0 79.34 38.04 44.30 179.0	0.0036	0.0036
GA INLAND PAPERBOARD & PACKAGING, INC. -LIN	F4 3,263 3,666 4 87.55 42.22 76.87 330.7	0.0442	0.0442
GA GEORGIA POWER COMPANY-HAMMOND-STEAM-ELE	SG01 16,660 1,728 0 58.76 16.47 78.87 163.4	0.0074	0.0074
GA GEORGIA POWER COMPANY-BOWEN-STEAM-ELECT	SG03 39,263 2,413 0 78.24 31.06 44.30 176.1	0.0483	0.0483
GA GEORGIA POWER COMPANY-BOWEN-STEAM-ELECT	SG01 39,050 2,418 0 79.04 30.00 44.30 166.5	0.0484	0.0484
AL TVA - WIDOWS CREEK	008 9 151 10,185 0 103.54 98.37 20.39 2005.9	0.0266	0.0266
GA GEORGIA POWER COMPANY-YATES-3-STEAM-ELECT	SG03 3,008 3,008 0 149.91 5.23 39.91 200.0	0.0056	0.0056
GA GEORGIA POWER COMPANY-YATES-STEAM-ELECT	SG01 4,812 6,500 0 146.41 43.60 39.91 176.2	0.0230	0.0230
TN TVA BULL RUN FOSSIL PLANT	001 36,729 8,657 90 144.05 66.10 24.66 1482.0	0.0167	0.0167
TN F. I. DU ROUIT DE NEIGUES AND COMPANY	0000 1 268 1,173 0 67.83 17.48 83.31 125.3	0.0163	0.0163
GA GEORGIA POWER COMPANY-SCHERER-STEAM-ELEC	SG03 16,149 1,007 0 206.59 0.76 10.72 120.0	0.0040	0.0040
GA GEORGIA POWER COMPANY-SCHERER-STEAM-ELEC	SG04 20,771 1,321 0 206.40 0.44 10.72 120.0	0.0060	0.0060
GA GEORGIA POWER COMPANY-SCHERER-STEAM-ELEC	SG01 20,805 1,173 0 206.30 0.36 10.72 120.0	0.0060	0.0060
GA GEORGIA POWER COMPANY-SCHERER-STEAM-ELEC	SG02 24,500 1,304 0 206.69 0.31 10.72 120.0	0.0060	0.0060
AL TVA - WIDOWS CREEK	009 8 568 6,712 90 103.54 64.83 20.39 1321.8	0.0175	0.0175
TN A.E. STALEY MANUFACTURING COMPANY	005 3 005 2 982 4 109.35 27.27 38.49 1049.7	0.0139	0.0139
GA GEORGIA POWER COMPANY-YATES-STEAM-ELECT	SG06 4 204 8 019 0 149.91 5.23 39.91 200.0	0.0149	0.0149
GA INLAND PAPERBOARD & PACKAGING, INC. -LIN	F2 1 033 1,148 4 87.56 43.14 76.87 330.7	0.0137	0.0137
GA MOUNT VERNON MILLS, INC. - APPAREL FABRIC	SG01 294 220 0 107.75 12.52 70.87 202.0	0.0128	0.0128
AL TVA - WIDOWS CREEK	004 4 667 4 828 0 103.54 46.63 20.39 950.8	0.0126	0.0126
AL TVA - WIDOWS CREEK	002 4 031 4 821 0 103.54 46.56 20.39 949.4	0.0126	0.0126
GA GEORGIA POWER COMPANY-YATES-3-STEAM-ELECT	SG03 3 991 3 641 0 149.91 5.23 39.91 200.0	0.0126	0.0126

GEORGIA'S RP SUMMARY

- 22 Emission Units at 12 Facilities
 - Performed single source photochemical grid modeling for each facility → \$/Mm⁻¹
 - (\$/ton) x (ton/Mm⁻¹) = \$/Mm⁻¹
 - 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	0.0123	0.0121	0.0119
AL TVA - WIDOWS CREEK	008 9 151 10,185 0 103.54 98.37 20.39 2005.9	0.0123	0.0123	0.0123
AL TVA - WIDOWS CREEK	009 8 568 6,712 90 103.54 64.83 20.39 1321.8	0.0119	0.0119	0.0119
SC DUKE ENERGY LLC	003 1 434 7 274 0 201.67 36.09 22.08 796.1	0.0116	0.0116	0.0116
TN ALUMINUM COMPANY OF AMERICA - SOUTH PLANT	16 1 865 2 370 0 126.75 18.85 33.77 636.5	0.0084	0.0084	0.0084
TN ALUMINUM COMPANY OF AMERICA - SOUTH PLANT	17 1 817 2 300 0 125.75 18.41 33.77 621.1	0.0083	0.0083	0.0083
GA GEORGIA POWER COMPANY-WANSLEY-STEAM-ELE	SG03 36 421 3 003 0 168.06 10.13 13.06 266.7	0.0036	0.0036	0.0036
GA GEORGIA POWER COMPANY-WANSLEY-STEAM-ELE	SG01 36 741 3 018 0 168.06 10.10 13.06 266.4	0.0036	0.0036	0.0036
GA GEORGIA POWER COMPANY-WANSLEY-STEAM-ELE	SG02 36 741 3 003 0 168.06 10.10 13.06 266.4	0.0036	0.0036	0.0036
GA INDIANAPOLIS INDUSTRIES - SOUTH HAMILTON STRIP	SG01 720 200 0 31.85 6.70 65.31 122.9	0.0069	0.0069	0.0069
TN EASTMAN CHEMICAL COMPANY	SG02 16 951 10 229 4 270.21 61.01 8.43 521.9	0.0069	0.0069	0.0069
AL ALABAMA POWER COMPANY - GORGAS	004 8 500 9 884 0 268.85 36.65 13.76 504.3	0.0067	0.0067	0.0067
SC DUKE ENERGY LLC	001 2 388 4 347 0 201.61 21.56 22.06 476.7	0.0065	0.0065	0.0065
SC DUKE ENERGY LLC	002 2 423 4 149 0 201.67 20.54 22.08 451.1	0.0060	0.0060	0.0060
U.S. DEPARTMENT OF ENERGY - Y-12 PLANT	002 2 354 2 356 4 137.55 16.99 14.56 478.9	0.0056	0.0056	0.0056
AL ALABAMA POWER COMPANY - GORGAS	005 9 443 8 091 0 268.85 30.09 13.76 414.1	0.0055	0.0055	0.0055
GA MOUNT VERNON MILLS, INC. - APPAREL FABRIC	SG03 294 220 0 107.75 12.52 70.87 202.0	0.0064	0.0064	0.0064

Facility	Emission Unit	Control Technology	Number of Units	Permit Limit (lbs/yr)	Estimated Emissions (lbs/yr)	Voluntary Limit (lbs/yr)	Compliance Status	CAIR Contribution (lbs/yr)	CAIR Contribution (%)
Brunswick Cellulose (GA Pac)	F1 Pwr. Boiler 4	New FGD	1	568 tons SO2 per 12 consecutive months	1074	1074	Compliant	1074	100%
	Power Boiler U500	135 pound SO2 per hour (same as BART exemption modeling limit)	1	1385	1385	Compliant	1385	100%	
Georgia Pacific - Cedar Springs	Power Boiler U500	135 pound SO2 per hour (same as BART exemption modeling limit)	1	1385	1385	Compliant	1385	100%	
	Power Boiler U501	135 pound SO2 per hour (same as BART exemption modeling limit)	1	1385	1385	Compliant	1385	100%	
International Paper - Savannah	Pwr. Boiler 13, including combustion of process organic emissions	Not more than 6738 tons SO2 per 12 consecutive months, compliance date of January 1, 2016	1	2000	2000	Compliant	2000	100%	
	CE Power Boiler	Not more than 600 tons SO2 per 12 consecutive months, compliance date of January 1, 2012	1	53	53	Compliant	53	100%	
Packaging Corp. of America	Pwr. Boiler 2	Not more than 318 tons SO2 per 12 consecutive months, compliance date of June 4, 2008	1	306	306	Compliant	306	100%	
	Pwr. Boiler 3	Not more than 149 tons SO2 per 12 consecutive months, compliance date of June 4, 2008	1	1448	1448	Compliant	1448	100%	
Rayonier Perf. Fibers	RF01 No. 5 Rec. Furn.	Not more than 194 tons SO2 per 12 consecutive months, compliance date tied to facility modification	1	139	139	Compliant	139	100%	
	RF04 No. 6 Rec. Furn.	Not more than 302 tons SO2 per 12 consecutive months, compliance date tied to facility modification	1	27	27	Compliant	27	100%	
Southern States Phosphate and Fertilizer	SA02 Acid Plant 2	Not more than 580 tons SO2 per 12 consecutive months, compliance date of January 1, 2014	1	228	228	Compliant	228	100%	

- ### 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 SO2, except as noted)	Estimated Tons Reduced
GA Pacific - Brunswick Cellulose	F1 Pwr. Boiler 4	Not more than 568 tons SO2 per 12 consecutive months, compliance date of January 1, 2012	1074
Georgia Pacific - Cedar Springs	Power Boiler U500	135 pound SO2 per hour (same as BART exemption modeling limit)	1385
Georgia Pacific - Cedar Springs	Power Boiler U501	135 pound SO2 per hour (same as BART exemption modeling limit)	1385
International Paper - Savannah	Pwr. Boiler 13, including combustion of process organic emissions	Not more than 6738 tons SO2 per 12 consecutive months, compliance date of January 1, 2016	2000
Packaging Corp. of America	CE Power Boiler	Not more than 600 tons SO2 per 12 consecutive months, compliance date of January 1, 2012	53
Rayonier Perf. Fibers	PB02 Pwr. Boiler 2	Not more than 318 tons SO2 per 12 consecutive months, compliance date of June 4, 2008	306
Rayonier Perf. Fibers	PB03 Pwr. Boiler 3	Not more than 149 tons SO2 per 12 consecutive months, compliance date of June 4, 2008	1448
Rayonier Perf. Fibers	RF01 No. 5 Rec. Furn.	Not more than 194 tons SO2 per 12 consecutive months, compliance date tied to facility modification	139
Rayonier Perf. Fibers	RF04 No. 6 Rec. Furn.	Not more than 302 tons SO2 per 12 consecutive months, compliance date tied to facility modification	27
Southern States Phosphate and Fertilizer	SA02 Acid Plant 2	Not more than 580 tons SO2 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 SO2	CO2E	GRS1	OKER	ROSLA	SAMA	SFS	WOLF
GEORGIA PACIFIC CORPORATION, CEDAR SPRING	R402	1725.31	-0.0775	-0.0230	-0.0067	-0.0060	-0.0034	-0.0004	-0.0010
GEORGIA PACIFIC CORPORATION, CEDAR SPRING	U306	2425.16	-0.0000	-0.0321	-0.0001	-0.0001	-0.0000	-0.0000	-0.0001
GEORGIA PACIFIC CORPORATION, CEDAR SPRING	U301	2522.99	-0.0004	-0.0312	-0.0000	-0.0001	-0.0000	-0.0004	-0.0007
GEORGIA POWER COMPANY, MITCHELL DAM #1	R003	2922.74	-0.0000	-0.0062	-0.0020	-0.0010	-0.0010	-0.0014	-0.0010
GEORGIA PACIFIC, BURNING OAK GENERATION	G1	1824.17	-0.0017	-0.0312	-0.0100	-0.0100	-0.0076	-0.0110	-0.0110
GEORGIA PACIFIC, BURNING OAK GENERATION	R01	1811.01	-0.0011	-0.0301	-0.0090	-0.0074	-0.0061	-0.0082	-0.0082
GEORGIA PACIFIC CORP SAVANNAH RIVER #1	R004	1814.24	-0.0014	-0.0311	-0.0091	-0.0074	-0.0050	-0.0050	-0.0074
GEORGIA PACIFIC CORP SAVANNAH RIVER #1	R002	1415.17	-0.0020	-0.0301	-0.0090	-0.0075	-0.0061	-0.0061	-0.0061
GEORGIA PACIFIC CORP SAVANNAH RIVER #1	R005	1252.68	-0.0024	-0.0300	-0.0093	-0.0103	-0.0114	-0.0114	-0.0102
INLAND PAPERBOARD & PACKAGING, INC - JEN	T1	1147.77	-0.0090	-0.0184	-0.0103	-0.0103	-0.0103	-0.0103	-0.0103
INLAND PAPERBOARD & PACKAGING, INC - JEN	T1	1096.15	-0.1099	-0.1217	-0.0528	-0.0530	-0.0447	-0.0738	-0.0707
INTERNATIONAL PAPER SAVANNAH #1	PH01	879.58	-0.0010	-0.0100	-0.0028	-0.0028	-0.0028	-0.0028	-0.0028
INTERNATIONAL PAPER SAVANNAH #1	T1	187.69	-0.0028	-0.0010	-0.0028	-0.0028	-0.0010	-0.0010	-0.0010
REPUBLIC ENERGY PERFORMANCE FIBERS	PH02	399.69	-0.0010	-0.0100	-0.0028	-0.0028	-0.0028	-0.0028	-0.0028
REPUBLIC ENERGY PERFORMANCE FIBERS	PH02	421.19	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
REPUBLIC ENERGY PERFORMANCE FIBERS	PH01	332.24	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
REPUBLIC ENERGY PERFORMANCE FIBERS	PH04	333.17	-0.0010	-0.0021	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
PACKAGING CORPORATION OF AMERICA - VALLEY	PH17	552.10	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
SAY ANNE ELECTRIC KRAFT STEAM ELECTRIC	S040	990.72	-0.0110	-0.0040	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
SAY ANNE ELECTRIC KRAFT STEAM ELECTRIC	S040	507.68	-0.0112	-0.0040	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
SAY ANNE ELECTRIC KRAFT STEAM ELECTRIC	S040	4843.17	-0.0112	-0.0040	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
SAY ANNE ELECTRIC WINTERSVILLE ELECTRIC	S040	705.13	-0.0080	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
SAY ANNE STEAM REFINERY	U101	997.42	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010
LOCKHEED MARTIN PROGRESSIVE & FIBER/DETC	S040	997.68	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010



CONTACT INFORMATION



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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

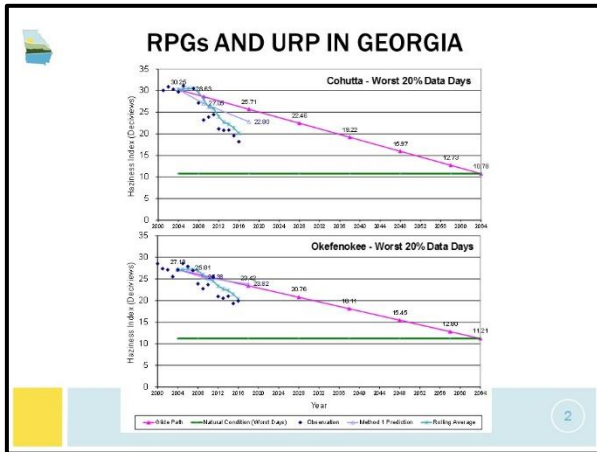
Round 2 Regional Haze Planning Workshop
Denver, CO
December 7, 2017

EPA PSAT RESULTS

Cohutta Wilderness, GA (COHU1)

Based on this analysis, SESARM states will likely focus on SO₂ emissions from point sources (both EGUs and non-EGUs).

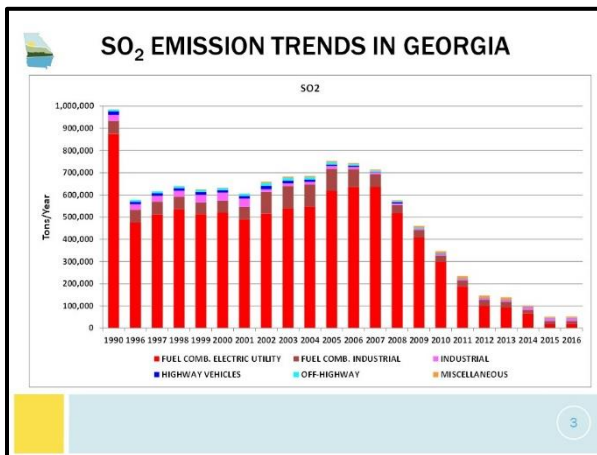
4



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⁻¹/ton, \$/Mm⁻¹)

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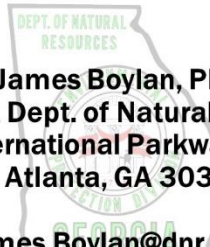
SCREENING EXAMPLES

Cohutta Wilderness Area			Okfeokee National Wildlife Refuge		
Plant	Fraction	Total	Plant	Fraction	Total
1. TWA WINDOVS CREEK	0.00%	0.00%	1. DAWY JONES RIVER	0.00%	0.00%
2. ZEPHYRUS NEWSPRINT & DIRECTORY - CALHOUN	1.00%	23.50%	2. JEFFERSON SHALERT CORPORATION (LS)	0.00%	41.50%
3. BENTLEY HOLDINGS, INC.	0.00%	20.54%	3. BEMBLE ELECTRIC COOPERATIVE, INC.	0.00%	41.20%
4. GEORGIA POWER COMPANY - BOWEN STEAM-ELECT	8.43%	43.90%	4. CEDAR BAY GENERATING COMPANY, L.P.	5.50%	52.75%
5. GEORGIA POWER COMPANY - YATES STEAM-ELECT	8.17%	43.14%	5. WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	4.50%	52.25%
6. FLANDRIS PAPERBOARDS & PACKAGING, INC. - LIT	0.33%	5.50%	6. GEORGIA PACIFIC BROWNSVILLE OPERATORS	4.43%	61.68%
7. GEORGIA POWER COMPANY - HAMMOND STEAM-ELE	3.04%	58.34%	7. BAYONNER PERFORMANCE FIBERS, LLC	3.60%	65.20%
8. KEMBLE ENERGY, LLC	2.33%	60.67%	8. GEORGIA PACIFIC CORP. - FULLAPAR MILL	2.34%	68.02%
9. VITA RILL BURN FUELS PLANT	2.96%	62.67%	9. MILLENNIUM SPECIALTY CHEMICALS	2.53%	70.55%
10. ILSA - ILSA PORTER DE MEMBERS AND COMPANY	1.93%	64.64%	10. PROGRESS ENERGY FLORIDA, INC. - CRYSTAL RI	2.30%	72.96%
11. ALUMINUM COMPANY OF AMERICA - SOUTH PLANT	1.90%	65.54%	11. FFF CHEMICAL HOLDINGS, INC.	1.60%	74.65%
12. VITA KINGSTON FUELS PLANT	1.60%	68.20%	12. GIBBER MILL - BAYONNER PERFORMANCE FIBERS	1.60%	76.78%
13. VITA E. STATELY MANUFACTURING COMPANY	1.64%	69.67%	13. INTERNATIONAL PAPER - SAVANNAH MILL	1.77%	78.55%
14. CHEMICAL PRODUCTS CORPORATION	1.50%	71.46%	14. SCS AG CANADAYS	1.45%	80.00%
15. ALABAMA POWER COMPANY - GORGAS	1.50%	72.96%	15. SAVANNAH ELECTRIC - MCINTOSH STEAM-ELEC	1.24%	81.24%
16. WELLS RIGID PAPER PRODUCTS - CANTON MILL	1.50%	74.46%	16. SAVANNAH ELECTRIC - NAVAJ STEAM-ELEC	1.50%	82.75%
17. TOWSON INDUSTRIES - SOUTH HAMILTON STREET	1.33%	75.80%	17. ANCHOR GLASS CONTAINER CORPORATION	1.17%	83.52%
18. BAYONNER (ALABAMA), INC.	0.97%	76.78%	18. GEORGIA POWER COMPANY - YATES STEAM-ELEC	1.60%	84.41%
19. BROWN VERNON MILLS, INC. - JAFFREY FABRIC	0.97%	77.71%	19. SANTEE COOPER, JEFFERSON	0.96%	85.37%
20. DOWAY INDUSTRIES GROUP, INC. - PLANT WD	0.60%	78.30%	20. GEORGIA PACIFIC CORP. SAVANNAH RIVER MIL	0.82%	86.39%
21. DOWAY INDUSTRIES CORPORATION - BIRMINGHAM STEA	0.70%	79.23%	21. GEORGIA POWER COMPANY - MITCHELL STEAM-ELE	0.70%	87.10%
22. DOWAY INDUSTRIES GROUP, INC. PLANT 80	0.70%	80.50%	22. BUCKEYE FLORIDA LIMITED PARTNERSHIP	0.71%	87.89%
23. ALABAMA POWER COMPANY - E. C. GASTON	0.70%	81.90%	23. SANDERS LEAD CO.	0.63%	88.54%
24. EASTMAN CHEMICAL COMPANY	0.71%	83.61%	24. CENTRAL CARBON COMPANY	0.63%	89.16%
25. SALTVA, INC.	0.76%	85.43%	25. KLF POWER COMPANY - CRIST	0.56%	89.75%
26. GEORGIA POWER COMPANY - WINDLEY STEAM-ELE	0.72%	86.36%	26. SANTEE COOPER CROSS	0.57%	90.32%
27. DOWAY ENERGY CORPORATION - CLIFSIDE STEA	0.72%	87.57%			
28. CHEM TECH FRESHERS	0.60%	88.50%			
29. AMERICAN ELECTRIC POWER-CLINCH RIVER PLA	0.60%	89.17%			
30. GEORGIA POWER COMPANY - MCDONOUGH STEAM-E	0.60%	89.80%			
31. CONTINENTAL CARBON COMPANY	0.61%	90.41%			
32. ILSA GAS & ELECT. MILL CREEK	0.60%	87.00%			
33. U.S. DEPARTMENT OF ENERGY - 1-2 PLANT	0.53%	85.3%			
34. DOWAY ENERGY CORPORATION - BUCK STEAM STA	0.50%	86.00%			
35. TIBBINS SISE - ALLOYS CORPORATION	0.47%	85.51%			
36. CANADIAN MILL GROUP, INC.	0.43%	85.84%			
37. BROWN INDUSTRIES GROUP, INC. PLANT 80	0.42%	86.30%			
38. ALABAMA POWER COMPANY - MILLER POWER PLANT	0.38%	86.53%			
39. ILSA ENERGY - GALLAGHER	0.38%	90.12%			

6




CONTACT INFORMATION



**James Boylan, Ph.D.
Georgia Dept. of Natural Resources
4244 International Parkway, Suite 120
Atlanta, GA 30354**

**James.Boylan@dnr.ga.gov
404-363-7014**





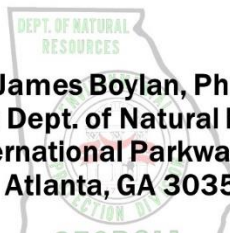
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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



James Boylan, Ph.D.
Georgia Dept. of Natural Resources
4244 International Parkway, Suite 120
Atlanta, GA 30354

James.Boylan@dnr.ga.gov
404-363-7014

EPA PLATFORM

- SESARM plans to use EPA's 2011/2028 modeling platform (v6.3e1)
 - 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 ¹
 Julie McDill, PE ²
 Byeong-Uk Kim, PhD ³
 Jin-Sheng Lin, PhD ¹
 Joseph Jakuta ⁴
 Mark Janssen ⁵

¹ Virginia Department of Environmental Quality
² Mid-Atlantic Regional Air Management Association
³ Georgia Environmental Protection Division
⁴ Ozone Transport Commission
⁵ 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_x, SO₂, and CO₂)
- **Emission contributions of the EGU sector**
 - **2011 CAMD data: ≈4,800 unique units**
 - 14% of the NO_x inventory
 - 71% of the SO₂ inventory



*Data from 2011 NEIv1

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

Eastern Regional Technical Advisory Committee (ERTAC)

- **ERTAC EGU growth convened 2009**

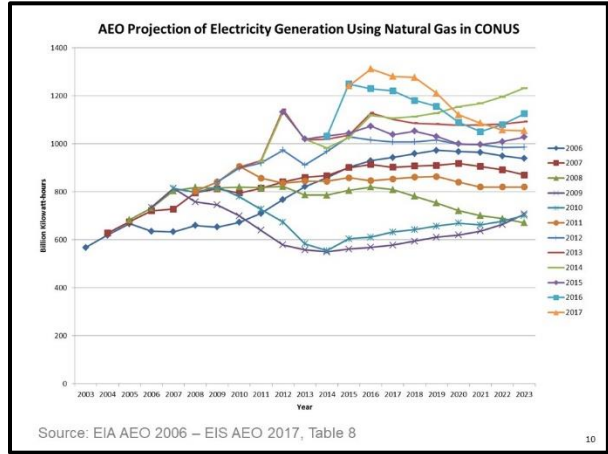
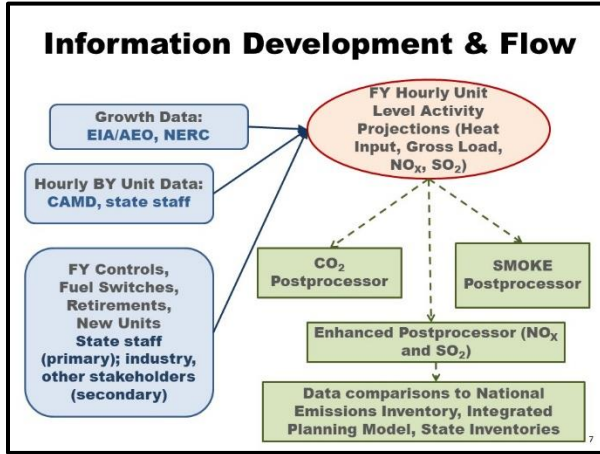
Goal: Build a low-cost, stable/stiff, fast, and transparent model to project electric generating unit (EGU) emissions including reasonable temporal profiles for activity and emissions

Uses: Provide EGU inventories suitable for

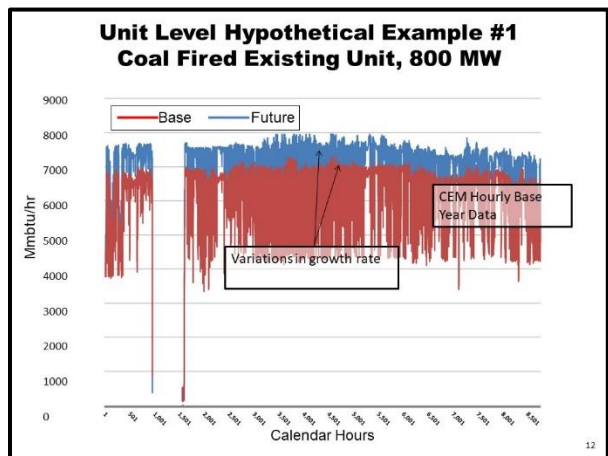
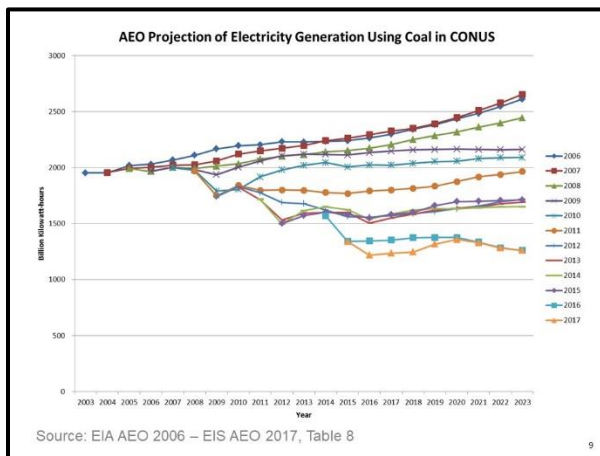
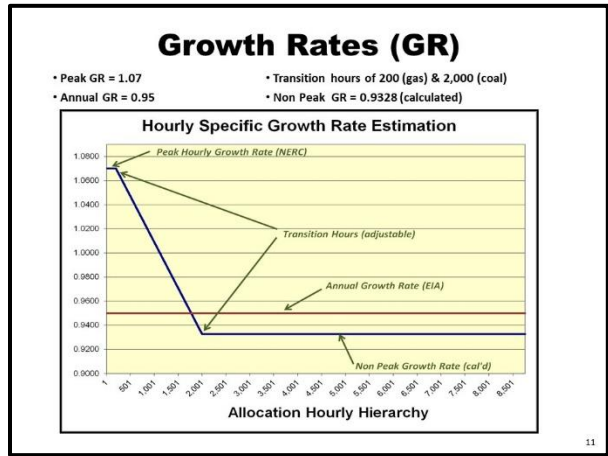
 - State Implementation Plan (SIP) submittals
 - Air quality modeling efforts

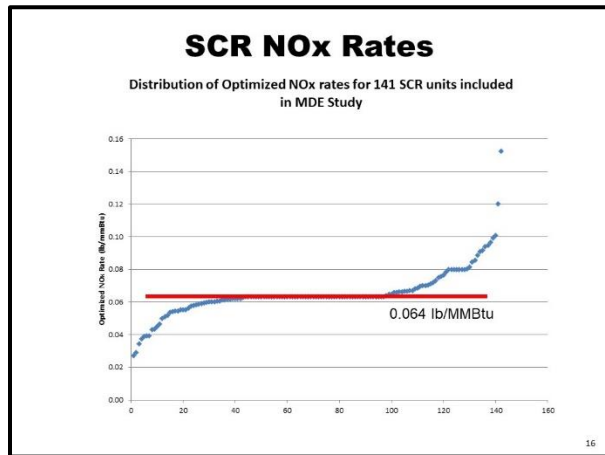
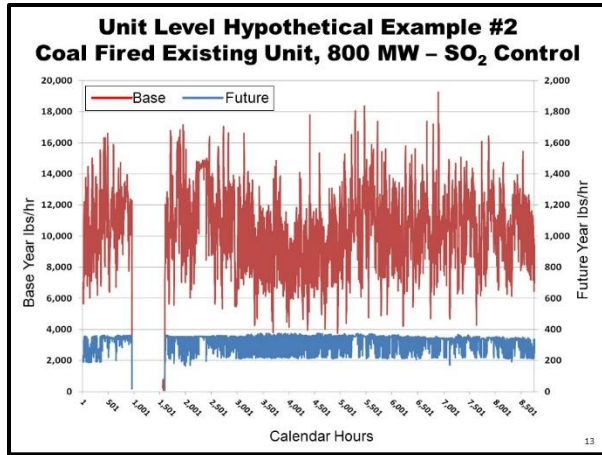
How the Model Works

- **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).**



- ### 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 SO₂ and NO_x
 - 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**



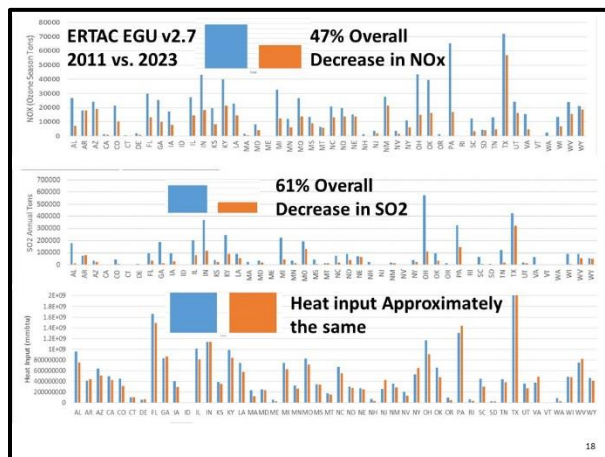
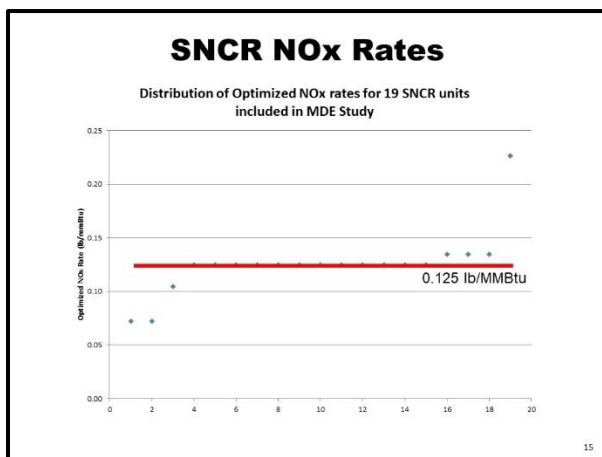


- ### ERTAC EGU v2.7
- ERTAC v2.7 reference case (no CSAPR)
 - AEO2017 (Annual Growth) & NERC (Peak Growth) with two exceptions
 - SRVC and NYCW use IRP derived growth factors
 - State updates as of Spring 2017
 - Generation transfers to alternate fuels to correct specific issues
 - Transfer of Indian 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

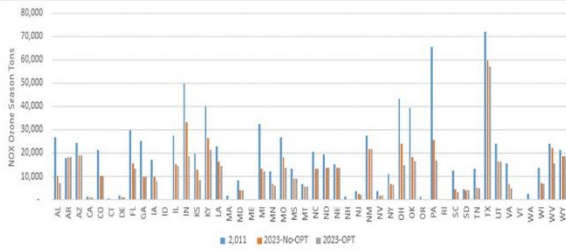
Region	State	Budget	Assurance Level	FY OSDND (tons)	Over Budget?	Over Assurance?
CENSARA	AR	12,098	14,578	18,119	6,071	3,941
CENSARA	LA	11,272	13,639	7,801	(3,471)	(5,838)
CENSARA	KS	8,027	9,713	8,307	280	(1,406)
CENSARA	LA	18,639	22,553	14,426	(4,213)	(8,127)
CENSARA	MO	15,780	19,094	13,764	(2,016)	(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	23,303	28,197	18,459	(4,844)	(9,738)
IADCO	NY	17,023	20,598	12,342	(4,781)	(8,256)
IADCO	OH	19,522	23,622	14,707	(4,815)	(8,915)
IADCO	WI	7,915	9,577	6,883	(1,022)	(2,694)
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)
SESARIM	AL	13,211	15,985	7,148	(6,063)	(8,837)
SESARIM	KY	21,115	25,549	21,259	214	(4,223)
SESARIM	MS	6,335	7,641	9,077	2,762	1,436
SESARIM	TN	7,736	9,361	4,806	(2,930)	(4,555)
SESARIM	VA	9,223	11,160	4,765	(4,458)	(6,395)
SESARIM	WV	17,815	21,556	15,667	(2,148)	(5,889)
TOTAL		315,464		294,201		14,264.07
PENALTY						
TOTAL W/PENALTY		315,464		308,465		

AEO2017 no CPP w/controls - Analysis

Need a 3:1 ratio for emissions above assurance level



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

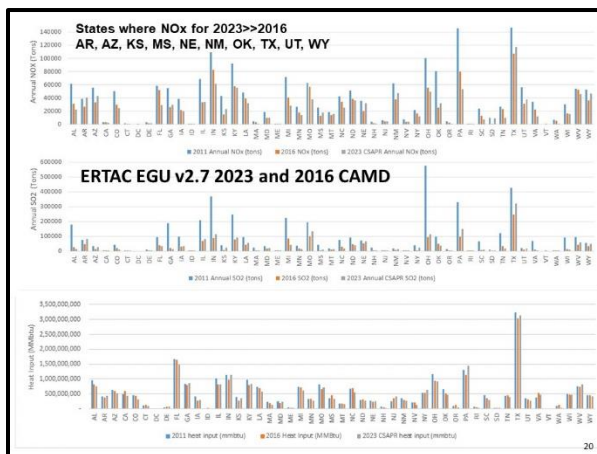
- States send comments to:
 - NE: Wendy Jacobs
Wendy.Jacobs@ct.gov
 - Southeast: John Hornback
Hornback@metro4-sesarm.org
 - Midwest: John Welch
JWelch@idem.in.gov
 - CENRAP: Mark Janssen
Janssen@ladco.org
ertacegufedback@gmail.com

22

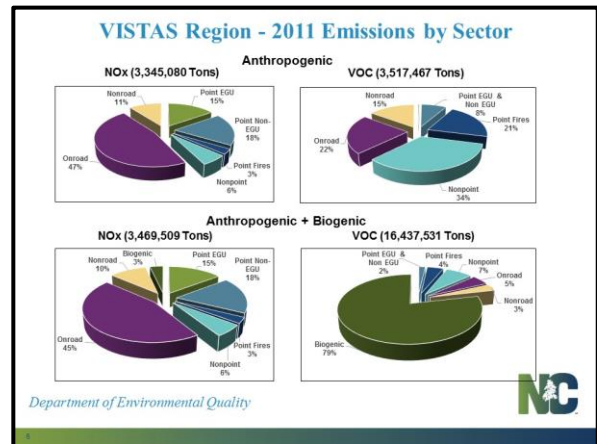
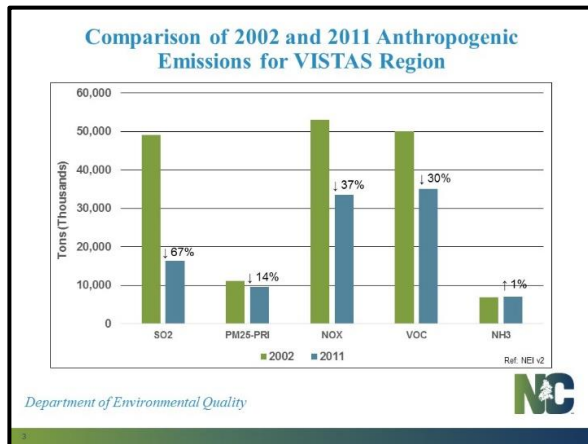
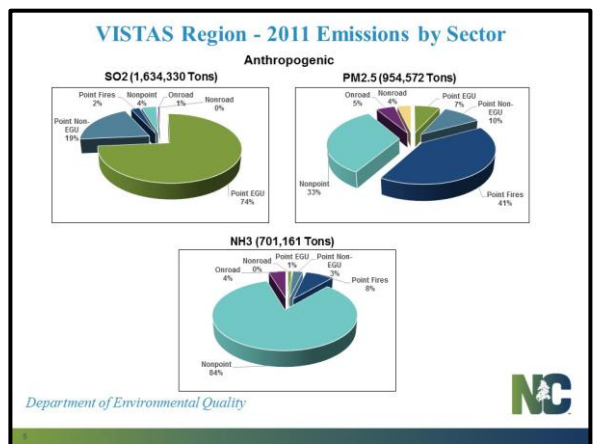
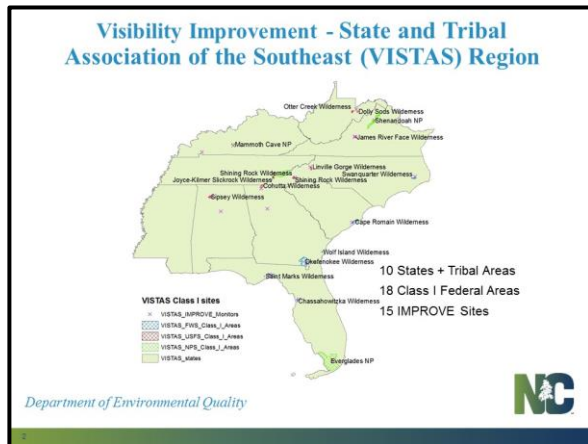
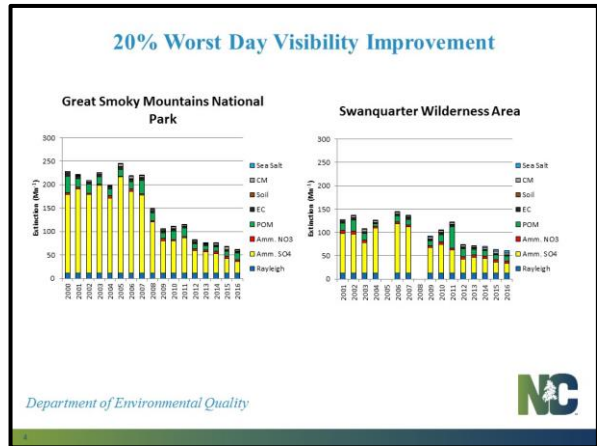
Additional Information

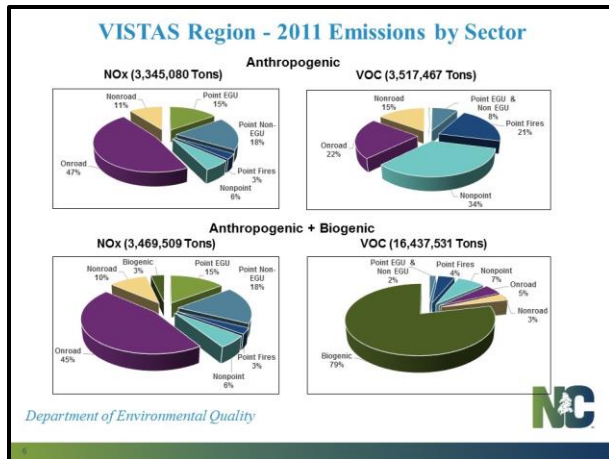
- ERTAC EGU files are located here:
 - <http://www.marama.org/2013-ertac-egu-forecasting-tool-documentation>
 - Currently the latest files on MARAMA webpage are v2.6
 - MARAMA expects to post v.2.7 shortly
 - Also, 2028 ERTAC EGU files are available
- Other ERTAC materials are located here:
 - Sign In [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
 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
- Web: 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



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



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



VISTAS Contractors

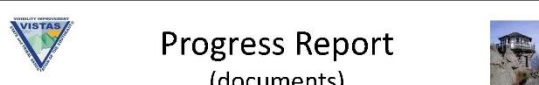
- Contractor
 - Eastern Research Group
- Subcontractor
 - Alpine Geophysics





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**



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)

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

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(Q/d)*EWRT Calculations

Row (i)	Col (j)	ΣQ [tpy]	d [km]	Q/d [tpy km ⁻¹]	Q/d*EWRT [tpy km ⁻¹ Mm ⁻¹]	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

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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)

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Extinction Weighted Residence Time Calculations

Row (i)	Col (j)	# Trajectory hours	Trajectory (k)	Extinction (bext _{t_k}) [Mm ⁻¹]	τ _{ijk} [hrs]	(bext _{t_k})τ _{ijk} [Mm ⁻¹ hrs]	Στ _{ij} [hrs]	Σ(bext _{t_k})τ _{ijk} [Mm ⁻¹ hrs]	EWRT [Mm ⁻¹]
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			

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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

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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

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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.

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Questions/Answers



- Area of influence analysis and SO₂/NO_x 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
- Coord Committee Chair
 - Jim Boylan – Georgia james.boylian@dnr.ga.gov
- Tech Analysis WG Co-chairs
 - Randy Strait – North Carolina randy.strait@ncdenr.gov
 - Alanna Keller – West Virginia 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.

20


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



VISTAS


Call with MJOs
September 5, 2018

John Hornback, Metro 4/SESARM



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




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




VISTAS Contractors

- Contractor
 - Eastern Research Group
- Subcontractor
 - Alpine Geophysics



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**



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)



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 (1st 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

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Questions/Answers



- Area of influence analysis and SO₂/NO_x rankings for 2011 and 2028
 - To be completed by October 31, 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)

12



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
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- Use of state-specific modeling domains?
 - Possible uses include brute force sensitivities, CAMx v6.5, fine grid modeling, best and final CAMx run, etc.

16



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.

14



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

17



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%,...)
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For Further Information (Contact)



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- Coord Committee Chair
 - Jim Boylan – Georgia james.boylian@dnr.ga.gov
- Tech Analysis WG Co-chairs
 - Randy Strait – North Carolina randy.strait@ncdenr.gov
 - Alanna Keller – West Virginia alanna.i.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.

18

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

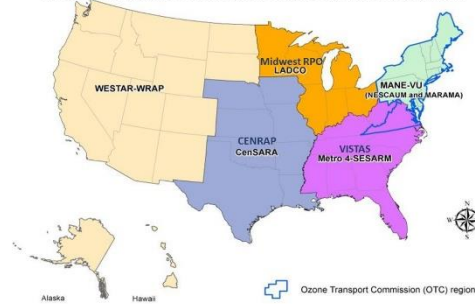
VISTAS Regional Haze Project Update



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

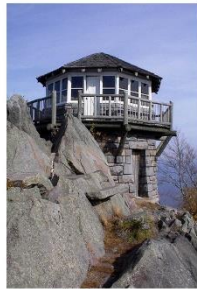
FLM and EPA Consultation Conference Call
June 3, 2019

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



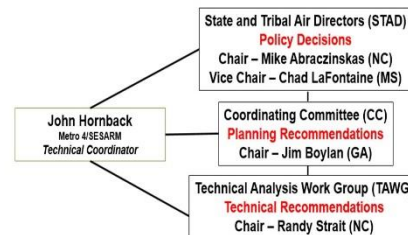
Participating Agencies in VISTAS Project

- **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



VISTAS Contractor Team

Primary Contractor

- Eastern Research Group, Inc
 - Regi Oommen, Project Manager

Subcontractor

- Alpine Geophysics, LLC
 - Greg Stella, Subcontractor Manager





VISTAS and Nearby Class I Areas

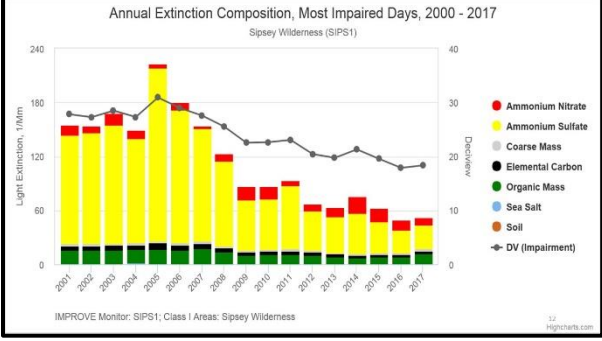
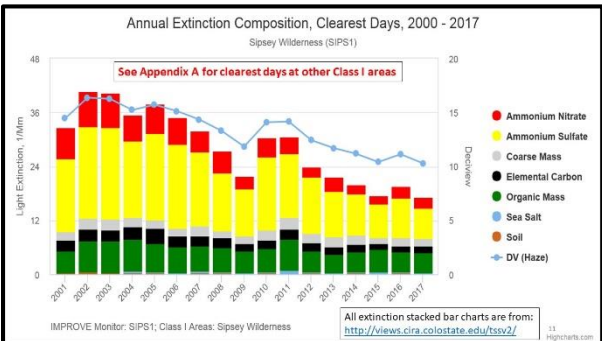
VISTAS FEDERAL CLASS I AREAS		NEARBY NON-VISTAS FEDERAL CLASS I AREAS	
AL - Sipsy Wilderness Area (SIPS)	USDA Forest Service	AR - Coney Creek Wilderness Area (CACR)	USDA Forest Service
FL - Ocala National Park (ONP)	USDA Fish and Wildlife Service	AZ - Upper San Pedro Wilderness Area (UPSP)	USDA Forest Service
FL - Everglades National Park (EVER)	USDI National Park Service	IA - Inyaneta Wilderness Area (IBIS)	USDI Fish and Wildlife Service
FL - Saint Marks Wilderness Area (SMWA)	USDI Fish and Wildlife Service	MD - Haroleu-Gades Wilderness Area (HEGL)	USDA Forest Service
GA - Cohutta Wilderness Area (COHU)	USDA Forest Service	MD - Mingo Wilderness Area (MING)	USDI Fish and Wildlife Service
GA - Okefenokee Wilderness Area (OKEF)	USDI Fish and Wildlife Service	NJ - Ringneck Wilderness Area (RHW)	USDI Fish and Wildlife Service
GA - Wolf Island Wilderness Area (WOIIP)	USDI Fish and Wildlife Service		
NY - Mannoth Cave National Park (MCA)	USDI National Park Service		
NC - Linville Gorge Wilderness Area (LIGO)	USDA Forest Service		
NC - Shining Rock Wilderness Area (SHRO)	USDA Forest Service		
NC - Swainquarter Wilderness Area (SWAN)	USDI Fish and Wildlife Service		
SC - Cape Roman Wilderness Area (CORM)	USDI Fish and Wildlife Service		
TN/NC - Great Smoky Mountains National Park (GSM)	USDI National Park Service		
TN/NC - Innes-Kinney-Silverson Wilderness Area (IKSY)	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		

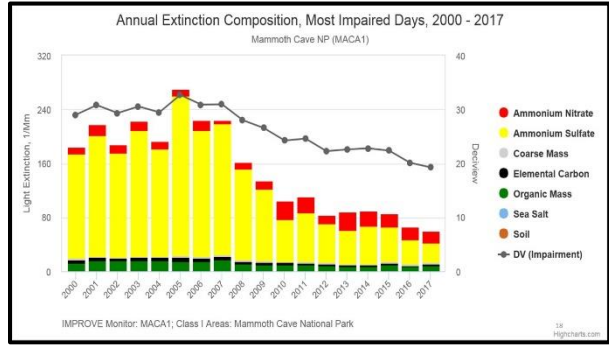
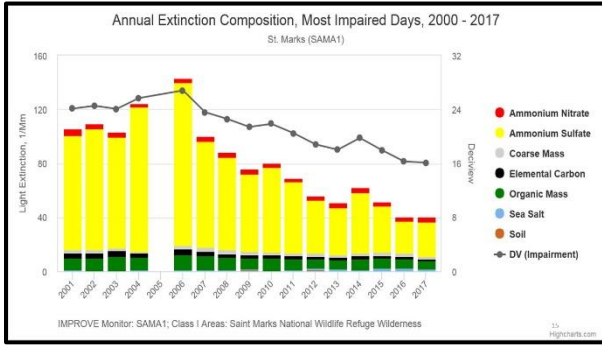
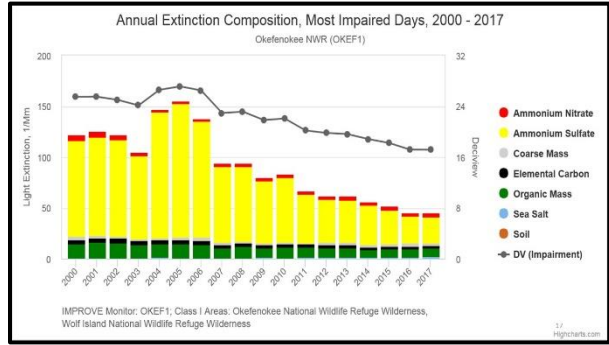
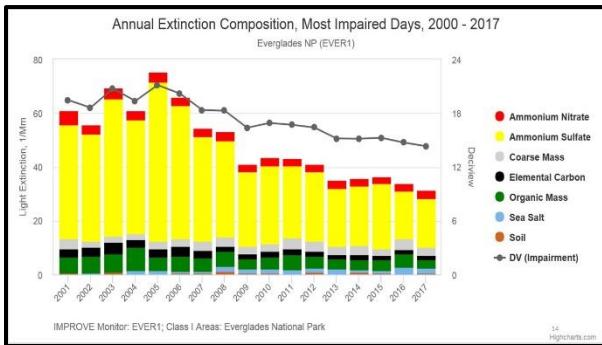
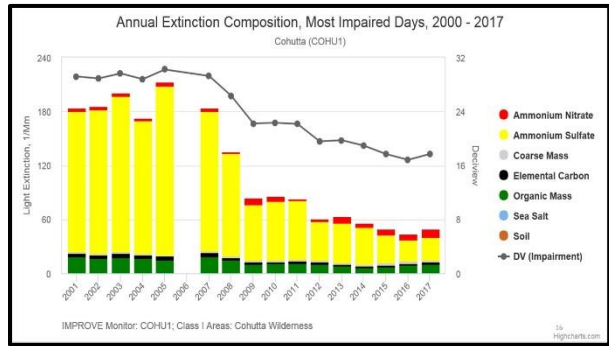
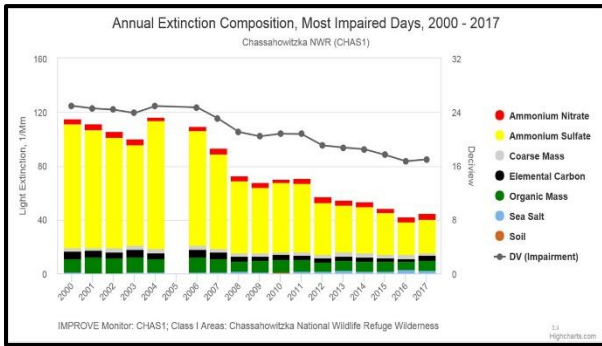
*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

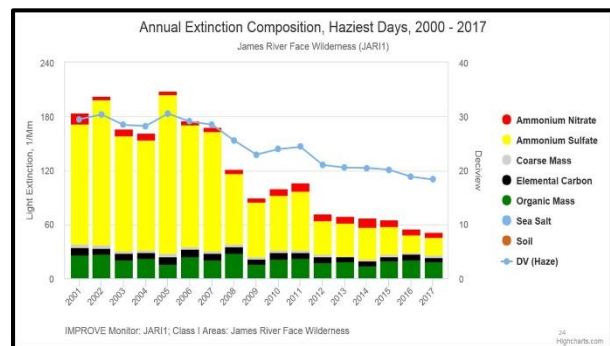
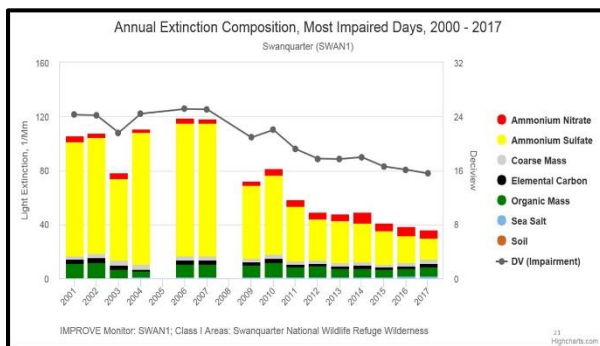
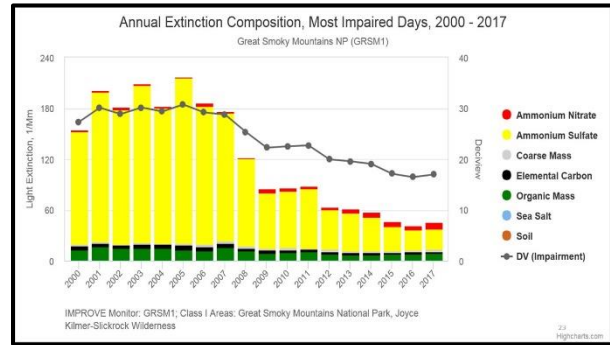
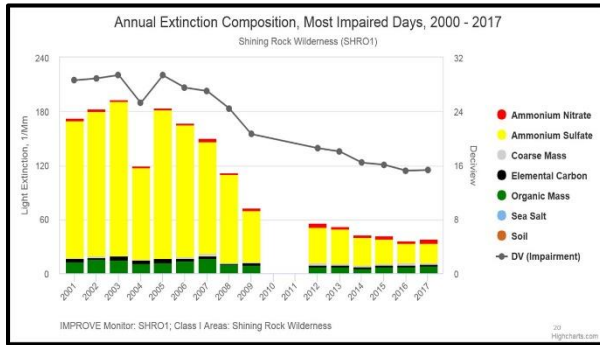
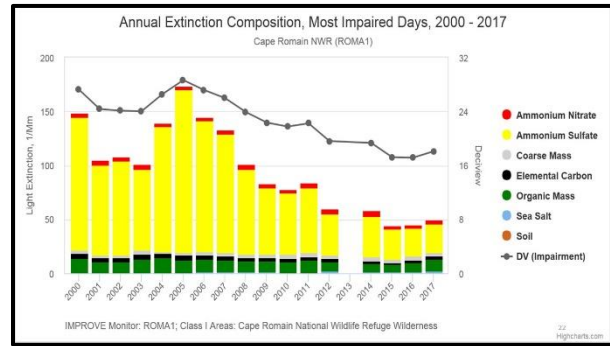
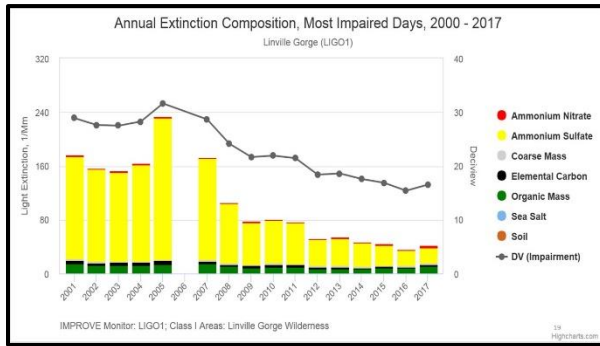
VISTAS Project Tasks

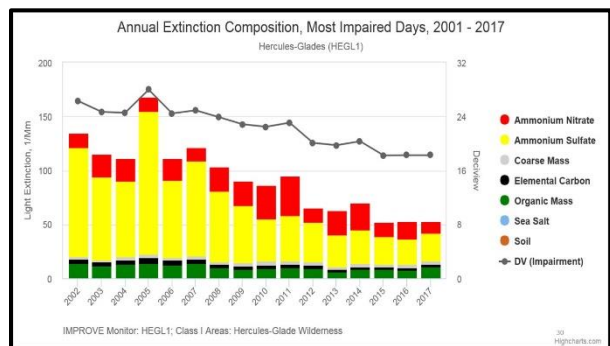
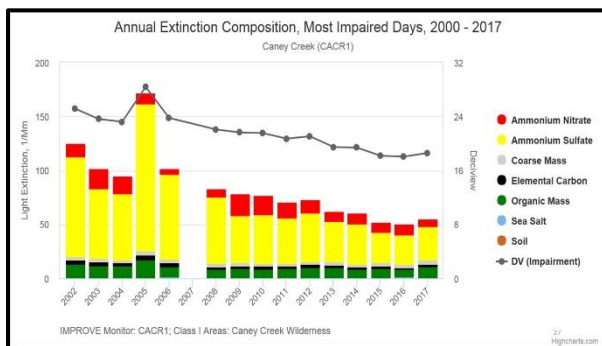
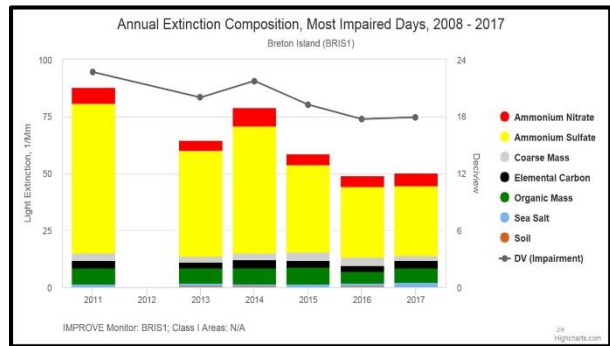
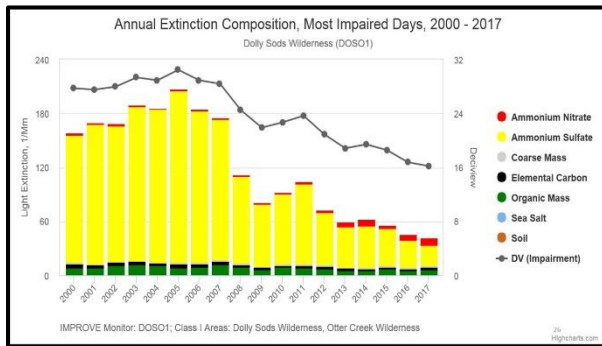
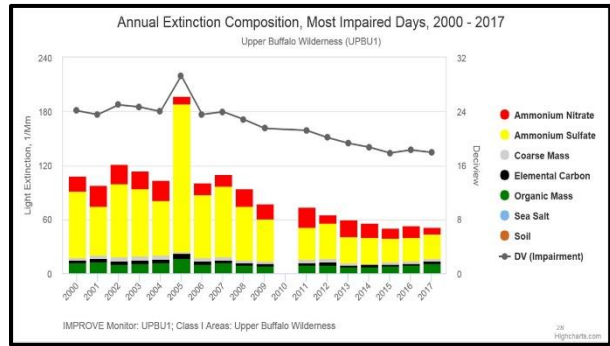
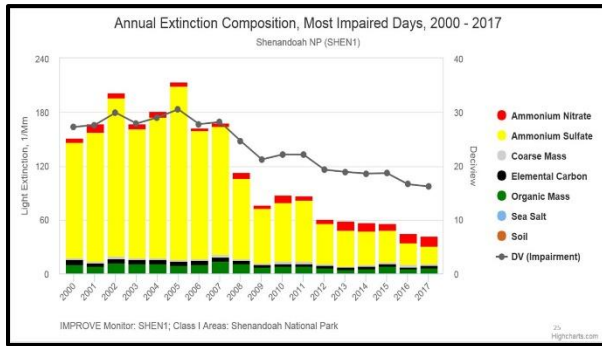


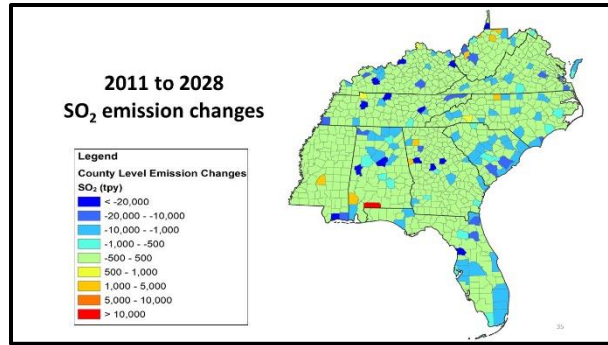
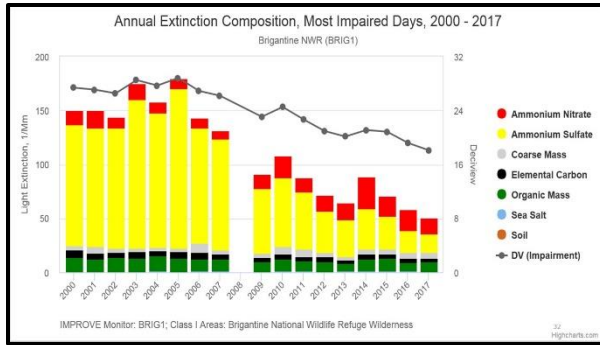
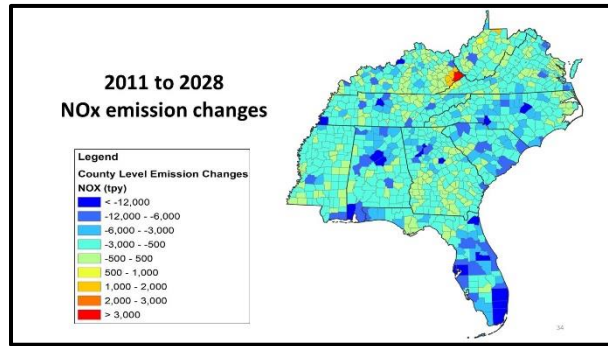
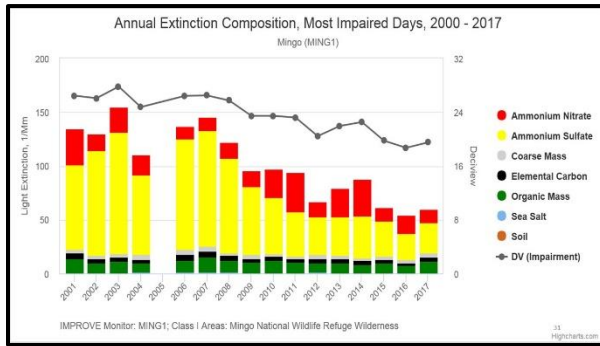
- RFP
- Bids & contractor selection
- Contract development
- Work plan and QAPP
- Modeling protocol
- Contract management
- Data acquisition/analysis
- Emission updates
- Emission processing
- Air quality modeling
- Model performance evals
- Future year projections
- Area of influence analysis
- Source apportionment tags
- Reports and archival









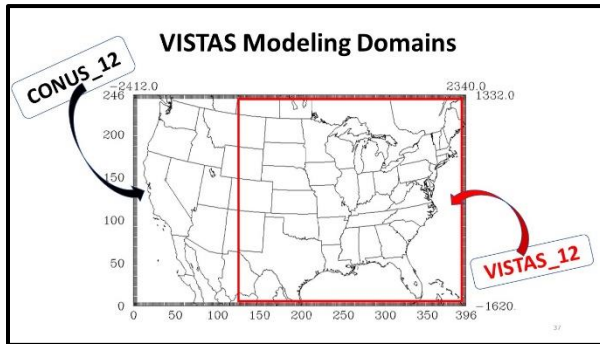


Emissions Updates

- 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

VISTAS Air Quality Model

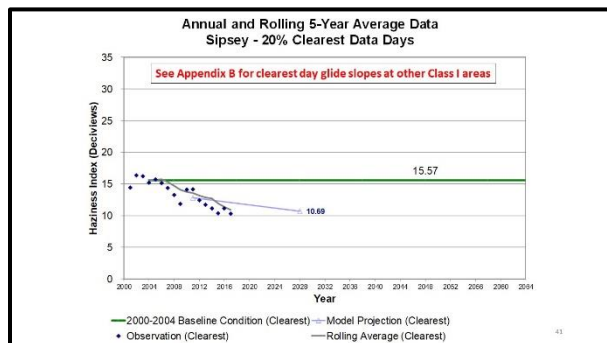
- Started with EPA's 2011/2028 modeling platform
 - Version 6.3el
 - CAMx v6.32
- Replaced CAMx v6.32 with CAMx v6.40
- Used 2011 meteorology
- Reasons for using EPA platform
 - Time limited
 - Budget limited
 - Most source sectors acceptably represented in EPA platform



VISTAS Future Year Model Projections

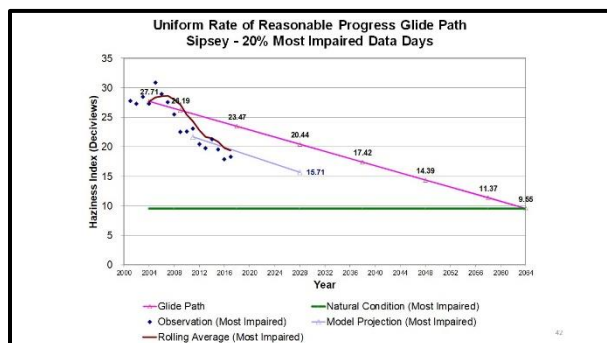
- Calculation of relative response factors (RRFs)
- Gives average percent change in pollutant or species concentrations due to emission changes between 2011 and 2028
- Produces design values for 2028

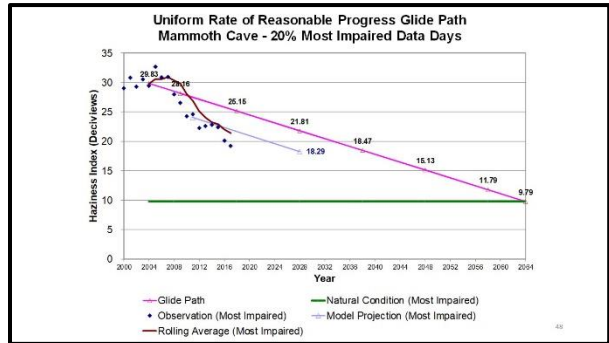
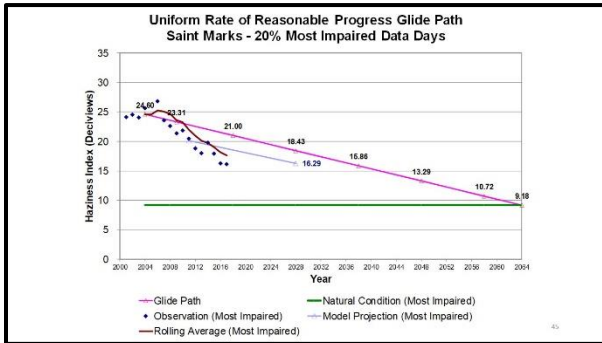
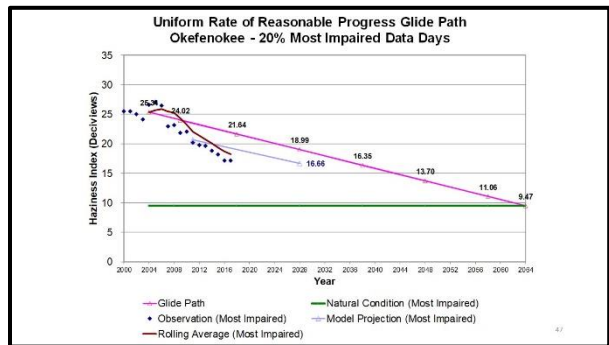
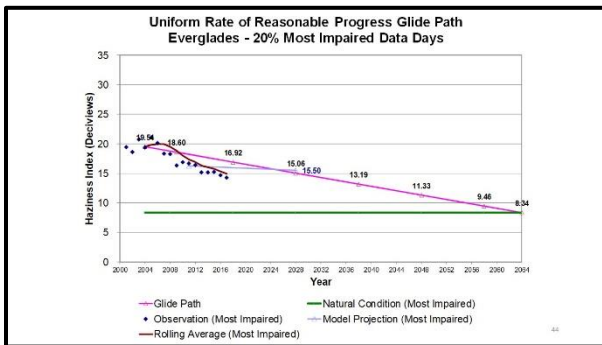
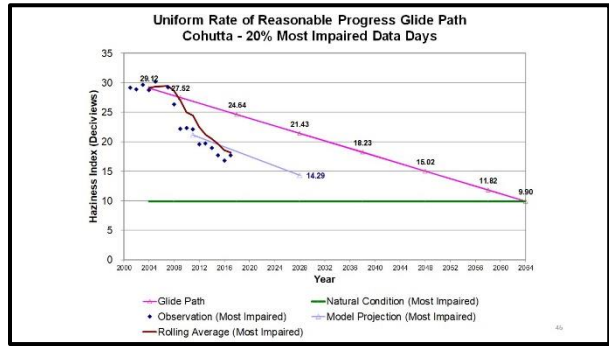
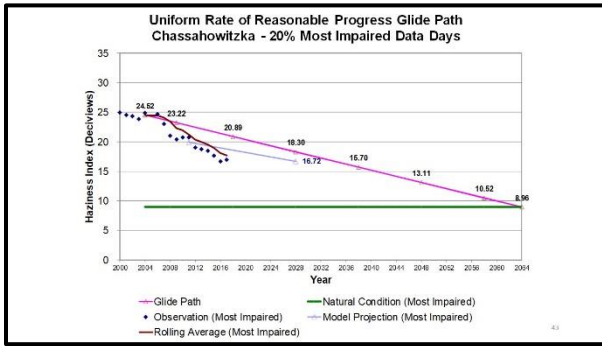
- ### Benchmark Comparisons
1. EPA 2011 with CAMx_6.32 (CONUS) vs. Alpine 2011 with CAMx_6.32 (CONUS)
 2. Alpine 2011 with CAMx_6.32 (CONUS) vs. Alpine 2011 with CAMx_6.40 (CONUS)
 3. Alpine 2011 with CAMx_6.40 (CONUS) vs. **Alpine 2011 with CAMx_6.40 (VISTAS)**
 4. EPA 2028 with CAMx_6.32 (CONUS) vs. Alpine 2028 with CAMx_6.40 (CONUS)
 5. Alpine 2028 with CAMx_6.40 (CONUS) vs. **Alpine 2028 with CAMx_6.40 (VISTAS)**

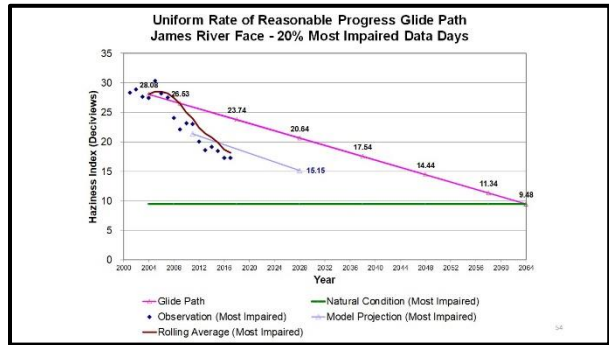
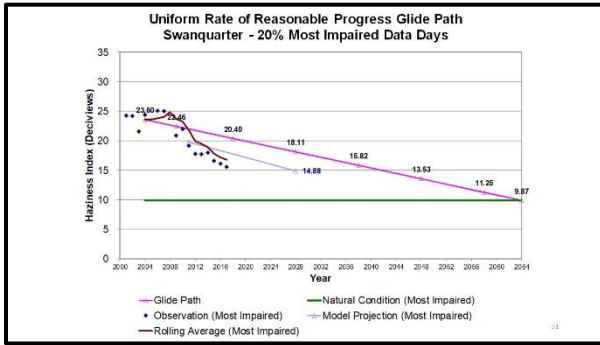
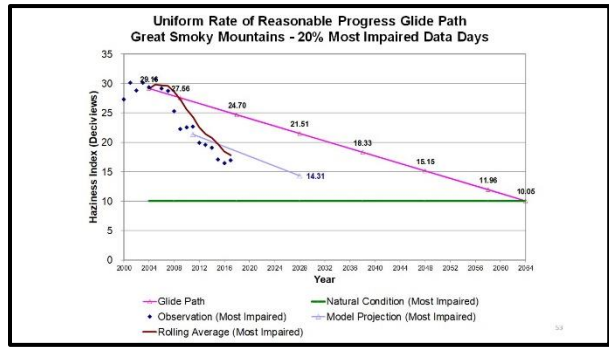
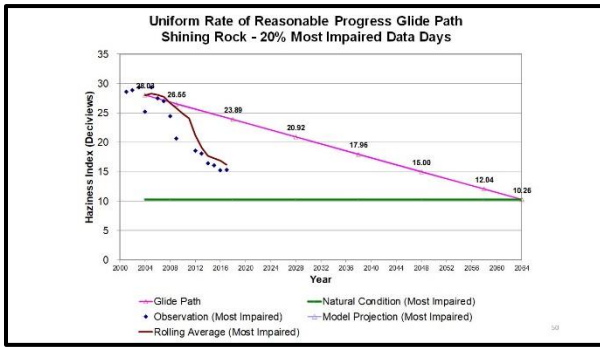
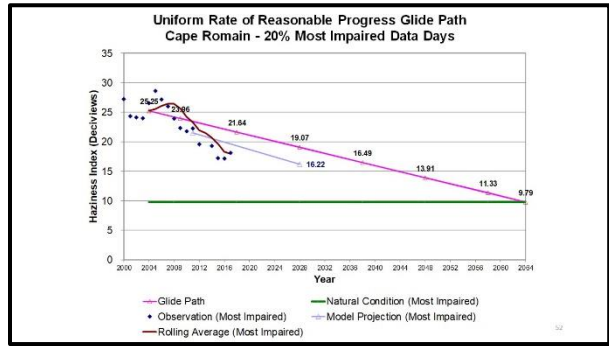
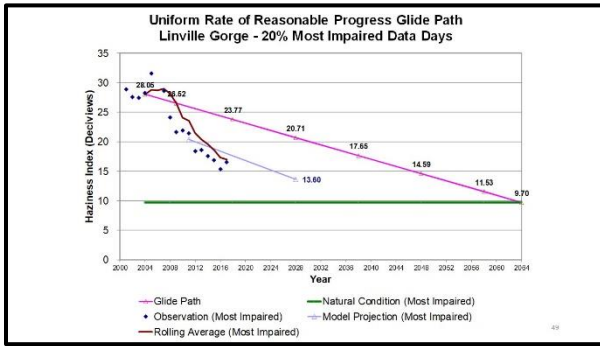


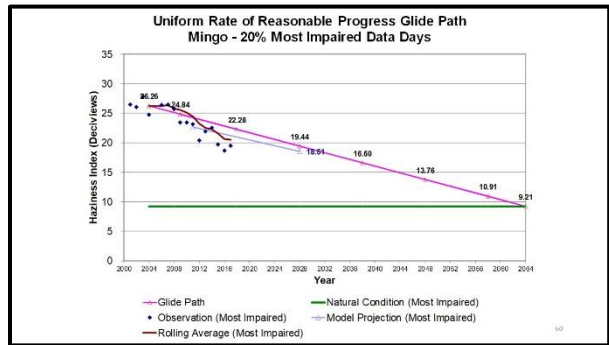
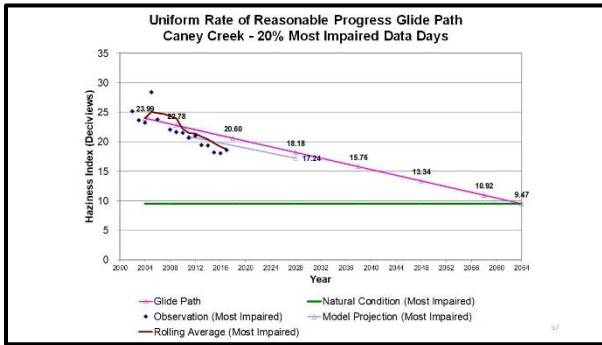
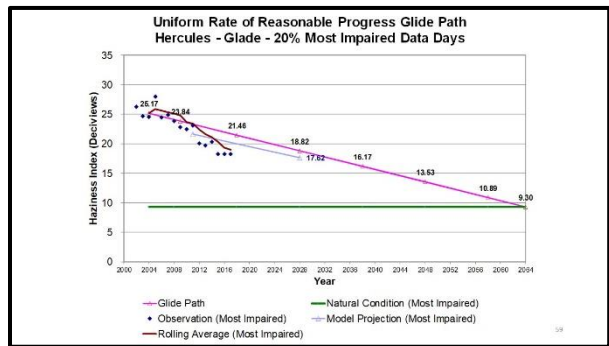
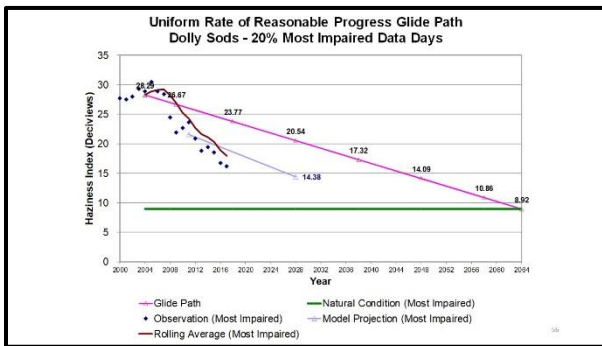
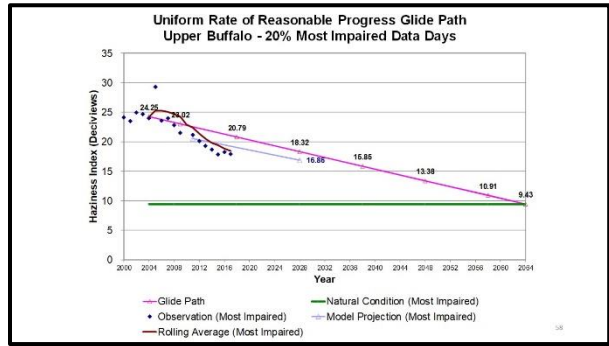
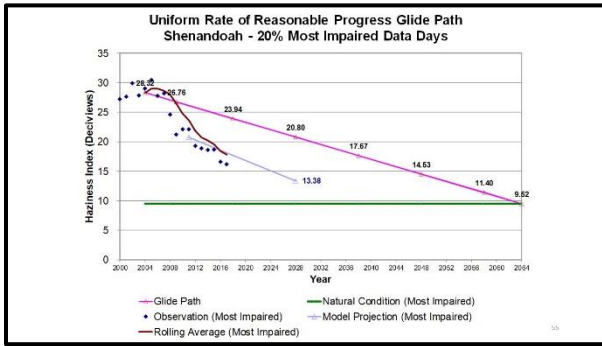
Model Performance Evaluation

- Compared model results to observations. Looked at statistics, comparison plots, and spatial plots
 - Ozone
 - PM_{2.5} 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)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
GA	Brunswick Cellulose, Inc.	27.9	3,574.5	234.2	8.61%	2.87%
FL	ROCK TENN CP, LLC	74.9	2,316.8	2,606.7	8.34%	0.38%
GA	International Paper - Savannah	85.9	3,550.7	3,945.4	7.34%	0.23%
FL	ISA	105.1	951.8	2,091.5	4.21%	0.09%
GA	Georgia Pacific Consumer Products LP (Savannah River Mill)	109.9	951.5	1,860.2	2.58%	0.09%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	173.6	117.4	3,197.8	2.74%	0.01%
SC	ALLUMAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	1.79%	0.00%
FL	RAYONIER PERFORMANCE FIBERS LLC	77.4	3,377.1	502.0	1.74%	0.17%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	1.72%	0.02%
OH	General James M. Gavin Power Plant (6827010056)	815.3	4,222.5	41,595.8	1.67%	0.02%
NC	NANTH COLUMBIAN GENERATING STATION	751.0	5,275.5	4,881.2	1.55%	0.08%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	597.1	1.51%	0.00%
FL	ISA CHEMICAL HOLDINGS, INC.	118.5	57.7	808.9	1.19%	0.00%
FL	DUKE ENERGY FLORIDA, INC. (DFP)	296.0	3,489.8	5,306.4	1.10%	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	581.0	1.03%	0.07%
SC	INTERNATIONAL PAPER EASTOVER	788.2	1,780.3	3,212.4	0.90%	0.09%
GA	isa Power Company - Plant McManus	27.1	77.2	30.1	0.91%	0.14%
AL	Parabola Operating Company LLC	578.2	148.3	18,974.4	0.88%	0.00%
SC	KAPSTONE CHARLESTON BRAFF LLC	213.6	2,355.8	1,460.7	0.87%	0.09%

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

Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
AL	VISTAS	01013-144011	Escambia Operating Company LLC		1
AL	VISTAS	01053-185111	Escambia Operating Company LLC		1
AL	VISTAS	01073-1018711	DRUMMOND COMPANY, INC.		1
AL	VISTAS	01091-1806111	Alta Power - Barry		1
AL	VISTAS	01097-1061611	Union Oil of California - Churuchula Gas Plant		1
AL	VISTAS	01097-549811	Akzo Nobel Chemicals Inc		1
AL	VISTAS	01103-1800111	Major Steel Decatur LLC		1
AL	VISTAS	01108-985711	Sanderson Energy		1
FL	VISTAS	12005-535411	ROCKTENN CP LLC		1
FL	VISTAS	12017-640611	DUKE ENERGY (FLORIDA, INC. (DCE))	1	1
FL	VISTAS	12031-6400111	FLA		1
FL	VISTAS	12033-752711	SULF POWER - Crist		1
FL	VISTAS	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC		1
FL	VISTAS	12057-536611	TAMPA ELECTRIC COMPANY (TEC)		1
FL	VISTAS	12057-716411	MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	1	1
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS LLC		1
FL	VISTAS	12205-517711	MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12205-519811	MOSAIC FERTILIZER, LLC		1
FL	VISTAS	12223-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP		1

VISTAS Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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

Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
GA	VISTAS	13015-2613011	isa Power Company - Plant Bowen		1
GA	VISTAS	13015-5678011	International Paper - Savannah		1
GA	VISTAS	13177-3721011	Brunswick Cellulose Inc.		1
KY	VISTAS	21091-7352411	Century Aluminum of KY LLC		1
KY	VISTAS	21145-6937011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant		1
KY	VISTAS	21175-5192711	Tennessee Valley Authority - Paradise Fossil Plant		1
KY	VISTAS	21183-5061611	Big Rivers Electric Corp. - Wilson Station		1
NC	VISTAS	37013-8119311	PCS Phosphate Company Inc. - Aurora		1
NC	VISTAS	37067-7020111	Blue Ridge Paper Products - Canton Mill		1
SC	VISTAS	45015-4839111	ALLUMAX OF SOUTH CAROLINA		1
SC	VISTAS	45019-4978011	KAPSTONE CHARLESTON BRAFF LLC	1	1
SC	VISTAS	45043-5698011	INTERNATIONAL PAPER GEORGETOWN MILL		1
TN	VISTAS	47001-6196011	TVA BULL RUN FOSSIL PLANT	1	1
IN	VISTAS	47009-9159211	Mc Ghee Tyson	1	1
TN	VISTAS	47091-4979911	Conoco - Knoxville Plant	1	1
TN	VISTAS	47101-5129211	DAI & OEL, Leiden	1	1
IN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	1	1
TN	VISTAS	47161-4979111	TVA CUMBERLAND FOSSIL PLANT	1	1
IN	VISTAS	47163-3982311	EASTMAN CHEMICAL COMPANY		1

PSAT SO₂ and NOx Tags

Round 1 (124 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ 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 SO₂ for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ tags for individual non-VISTAS facilities = 13 tags
- NOx tags for individual non-VISTAS facilities = 4 tags

Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
VA	VISTAS	51022-5019811	Roanoke Cement Company		1
VA	VISTAS	51077-4034811	Jowell Coke Company LP		1
VA	VISTAS	51580-5748711	Meadowbuck Packaging Resource Group		1
WV	VISTAS	54023-6257011	Domitoni Resources, Inc. - MOUNT STORM POWER STATION	1	1
WV	VISTAS	54033-6271711	AULGHENY ENERGY SUPPLY CO, LLC HARRISON	1	1
WV	VISTAS	54041-6900311	EQUITRANS - CORRY RUN CS 70	1	1
WV	VISTAS	54049-4864511	AMERICAN OILUMINOUS POWER GRANT TOWN PLS	1	1
WV	VISTAS	54051-6900311	MITCHELL PLANT	1	1
WV	VISTAS	54061-1633011	LONGVIEW POWER	1	1
WV	VISTAS	54061-6773811	MONONGAHELA POWER CO. FORT MARTIN POWER	1	1
WV	VISTAS	54061-6773811	MONONGAHELA POWER CO. FORT MARTIN POWER	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	54083-6749511	ELADY GC 4350	1	1
WV	VISTAS	54083-6790711	PLES CREEK GC 4340	1	1
WV	VISTAS	54093-6327811	KINGSFORD MANUFACTURING COMPANY	1	1

Round 2 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME STD	NOx Tag	SO2 Tag
MD	CENRAP	29143-5363811	NEW MADRID POWER PLANT-MAHSJUN		1
MD	MANE-VU	24001-7763811	Luke Paper Company		1
PA	MANE-VU	42005-3866111	GENCON NE MGMT CO/WEYSTONE STA		1
PA	MANE-VU	42063-3005711	HOMER CITY CFN/19/CFNTR/TWP	1	1
IL	Midwest RPO	17327-2808911	Joppy Steam		1
IN	Midwest RPO	18051-2363111	Gibson		1
IN	Midwest RPO	18125-2362411	INDIANAPOLIS POWER & LIGHT - PELLSBURG		1
IN	Midwest RPO	18129-8166111	Spiceo AB Brown South Indiana Gas & Ele		1
IN	Midwest RPO	18147-8072211	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT		1
OH	Midwest RPO	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)		1
OH	Midwest RPO	39053-7983011	Ohio Valley Electric Corp., Rager Creek Station (0627000003)	1	1
OH	Midwest RPO	39053-8148511	General James M. Garfield Power Plant (0627010056)	1	1
OH	Midwest RPO	39081-8115711	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
- SO₂ 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

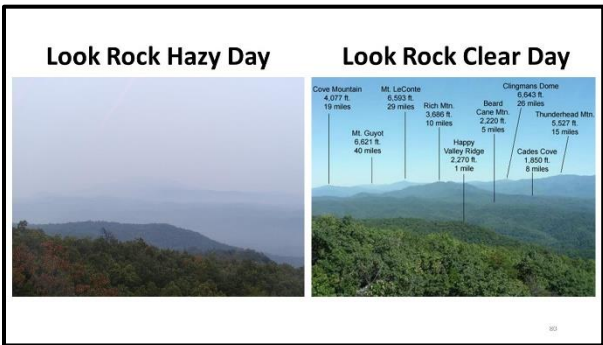
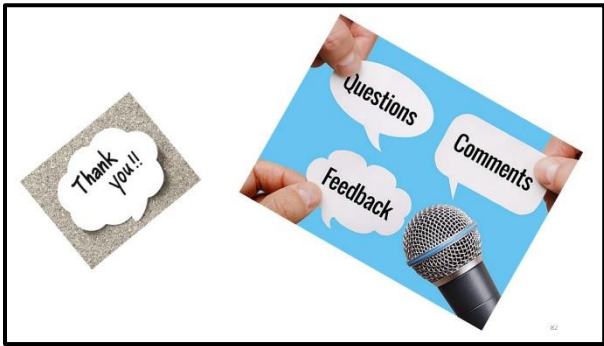
VISTAS Technical Work Status

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

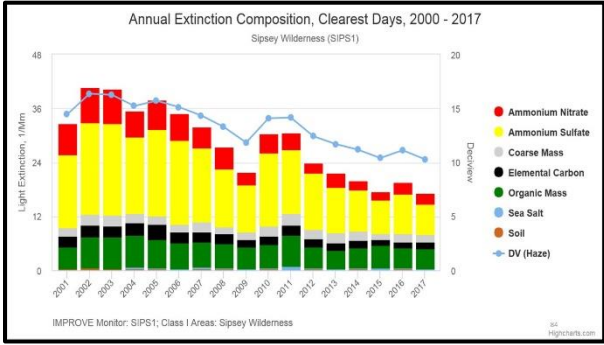
Task	Schedule
Benchmarking	May-June 2019
Area of influence analysis	May 2019
Source apportionment (tagging)	August 2019
Data collection/analysis	May-June 2019
Future year projections (RRFs)	August 2019
Best and final run???	Necessity uncertain
Final reports and documentation	December 2019
Web site updates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

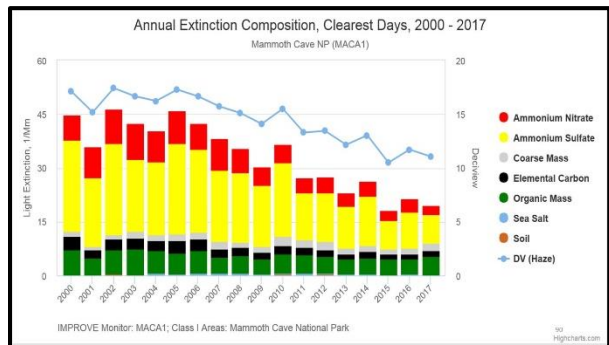
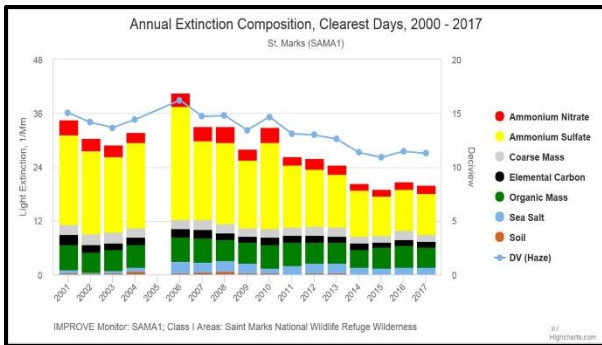
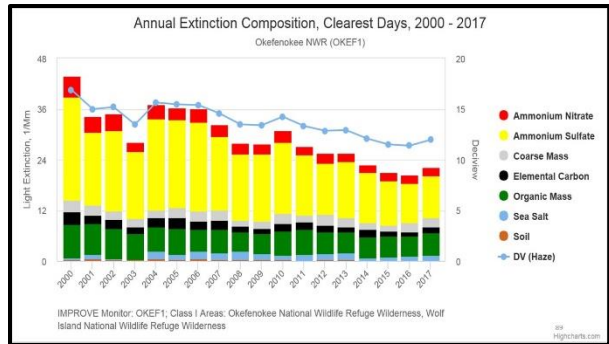
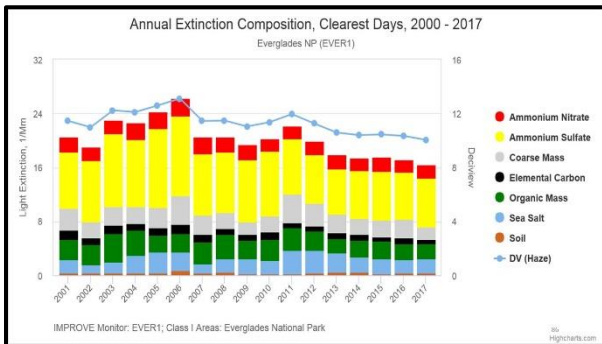
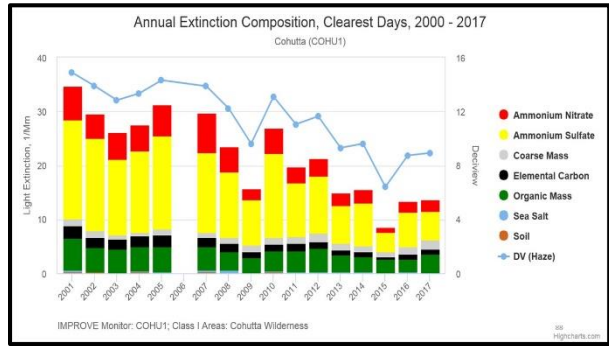
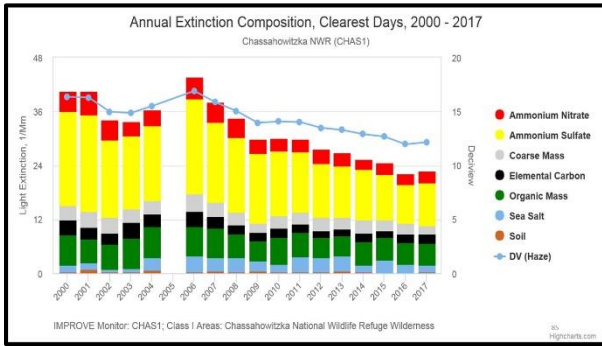
- ### VISTAS State Responsibilities
- Perform 4-factor analysis
 - Consult and communicate with state stakeholders
 - Consult with in-state FLM contacts if applicable
 - Consult with surrounding states if applicable
 - Complete state-specific analysis and documentation
 - Follow state regulatory and 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?

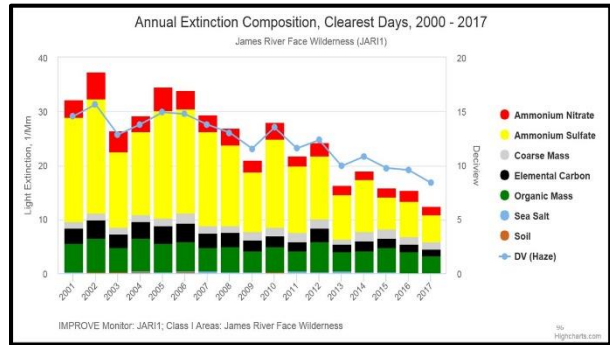
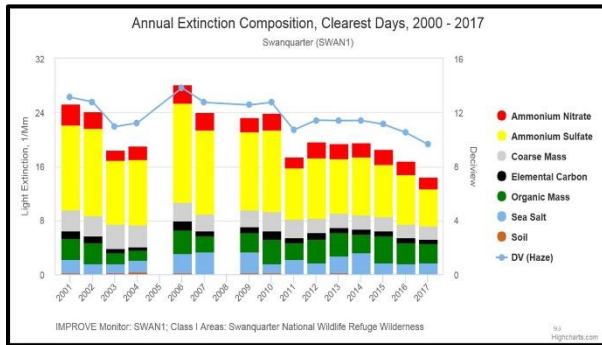
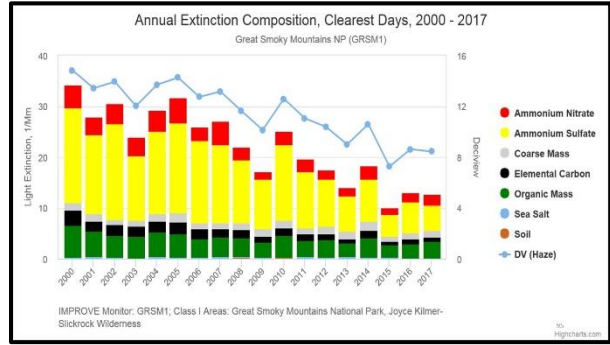
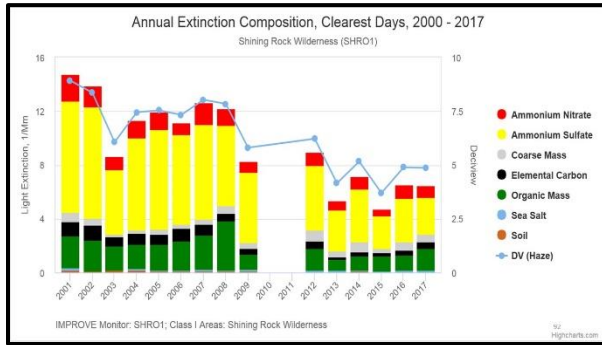
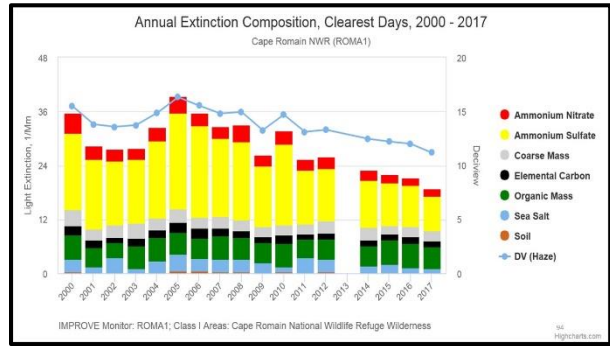
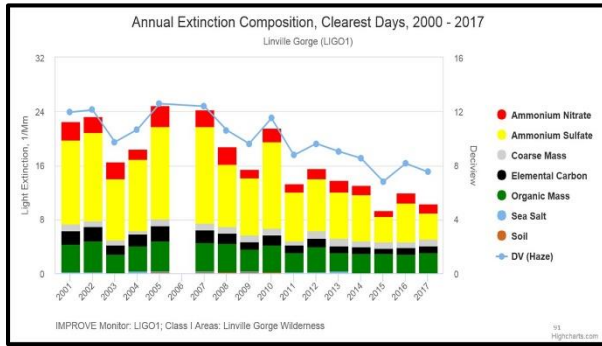


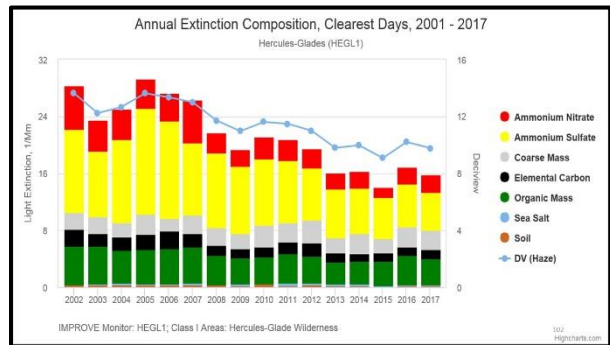
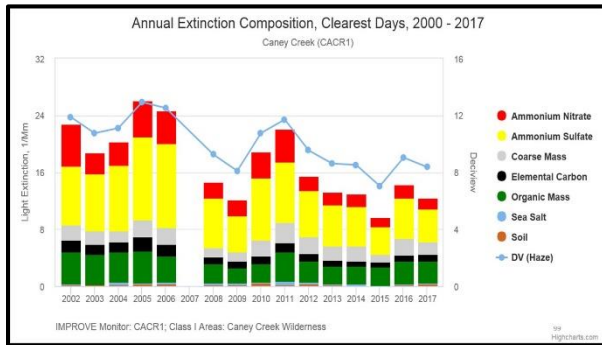
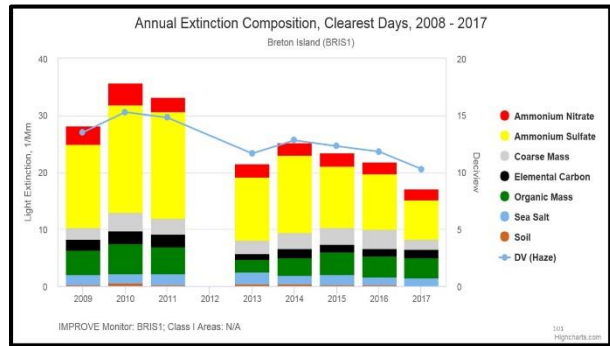
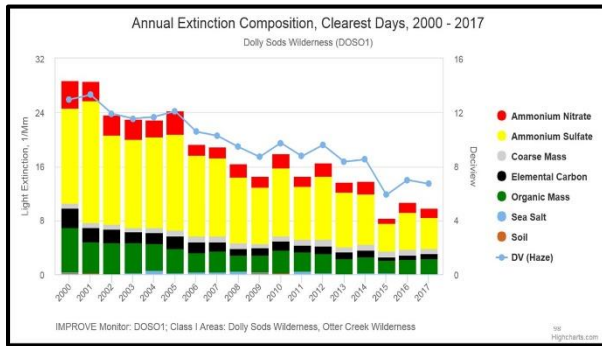
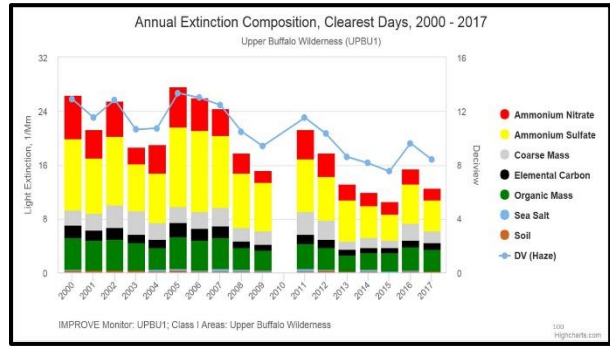
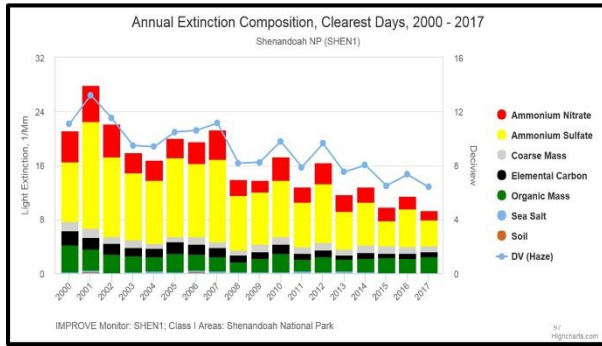
Appendix A

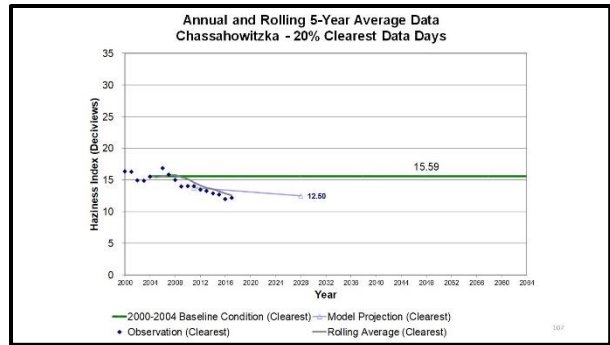
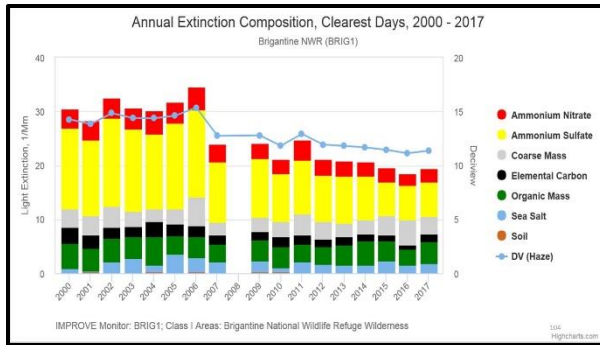
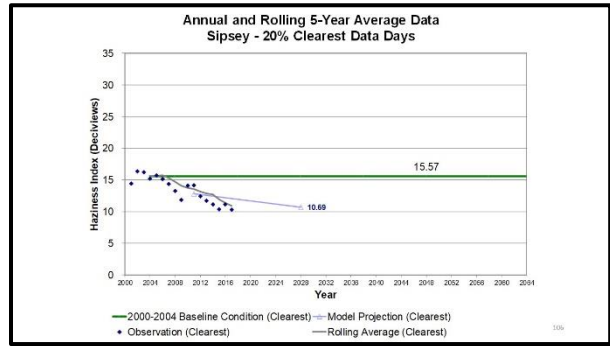
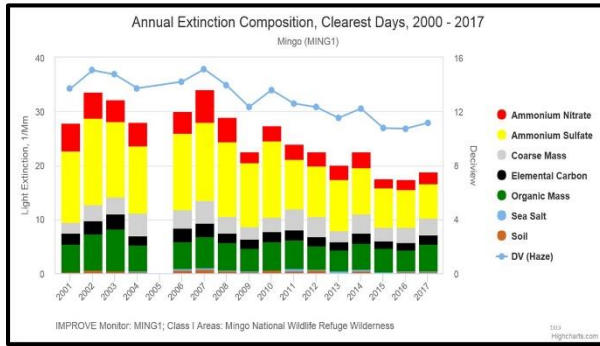
- ### Contact Information
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 - Email: James.Boylan@dnr.ga.gov
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 - **Randy Strait, North Carolina DAQ**
 - Email: randy.strait@ncdenr.gov
 - Phone: 919-707-8721
 - **John Hornback, Metro 4/SESARM**
 - Email: hornback@metro4-sesarm.org
 - Phone: 404-361-4000
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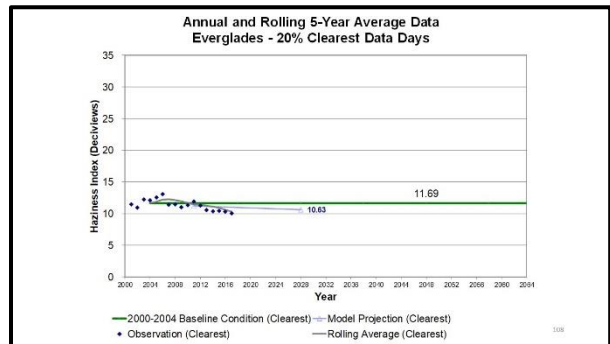


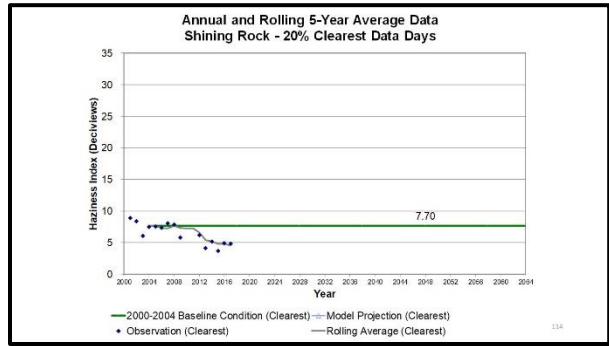
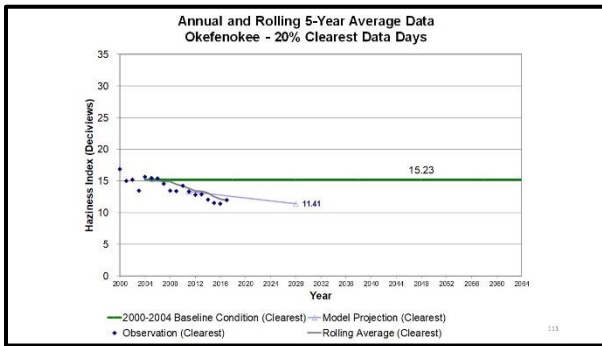
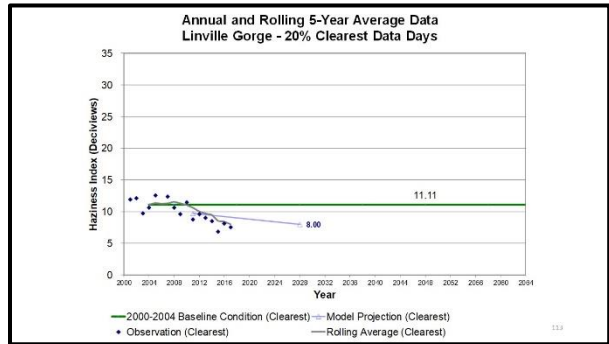
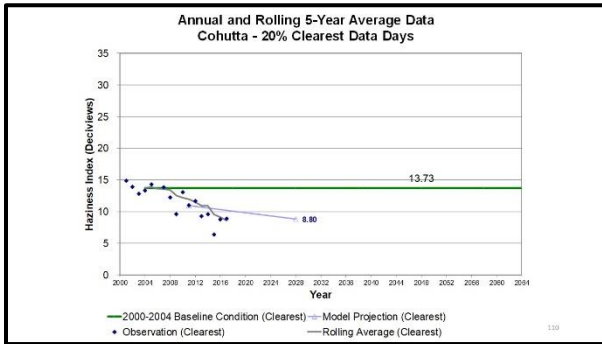
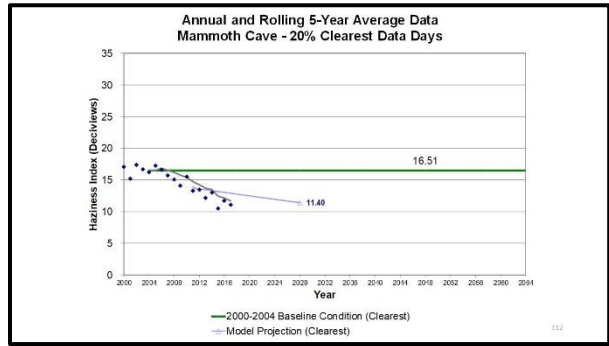
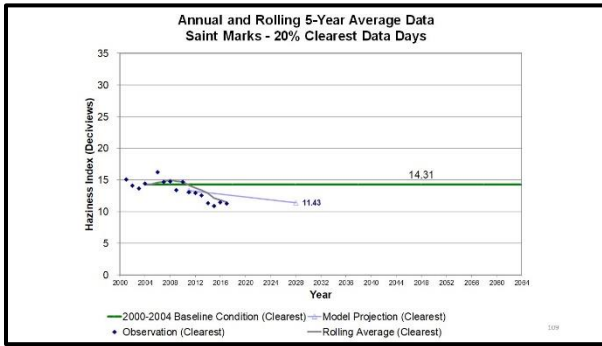


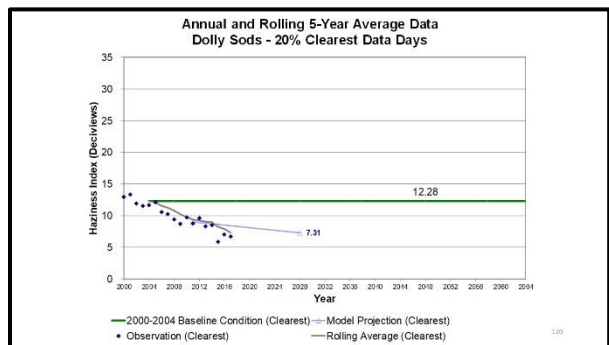
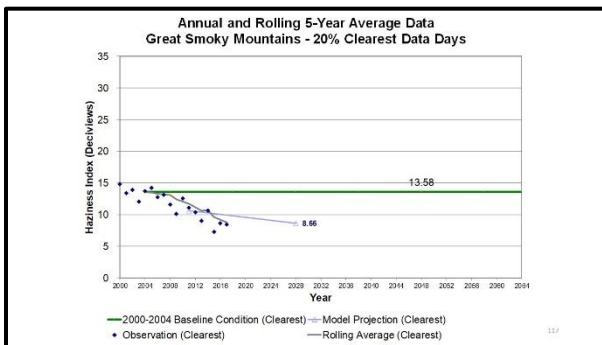
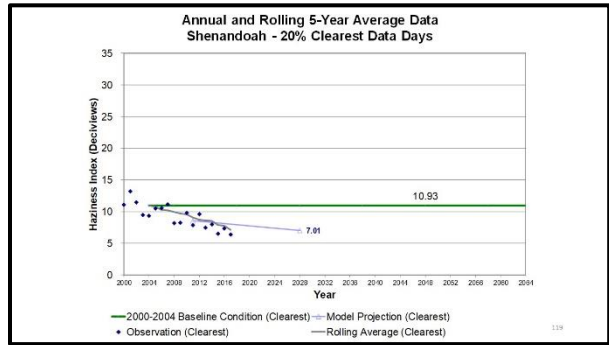
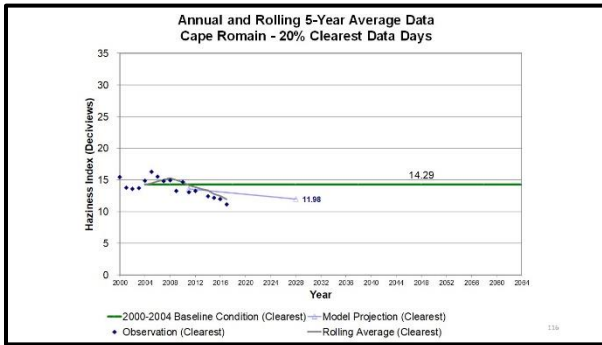
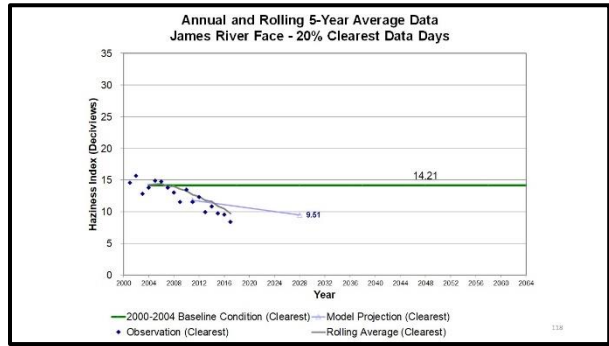
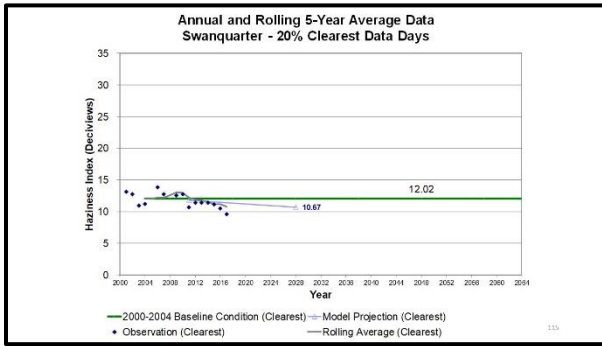


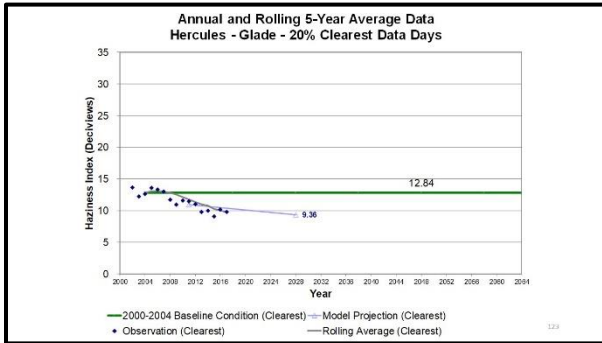
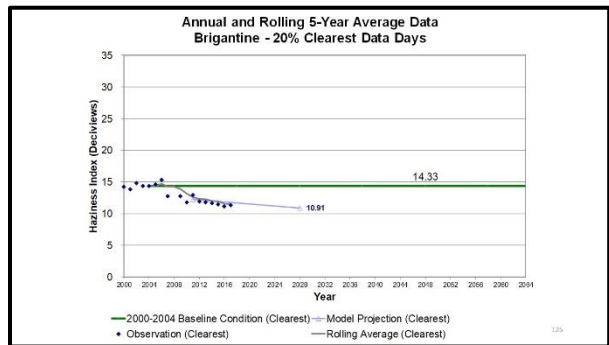
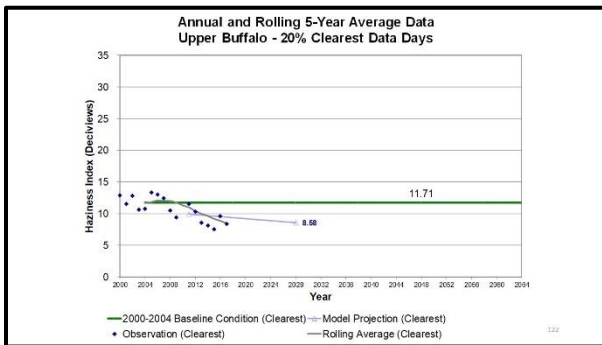
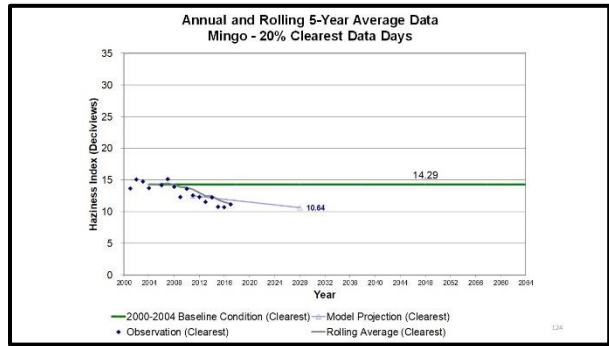
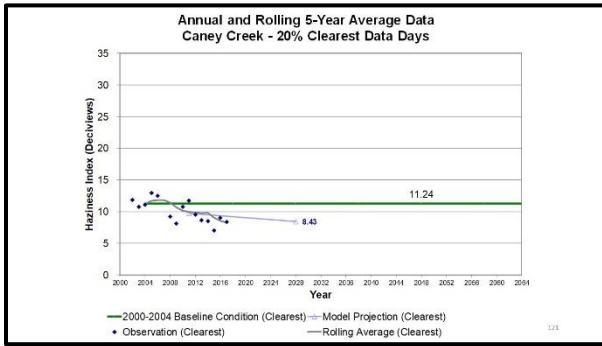


Appendix B









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%
TOTAL	61.0%	39.0%	100.0%

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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. (DEE)	77.4	2,489.8	5,305.4	60.59%	1.86%
FL	TAMPA ELECTRIC COMPANY (TEC)	106.8	2,665.0	6,084.9	4.51%	0.23%
FL	MOSNAC FERTILIZER LLC	112.6	310.4	7,900.7	4.40%	0.02%
FL	CEMEX CONSTRUCTION MATERIALS FLORIDA, LLC	21.5	631.6	235.0	4.11%	1.60%
FL	MOSNAC 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	4,202.7	2.98%	0.17%
FL	MOSNAC 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	MOSNAC FERTILIZER, LLC	112.0	29.5	1,123.5	0.54%	0.00%
AL	Escambia Operating Company LLC	530.7	349.3	18,974.4	0.49%	0.00%
FL	CITY OF GAINESVILLE, GRIJ	113.1	410.0	881.4	0.47%	0.01%
FL	BUCK TANK CO, L.L.C.	239.3	315.8	2,608.7	0.39%	0.01%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	189.0	115.4	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	FLORIDA PACIFIC CONSUMER OPERATIONS LLC	133.7	1,181.6	753.6	0.24%	0.04%
FL	EPUS	27.1	280.2	19.3	0.22%	0.20%
FL	BUCKTANK CO, L.L.C.	255.3	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	Kentucky Valley Authority (KVA) - Shannon 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%
NY	Edison	448.7	12,280.3	25,117.2	2.26%	0.28%
NY	Big Rivers Electric Corp. - Wilson Station	385.5	3,151.9	6,934.2	1.90%	0.01%
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	Power Steel Excavator LLC	49.0	331.2	370.2	1.66%	0.75%
AL	DRUMMOND COMPANY, INC.	98.7	1,228.5	2,562.2	1.66%	0.16%
AL	Alabama Power - Escogas	78.5	5,976.4	1,410.8	1.47%	0.80%
AL	Waldor Coke, Inc.	99.6	781.8	2,279.2	1.43%	0.10%
MO	SIKESTON POWER STATION-MARSTON POWER STATION	549.1	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 Hill Brown South Indiana Gas & Elec.	395.7	3,578.6	7,664.7	1.17%	0.07%
AL	Ala power - MILLER	82.9	11,047.1	1,490.5	1.10%	3.03%
GA	Eva Power Company - Plant Boyden	274.1	6,643.3	10,453.4	1.04%	0.14%
AL	EC Gascon	148.7	2,629.8	2,288.9	0.98%	0.12%
IL	Newston	516.6	1,834.9	10,631.6	0.97%	0.02%
IN	ALCOA WARBICK POWER PLT 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%
TOTAL	32.8%	67.2%	100.0%

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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%
TOTAL	91.8%	8.2%	100.0%

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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	Morrist Int'l	58.6	4,371.9	424.9	8.75%	13.77%
FL	MOSNAC 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)	316.6	2,665.0	6,084.9	2.85%	0.08%
FL	E. D. MCINTOSH, JR. POWER PLANT	322.8	1,765.3	4,202.2	2.68%	0.16%
FL	MOSNAC FERTILIZER, LLC	308.7	141.0	4,425.6	2.56%	0.01%
FL	MIAMI DADE WATER AND SEWER DEPARTMENT	66.1	51.2	131.8	1.97%	0.11%
FL	Port Landfill/Utility/Prology	93.1	1,922.6	207.7	1.61%	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	1.48%	2.35%
FL	MOSNAC FERTILIZER, LLC	322.3	150.7	3,058.1	1.47%	0.01%
FL	ORLANDO UTILITIES COMMISSION	346.1	4,013.4	2,690.6	1.33%	0.24%
TX	Martin Lake	1,552.8	12,358.3	56,110.3	1.11%	0.01%
FL	MOSNAC 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. (DEE)	443.2	2,489.8	5,308.4	0.79%	0.02%
TX	WIA PARSIP ELECTRIC OPERATING STATION	1,544.8	3,865.5	37,774.2	0.75%	0.00%
FL	CEMEX CONSTRUCTION MATERIALS FL, LLC	50.8	931.6	29.5	0.69%	2.64%
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%
TOTAL	85.2%	14.8%	100.0%

130

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	78.0	6,643.3	10,453.4	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	Colven	487.1	12,880.3	23,117.2	2.20%	0.16%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	2.09%	0.15%
NY	Tennesses 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 of James M. Garvin Power Plant (0627010056)	512.0	8,112.5	41,559.8	1.64%	0.02%
TN	THE CUMBERLAND FOSSEL PLANT	327.0	4,918.5	8,427.3	1.32%	0.05%
NY	Big Rivers Electric Corp - Wilson Station	360.0	1,151.0	6,954.2	1.02%	0.01%
OH	Duain Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	7,150.0	22,131.9	1.01%	0.06%
GA	Co Power Company - Plant Wadley	156.8	2,057.5	4,806.0	1.01%	0.04%
NY	NY Utilities Co. Onondaga Station	441.5	7,539.9	10,109.3	1.00%	0.08%
IL	Jopoka Steam	466.0	4,706.3	20,509.3	0.99%	0.02%
GA	Matheson Industries Inc	32.0	66.5	77.5	0.97%	0.01%
TN	FASTMAN 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	TAIT & LYLE, Loudon	109.0	883.3	477.8	0.89%	0.09%
IL	Newton	564.0	1,834.9	10,631.6	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	Escambia Operating Company LLC	317.6	145.3	18,974.4	17.07%	0.01%
FL	ROCKTENN CP LLC	140.8	1,404.9	2,590.9	7.26%	0.20%
FL	BUCKLEY FLORIDA LIMITED PARTNERSHIP	61.4	1,830.7	1,520.4	5.67%	0.43%
FL	DURE ENERGY FLORIDA, INC (DEF)	189.3	2,489.8	5,306.1	4.63%	0.20%
IL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	197.7	112.4	3,197.8	4.29%	0.01%
AL	Escambia Operating Company LLC	315.0	145.6	8,589.6	3.81%	0.00%
AL	Senders Lead Co	255.9	121.7	7,951.1	2.60%	0.00%
FL	MOSAIC 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	1.43%	0.02%
IL	SUIBI POWER - Crist	299.5	2,998.4	2,615.7	1.27%	0.08%
AL	Union Oil of California - Chunchula Gas Plant	396.3	348.2	2,773.2	0.97%	0.01%
IA	Columbian Chemicals Co. - North Bend Plant	709.9	140.1	7,814.0	0.96%	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	210.8	2,260.0	2,988.5	0.85%	0.02%
FL	MOSAIC 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	0.79%	0.00%
AL	BrownSouth Energy Corp - 1 normal	360.7	2,418.8	4,184.9	0.76%	0.07%
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%
TOTAL	79.3%	20.7%	100.0%

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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%
TOTAL	76.3%	23.7%	100.0%

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	71.5	112.4	3,197.8	16.11%	0.01%
FL	ROCKTENN 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	MEMMOLE ELECTRIC COOPERATIVE, INC.	122.6	917.8	3,723.4	3.68%	0.66%
FL	IFF CHEMICAL HOLDINGS, INC.	56.8	87.7	898.9	3.67%	0.01%
FL	QUANTUM PAPER CORP - FIBERS LLC	63.4	2,327.7	1,607.0	2.67%	0.80%
GA	International Paper - Savannah	178.9	1,560.7	3,945.4	2.60%	0.07%
FL	BUCKLEY FLORIDA LIMITED PARTNERSHIP	153.5	1,830.7	1,520.4	2.46%	0.13%
FL	PRENSSENZ LLC	59.8	66.3	569.5	1.85%	0.02%
FL	DURE ENERGY FLORIDA, INC (DEF)	205.0	2,489.8	5,306.1	1.33%	0.65%
AL	Escambia Operating Company LLC	501.9	349.3	18,974.4	1.20%	0.00%
AL	Senders Lead Co	384.6	121.7	7,951.1	1.05%	0.00%
AL	Escambia Operating Company LLC	491.9	141.6	8,180.6	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	1,554.5	294.2	0.58%	0.21%
SC	ALLUMAX (SOUTH CAROLINA)	322.7	108.1	3,751.7	0.52%	0.00%
GA	PCA Valdosta Mill	112.7	1,052.8	485.7	0.40%	0.08%
SC	SAFETY COOPERS CROSS GENERATING STATION	348.1	3,273.5	4,781.9	0.40%	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%
TOTAL	79.9%	20.1%	100.0%

139

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 DRAPER 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	198.7	17,780.3	25,117.2	4.97%	1.15%
KY	Tennessee Valley Authority - Paradise Fossil Plant	76.1	2,927.4	2,990.2	3.54%	1.15%
KY	Century Aluminum of KY LLC	106.0	197.7	5,044.2	3.43%	0.04%
IN	INDIANAPOLIS POWER & LIGHT UTILITIES	187.9	10,668.3	16,141.9	2.95%	0.91%
IN	Shore Hill Brown South Indiana Gas & Elec	162.9	1,578.6	7,644.7	2.60%	0.26%
IN	ALCOA - WABRIK POWER PLANT ACC DIV OF AL	136.1	11,158.0	5,071.3	1.91%	1.60%
IL	Joppe Steam	241.0	4,706.3	20,599.3	1.72%	0.16%
KY	Century Aluminum Sebree LLC	133.2	79.5	4,199.4	1.63%	0.01%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	7,097.3	19,504.7	1.52%	0.14%
TN	TVA (UMATIL) AND FOSSEL PLANT	157.6	4,916.5	8,427.3	1.51%	0.34%
IN	ALCOA INC - WABRIK OPERATIONS	130.9	182.8	3,897.8	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)	496.5	8,124.5	41,595.8	1.38%	0.04%
KY	Louisville Gas & Electric Co. Hill Creek Station	108.6	4,603.1	6,339.3	1.29%	0.47%
OH	Duke Energy (Ohio, Wm. H. Zimmer Station (1413090154))	256.1	7,150.0	22,133.9	1.16%	0.13%
KY	KY UTILITIES Co - Ghent Station	204.5	7,939.9	10,169.3	0.97%	0.27%
IN	POSSICK CEMENT CORP	146.5	2,865.0	4,681.7	0.96%	0.17%
MO	SIKESSTON POWER STATION SIKESSTON 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	Durawood & Cellulose, Inc.	27.9	1,554.5	294.2	8.61%	2.87%
FL	ROCK TENN CP, LLC	74.9	2,316.8	2,606.7	8.34%	0.38%
GA	International Paper - Savannah	85.9	1,550.7	3,945.4	7.34%	0.23%
FL	IPA	105.1	951.8	2,091.5	6.31%	0.09%
GA	Georgia Pacific Consumer Products LP (Savannah River Mill)	109.9	851.5	1,860.2	2.58%	0.05%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	173.6	132.4	3,197.8	2.24%	0.01%
SC	SALUDAX OF SOUTH CAROLINA	223.0	108.1	3,751.7	1.79%	0.00%
FL	RAYMOND PERFORMANCE FIBERS LLC	77.4	2,327.1	562.0	1.74%	0.17%
FL	SEMINOLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	1.72%	0.02%
OH	General James M. Gavin Power Plant (0627010056)	495.3	8,124.5	41,595.8	1.67%	0.02%
SC	NANTHE CEMENT WORKS GREENHATING 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	IVX CHEMICAL HOLDINGS, INC.	118.5	57.7	898.9	1.19%	0.00%
FL	DUKE ENERGY FLORIDA, INC. (DEF)	296.0	3,489.8	5,306.4	1.10%	0.04%
GA	Isa Power Company - Plant Bowen	458.1	6,643.3	10,453.4	1.05%	0.03%
GA	Savannah Sugar Refinery	49.9	521.6	582.0	1.03%	0.01%
SC	INTERNATIONAL PAPER FASTOVER	288.7	1,783.3	3,212.9	0.97%	0.05%
GA	Isa Power Company - Plant McManus	27.1	72.2	30.3	0.91%	0.14%
AL	Fluoroblen Clearing Company LLC	538.2	348.3	18,974.4	0.88%	0.00%
SC	RAFFSTONE CHARLESTON RAFF 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%
TOTAL	91.9%	8.1%	100.0%

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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%
TOTAL	64.1%	35.9%	100.0%

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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	6,909.3	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	8,124.5	41,595.8	5.83%	0.04%
VA	Jewell Coke Company LLP	140.4	510.2	5,090.9	5.28%	0.01%
NC	SGL Carbon LLC	52.3	21.7	281.6	4.00%	0.01%
OH	Duke Energy (Ohio, Wm. H. Zimmer Station (1413090154))	380.3	7,150.0	22,133.9	2.70%	0.13%
NC	Duke Energy Carolinas, LLC - Cliffside Steam Station	85.3	1,947.7	1,082.3	2.35%	0.11%
WV	MONTICALLY A POWER CO PJ ASAMTS POWER STA	381.0	5,497.4	16,817.4	2.01%	0.01%
NC	Duke Energy Carolinas, LLC - Babcock Creek Steam Station	172.2	5,264.3	4,946.1	1.91%	0.08%
WV	APPALACHIAN POWER COMPANY - JOHN AMOS PLANT	277.7	4,878.1	10,984.2	1.76%	0.02%
TN	ASC INDIANRHS - ORTN AND PLANT	98.7	2,068.3	441.6	1.72%	0.21%
IN	INDIANA MICHIGAN POWER DRAPER ROCKPORT	503.5	8,806.8	30,556.3	1.16%	0.11%
PA	SPRINGNOR MGMT CO/KEYSTONE STA	567.5	6,578.5	56,939.2	0.93%	0.00%
NC	Broughston Hospital	35.6	35.8	65.8	0.92%	0.01%
NC	Duke Energy Progress, LLC - Roxboro Steam Electric Plant	269.4	4,527.9	6,665.5	0.91%	0.03%
WV	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	404.3	11,850.0	10,082.9	0.76%	0.03%
NC	BE SOUTHERN UTILITIES INC	156.8	1,869.7	2,521.8	0.76%	0.07%
NC	Blue Ridge Paper Products - Canton Mill	95.4	2,991.4	1,227.1	0.76%	0.01%
OH	Avonon 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%
TOTAL	76.2%	23.8%	100.0%

145

Draft AOI Point Contributions for SWAN

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
NC	Pfizer Phosphate Company (nc_Aurora)	77.5	495.6	4,845.9	37.59%	0.57%
PA	GENCON NE MGMT CO/KEYSTONE STA	640.2	6,578.5	56,939.2	2.98%	0.08%
NC	Dominion Paper Company LLC	69.0	3,796.5	687.4	2.25%	1.01%
NC	Duke Energy Progress, LLC, Roxboro 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	Ravens Power East Smallwood LLC	414.7	4,387.8	10,947.9	1.75%	0.16%
NC	Mainline Corpys Air Station - Chertey Point	88.4	201.1	607.8	1.30%	0.05%
MD	Duke Paper Company - Chertey Point	517.5	3,607.0	22,659.8	0.99%	0.02%
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	9,488.2	25,225.9	0.83%	0.01%
NC	Weyerhaeuser NR Company - Vanceboro Pulp	86.8	771.8	286.2	0.74%	0.24%
MD	GenOn Energy, Inc., Mtairdowntn	378.9	896.4	3,737.0	0.73%	0.03%
WV	WILLIAMS FURNACE SUPPLY CO., LLC-ADMIRAL	548.8	11,831.9	10,080.9	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	602.0	4,878.1	10,984.2	0.62%	0.04%
SC	SANTEE COOPER CROSS GENERATING STATION	416.9	3,273.5	4,281.2	0.55%	0.07%
PA	HEMLOCK CITY GEN. CO/CENTRE TWP	620.1	5,216.0	13,865.7	0.54%	0.05%
NY	NY UTILITIES Co. - Chert Station	885.4	7,939.9	10,169.3	0.52%	0.07%
MI	JAMES H. MISSOURI LABADIE PLANT	1,345.4	5,085.5	41,746.3	0.51%	0.03%
OH	Department of Public Utilities, Gay of Owens, Ohio (008500188)	771.9	1,901.9	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	Duke Ridge Paper Products - Canton Mill	115.9	2,492.4	1,127.1	40.57%	0.53%
TN	EASTMAN CHEMICAL COMPANY	116.9	6,800.3	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	Du Power Company - Plant Bowen	241.6	6,643.3	10,153.8	1.67%	0.07%
NC	Duke Energy Carolinas, LLC - Cliffside Steam Station	94.1	3,951.7	3,982.4	1.54%	0.28%
NC	Duke Energy Carolinas, LLC - Belugas Creek Steam Station	764.4	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%	0.10%
OH	General James M. Gavin Power Plant (0627010036)	392.3	8,122.5	41,595.8	1.30%	0.01%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	7,150.0	22,133.9	1.35%	0.02%
WV	Jewell Coke Company LLP	214.7	520.2	5,090.9	1.31%	0.01%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	392.3	4,878.1	10,984.2	1.20%	0.04%
IN	INDIANA MICHIGAN POWER DIBA A/P - ROCKPORT	473.3	8,806.8	30,536.3	0.68%	0.01%
TN	TVA CUMBERLAND FOSSEL PLANT	454.1	4,916.5	8,427.1	0.53%	0.00%
GA	TEAMP, INC AND	265.7	1,773.4	1,791.0	0.53%	0.00%
TN	TVA BULL RUN FOSSIL PLANT	143.0	964.2	623.5	0.53%	0.05%
WV	MONONGAHELA POWER CO- PLEASANTS POWER STA	480.0	5,497.4	16,817.4	0.51%	0.01%
TN	TATF & TTE, London	145.2	885.3	477.8	0.49%	0.07%
PA	GENCON 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	3,151.9	6,934.2	0.47%	0.01%
MO	JAMES MISSOURI LABADIE PLANT	799.0	5,085.5	41,746.3	0.46%	0.01%

145

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%
TOTAL	85.6%	14.4%	100.0%

145

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%
TOTAL	72.6%	27.4%	100.0%

147

Draft AOI Point Contributions for ROMA

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
SC	KRAFTSTONE CHARLESTON KRAFT LLC	79.3	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	4,281.2	6.52%	0.45%
SC	SANTEE COOPER WINNABH GENERATING STATION	51.4	1,772.5	2,145.9	4.57%	0.38%
SC	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	2,031.3	2,767.5	4.28%	0.35%
SC	STROCK WILMABY	76.7	987.7	197.5	3.88%	0.19%
SC	NUCOR STEEL BERKELEY	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	971.2	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 FRAZER	139.0	1,780.5	5,112.9	1.05%	0.04%
SC	COOPER BRYER PARTNER LLC	75.9	58.4	58.3	0.44%	0.07%
OH	General James M. Gavin Power Plant (0627010036)	701.0	8,122.5	41,595.8	0.83%	0.00%
SC	SCE&G WATREIC	133.1	1,344.0	2,176.8	0.66%	0.03%
SC	Charleston AFBI Int Airport	26.8	358.4	46.2	0.43%	0.24%
GA	Du Power Company - Plant Bowen	506.2	6,643.3	10,153.8	0.35%	0.01%
SC	GLANTZ FURNACE CO	80.6	509.4	399.0	0.34%	0.04%
FL	WOLCK TERRY CO, LLC	302.9	2,316.8	2,808.7	0.34%	0.02%
TN	EASTMAN CHEMICAL COMPANY	476.9	6,800.3	6,420.2	0.34%	0.01%
SC	SCE&G COPE	136.5	644.0	962.3	0.33%	0.02%

150

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%
TOTAL	65.4%	34.6%	100.0%

158

Draft AOI Point Contributions for JOYC

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
TN	TVA KINGSTON FOSSIL PLANT	73.7	1,647.4	1,885.1	7.35%	0.53%
TN	EASTMAN CHEMICAL COMPANY	179.2	6,500.3	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	39,556.3	4.65%	0.13%
TN	TATE & LYLE, Loudon	68.1	883.8	472.8	4.65%	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 FOSSIL PLANT	70.3	964.2	627.5	2.73%	0.44%
IN	INDIANAPOLIS POWER & LIGHT - PETERSBURG	453.0	10,665.3	18,341.9	2.02%	0.13%
IN	Olsson	471.7	12,280.3	23,112.2	1.87%	0.10%
KY	Century Aluminum of KY LLC	377.1	177.7	5,044.2	1.48%	0.01%
TN	Mc Owea Tyson	44.3	594.7	78.6	1.25%	0.67%
KY	Insularville Gas & Electric Co., Mill Creek Station	340.9	4,169.1	4,339.1	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	ESSINC CEMENT CORP	380.5	2,365.0	4,681.2	0.96%	0.04%
IL	Joppa Steam	480.1	4,706.3	79,506.3	0.96%	0.01%
VA	Jewel Coke Company LLP	287.5	520.2	5,090.9	0.93%	0.00%
KY	Big Rivers Electric Corp - Wilton Station	358.1	1,151.9	6,934.7	0.85%	0.07%
MO	JAMCEN MISSOURI LAMAR PLANT	700.9	5,685.5	41,740.3	0.84%	0.03%

154

Draft AOI Point Contributions for GRSM

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
TN	TVA KINGSTON FOSSIL PLANT	60.0	1,687.4	1,886.1	6.67%	0.64%
TN	EASTMAN CHEMICAL COMPANY	160.1	6,500.3	6,420.2	5.43%	0.17%
TN	TATE & LYLE, Loudon	36.1	883.3	472.8	4.74%	0.74%
IN	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	375.5	8,806.8	30,536.3	4.21%	0.19%
TN	Mc Owea Tyson	29.7	594.7	78.6	3.89%	2.72%
TN	TVA RUII BLUN FOSSIL PLANT	47.1	964.2	627.5	3.76%	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	Kernex - Knoxville Plant	41.3	711.5	121.5	1.55%	0.82%
IL	Joppa Steam	414.4	4,706.3	79,506.3	1.41%	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	18,341.9	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	Olsson	456.3	12,280.3	23,112.2	1.13%	0.06%
KY	Big Rivers Electric Corp - Wilton Station	345.8	1,151.9	6,934.7	1.06%	0.07%
KY	Century Aluminum of KY LLC	360.5	197.7	5,044.2	0.97%	0.00%
WV	MONONGAHELI A POWER CO. PLEASANTS POWER STA	475.9	5,497.4	16,817.4	0.96%	0.01%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	367.1	4,878.1	10,984.2	0.94%	0.01%

152

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%
TOTAL	77.5%	22.5%	100.0%

155

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%
TOTAL	76.6%	23.4%	100.0%

159

Draft AOI Point Contributions for JARI

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
VA	McQuay-Norris 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%
VA	Roanoke Cement Company	44.43	1,977.97	2,780.17	6.35%	0.47%
WV	MONONGAHELI A POWER CO. PLEASANTS POWER STA	247.97	5,497.37	16,817.43	3.82%	0.15%
WV	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.52	4,878.10	10,984.24	3.45%	0.13%
PA	GENSLER ENERGY SERVICES CORP - TOWNSHIP STA	331.13	6,336.47	46,939.71	2.84%	0.04%
WV	ALLEGHENY ENERGY SUPPLY CO. LLC - HARRISON	207.56	11,830.88	10,982.94	2.72%	0.35%
MD	Julie 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	7,459.97	22,133.90	1.87%	0.05%
NC	Duke Energy Progress, LLC - Roxboro Steam Electric Plant	132.76	6,827.87	6,665.68	1.49%	0.15%
UT	Cardinal Power Plant (Cardinal Operating Company) (0641060044)	306.40	2,467.37	7,460.79	1.33%	0.04%
PA	POCONO CITY GEN. CO. CENTER TWP	321.57	5,215.96	11,865.70	1.19%	0.07%
NC	Duke Energy Carolinas, LLC - Belconn Creek Steam Station	156.88	6,294.28	4,946.09	1.07%	0.16%
VA	GP Big Island LLC	17.13	340.68	39.67	0.92%	0.60%
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	699.52	7,539.93	10,109.35	0.81%	0.04%
NC	Duke Energy Progress, LLC - Mayo Electric Generating Plant	131.86	1,934.76	1,770.36	0.81%	0.04%
WV	MONONGAHELI A POWER CO. - LOUIE MARTIN POWER	234.03	15,743.32	4,681.87	0.80%	0.27%
VA	Jewel Coke Company LLP	277.64	520.17	5,090.93	0.77%	0.00%
PA	JPM MONTOUR LLC/MONTOURSES	454.21	4,855.41	21,482.00	0.73%	0.02%

156

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%
TOTAL	76.6%	23.4%	100.0%

157

Draft AOI Point Contributions for DOSO

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
WV	ALLIANCE ENERGY SUPPLY CO, LLC HARRISON	83.6	11,830.9	10,087.9	17.69%	1.77%
MD	Luke Paper Company	51.7	3,607.0	22,659.8	11.48%	0.12%
WV	Dominion Resources, Inc. - MOUNT STORM POWER STATION	17.5	3,984.4	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	719.8	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	3,803.7	21,198.9	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	2,330.0	22,151.9	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 ENERGY ASSOCIATES	75.1	655.6	828.6	1.10%	0.05%
PA	HOMEER CITY GEN LPV CENTER TWP	157.6	5,216.0	13,865.7	1.05%	0.00%
PA	NRG Wholesale Gen/Seaward Gen STA	148.4	2,754.6	8,880.3	0.94%	0.01%
OH	Drift Primary Aluminum Corp. (0684010069)	158.9	0.4	2,470.8	0.03%	0.00%
OH	Department of Public Utilities, City of Toledo, Ohio (079501088)	278.2	1,901.9	13,038.0	0.93%	0.01%
OH	Conesville Power Plant (0616000000)	242.3	9,957.9	6,356.2	0.67%	0.11%

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Draft AOI Point Contributions for SHEN

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	SO2 Contribution	NOx Contribution
MD	Luke Paper Company	118.4	3,607.0	22,659.8	14.52%	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	8.82%	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	189.7	11,830.9	10,087.9	8.21%	0.91%
PA	HOMEER CITY GEN LPV CENTER TWP	230.4	5,216.0	13,865.7	7.38%	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	3,984.4	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/Seaward Gen STA	215.5	2,254.6	8,880.3	1.65%	0.04%
PA	JOHN F NE MGMT CO/CFR MAIDISH PLT	213.6	6,074.9	8,655.7	1.39%	0.09%
OH	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	209.6	2,467.3	7,460.8	1.40%	0.07%
WV	MITCHELL PLANT	211.8	2,719.6	5,372.4	1.34%	0.10%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	2,120.0	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 Toledo, Ohio (079501088)	385.1	1,901.9	13,038.0	1.18%	0.07%
OH	Avon Lake Power Plant (0241030013)	452.7	3,803.7	23,198.9	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%
TOTAL	86.4%	13.6%	100.0%

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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%
TOTAL	88.9%	11.1%	100.0%

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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
MD	ALLIANCE ENERGY SUPPLY CO, LLC HARRISON	77.8	11,830.9	10,087.9	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	8.60%	0.29%
WV	MONONGAHELA POWER CO - FORT MARTIN POWER	82.7	13,743.3	4,881.9	4.80%	0.90%
WV	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	198.0	4,878.1	10,984.2	4.26%	0.12%
MD	Luke Paper Company	71.7	3,607.0	22,659.8	4.11%	0.64%
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	1.90%	0.05%
WV	Dominion Resources, Inc. - MOUNT STORM POWER STATION	93.9	3,984.4	2,123.6	1.85%	0.06%
WV	MITCHELL PLANT	136.8	2,719.6	5,372.4	1.53%	0.06%
OH	Drift Primary Aluminum Corp. (0684010069)	129.6	0.4	2,470.8	1.11%	0.00%
OH	Conesville 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	2,120.0	22,133.9	1.10%	0.02%
OH	Avon Lake Power Plant (0241030013)	345.6	3,803.7	23,198.9	1.09%	0.01%
OH	Krafton Polymers U.S., LLC (0684010011)	175.1	556.8	2,061.8	1.00%	0.02%
OH	Drifton Engineered Carbons LLC (0684010069)	169.6	391.8	1,933.3	0.91%	0.01%
WV	MONONGAHELA ENERGY ASSOCIATES	76.3	655.6	828.6	0.89%	0.00%
PA	HOMEER CITY GEN LPV CENTER TWP	172.6	5,216.0	13,865.7	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**

4

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*



6

VISTAS PROJECT ORGANIZATION

7

- ## VISTAS
- Policy / Operations / Analysis – 2nd 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

8

- ## VISTAS
- Project Management – 1st 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 – 1st 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 – 2nd 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 PROJECT RE\$OURCES\$

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VISTAS PROJECT Technical Approaches

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- ### VISTAS Resources – 1st 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

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VISTAS Technical Approaches for 1st & 2nd Rounds

ACTIVITY	1 ST PLANNING PERIOD	2 ND 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

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- ### VISTAS Resources – 2nd 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

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VISTAS PROJECT Collaboration/Consultation

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VISTAS COLLABORATION/CONSULTATION *1st 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 – 1st 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 *2nd 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 – 2nd 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 1st planning period funding)
- Less time (~ 50% of 1st planning period time)
- Similar desired outcomes
 - Technically sound, credible, approvable regional SIPs
 - Maintenance of relationships developed in 1st round
 - Continued progress toward 2064 goals

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COMMENTS / QUESTIONS?



- **Jim Boylan**
 - Chair, Coordinating Committee
 - james.boylan@dnr.ga.gov
- **Randy Strait**
 - Chair, Technical Analysis Work Group
 - randy.strait@ncdenr.gov
- **John Hornback**
 - Project Coordinator, VISTAS Project
 - 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

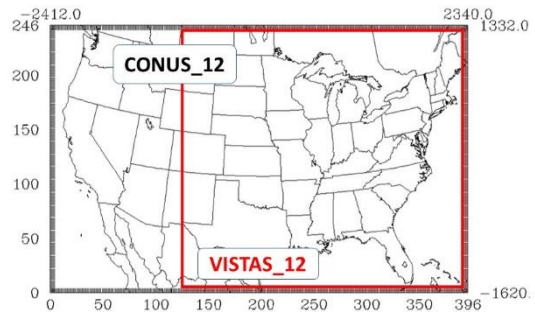
- Started with EPA's 2011/2028 modeling platform
 - Version 6.3el
 - CAMx v6.32
- Replaced CAMx v6.32 with CAMx v6.40
- Used 2011 meteorology
- Reasons for using EPA platform
 - Time limited
 - Budget limited
 - Most source sectors acceptably represented in EPA platform

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_{2.5} and light extinction
 - Wet and dry deposition
- Overall, the model performance is generally within the range deemed acceptable for regulatory applications

7

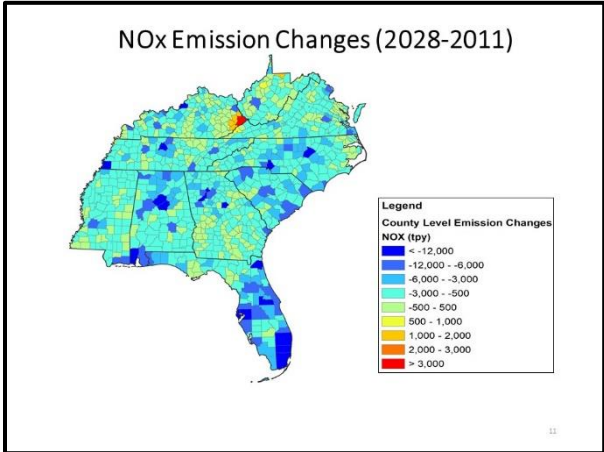
Point Source Adjustments

- **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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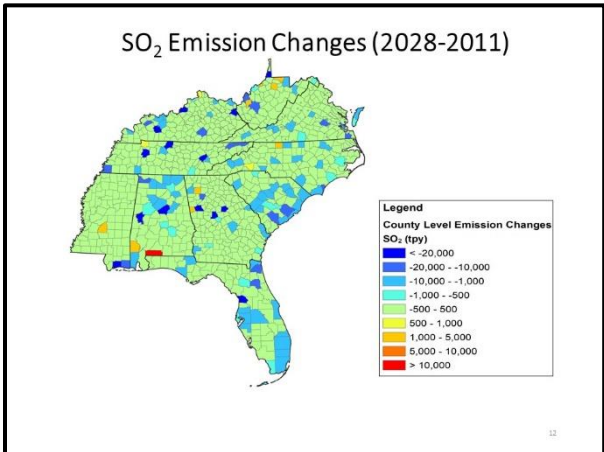


Emissions Updates

- 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

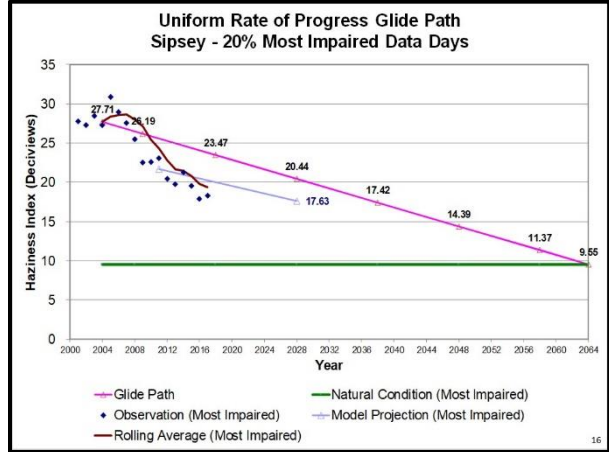


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2028 MODEL PROJECTIONS

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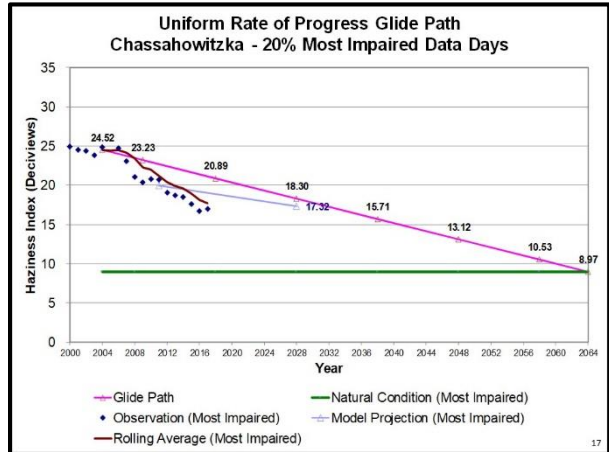


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Class I Areas of Interest to VISTAS States



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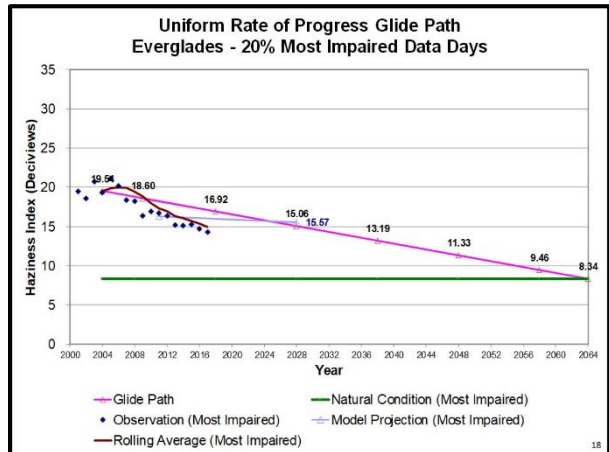
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VISTAS Class I Areas

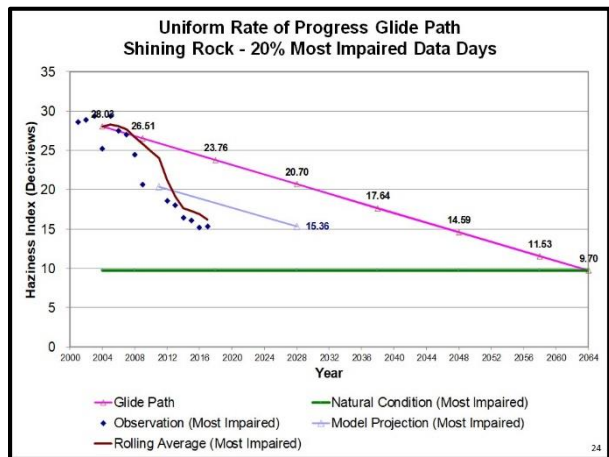
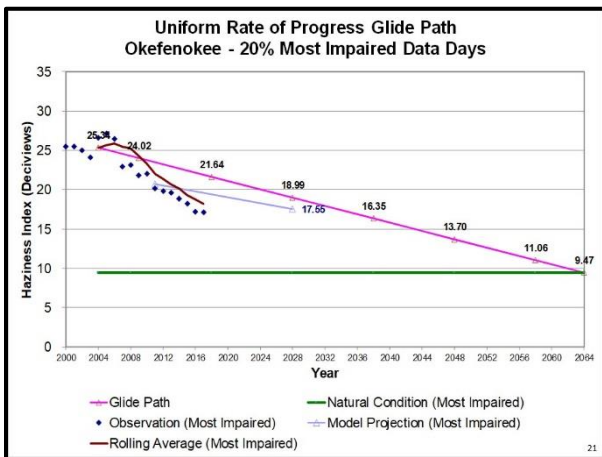
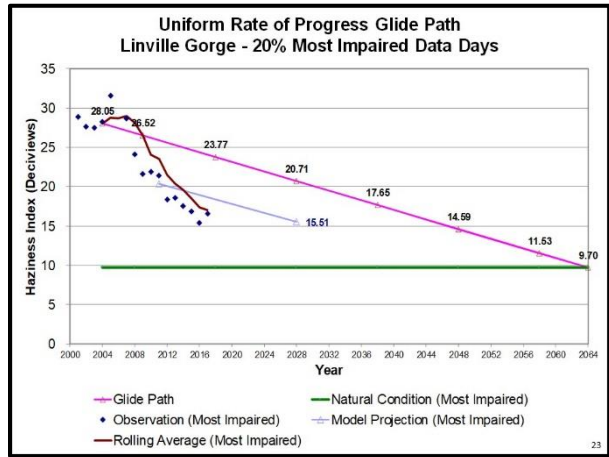
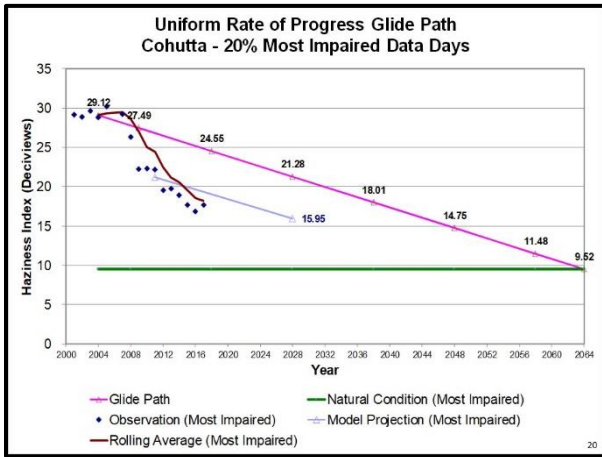
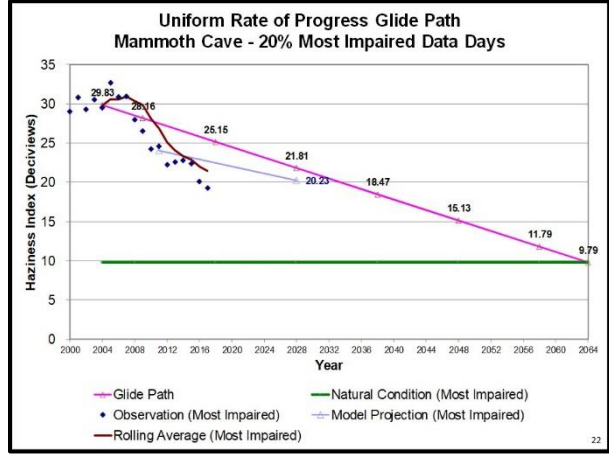
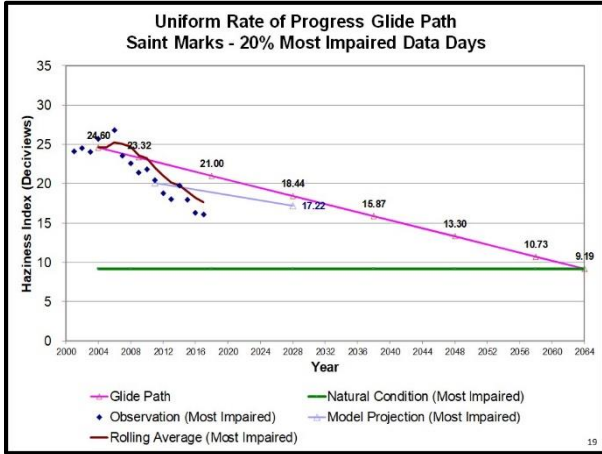
VISTAS FEDERAL CLASS I AREAS	
AL - Sipsey Wilderness Area (SIPS)	USDA Forest Service
FL - Chassahowitzka Wilderness Area (CHAS)	USDI Fish and Wildlife Service
FL - Everglades National Park (EVER)	USDI National Park Service
FL - Saint Marks Wilderness Area (SAMA)	USDI Fish and Wildlife Service
GA - Cohutta 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

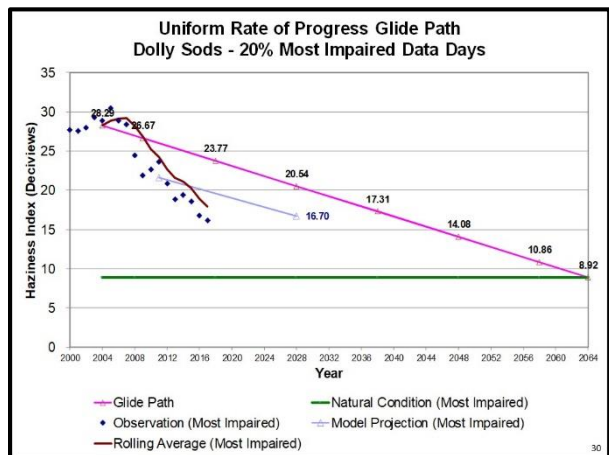
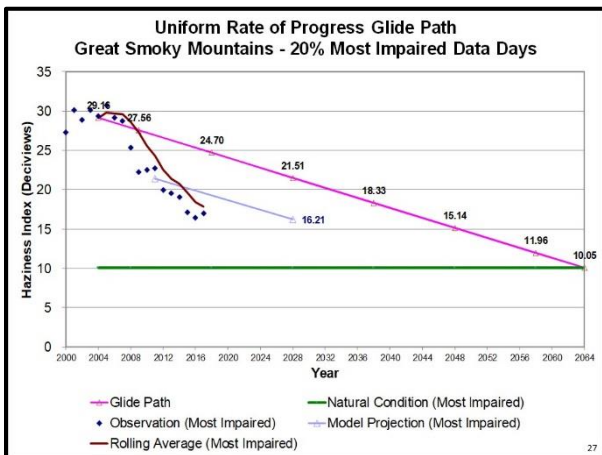
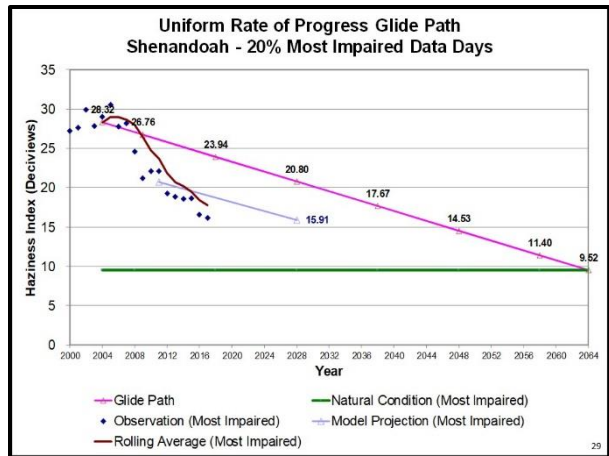
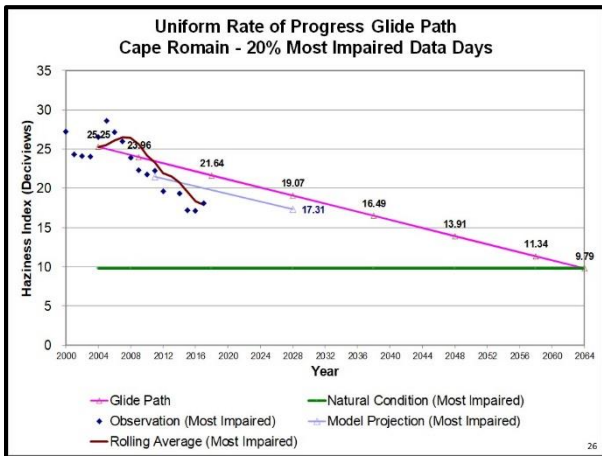
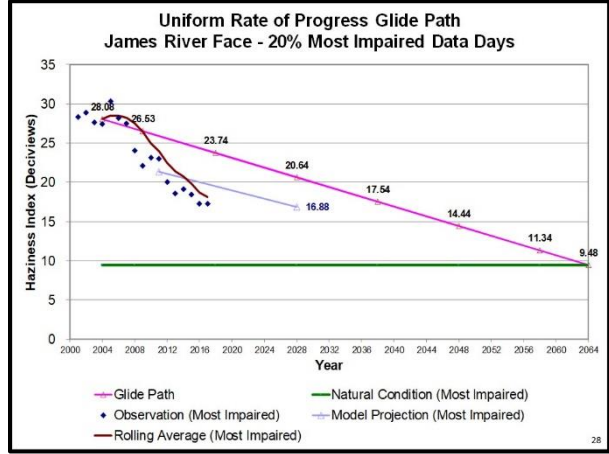
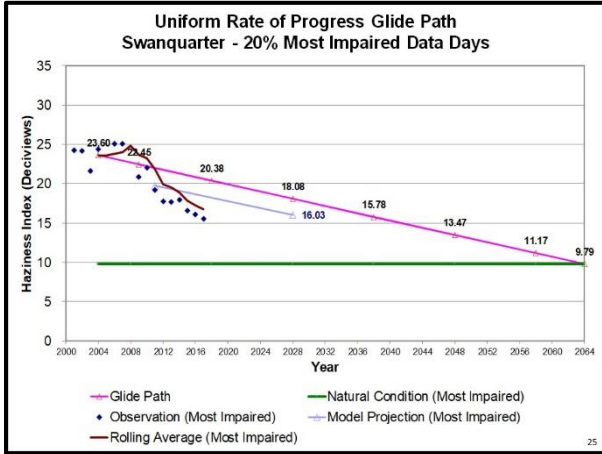
*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

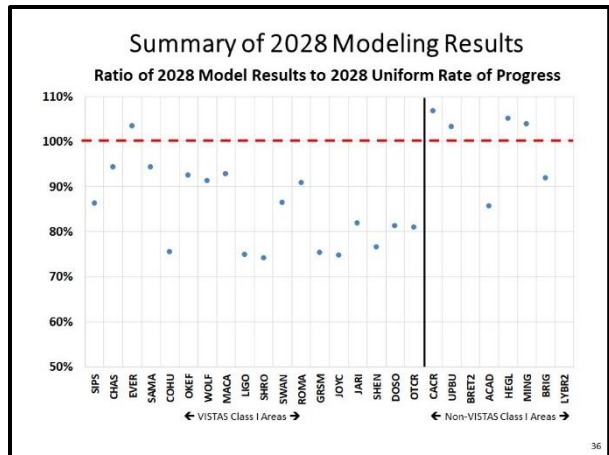
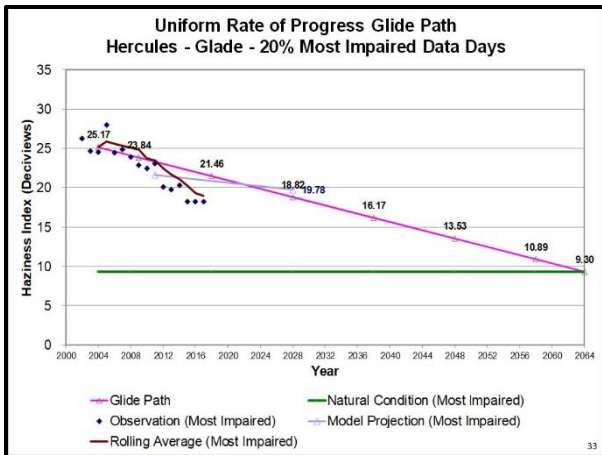
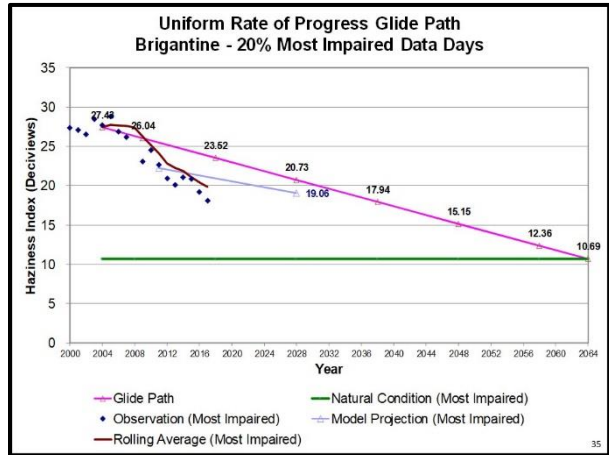
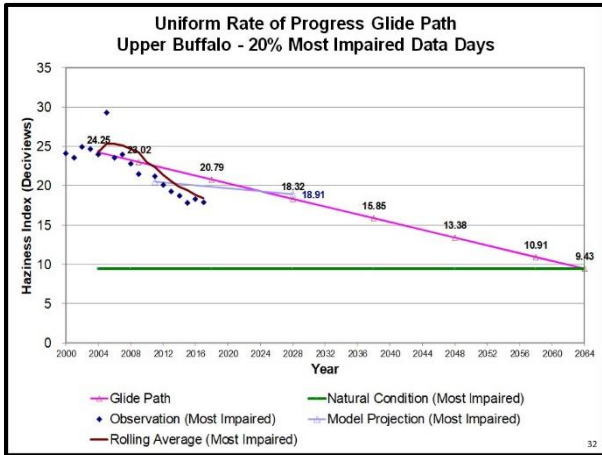
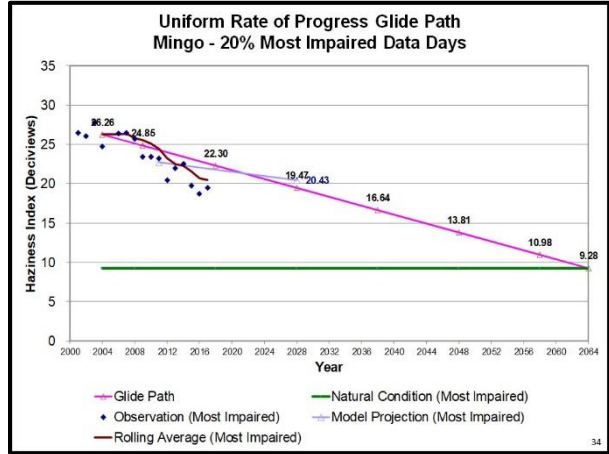
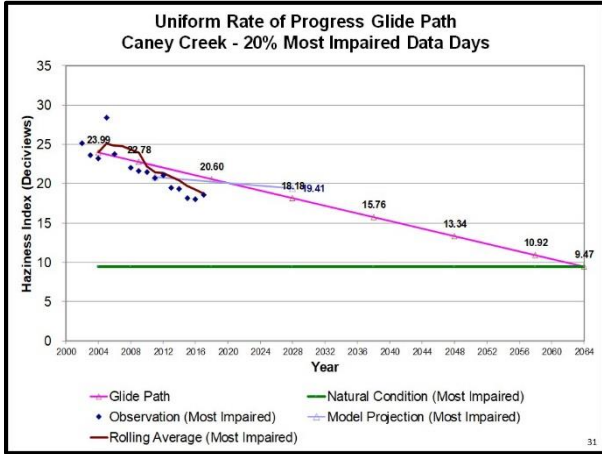
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Remaining Work Schedule

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

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Contact Information

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- Phone: 404-361-4000



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VISTAS Source Selection and 4-Factor Analyses



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

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

Area of Influence (AOI) Analysis

- 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

Outline

- AOI Analysis
- PSAT Analysis
- Next Steps



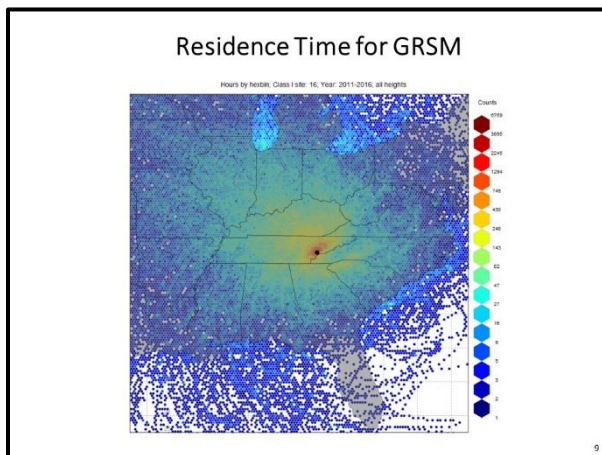
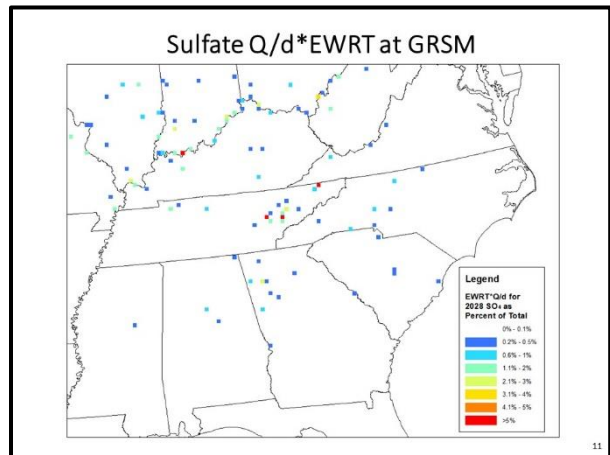
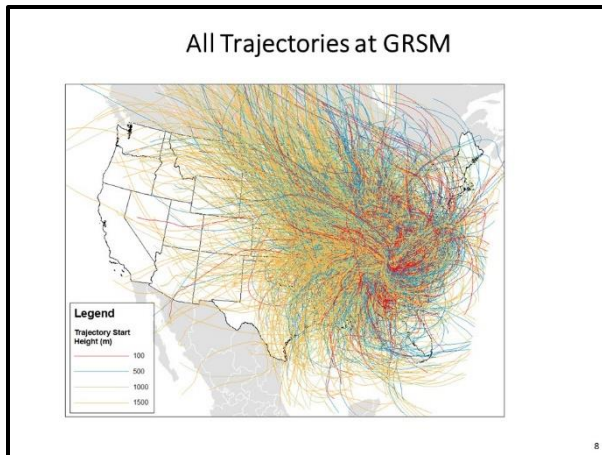
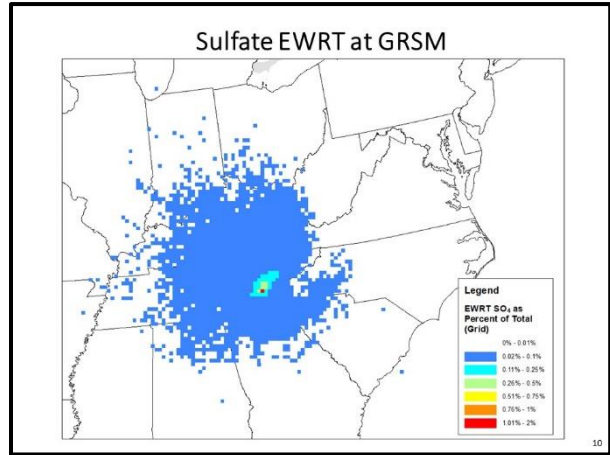
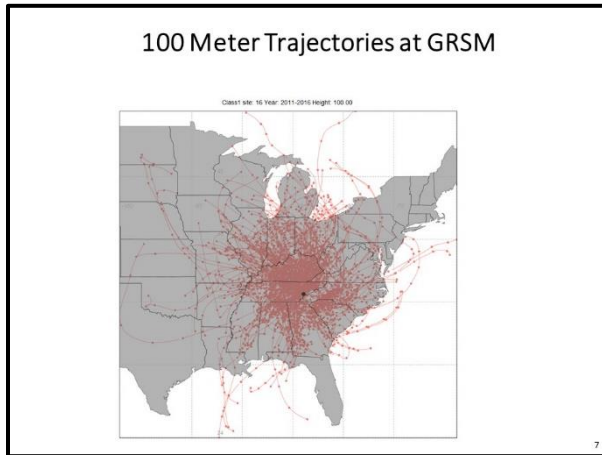
HYSPLIT Trajectories

- 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**

AOI ANALYSIS

Class I Areas Analyzed





AOI Point Contributions for GRSM

State	FACILITY NAME	DISTANCE (km)	NO _x 2028 (tons/year)	SO ₂ 2028 (tons/year)	NO _x Contribution	SO ₂ Contribution
TN	TVA KINGSTON FOSSIL PLANT	60.0	1,687.4	1,886.1	0.71%	0.73%
TN	EASTMAN CHEMICAL COMPANY	160.1	6,900.3	6,420.2	0.19%	0.65%
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 (0627010056)	400.5	8,122.5	41,595.8	0.04%	2.25%
GA	Sea Power Company - Plant Bowen	189.7	6,643.3	10,453.4	0.04%	2.00%
OH	Duke Energy Ohio, Wm. H. Zimmer Station (141300154)	360.0	7,150.0	22,133.9	0.09%	1.84%
TN	Cemex - Knoxville Plant	44.3	711.5	121.5	0.90%	1.71%
IL	Joppa 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	10,665.3	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	MIDMONTGARIA 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	NOx	SO ₂	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%
TOTAL	35.2%	64.8%	100.0%

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AOI Source Categories for OKEF

SOURCE CATEGORY	NOx	SO ₂	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%
TOTAL	22.4%	77.6%	100.0%

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AOI Source Categories for COHU

SOURCE CATEGORY	NOx	SO ₂	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%
TOTAL	24.3%	75.7%	100.0%

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AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	71.5	112.4	2,745.0	0.03%	13.01%
FL	ROCK TENN CP, LLC	64.8	2,316.8	2,506.7	0.88%	13.91%
FL	SEA	65.6	651.8	2,094.5	0.18%	10.00%
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	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	RENESSENZ 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	Ga Power Company - Plant Bowen	456.1	6,643.3	10,453.4	0.05%	1.02%
GA	Brownwick 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	981.4	0.03%	0.79%
SC	WAPSTONE CHARLESTON BRATT LLC	314.9	2,355.8	1,861.7	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 COHU

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
GA	Ga Power Company - Plant Bowen	78.0	6,643.3	10,453.4	1.15%	13.91%
IN	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	8,806.6	30,535.3	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	Ga Power Company - Plant Wansley	156.8	2,052.5	4,856.0	0.04%	1.05%
KY	KY Utilities Co - Glent 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	6,500.3	6,420.2	0.09%	0.99%
MO	AMEREN MISSOURI-LABADE PLANT	695.4	9,685.5	41,740.3	0.01%	0.95%
IL	Newton	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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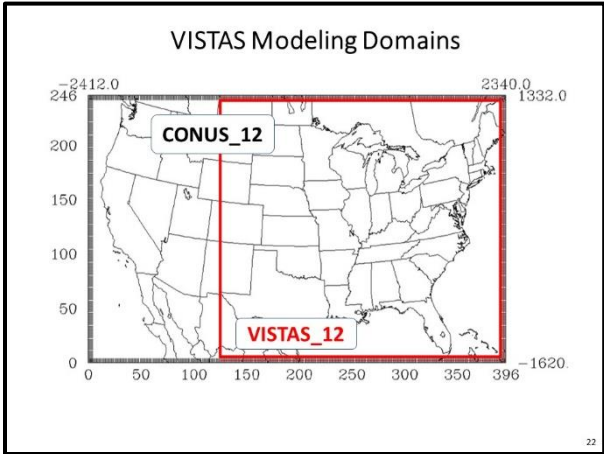
AOI Source Categories for WOLF

SOURCE CATEGORY	NOx	SO ₂	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%
TOTAL	21.8%	78.2%	100.0%

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AOI Point Contributions for WOLF

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	2.34%	1.99%
FL	ROCK TENN CP, LLC	74.0	2,316.8	2,606.7	0.39%	1.99%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.93%
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	ALUMAX OF SOUTH CAROLINA	223.0	106.1	3,751.7	0.00%	1.64%
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 Jamai 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	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	89.9	521.5	582.0	0.08%	1.06%
SC	INTERNATIONAL PAPER EASTOVER	288.7	3,780.3	3,121.9	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%



PSAT ANALYSIS

- ### PSAT SO₂ and NO_x Tags (209)
- Round 1 (122 tags)**
- Total SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
 - Total NO_x tags for 10 individual VISTAS states + 3 MJOs = 13 tags
 - EGU point SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
 - EGU point NO_x tags for 10 individual VISTAS states + 3 MJOs = 13 tags
 - SO₂ tags for individual VISTAS facilities = 50 tags
 - NO_x tags for individual VISTAS facilities = 20 tags
- Round 2 (87 tags)**
- Non-EGU point SO₂ for 10 individual VISTAS states + 3 MJOs = 13 tags
 - Non-EGU point NO_x for 10 individual VISTAS states + 3 MJOs = 13 tags
 - SO₂ and NO_x for N/S/W/E boundaries = 8 tags
 - SO₂ tags for individual VISTAS facilities = 10 tags
 - NO_x tags for individual VISTAS facilities = 16 tags
 - SO₂ tags for individual non-VISTAS facilities = 17 tags
 - NO_x tags for individual non-VISTAS facilities = 10 tags

- ### 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 NO_x and SO₂ 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

VISTAS Round 1 Facility Tags

Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
AL	VISTAS	01053-740211	Escambia Operating Company LLC		1
AL	VISTAS	01053-985111	Escambia Operating Company LLC		1
AL	VISTAS	01073-101871	DRUMMOND COMPANY, INC.		1
AL	VISTAS	01097-105611	Ala Power - Barry		1
AL	VISTAS	01097-106461	Union Oil of California - Chunchula Gas Plant		1
AL	VISTAS	01097-948911	Alco Nobel Chemicals Inc		1
AL	VISTAS	01103-100001	Nucor Steel Decatur LLC		1
AL	VISTAS	01109-98571	Sanders Lead Co		1
FL	VISTAS	12005-555411	ROCKTENN CP LLC		1
FL	VISTAS	12011-640011	DUKE ENERGY FLORIDA, INC. (DEF)	1	1
FL	VISTAS	12031-640211	JEA		1
FL	VISTAS	12033-752711	GULF POWER - Crist		1
FL	VISTAS	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC		1
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)		1
FL	VISTAS	12097-716411	MOSIAC FERTILIZER, LLC		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	MOSIAC FERTILIZER LLC		1
FL	VISTAS	12105-919811	MOSIAC FERTILIZER, LLC		1
FL	VISTAS	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP		1

VISTAS Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
GA	VISTAS	13015-2813011	Ea Power Company - Plant Bowen	1	1
GA	VISTAS	13015-3679811	International Paper - Savannah	1	1
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc	1	1
KY	VISTAS	21091-7352411	Century Aluminum of KY LLC	1	1
KY	VISTAS	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1	1
KY	VISTAS	21177-5196711	Tennessee Valley Authority - Paradise Fossil Plant	1	1
KY	VISTAS	21183-5551611	Big Rivers Electric Corp. - Wilson Station	1	1
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1	1
NC	VISTAS	37087-7920511	Blue Ridge Paper Products - Canton Mill	1	1
SC	VISTAS	45015-4834911	ALLUMAX OF SOUTH CAROLINA	1	1
SC	VISTAS	45019-4978611	KAPSTONE CHARLESTON KRAFT LLC	1	1
SC	VISTAS	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	1	1
TN	VISTAS	47001-6196011	TVA BULL RUN FOSSIL PLANT	1	1
TN	VISTAS	47093-4979911	Cemex - Knoxville Plant	1	1
TN	VISTAS	47105-4119211	IATE & LYLE, Loudon	1	1
TN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	1	1
TN	VISTAS	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	1	1
TN	VISTAS	47163-3982311	EASTMAN CHEMICAL COMPANY	1	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	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	1	1
MO	CENRAP	29143-5353811	NEW MAERID POWER PLANT-MAERSTON	1	1
MD	MANE-VU	24001-7753811	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	Iroquo Steam	1	1
IN	LADCO	18173-8183111	Alcoa Warrick Power Plt Agc Div of AL	1	1
IN	LADCO	18051-7363111	Gibson	1	1
IN	LADCO	18147-9017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	1	1
IN	LADCO	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	1	1
IN	LADCO	18129-8166111	Diageo AB Brown South Indiana Gas & Ele	1	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 (0627000056)	1	1
OH	LADCO	39053-7983011	Ohio Valley Electric Corp., Rger Creek Station (0627000003)	1	1

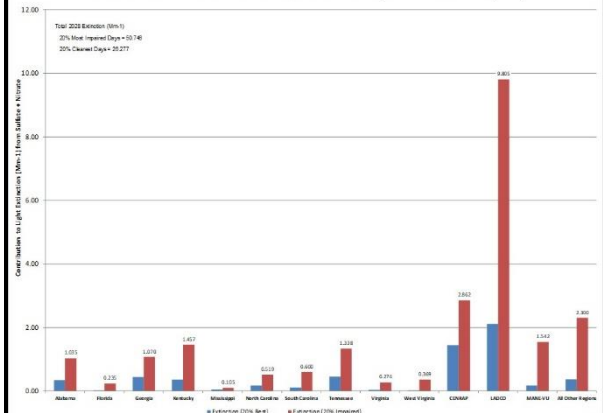
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VISTAS Round 1 Facility Tags

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
VA	VISTAS	51023-4039811	Ronauke Cement Company	1	1
VA	VISTAS	51027-4034811	Jevell Cole Company LLP	1	1
VA	VISTAS	51580-5798711	Meadwestvaco Packaging Resource Group	1	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 - COPLEY RUN CS 70	1	1
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	1	1
WV	VISTAS	54051-4902311	MITCHELL PLANT	1	1
WV	VISTAS	54061-1652011	LONGVIEW POWER	1	1
WV	VISTAS	54061-6736111	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	JAPPACHIAN POWER COMPANY - JOHN F AMOS PLANT	1	1
WV	VISTAS	54083-6790511	SLADY 6C4350	1	1
WV	VISTAS	54083-6790711	FILES CREEK 6C4340	1	1
WV	VISTAS	54093-6327811	KINGSFORD MANUFACTURING COMPANY	1	1

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2028 Contribution of All Anthro + Natural Sources to Cohutta Wkldienness, GA from Sulfate + Nitrate (Mm-1)



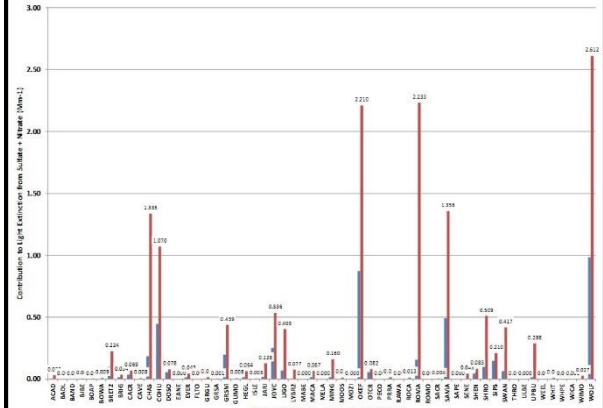
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VISTAS Round 2 Facility Tags

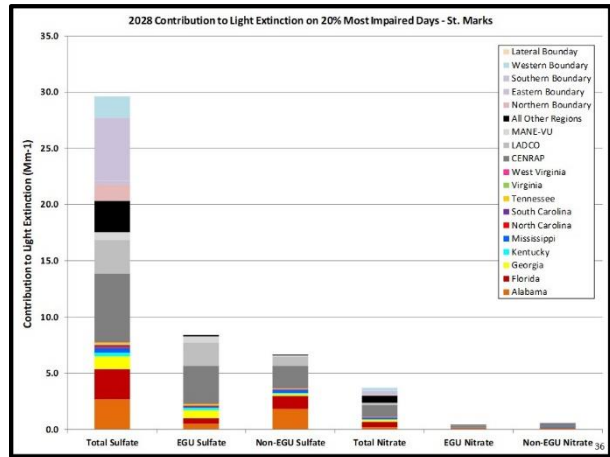
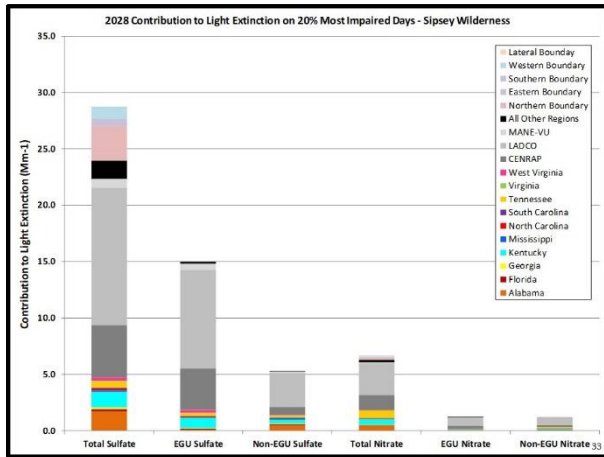
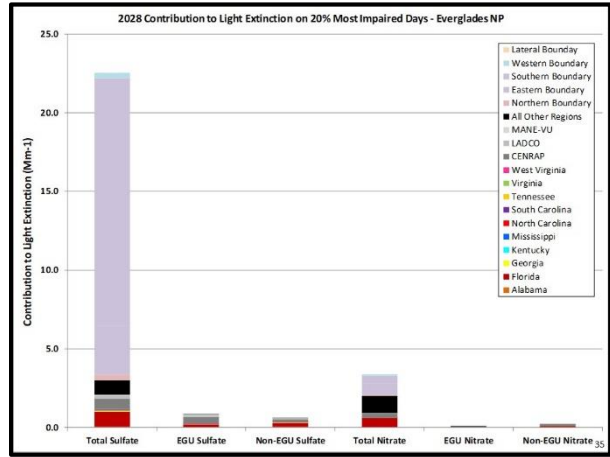
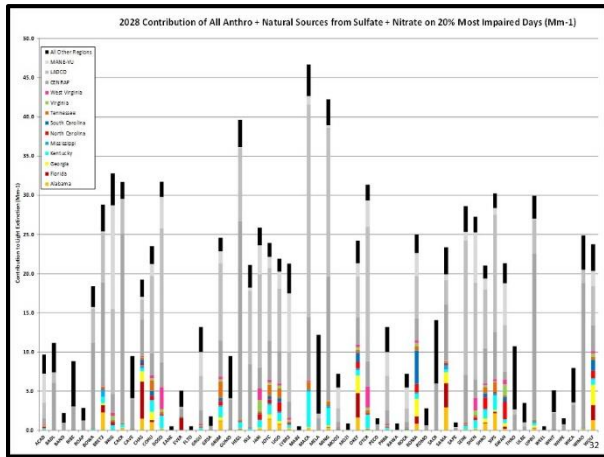
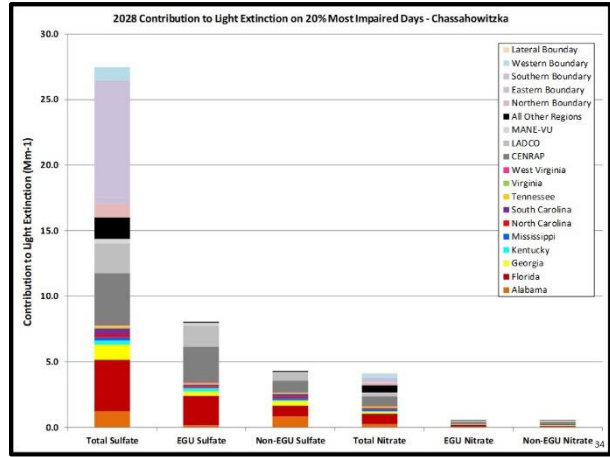
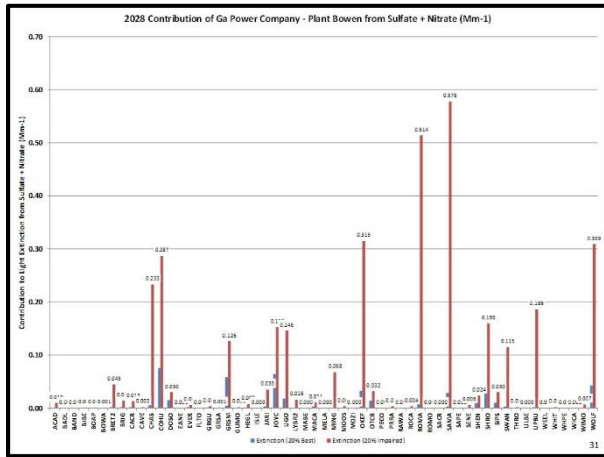
Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	NOx Tag	SO2 Tag
AL	VISTAS	01129-1102711	American Midstream Chatom, LLC	1	1
FL	VISTAS	12123-752411	BUCKEYE FLORIDA LIMITED PARTNERSHIP	1	1
FL	VISTAS	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	1	1
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (PTF)	1	1
FL	VISTAS	12086-3532711	HOMESTEAD CITY UTILITIES	1	1
FL	VISTAS	12129-2731711	TALLAHASSEE CITY FURDOM GENERATING STA.	1	1
FL	VISTAS	12086-899911	TARMAAC AMERICA LLC	1	1
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc	1	1
GA	VISTAS	13103-536311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1	1
GA	VISTAS	13115-539511	International Paper - Rome	1	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	1
NC	VISTAS	37117-8049011	Dormar Paper Company, LLC	1	1
NC	VISTAS	37035-8170411	Duke Energy Carolinas, LLC - Marshall Steam Station	1	1
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1	1
NC	VISTAS	37023-8513011	SGL Carbon LLC	1	1
NC	VISTAS	45015-4120411	SANTEC COOPER CROSS GENERATING STATION	1	1
NC	VISTAS	45043-6652811	SANTEC COOPER WINYAH GENERATING STATION	1	1
SC	VISTAS	45015-8306711	SCE& WILLIAMS	1	1
VA	VISTAS	51027-4034811	Jevell Cole Company LLP	1	1
VA	VISTAS	51580-5798711	Meadwestvaco Packaging Resource Group	1	1
VA	VISTAS	51023-4039811	Ronauke Cement Company	1	1

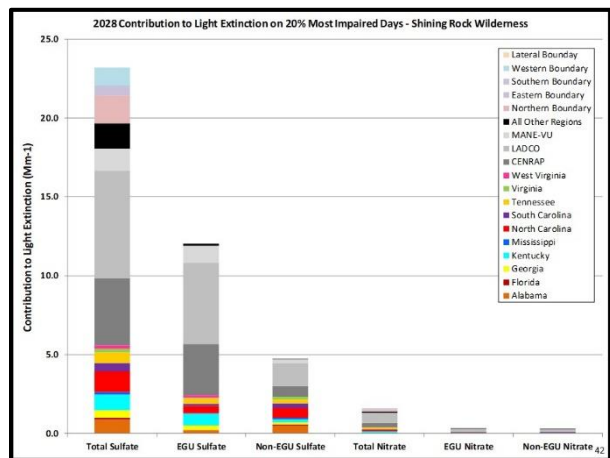
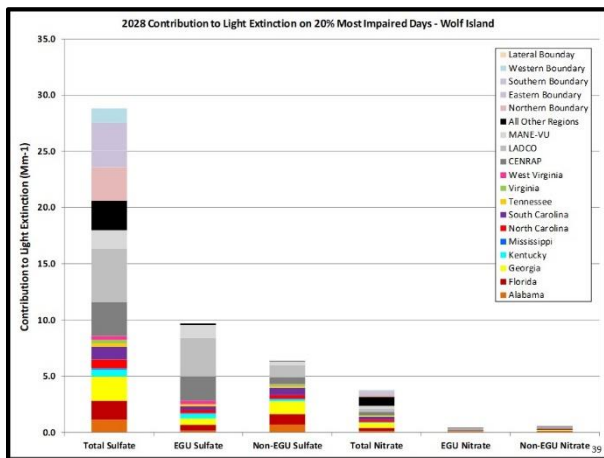
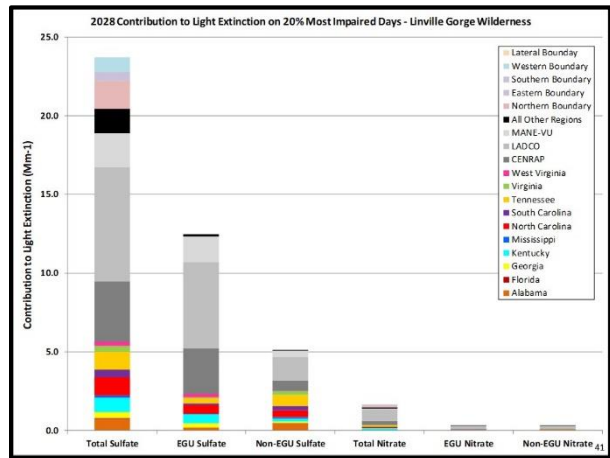
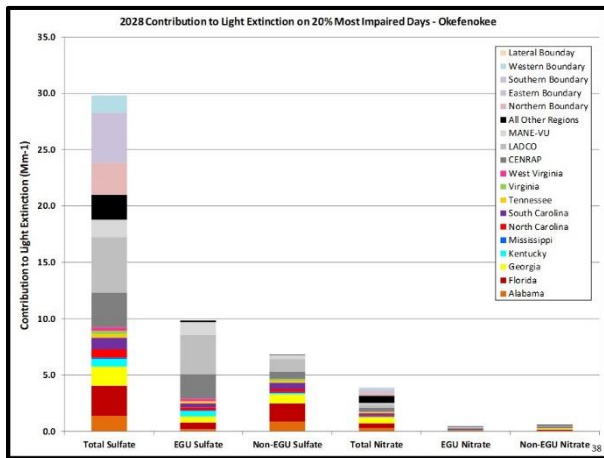
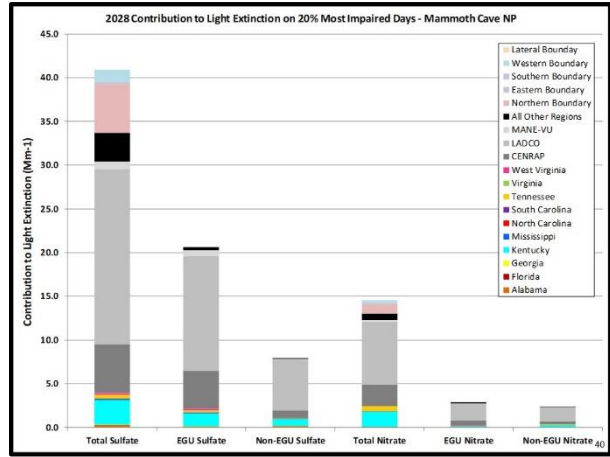
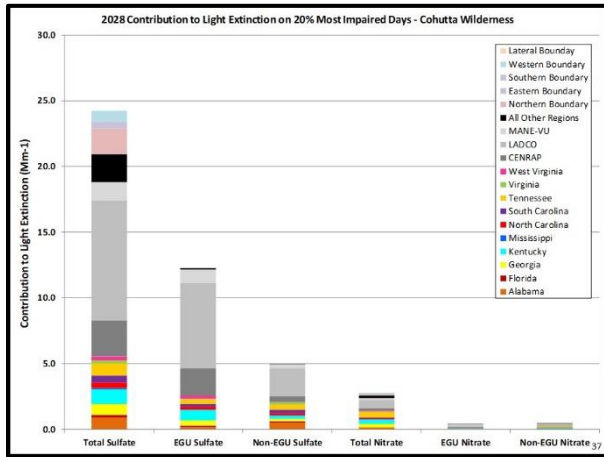
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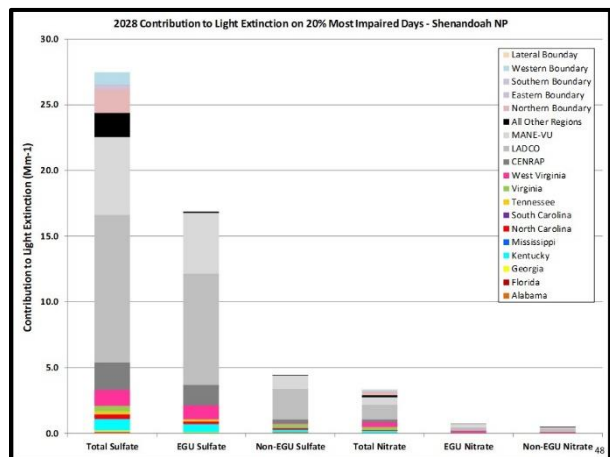
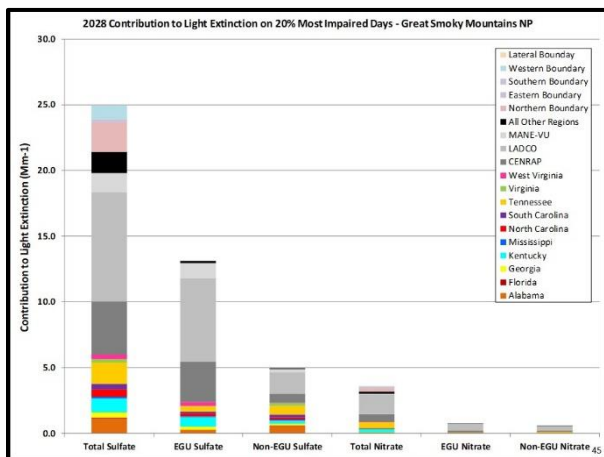
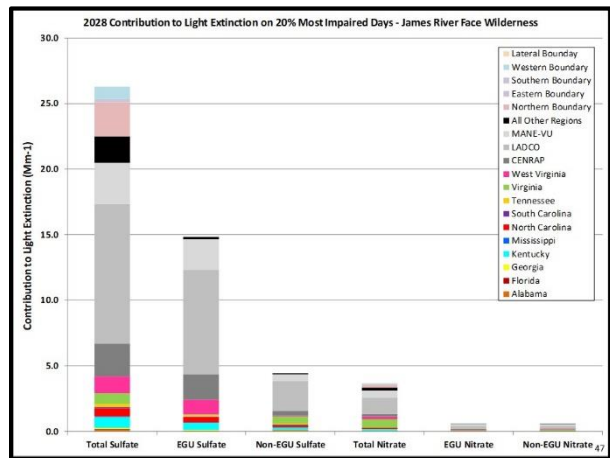
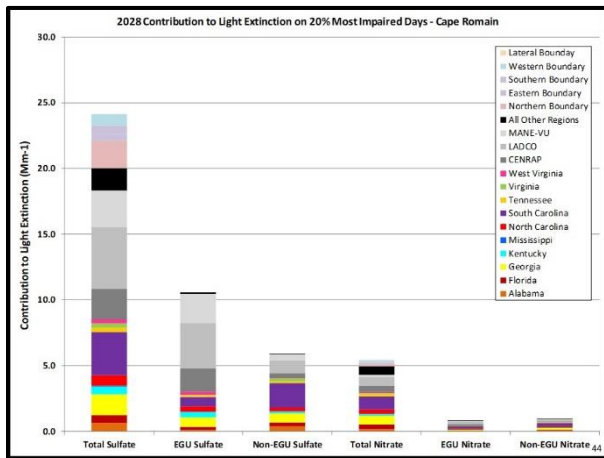
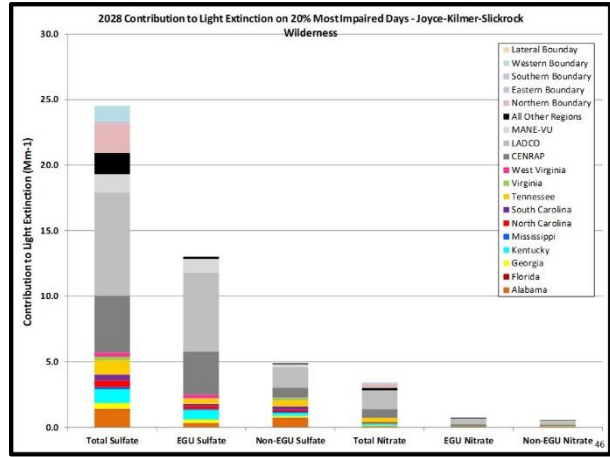
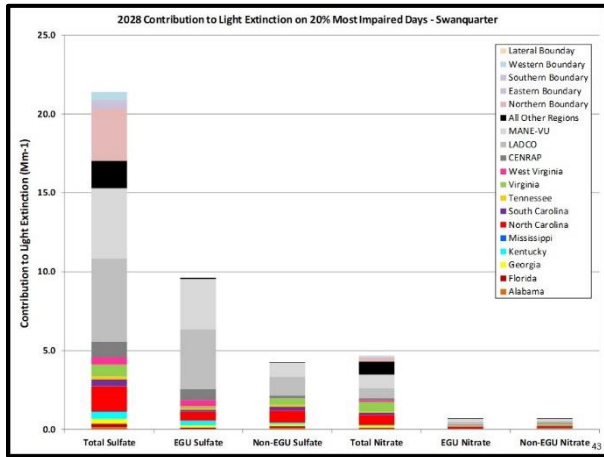
2028 Contribution of All Anthro + Natural Sources in Georgia from Sulfate + Nitrate (Mm-1)

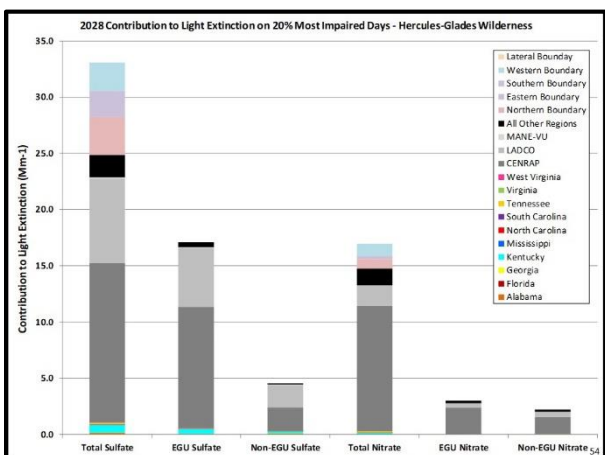
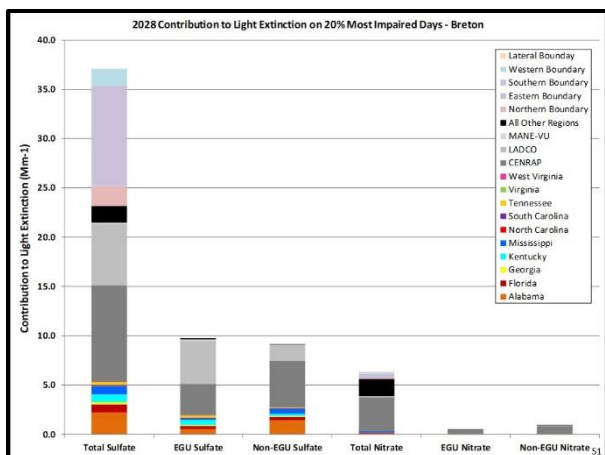
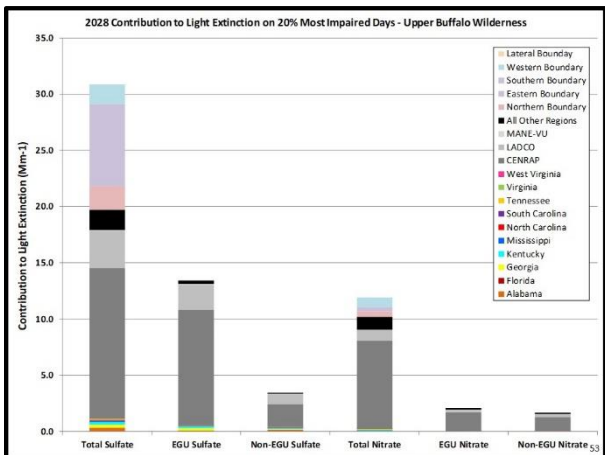
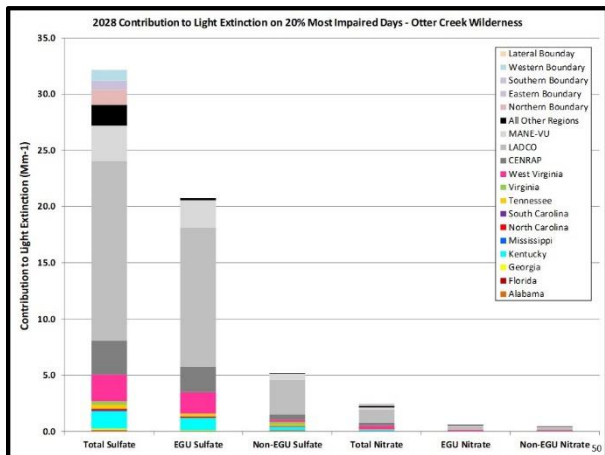
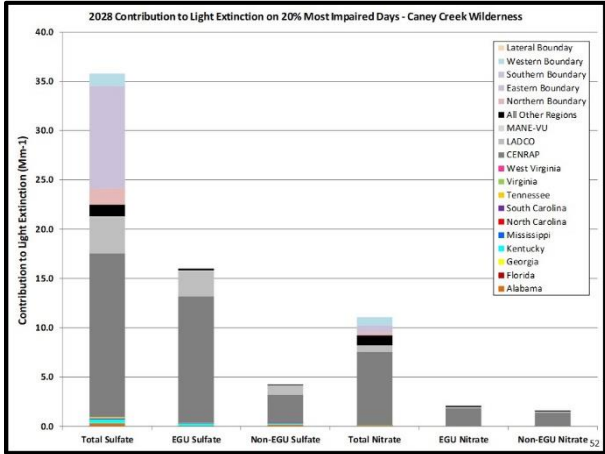
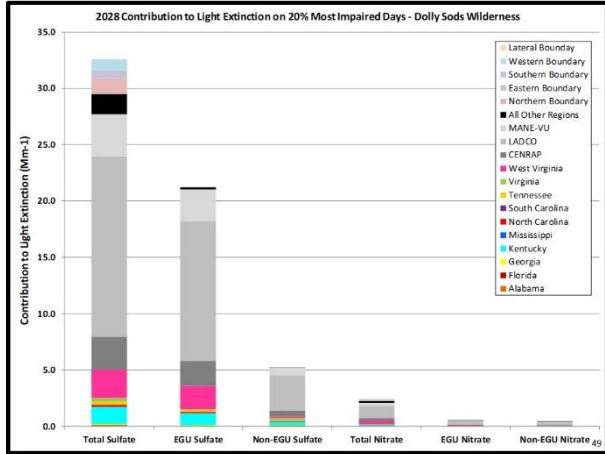


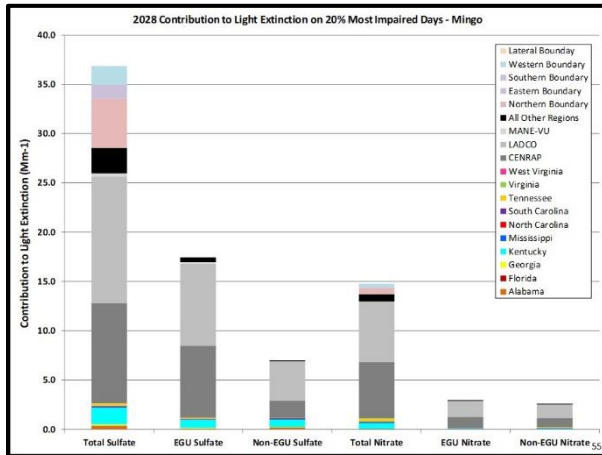
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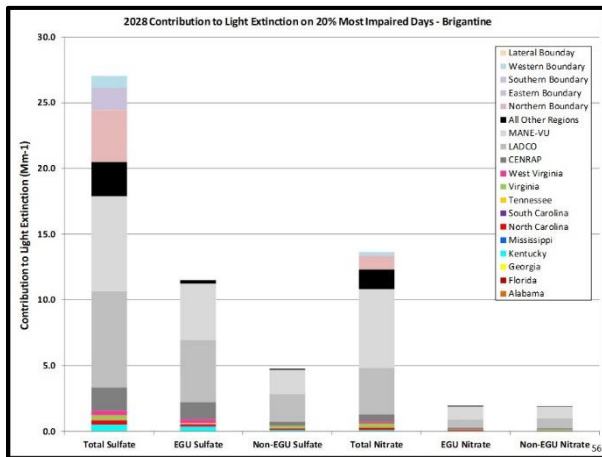








- ### Screening for 4-Factor Analysis
- States are in the process of selecting sources for the reasonable progress 4-factor analysis
 - State need to make decisions on screening thresholds:
 - Most states will likely use a screening threshold based on a facility's percent contribution to point source 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



- ### 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⁻¹
 - Time necessary for compliance
 - Energy and non-air quality environmental impacts of compliance
 - Remaining useful life of sources subject to this analysis

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
Regional Haze SIPs Due to EPA	July 31, 2021

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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)

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%
TOTAL	976,471.2	1,783,376.5	-806,905.3	-45.25%

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%
TOTAL	840,973.6	1,166,663.1	-325,689.5	-27.92%

Outline

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



VISTAS CC/TAWG Conclusions

1. 2028 emission updates are necessary
 - **VISTAS States** – States will:
 - Update 2028 major source emissions projections (SO₂, NO_x, PM_{2.5}, PM₁₀, NH₃, 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 SO₂ and NO_x source emissions projections via contact with surrounding states/RPOs and update emissions as needed
2. 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 (%)
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%

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 SO₂ 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	3,236.28	-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	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%
TOTAL	2,581,643.20	1,773,936.20	-31.3%	1,788,132.63	1,032,667.35	-42.2%	793,510.56	741,268.85	-6.6%

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PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NO_x and SO₂ 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 NO_x 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	548,865.74	491,345.00	-10.5%	244,035.26	185,513.52	-23.6%	304,830.49	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%
TOTAL	2,649,998.14	2,370,804.22	-10.5%	1,159,405.80	879,790.66	-24.1%	1,490,592.35	1,491,013.55	0.0%

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PSAT SO₂ and NO_x Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NO_x tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NO_x tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NO_x tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

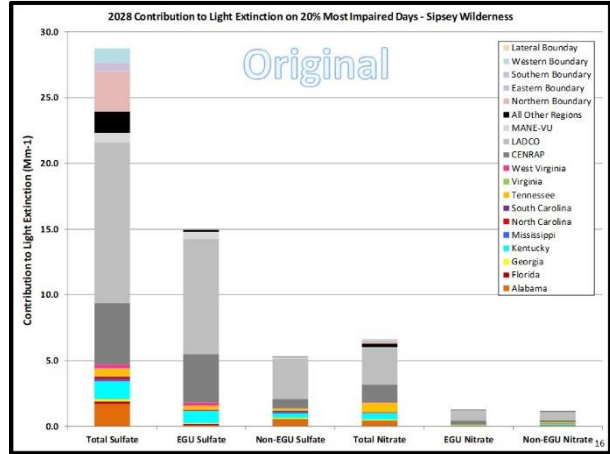
- Non-EGU point SO₂ for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NO_x for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ and NO_x for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NO_x tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NO_x tags for individual non-VISTAS facilities = 10 tags

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PSAT Adjustment Ratios

State/RPO	SO ₂ EGU Ratio	SO ₂ NEGU Ratio	NO _x EGU Ratio	NO _x 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

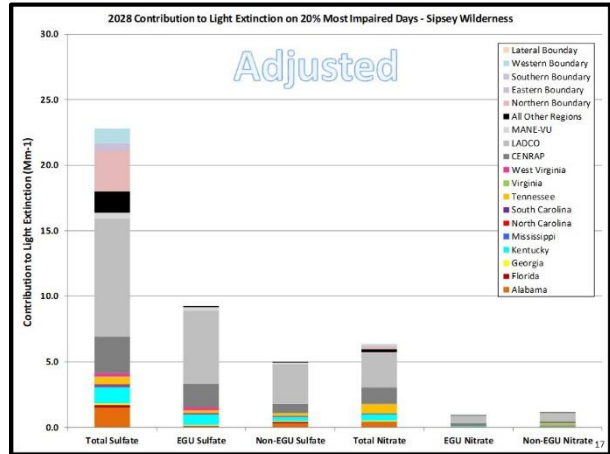
- Revised EGU Sulfate PSAT Results = Original EGU Sulfate PSAT Results * SO₂ EGU Ratio

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

- Revised NEGU Sulfate PSAT Results = Original NEGU Sulfate PSAT Results * SO₂ 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

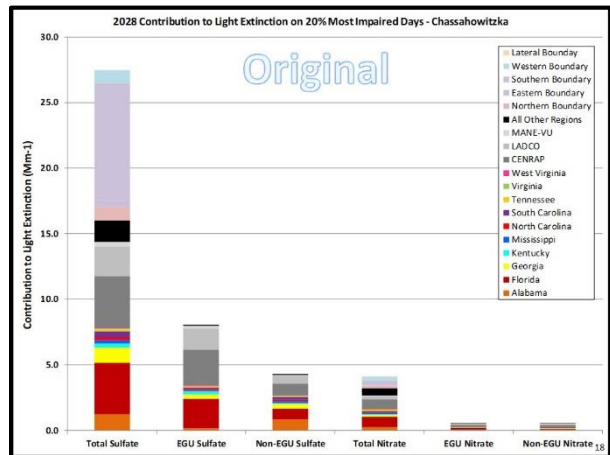
- Revised EGU Nitrate PSAT Results = Original EGU Nitrate PSAT Results * NO_x EGU Ratio

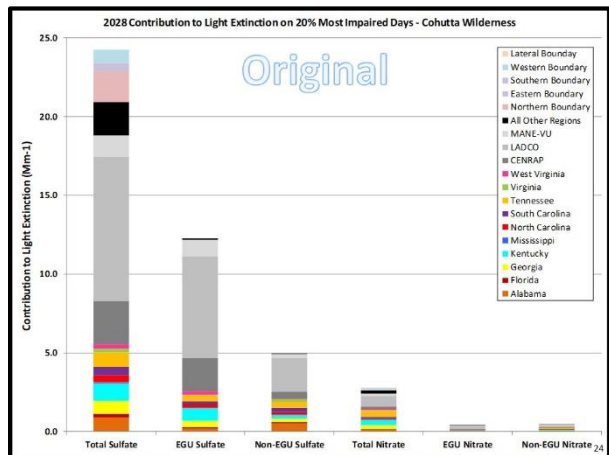
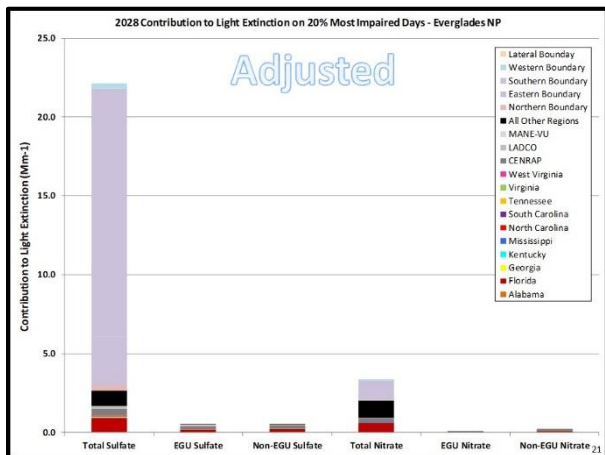
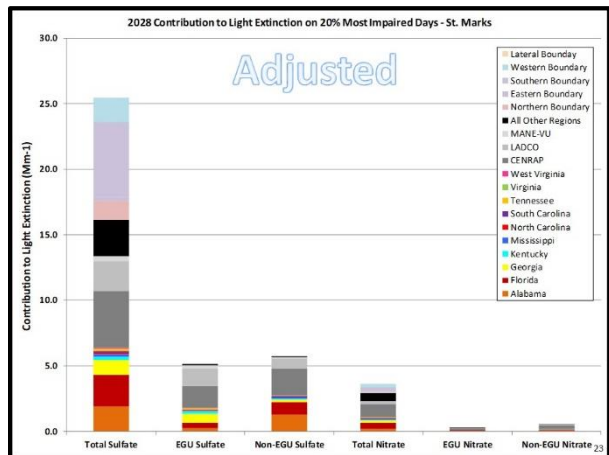
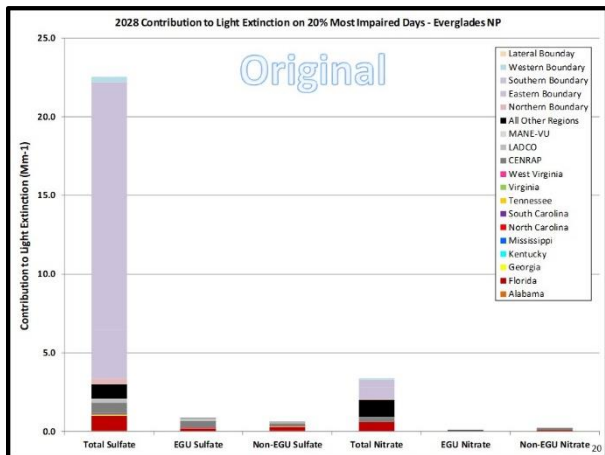
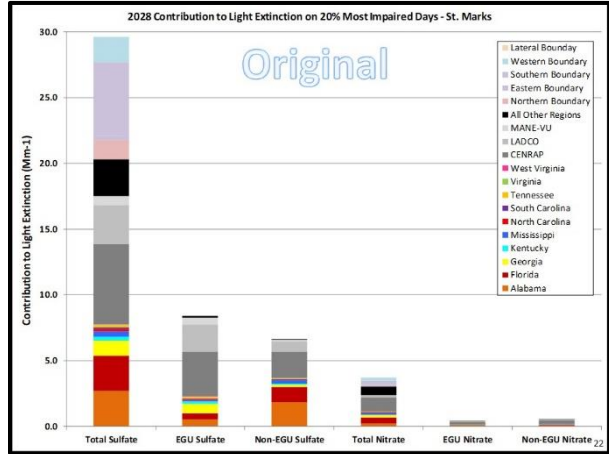
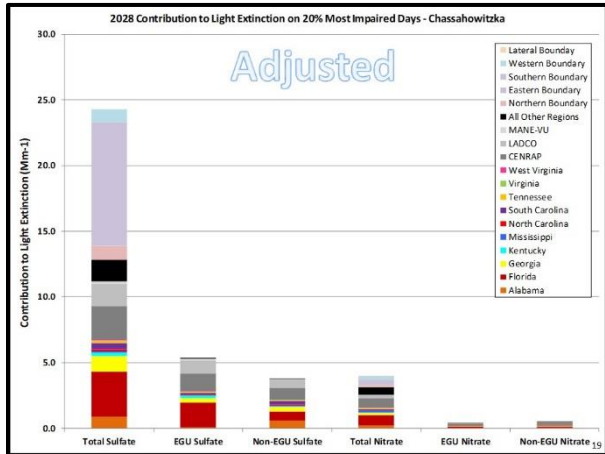
$$\text{where, NO}_x \text{ EGU Ratio} = \frac{\text{(Revised EGU NO}_x \text{ emissions)}}{\text{(Original EGU NO}_x \text{ emissions)}}$$

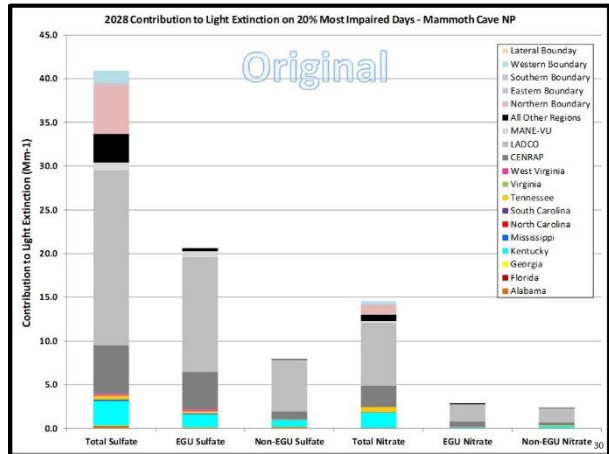
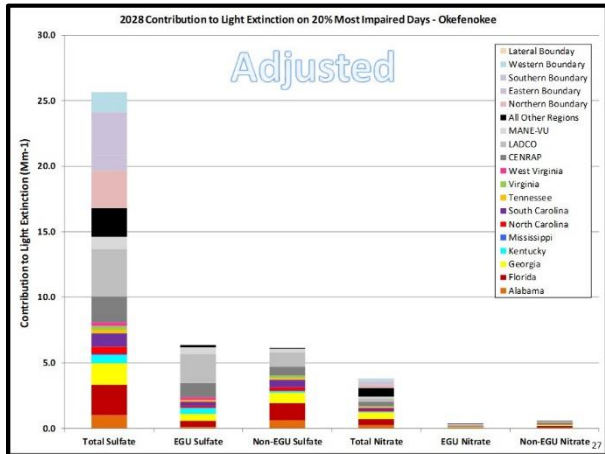
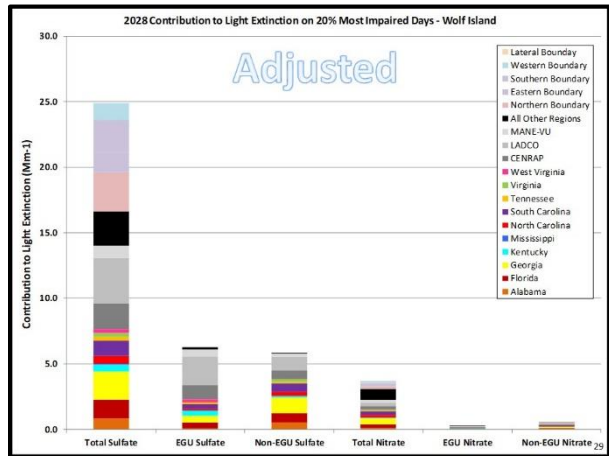
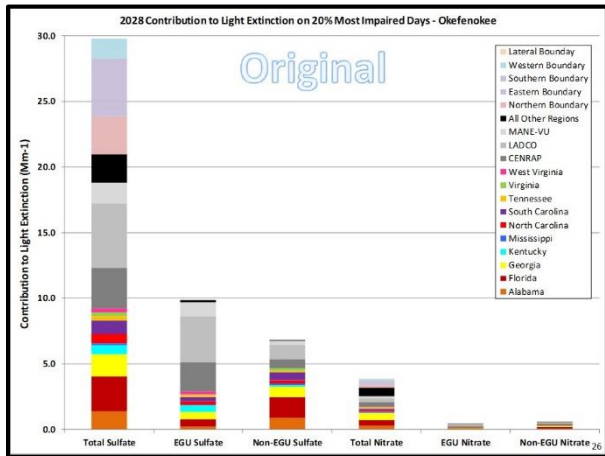
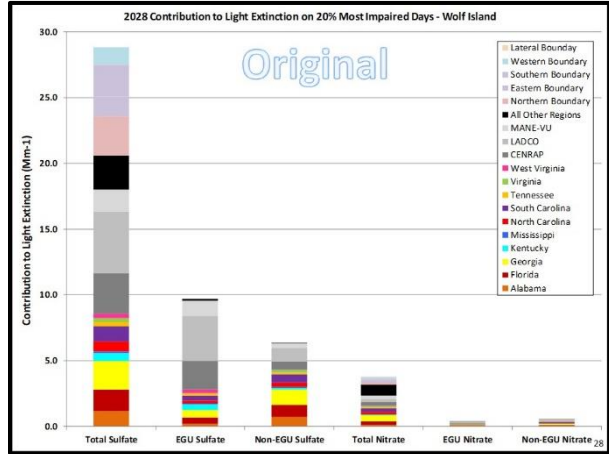
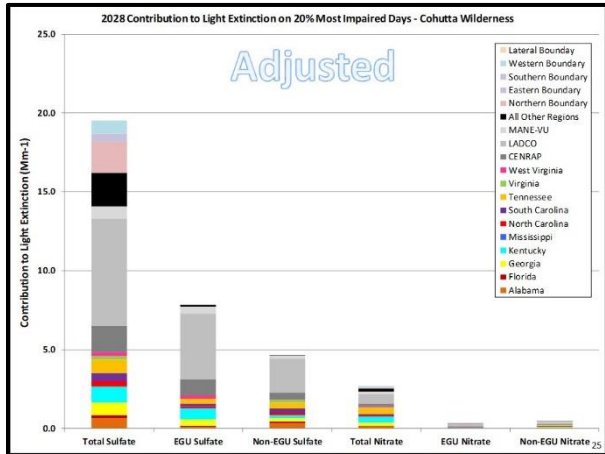
- Revised NEGU Nitrate PSAT Results = Original NEGU Nitrate PSAT Results * NO_x NEGU Ratio

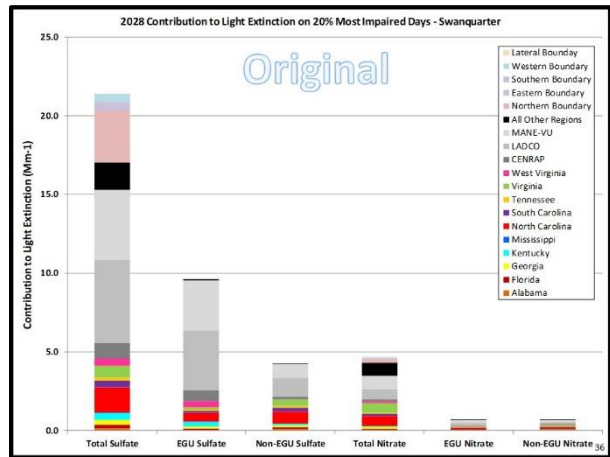
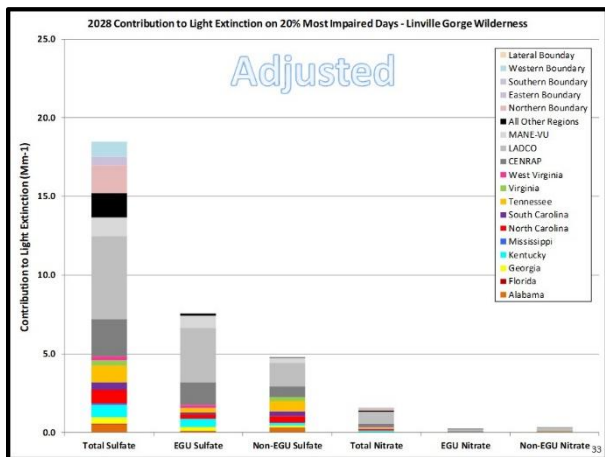
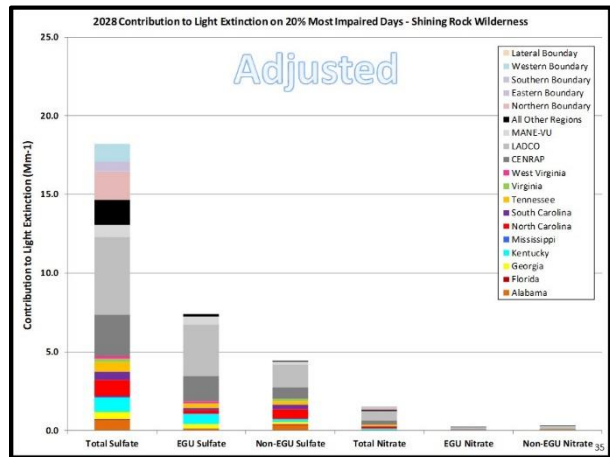
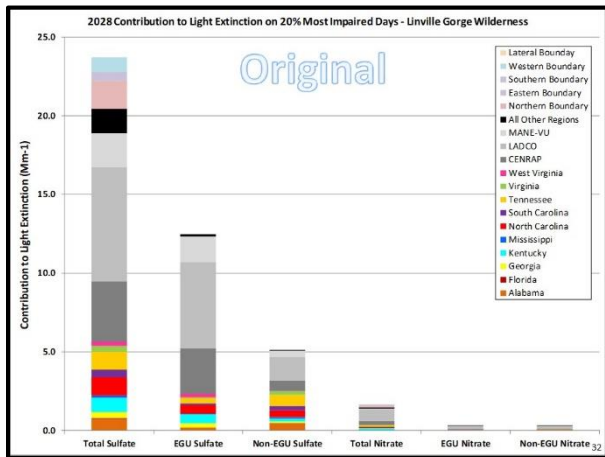
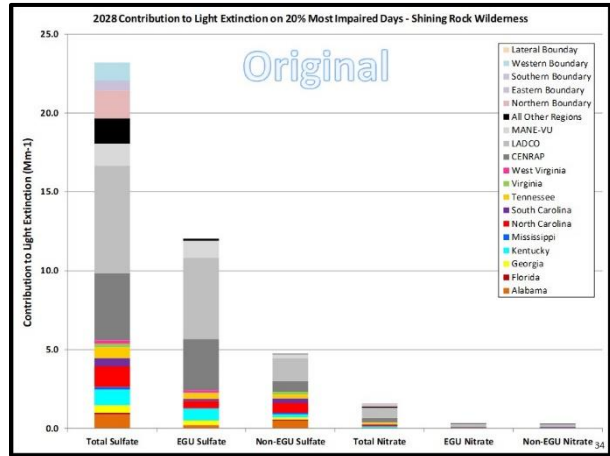
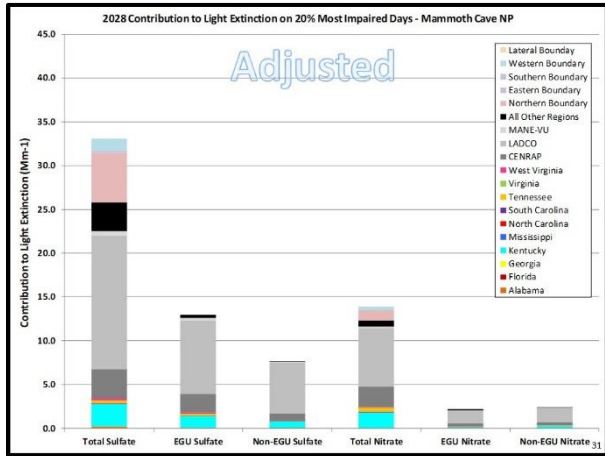
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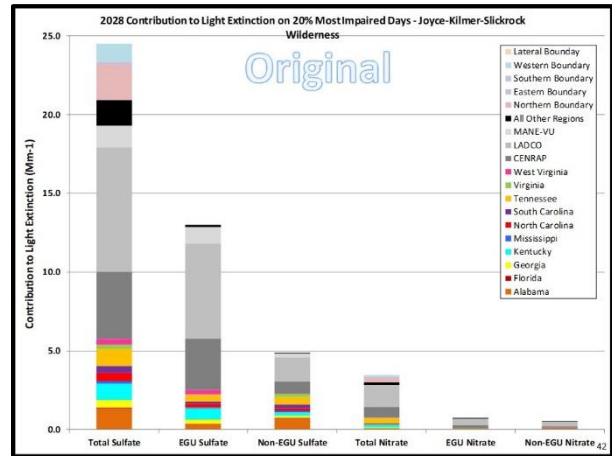
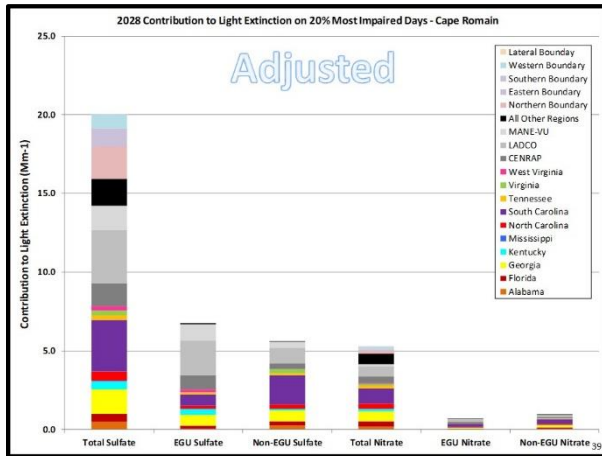
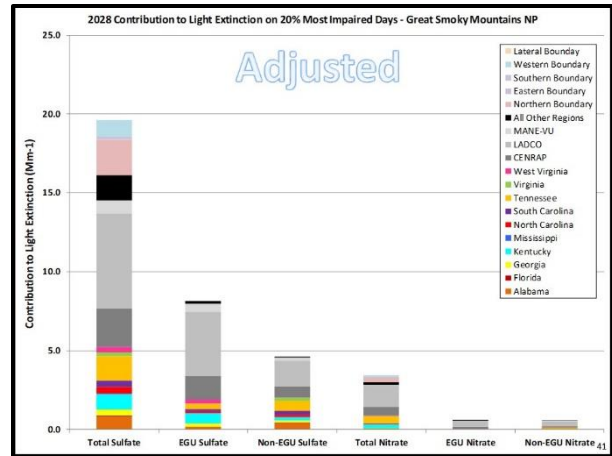
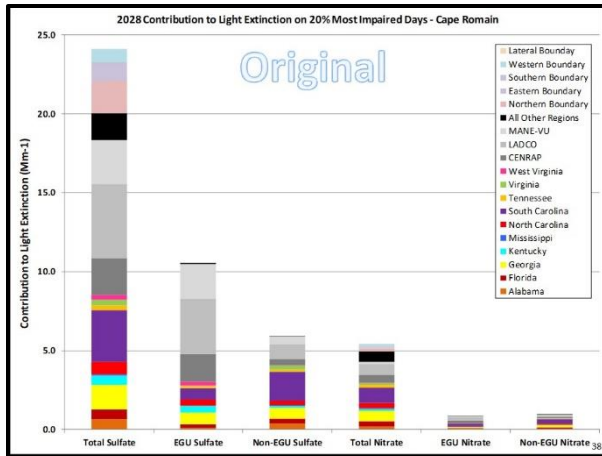
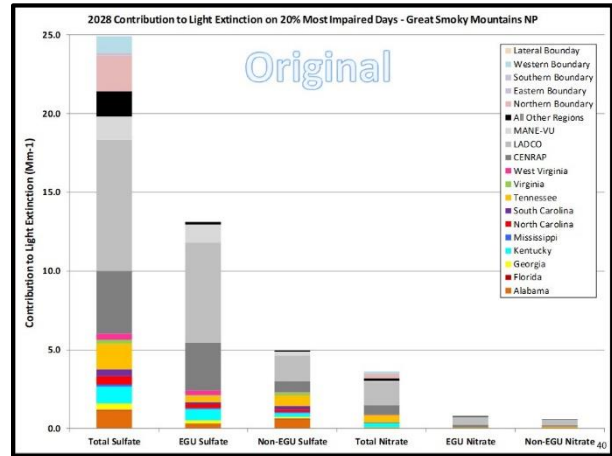
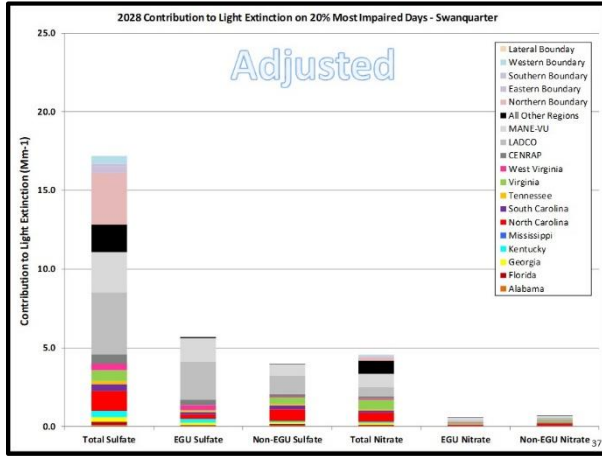
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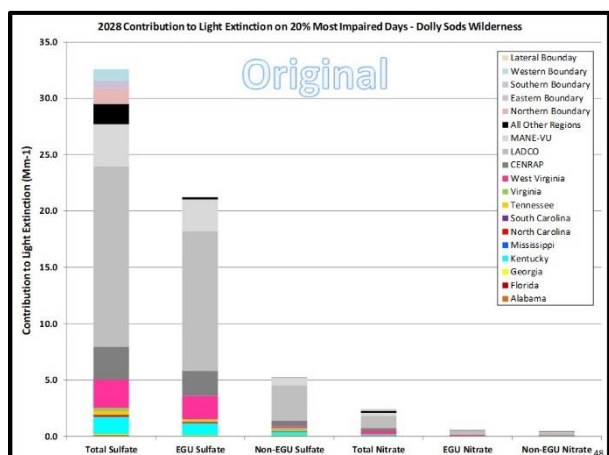
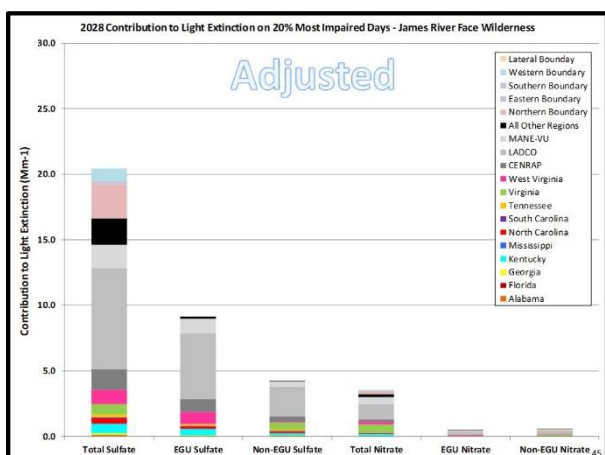
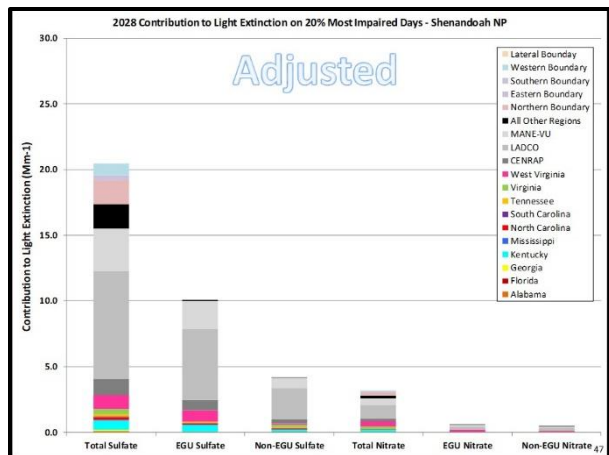
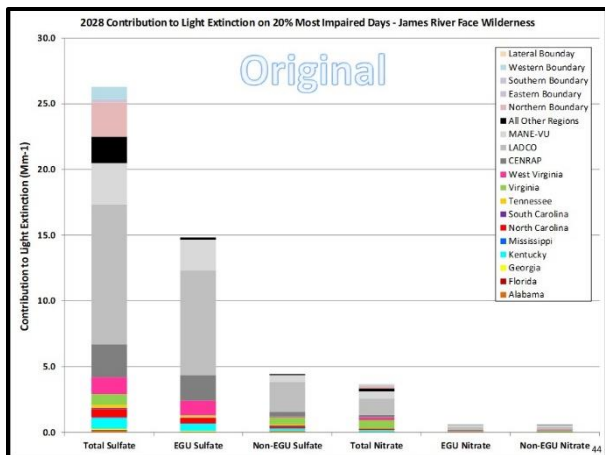
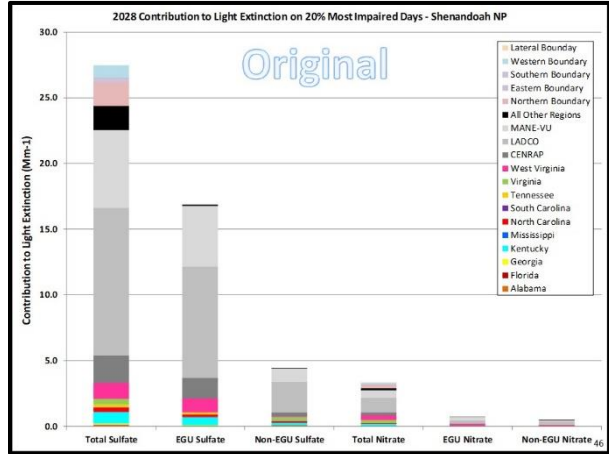
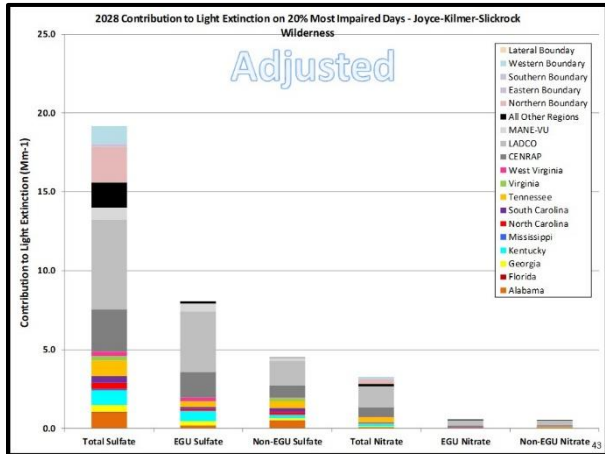


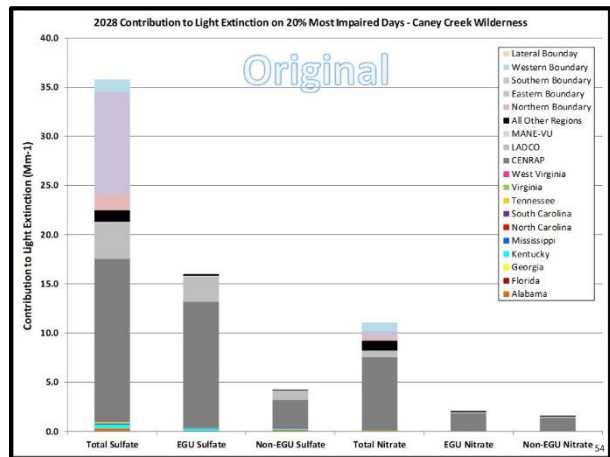
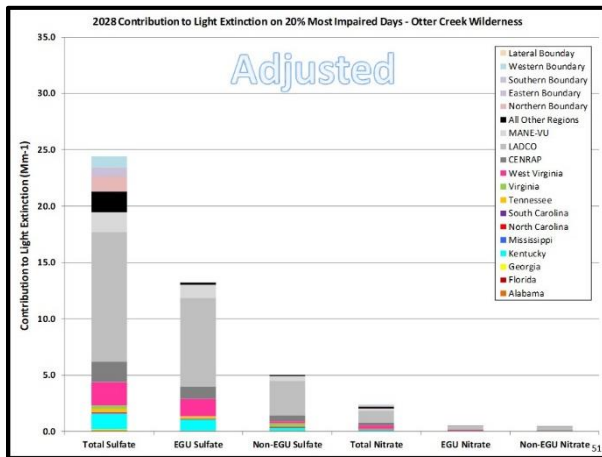
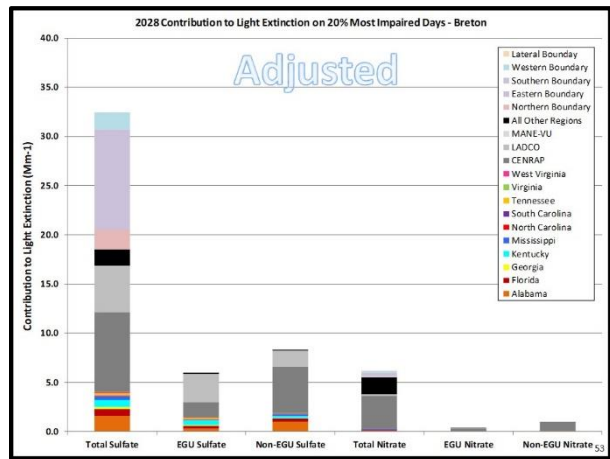
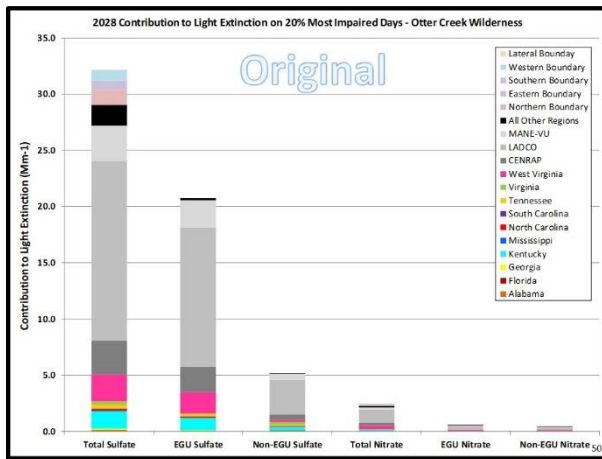
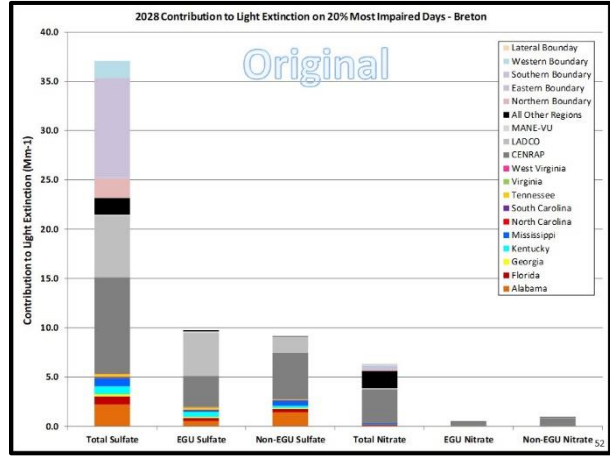
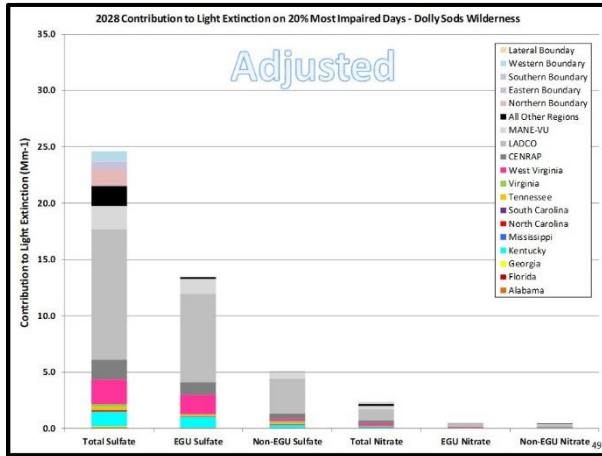


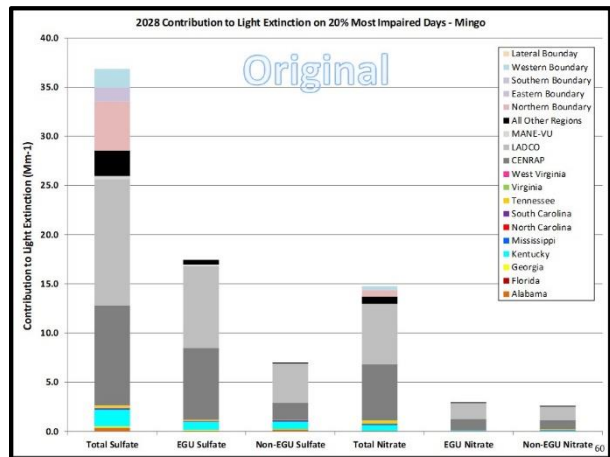
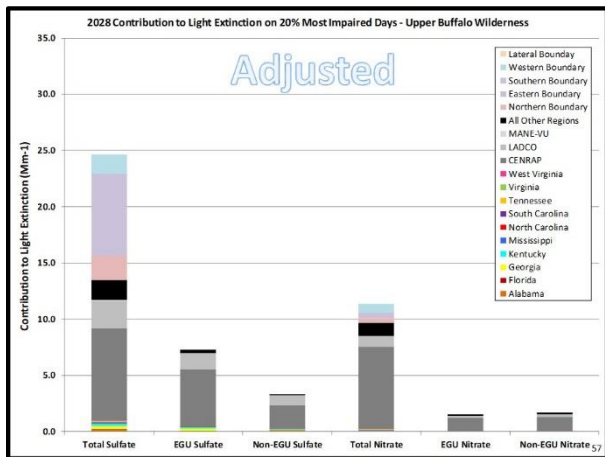
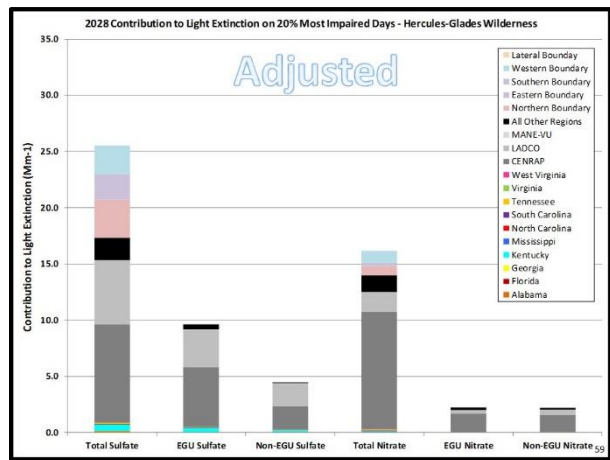
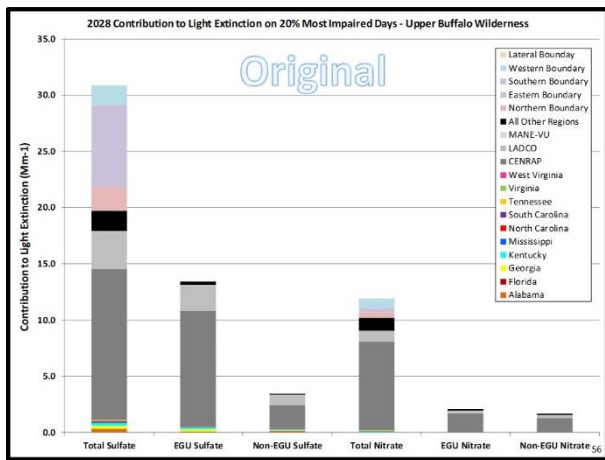
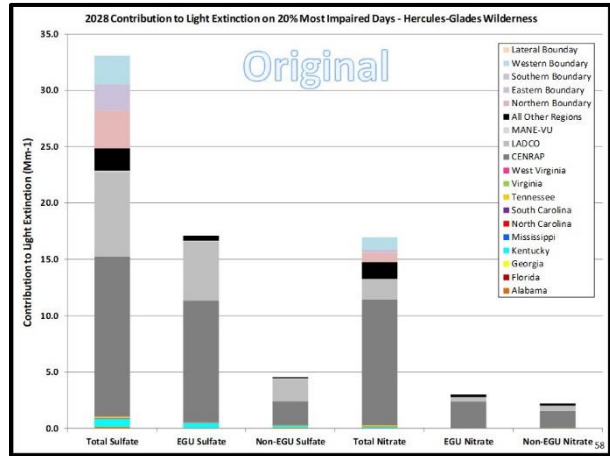
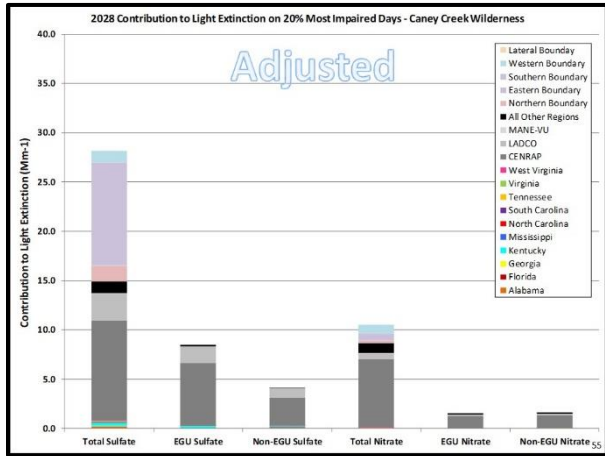


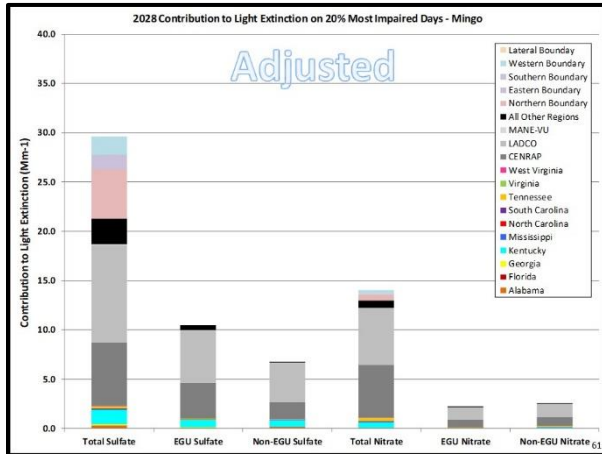




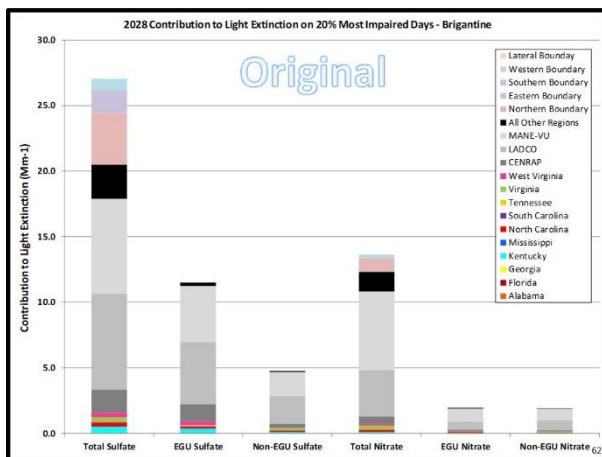




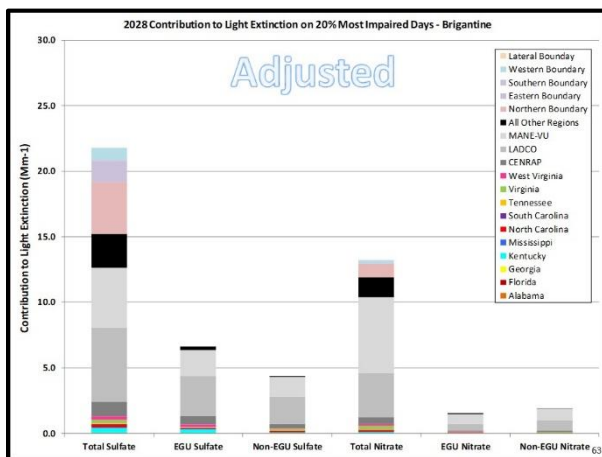




Four Factor Analysis



- ### 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 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 SO₂ Four-Factor Analysis
 - If nitrate contribution $\geq 1\%$ \rightarrow NO_x Four-Factor Analysis



- ### 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.

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

AOI Point Contributions for WOLF

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
GA	Brunswick Cellulose Inc	77.9	1,534.5	244.2	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	0.03%	2.83%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	173.6	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	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. (DEF)	296.6	2,489.8	5,306.4	0.04%	1.19%
GA	Ga Power Company - Plant Bowen	408.1	6,648.3	10,453.4	0.03%	1.08%
GA	Savannah Sugar Refinery	89.9	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	ISENON NE MGMT CO/KEYSTONE STA	1,048.6	6,578.5	56,939.2	0.01%	0.84%

AOI Point Contributions for COHU

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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	8,806.6	39,536.3	0.13%	4.66%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Gilson	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	2,052.5	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	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	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%

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)

AOI Point Contributions for OKEF

State	FACILITY NAME	DISTANCE (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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%	3.25%
FL	IFF 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	0.09%	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	408.1	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	314.9	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%

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 SCS&G Williams
TN	3%	Sulfate + nitrate, plus CEMEX
VA	2%	Sulfate + nitrate
WV	0.2%	Sulfate or nitrate

PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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	2113-526111	Big Rivers Electric Corp. - Wilson Station	6,334.16	1,131.25
KY	VISTAS	21091-735241	Century Aluminum of KY LLC	5,044.16	197.66
KY	VISTAS	21177-519671	Tennessee Valley Authority - Paradise Fossil Plant	3,011.01	3,114.52
KY	VISTAS	21145-403701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	15,304.76	7,007.34
MS	VISTAS	28059-838811	Chevron Products Company - Parsippany Refinery	761.60	1,584.17
MS	VISTAS	28059-825101	Mississippi Power Company - Plant Victor J Daniel	231.52	3,829.72
NC	VISTAS	37087-792051	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-804511	Dorrit Paper Company, LLC	497.45	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	37023-851301	SGL Carbon, LLC	261.64	21.09
SC	VISTAS	45015-404011	ALLUMAX OF SOUTH CAROLINA	3,751.69	108.08
SC	VISTAS	45043-506811	INTERNATIONAL PAPER GEORGETOWN MILL	2,787.52	2,031.26
SC	VISTAS	45019-497361	KAPSTONE CHARLESTON KRAFT LLC	1,863.65	2,355.82
SC	VISTAS	45019-417841	SANTECO COOPER CROSS GENERATING STATION	4,281.17	3,773.47
SC	VISTAS	45043-665281	SANTECO COOPER WINYAH GENERATING STATION	2,456.86	1,772.53
SC	VISTAS	45015-830671	SCE&G WILLIAMS	392.48	992.73
TN	VISTAS	47091-497911	Cemex - Knoxville Plant	121.47	711.50
TN	VISTAS	47143-198211	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	47143-407911	TVA CUMBERLAND FOSSIL PLANT	8,427.23	4,916.51
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	51280-578671	Meadwestvaco Packaging Resource Group	2,115.11	1,985.69
VA	VISTAS	51023-503611	Roanoke Cement Company	2,250.17	1,972.97

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PSAT SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 MJOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 MJOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

➔ 87 Total Facility Tags (both SO₂ and NOx)

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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-CHARISTON	10,092.24	11,830.88
WV	VISTAS	54005-896621	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	2,410.25	1,245.10
WV	VISTAS	54079-878911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	10,584.24	4,878.10
WV	VISTAS	54023-825701	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,123.64	1,984.14
WV	VISTAS	54043-690031	EQUITRANS - COLEY RUN CS 76	0.10	511.06
WV	VISTAS	54083-679071	FILES CREEK 6C3493	0.15	643.35
WV	VISTAS	54083-679051	GLADY 6C4130	0.11	343.29
WV	VISTAS	54059-632781	KINGSFORD MANUFACTURING COMPANY	16.96	140.88
WV	VISTAS	54061-163011	KNOWLES POWER	2,313.75	1,556.57
WV	VISTAS	54051-690231	MITCHELL PLANT	5,372.40	2,719.62
WV	VISTAS	54061-677361	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,881.87	13,749.32
WV	VISTAS	54073-478281	MONONGAHELA POWER CO. PLEASANTS POWER STA.	16,817.43	5,897.37
WV	VISTAS	54061-677381	MORGANTOWN ENERGY ASSOCIATES	828.64	655.58
AR	CENRAP	05063-108341	ENTERGY ARKANSAS INC- INDEPENDENCE PLANT	32,650.48	14,133.10
MO	CENRAP	29143-536311	NIW MADRID POWER PLANT-MARSTON	16,783.71	4,394.10
MD	MANE-VU	24001-736311	Luz Paper Company	22,609.84	3,607.02
PA	MANE-VU	42005-386611	GENON NE MGMT. CO/KEYSTONE STA.	56,539.25	6,578.47
PA	MANE-VU	42008-300521	HOMER CITY GEN LP/ CENTER TWP	11,485.70	5,215.96
PA	MANE-VU	42003-300511	NIS WHOLESALE GEN/SEWARD GEN. STA.	8,800.26	2,354.04
IL	Midwest EPO	17127-780891	Joppa Steam	20,509.28	4,706.35
IN	Midwest EPO	18173-818311	Alcoa Warrick Power Pfl Age Div of AL	5,071.28	11,158.35
IN	Midwest EPO	18031-736311	Gibson	23,117.23	12,280.34
IN	Midwest EPO	18147-891711	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	30,536.53	8,906.77
IN	Midwest EPO	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	18,141.88	10,665.27
IN	Midwest EPO	18129-816411	Sargeo AB Brown South Indiana Gas & Ele	7,644.70	1,678.59
OH	Midwest EPO	39081-815711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	7,650.79	2,407.30
OH	Midwest EPO	39011-801811	Conesville Power Plant (0618000000)	6,354.23	9,957.87
OH	Midwest EPO	39023-829431	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	22,133.30	7,149.97
OH	Midwest EPO	39053-814651	General James M. Gavin Power Plant (0627010006)	41,250.81	8,122.52
OH	Midwest EPO	39013-736311	John Valley Electric Corp. - Sugar Creek Station (0620000001)	3,400.14	9,143.84

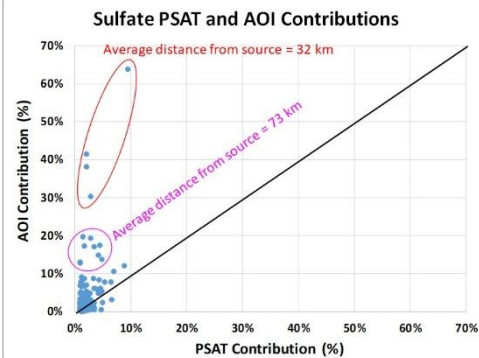
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Facility Tags (AL, FL, GA)

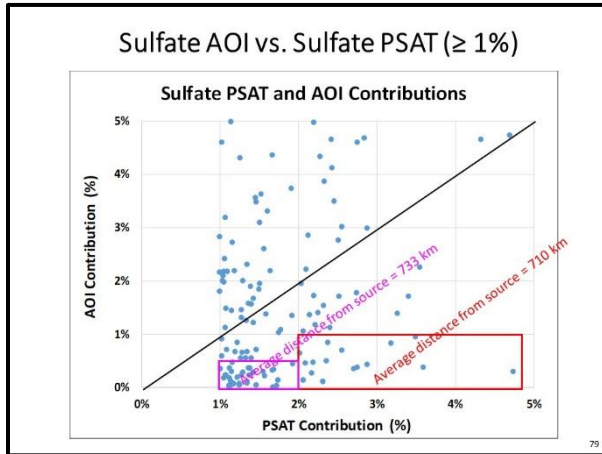
Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01097-549811	Akzo Nobel Chemicals Inc	3,135.72	20.71
AL	VISTAS	01097-305621	Ala Power - Barry	6,033.17	2,275.76
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	3,106.38	425.87
AL	VISTAS	01071-101811	BIRMINGHAM COMPANY, INC.	2,963.17	1,228.52
AL	VISTAS	01053-744021	Escambia Operating Company LLC	18,974.39	349.52
AL	VISTAS	01053-985111	Escambia Operating Company LLC	8,569.60	149.64
AL	VISTAS	01103-300011	Nucor Steel Decatur, LLC	170.23	311.24
AL	VISTAS	01105-985711	Banders 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	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1,520.42	1,650.75
FL	VISTAS	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	29.93	910.86
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	5,306.41	2,489.85
FL	VISTAS	12088-900011	FLORIDA POWER & LIGHT (FPL)	13.09	170.61
FL	VISTAS	12033-752711	SUNP POWER - GIBB	2,615.63	2,998.58
FL	VISTAS	12086-353271	HOMESTEAD CITY UTILITIES	0.00	97.69
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	3,034.06	159.71
FL	VISTAS	12105-919811	MOSAIC FERTILIZER, LLC	4,425.56	141.02
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	12005-533411	ROCKTOWN CP LLC	2,550.88	1,404.89
FL	VISTAS	12125-727171	TALLAHASSEE CITY PURDOM 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	9.88	679.70
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	13105-261921	En Power Company - Plant Bowen	10,451.41	6,643.32
GA	VISTAS	13103-538311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13031-367811	International Paper - Savannah	3,945.38	1,560.73
GA	VISTAS	13115-539311	TEMPLE INLAND	1,791.00	1,773.33

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Sulfate AOI vs. Sulfate PSAT (≥ 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.**

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.

Revised Facility PSAT Results

- **Revised Facility Sulfate PSAT Results**
 = Original Facility Sulfate PSAT Results * SO_2 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**
 = Original Facility Sulfate PSAT Results * NO_x Ratio

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

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_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.

PSAT Adjustments (AL, FL, GA)

Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO_2 Ratio	NO_x Ratio
AL	VISTAS	01097-80811	Akzo Nobel Chemicals Inc.	2.000	1.000
AL	VISTAS	01097-105611	Ala Power - Barry	0.500	1.000
AL	VISTAS	01129-1028711	American Midstream Chatham, LLC	0.000	0.000
AL	VISTAS	01073-1018711	DRUMMOND COMPANY, INC.	1.000	1.000
AL	VISTAS	01053-7440111	Escambia Operating Company LLC	0.780	1.000
AL	VISTAS	01053-985111	Escambia Operating Company LLC	0.010	0.000
AL	VISTAS	01103-1000011	Nucor Steel Decatur LLC	1.000	1.000
AL	VISTAS	01109-905711	Sanders Lead Co	1.000	1.000
AL	VISTAS	01097-1061611	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	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	1.000	1.000
FL	VISTAS	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	0.480	0.450
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (FPL)	1.000	1.000
FL	VISTAS	12033-752711	GULF POWER - Crist	0.210	0.340
FL	VISTAS	12086-8527711	HOMESTEAD CITY UTILITIES	1.000	1.000
FL	VISTAS	12031-640211	JEA	0.560	0.480
FL	VISTAS	12105-717711	MOSIAC FERTILIZER LLC	0.560	1.000
FL	VISTAS	12057-716411	MOSIAC FERTILIZER, LLC	0.500	1.000
FL	VISTAS	12105-919811	MOSIAC FERTILIZER, LLC	0.910	1.000
FL	VISTAS	12085-845811	RAVONIER PERFORMANCE FIBERS LLC	1.000	1.000
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	1.000	1.000
FL	VISTAS	12005-538411	ROCKTENN CP, LLC	1.000	1.000
FL	VISTAS	12129-2731711	TALLAHASSEE CITY PURDOM 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	0.440	0.950
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc	1.000	1.000
GA	VISTAS	13015-2815011	Ga Power Company - Plant Bowen	1.000	1.000
GA	VISTAS	13103-536111	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1.000	1.000
GA	VISTAS	13031-8078111	International Paper - Savannah	1.000	1.000
GA	VISTAS	13115-539311	TEMPLE INLAND	1.000	1.000

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

Facility State	Facility RPO	FACILITY_ID	STD	FACILITY_NAME	SO2 Ratio	NHx Ratio
KY	VISTAS	21183-856111		Big Rivers Electric Corp - Whitson station	1.000	1.000
KY	VISTAS	21091-735211		Century Aluminum of KY LLC	0.941	1.000
KY	VISTAS	21177-5186711		Tennessee Valley Authority - Paradise Fossil Plant	0.904	0.738
KY	VISTAS	21145-4037011		Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VISTAS	28059-8384811		Phenox Products Company, Paragoula Refinery	1.000	1.000
MS	VISTAS	28059-6251011		Mississippi Power Company, Plant Victor / Daniel	1.000	1.000
NC	VISTAS	37087-7920511		Blue Ridge Paper Products - Canton Mill	0.939	0.976
NC	VISTAS	37117-8049511		Domtar Paper Company, LLC	1.000	1.000
NC	VISTAS	37035-8370411		Duke Energy Carolinas, LLC - Marshall Steam Station	0.981	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	45013-4834911		ALLIANCE OF SOUTH CAROLINA	1.000	1.000
SC	VISTAS	45043-5098811		INTERNATIONAL PAPER GEORGETOWN MILL	1.000	1.000
SC	VISTAS	45019-4978611		KAPSTONE CHARLESTON KRAFT LLC	1.000	1.000
SC	VISTAS	45015-4120411		SANTEE COOPER CROSS GENERATING STATION	1.000	1.000
SC	VISTAS	45043-6652811		SANTEE COOPER WINDYHAT GENERATING STATION	1.000	1.000
SC	VISTAS	45015-8306711		CE&G WILLIAMS	1.000	1.000
TN	VISTAS	47073-4979911		Cemex - Knoxville Plant	1.000	1.000
TN	VISTAS	47183-3982311		BAXTMAN CHEMICAL COMPANY	1.000	1.000
TN	VISTAS	47105-4129211		TATE & LYLE, Loudon	0.921	0.765
TN	VISTAS	47001-8196011		TVA BULL RUN FOSSIL PLANT	0.800	0.600
TN	VISTAS	47183-4679211		TVA CUMBERLAND FOSSIL PLANT	1.000	1.000
TN	VISTAS	47145-4979111		TVA KINGSTON FOSSIL PLANT	0.922	0.925
VA	VISTAS	51027-4034811		Jewell Coke Company LP	1.000	1.000
VA	VISTAS	51280-5788711		Meadwestvaco Packaging Resource Group	1.000	1.000
VA	VISTAS	51003-5039811		Roskone 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 Nitrate AOI %	Revised Nitrate PSAT %	Original Nitrate AOI %	Revised Nitrate PSAT %
FL	12017-840611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	63.62%	0.955%	4.71%	1.95%	0.40%	0.17%
GA	18015-2818011	Ga Power Company - Plant Bowen	697.2	0.03%	1.72%	1.72%	0.00%	0.02%	0.02%
Facilities Who Dropped Off After REVISION									
AR	05063-1083411	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.0	0.05%	1.47%	0.62%	0.00%	0.09%	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%
AL	01053-7440211	Escambia Operating Company LLC	830.7	0.21%	1.67%	0.31%	0.00%	0.02%	0.02%
Additional sources (if use Sulfate + Nitrate ≥ 1%)									
FL	12057-838811	TAMPA ELECTRIC COMPANY (TEC)	106.8	4.73%	0.96%	0.96%	0.24%	0.05%	0.05%

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

Facility State	Facility RPO	FACILITY_ID	STD	FACILITY_NAME	SO2 Ratio	NHx Ratio
WV	VISTAS	54033-6271711		ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	0.972	0.841
WV	VISTAS	54049-8846511		AMERICAN BITUMINOUS POWER GRANT TOWN P/LT	0.955	0.785
WV	VISTAS	54079-4789111		APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	0.933	0.807
WV	VISTAS	54023-6257011		Dominion Resources, Inc. - MOUNT STORM POWER STATION	0.947	0.807
WV	VISTAS	54041-6900311		EQUITRANS - COPLEY RUN CS 70	1.000	1.000
WV	VISTAS	54043-6790711		PULS 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	54061-8830311		LONGVIEW POWER	0.996	0.785
WV	VISTAS	54031-6902311		MITCHELL PLANT	0.978	0.785
WV	VISTAS	54061-6778611		MONONGAHELA POWER CO - FORT MARTIN POWER	0.926	0.873
WV	VISTAS	54073-782811		MONONGAHELA POWER CO - PLEASANTS POWER STA	0.988	0.785
WV	VISTAS	54043-6778811		MONROGANTOWN ENERGY ASSOCIATES	0.996	0.785
AR	CENRAP	05063-1083411		ENERGY ARKANSAS INC-INDEPENDENCE PLANT	0.426	0.717
MO	CENRAP	29143-5363811		NEW MADRID POWER PLANT-MARSTON	0.980	0.974
MD	MANE-VU	38053-7763811		Luke Paper Company	0.980	1.000
PA	MANE-VU	42005-3866111		GENON NE MGMT CO/KEYSTONE STA	0.316	0.775
PA	MANE-VU	42063-3005211		HOMER CITY GEN LP/ CENTER TWP	0.782	0.951
PA	MANE-VU	42063-3005111		NRA WHOLESALE GEN/SEWARD GEN STA	0.782	0.774
IL	Midwest RPO	17127-7808911		Joppo Steam	0.793	0.424
IN	Midwest RPO	18173-8183111		Alcoa Warrick Power P/LT Agc Div of AL	0.388	0.721
IN	Midwest RPO	18053-7863111		Gibson	0.562	0.970
IN	Midwest RPO	18147-8017211		INDIANA MICHIGAN POWER DBA AEP ROCKPORT	0.233	0.963
IN	Midwest RPO	18125-7362411		INDIANAPOLIS POWER & LIGHT - PETERSBURG	0.319	0.506
IN	Midwest RPO	18128-8166311		Sigeco AB Brown South Indiana Gas & Ele	0.000	0.013
OH	Midwest RPO	39081-8115711		Cardinal Power Plant (Cardinal Operating Company) (0641050002)	0.900	0.900
OH	Midwest RPO	39011-8101811		Cornellville Power Plant (0618000000)	0.900	0.900
OH	Midwest RPO	39025-8294311		Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	0.461	0.826
OH	Midwest RPO	39033-8148511		General James M. Gavin Power Plant (0627010056)	0.521	0.560
OH	Midwest RPO	39033-7983011		Ohio Valley Electric Corp., Syper creek Station (0627000003)	0.526	0.646

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Everglades NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Sulfate PSAT %	Original Nitrate AOI %	Revised Nitrate PSAT %	Original Nitrate AOI %	Revised Nitrate PSAT %
FL	12057-838811	TAMPA ELECTRIC COMPANY (TEC)	316.6	3.02%	2.56%	2.56%	0.08%	0.00%	0.00%
FL	12105-919811	MOSAIC FERTILIZER, LLC	304.7	2.21%	2.09%	2.03%	0.61%	0.00%	0.00%
FL	12105-717711	MOSAIC FERTILIZER LLC	308.3	2.26%	3.55%	2.02%	0.62%	0.00%	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.16%	0.17%	0.17%	2.02%	0.76%	2.04%

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Sipsey Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original 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	18051-7863111	Gibson	448.7	2.85%	2.12%	1.15%	0.27%	0.19%	0.13%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	1.72%	2.19%	1.14%	0.23%	0.13%	0.12%
TN	47183-4979311	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%	0.26%	0.06%	0.05%
IL	17127-7808911	Joppo Steam	346.5	1.94%	2.51%	0.59%	0.25%	0.03%	0.01%
IN	18173-8183111	ALCOA WARRICK POWER P/LT 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%	0.26%	0.06%	0.05%

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St Marks Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
GA	18015-2818011	Ga Power Company - Plant Bowen	452.9	0.38%	3.59%	3.59%	0.01%	0.03%	0.03%
FL	12008-935411	ROCKTOWN CP LLC	140.8	8.54%	9.38%	3.95%	0.24%	0.09%	0.09%
Facilities Who Dropped Off After REVISION									
AL	01097-1056111	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%	0.03%	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	01053-9851211	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_km	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	Gas Power Company - Plant Bowen	78.0	19.58%	1.56%	1.56%	1.13%	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%	0.03%	0.03%
Facilities Who Dropped Off After REVISION									
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	2.31%	1.93%	0.76%	0.10%	0.02%	0.02%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	477.0	2.18%	1.19%	0.62%	0.16%	0.03%	0.03%
TN	47145-4579111	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_km	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	198.2	9.21%	2.16%	1.22%	1.20%	0.35%	0.25%
KY	21145-6037011	River Electric Corp - Wilson Station	89.8	6.22%	1.07%	1.07%	0.37%	0.06%	0.06%
Facilities Who Dropped Off After REVISION									
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	18173-8183111	ALCOA WARRICK POWER PLT AGG DIV OF AL	136.1	2.00%	1.03%	0.30%	1.74%	0.82%	0.22%
IN	18129-8106111	Segeco AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.00%	0.27%	0.06%	0.00%
Additional sources if use Sulfate + Nitrate 2.1%									
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_km	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%	4.82%	2.10%	0.03%	0.01%	0.01%
GA	13015-2813011	Gas Power Company - Plant Bowen	458.1	1.02%	1.74%	1.74%	0.05%	0.04%	0.04%
GA	13123-3721011	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%
Facilities Who Dropped Off After REVISION									
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_km	Sulfate AOI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	Revised Nitrate PSAT %
TN	47145-4579111	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%
Facilities Who Dropped Off After REVISION									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	1.18%	2.22%	0.78%	0.01%	0.07%	0.06%
OH	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_km	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	Gas Power Company - Plant Bowen	458.1	1.08%	1.78%	1.78%	0.03%	0.04%	0.04%
GA	13127-3721011	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	13051-3679811	International Paper - Savannah	85.9	7.58%	1.18%	1.18%	0.24%	0.07%	0.07%
Facilities Who Dropped Off After REVISION									
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%	1.38%	0.49%	0.00%	0.02%	0.02%
Additional sources if use Sulfate + Nitrate 2.1%									
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	251.0	1.59%	0.99%	0.99%	0.09%	0.00%	0.00%
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_km	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	578.4	0.47%	1.16%	1.16%	0.01%	0.02%	0.02%
Facilities Who Dropped Off After REVISION									
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	37.88%	2.16%	2.16%	0.57%	0.59%	0.59%	
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%	1.23%	0.02%	0.03%	0.03%	
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	568.6	0.67%	1.19%	1.22%	0.08%	0.10%	0.08%	
Facilities Who Dropped Off After REVISION										
PA	42063-3005211	HOMER CITY GEN LV/ 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%	1.23%	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%	
Additional sources (f use Sulfate + Nitrate ≥ 1%)										
PA	42063-3005211	HOMER CITY GEN LV/ CENTER TWP	620.1	0.55%	1.27%	0.99%	0.05%	0.05%	0.05%	

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%	0.05%	0.01%	0.01%	
Facilities Who Dropped Off After REVISION										
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%	0.00%	0.01%	0.01%	
AR	05063-1083411	ENERGY 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	47145-4579111	TVA KINGSTON FOSSIL PLANT	73.7	2.86%	1.24%	0.39%	0.37%	0.16%	0.03%	
Additional sources (f use Sulfate + Nitrate ≥ 1%)										
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.84%	0.99%	0.59%	0.05%	0.07%	0.07%	

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	45015-4973611	SPRISTONE CHARLESTON BRAPT LLC	59.3	50.18%	2.80%	2.80%	2.74%	0.23%	0.23%	
GA	13015-2813011	Ga Power Company - Plant Bowen	596.2	0.36%	2.71%	2.71%	0.01%	0.10%	0.10%	
SC	45015-4884911	ALUMAX OF SOUTH CAROLINA	39.1	17.07%	1.79%	1.79%	0.03%	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%	0.45%	0.21%	0.21%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	701.0	0.84%	3.18%	1.67%	0.00%	0.03%	0.03%	
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 WINYAH GENERATING STATION	51.4	4.60%	1.02%	1.02%	0.38%	0.13%	0.13%	
Facilities Who Dropped Off After REVISION										
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%	
Additional sources (f use Sulfate + Nitrate ≥ 1%)										
GA	13051-3679811	International Paper - Savannah	166.1	1.76%	0.95%	0.95%	0.04%	0.05%	0.05%	

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	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.36%	0.13%	0.05%	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%	
Facilities Who Dropped Off After REVISION										
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	729.4	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%	

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%	
Facilities Who Dropped Off After REVISION										
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	688.2	0.11%	2.31%	0.86%	0.00%	0.01%	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	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.52%	0.02%	0.01%	0.00%	
TN	47145-4579111	TVA KINGSTON FOSSIL PLANT	60.0	7.38%	1.23%	0.28%	0.71%	0.08%	0.02%	
Additional sources (f use Sulfate + Nitrate ≥ 1%)										
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%	0.00%	0.00%	

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	11.83%	8.89%	3.29%	0.10%	0.05%	0.04%	
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	289.6	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%	2.83%	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 LV/ CENTER TWP	230.4	2.60%	1.56%	1.27%	0.13%	0.04%	0.04%	
Facilities Who Dropped Off After REVISION										
MD	24001-7763811	Luke Paper Company	118.4	6.90%	2.20%	0.56%	0.23%	0.09%	0.09%	
PA	42063-3005111	NRG WHOLESALÉ GEN/SEWARD GEN STA	215.5	2.80%	1.00%	0.76%	0.04%	0.02%	0.01%	
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.66%	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	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	295.6	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%	2.46%	0.52%	0.07%	0.02%	0.02%	
Additional sources (f use Sulfate + Nitrate ≥ 1%)										
MD	24001-7763811	Luke Paper Company	118.4	6.90%	2.20%	0.56%	0.23%	0.09%	0.09%	
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.66%	1.27%	0.47%	0.41%	

Dolly Sods Wilderness

State	Facility ID	Facility Name	DISTANCE_m	Sulfate A01 %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate A01 %	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%	8.45%	0.10%	0.03%	0.03%	
WV	54078-4782811	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) (0641050022)	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	144.2	1.43%	1.28%	1.01%	0.07%	0.02%	0.03%	
Facilities Who Dropped Off After Revision										
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%	2.24%	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	39011-8010811	Kenesville Power Plant (0616000000)	242.3	0.71%	1.05%	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	MOSAIC FERTILIZER LLC	EVER
FL	12105-919811	MOSAIC FERTILIZER, LLC	EVER
FL	12089-753711	ROCK TENN CO LLC	OKEF, WOLF
FL	12005-535411	ROCKTENN 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
NY	21183-5561611	Big Rivers Electric Corp - Wilson Station	MACA
NY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	COHU, HEGL, MING, SHRO, SIPS
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	SWAN
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	ROMA
SC	45042-5698011	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45019-4973611	8457STONE CHARLESTON KRAFT LLC	ROMA
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	ROMA
SC	45043-6652811	SANTEE COOPER WINYAH GENERATING STATION	ROMA
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	LIGO
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	SIPS
VA	51586-5798711	Meadwestvaco 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	54073-4782811	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 A01 %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Nitrate A01 %	Original Nitrate PSAT %	Revised Nitrate PSAT %	
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	17.37%	4.49%	4.61%	1.81%	0.26%	0.22%	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	214.2	10.46%	7.08%	8.72%	0.18%	0.04%	0.04%	
WV	54078-4782811	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) (0641050022)	162.7	1.94%	2.03%	2.70%	0.05%	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%	
Facilities Who Dropped Off After Revision										
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%	0.01%	0.04%	0.01%	
OH	39011-8010811	Kenesville 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	24001-7763811	Luke Paper Company	SWAN
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050022)	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, JSR, 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 SO₂ control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO₂ 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 SO₂ is necessary to make reasonable progress.
- For the purposes of SO₂ and NO_x 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)
 - CC – Jim Boylan (james.boylan@dnr.ga.gov)
- For general, contract, and funding questions, contact the Project Manager:
 - John Hornback (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
Regional Haze SIPs Due to EPA	July 31, 2021

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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



2

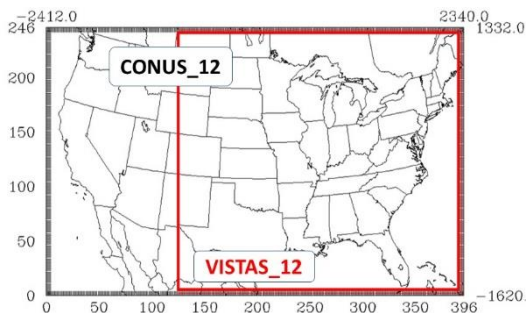
VISTAS vs. EPA Updated 2028 Emission Projections

- 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 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	-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%
TOTAL	976,471.2	1,783,376.5	-806,905.3	-45.25%

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%
TOTAL	840,973.6	1,166,663.1	-325,689.5	-27.92%

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VISTAS CC/TAWG Conclusions

- 2028 emission updates are necessary
 - VISTAS States** – States will:
 - Update 2028 major source emissions projections (SO₂, NO_x, PM_{2.5}, PM₁₀, NH₃, 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 SO₂ and NO_x source emissions projections via contact with surrounding states/RPOs and update emissions as needed
- Additional 2028 air quality modeling is needed

2028 SO₂ 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	21,234.21	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	9,971.47	-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	-0.7%
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	1,011,946.59	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	-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%
TOTAL	2,581,643.20	1,773,936.20	-31.3%	1,788,132.63	1,032,667.35	-42.2%	793,510.56	741,268.85	-6.6%

Additional Modeling-Related Tasks

- Emissions processing
- Updated 2028 CAMx modeling (VISTAS_12)
- Updated 2028 visibility projections
- Documentation

2028 NO_x 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%	887,706.66	270,382.46	-29.4%	521,273.19	521,215.14	0.0%
LADCO	548,866.74	491,345.00	-10.5%	244,035.26	196,513.52	-23.6%	304,831.49	304,831.49	0.0%
MANE-VU	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	126,538.55	-32.7%	174,874.83	174,874.86	0.0%
TOTAL	2,649,998.14	2,370,804.22	-10.5%	1,159,405.80	879,790.66	-24.1%	1,490,592.35	1,491,013.55	0.0%

Updated 2028 Point Emissions

Revised 2028 PSAT Stacked Bar Charts (Original and Adjusted)

PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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 SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

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Revised State/RPO PSAT Results

• Revised EGU Nitrate PSAT Results

$$= \text{Original EGU Nitrate PSAT Results} * \text{NOx EGU Ratio}$$

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

• Revised NEGU Nitrate PSAT Results

$$= \text{Original NEGU Nitrate PSAT Results} * \text{NOx NEGU Ratio}$$

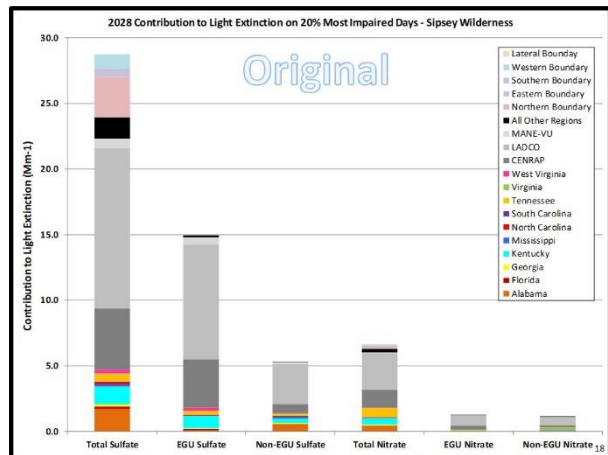
$$\text{where, NOx NEGU Ratio} = \frac{(\text{Revised NEGU NOx emissions})}{(\text{Original NEGU NOx emissions})}$$

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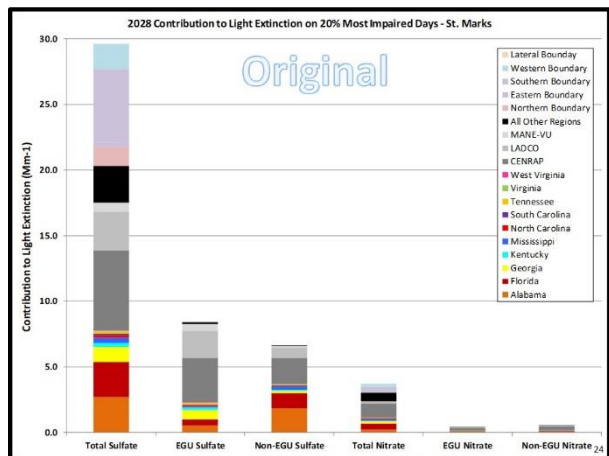
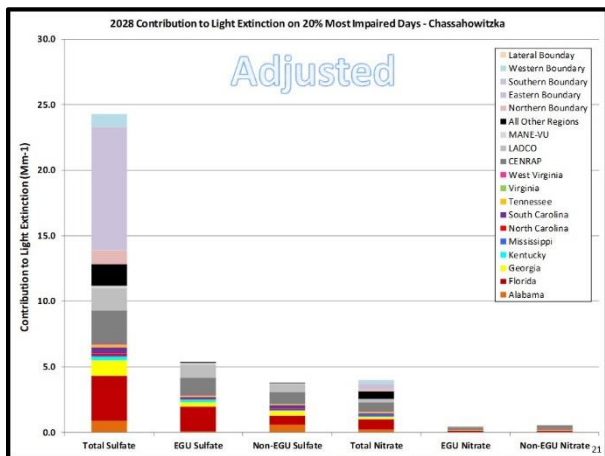
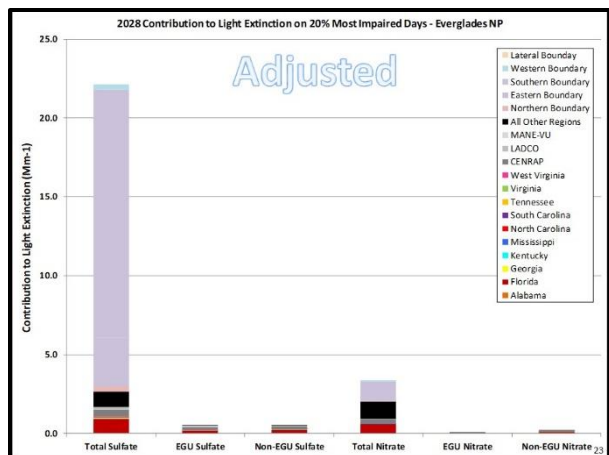
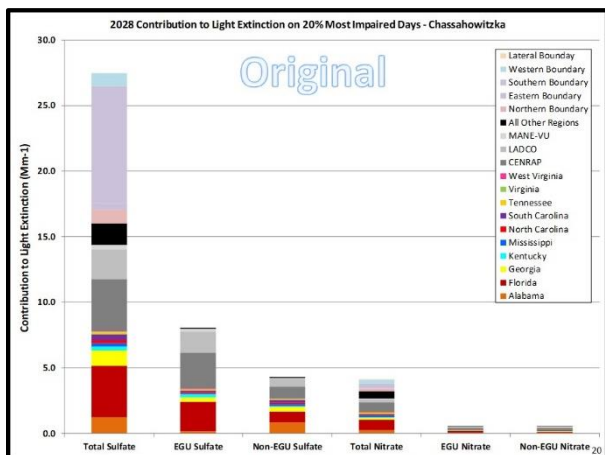
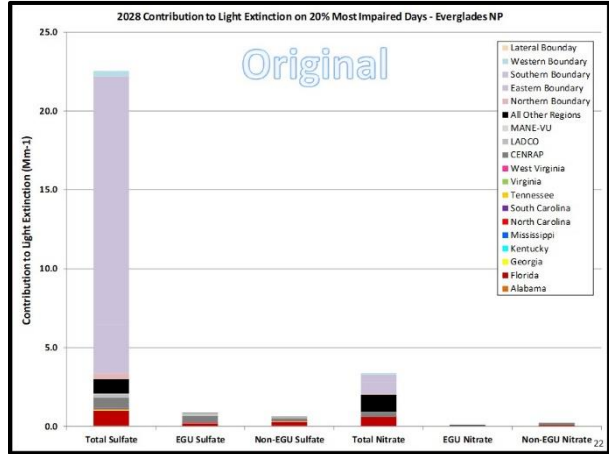
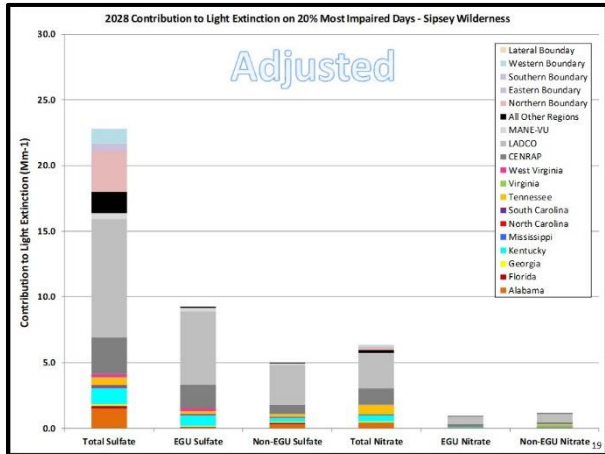
PSAT Adjustment Ratios

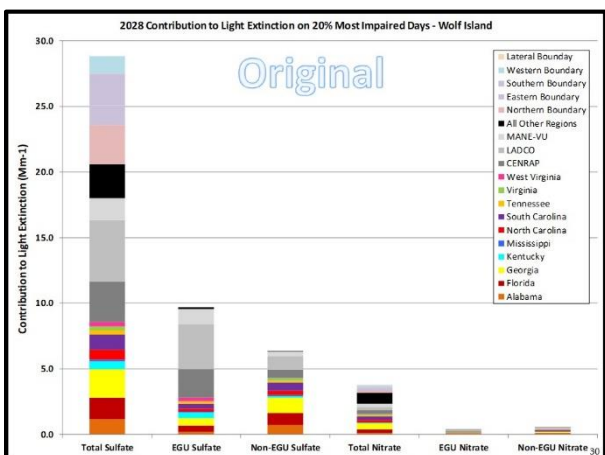
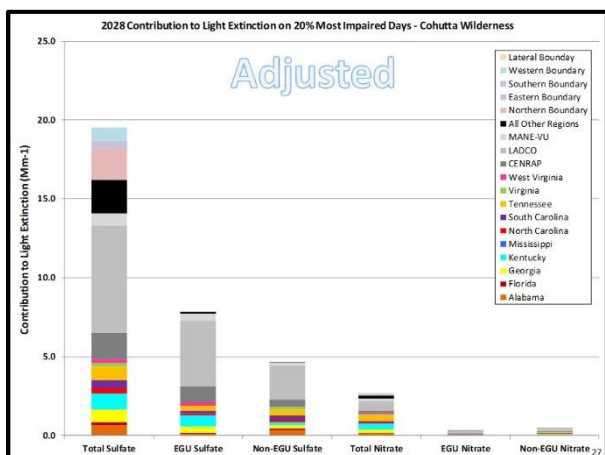
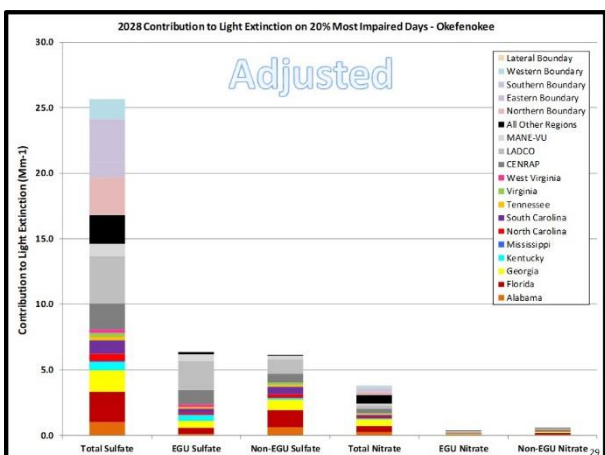
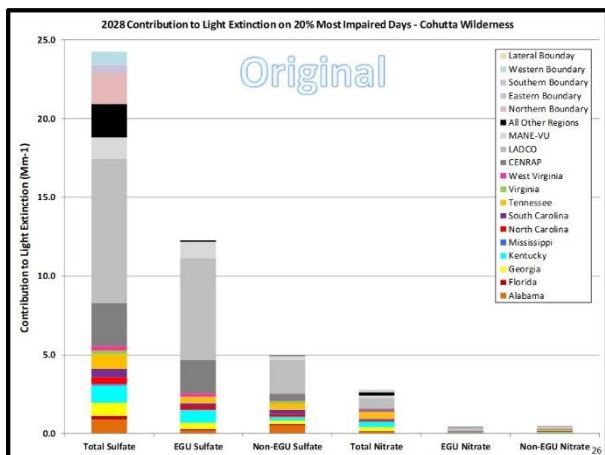
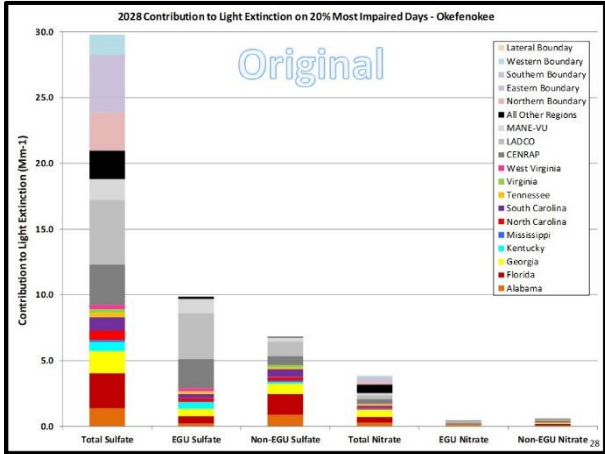
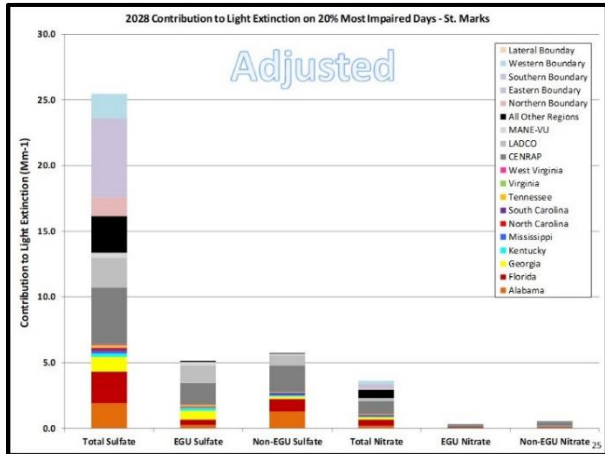
State/RPO	SO ₂ EGU Ratio	SO ₂ NEGU Ratio	NOx EGU Ratio	NOx NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	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

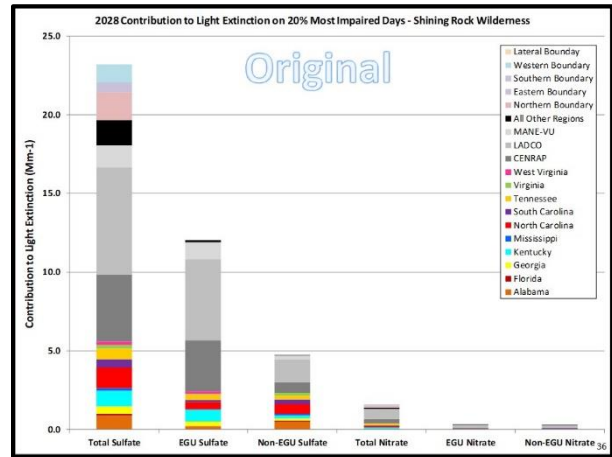
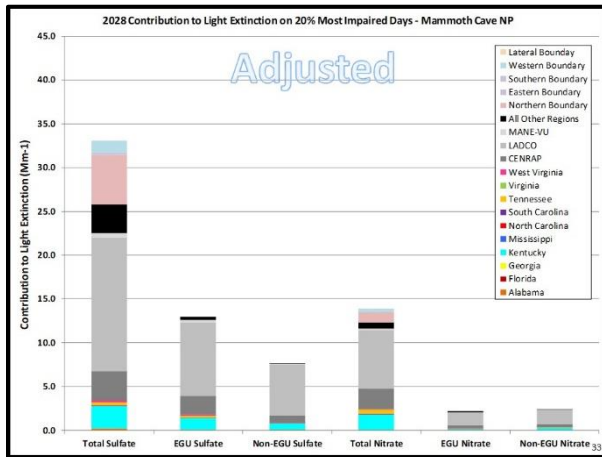
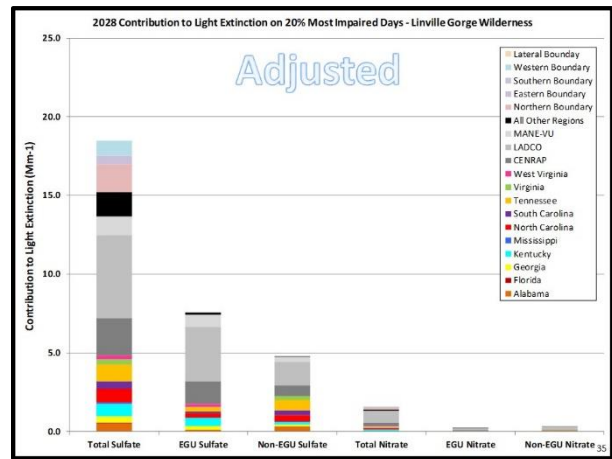
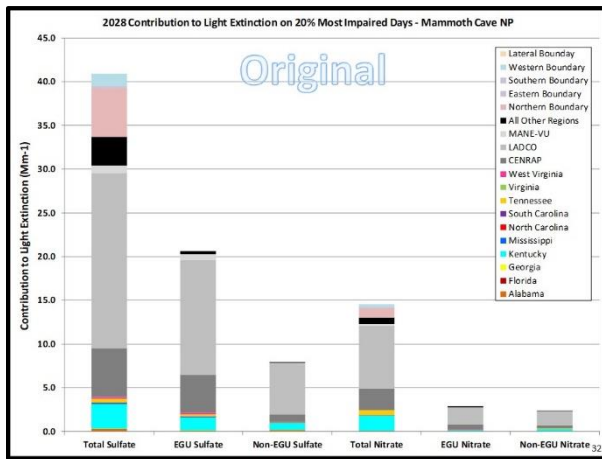
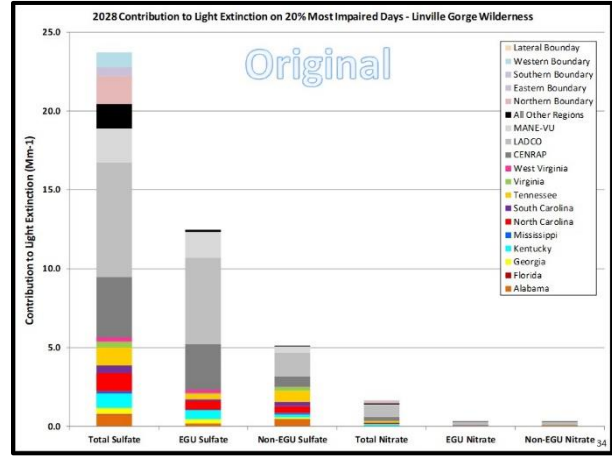
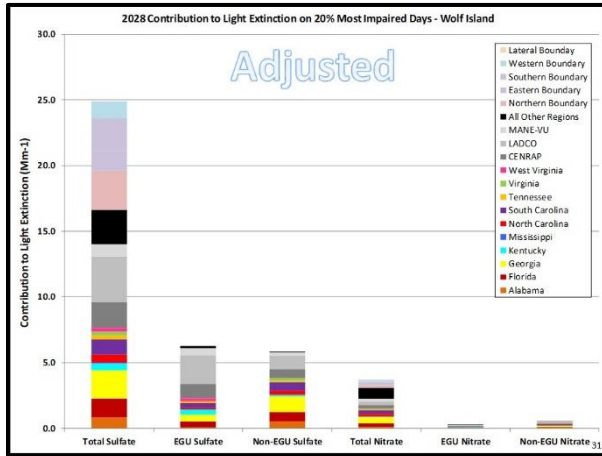
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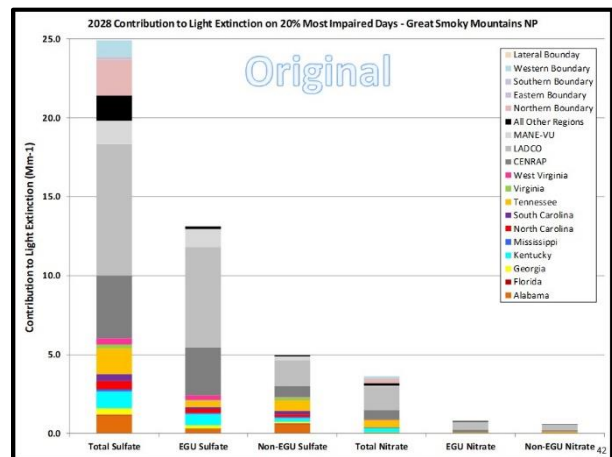
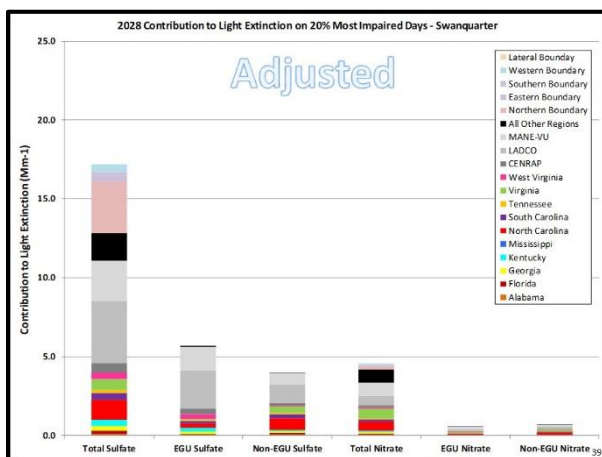
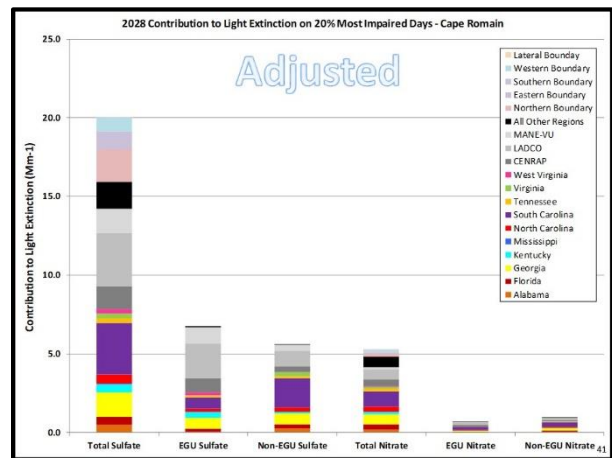
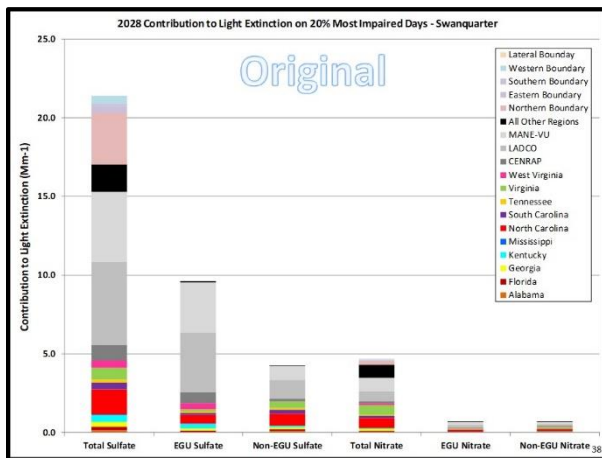
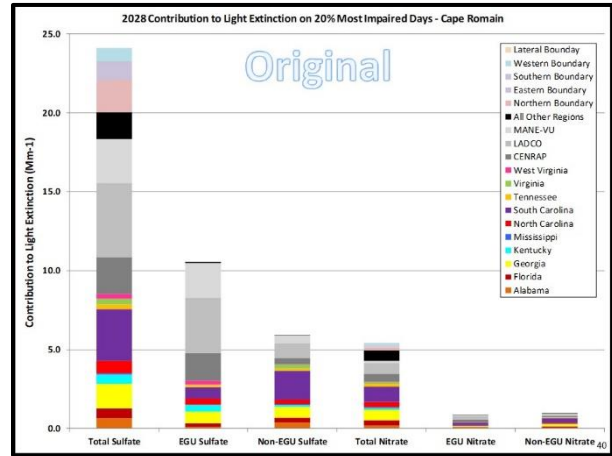
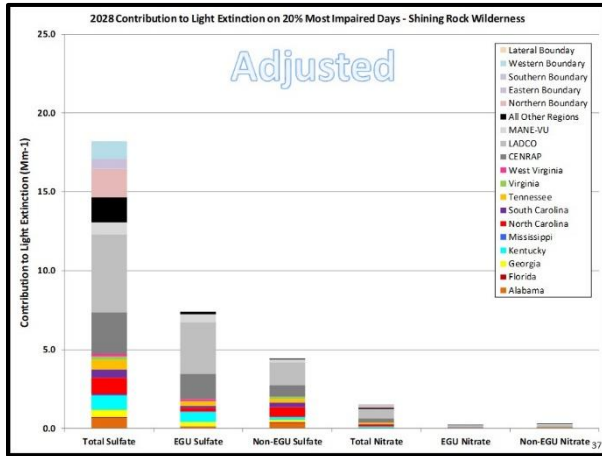


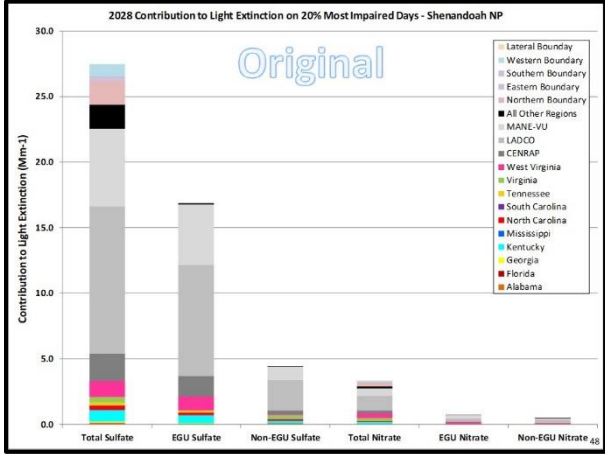
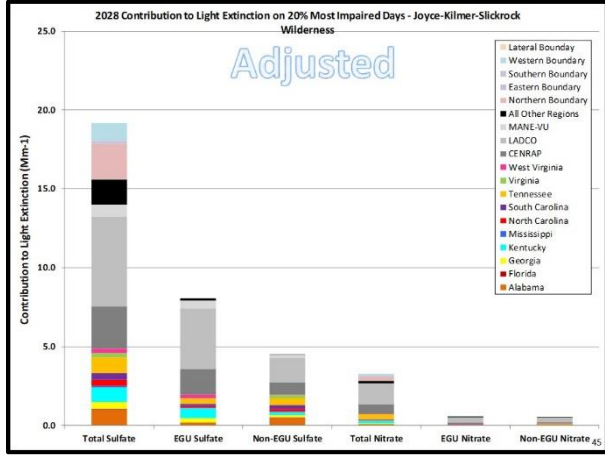
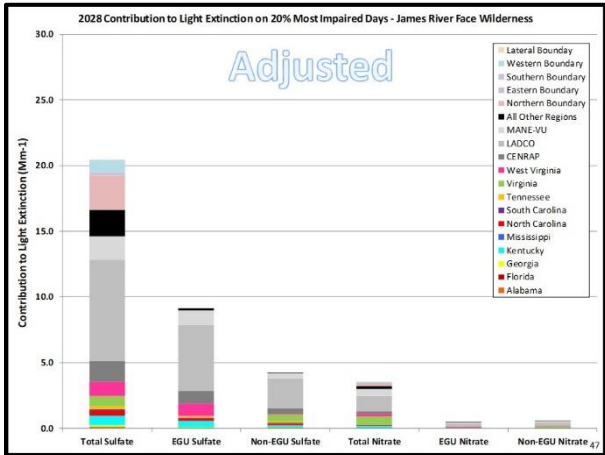
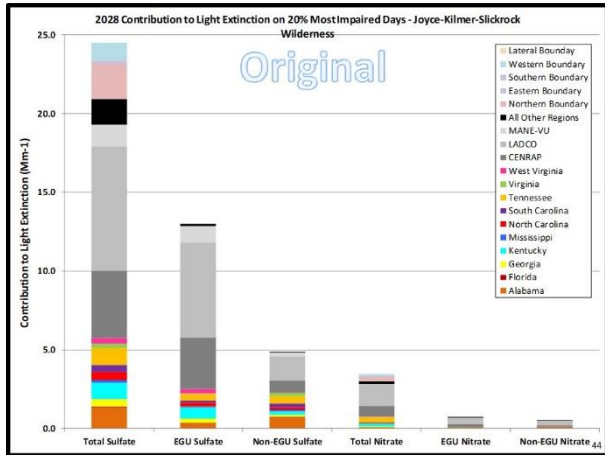
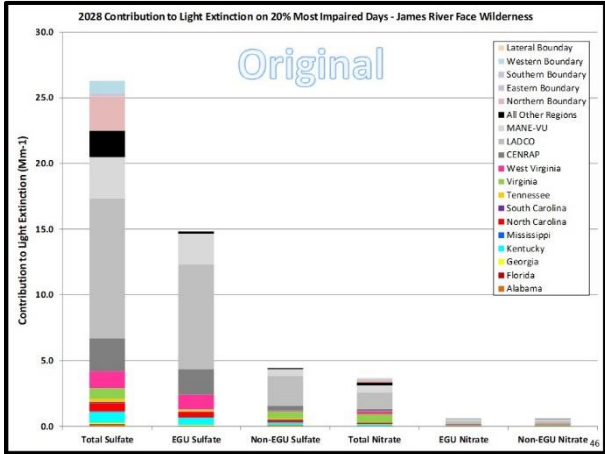
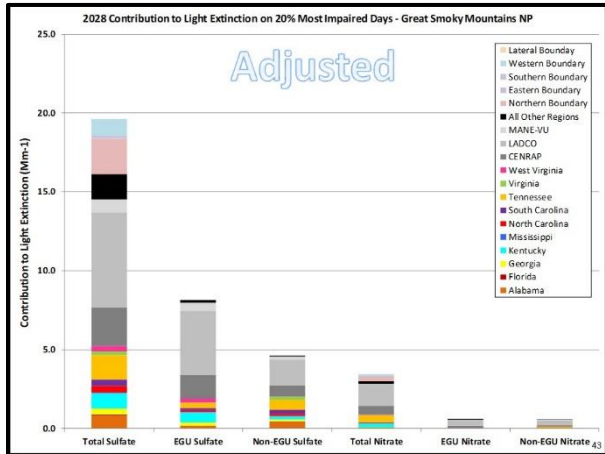
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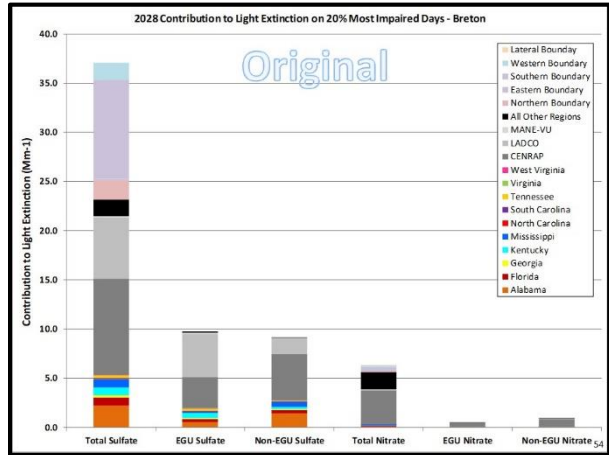
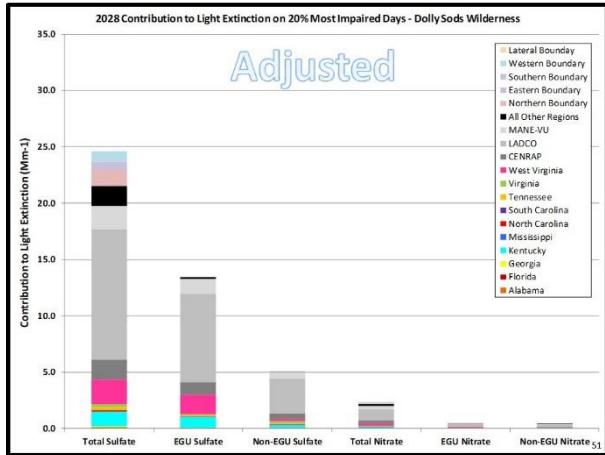
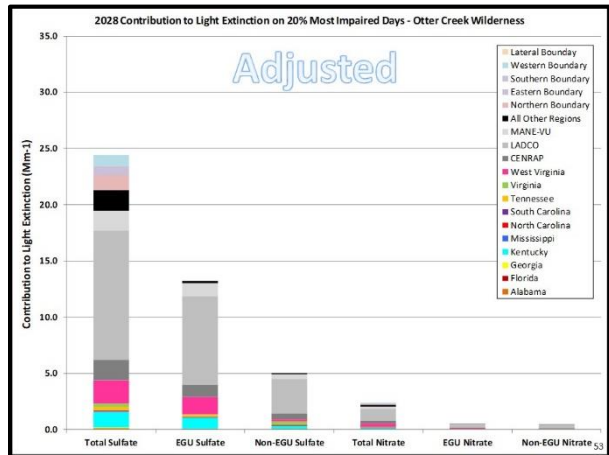
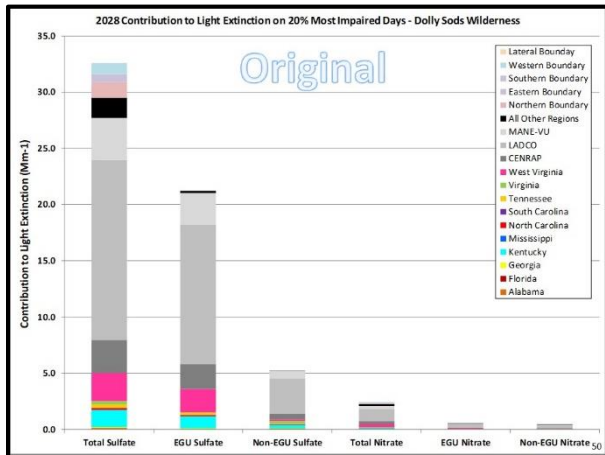
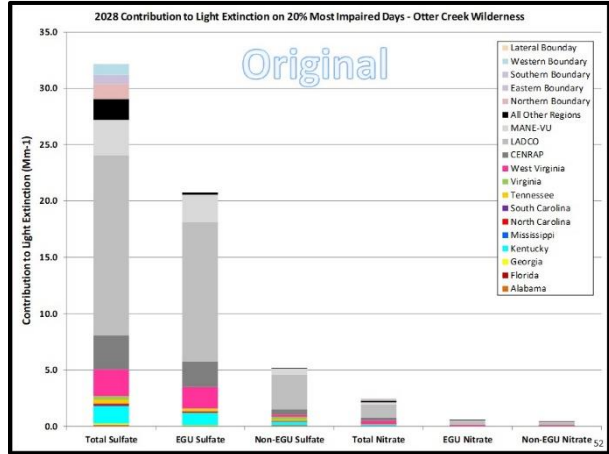
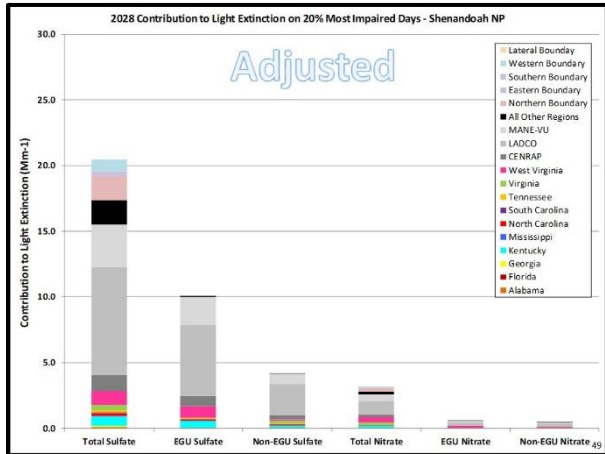


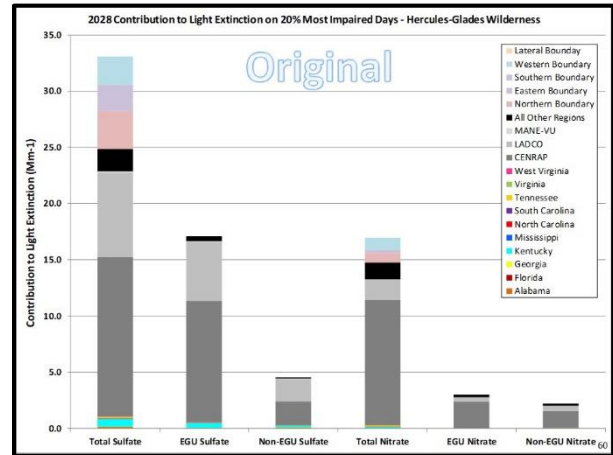
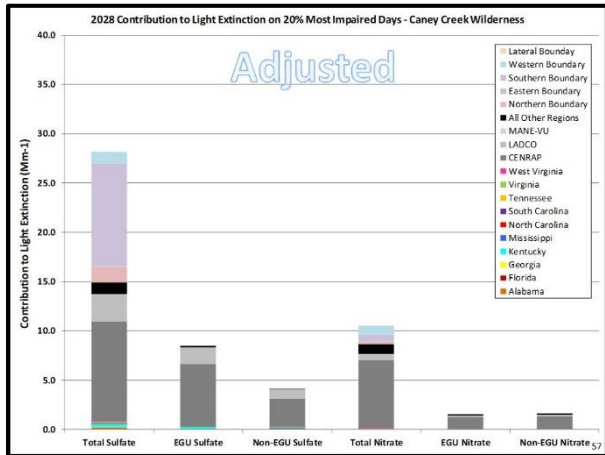
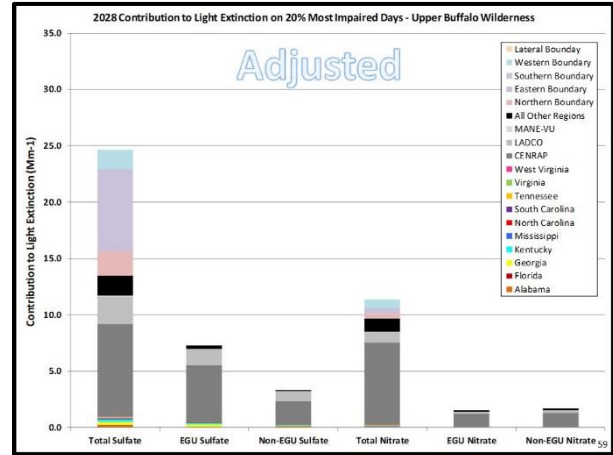
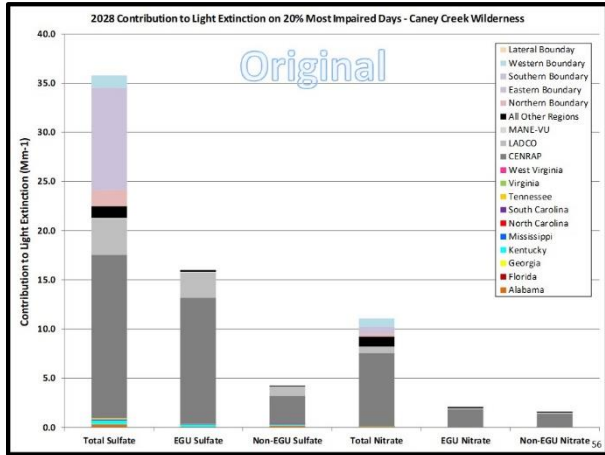
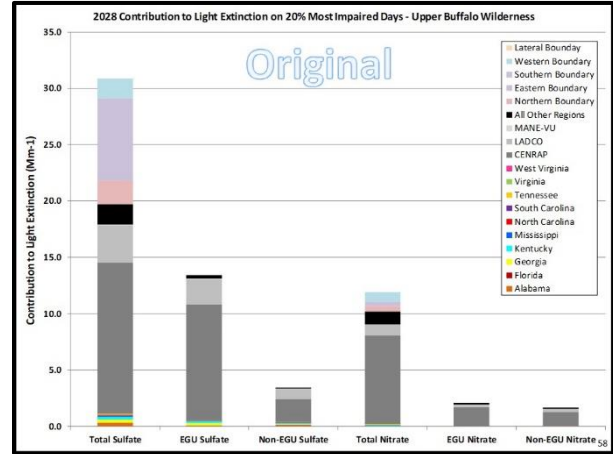
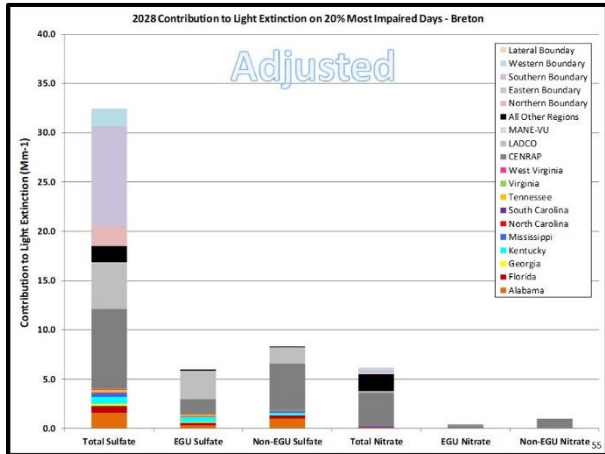


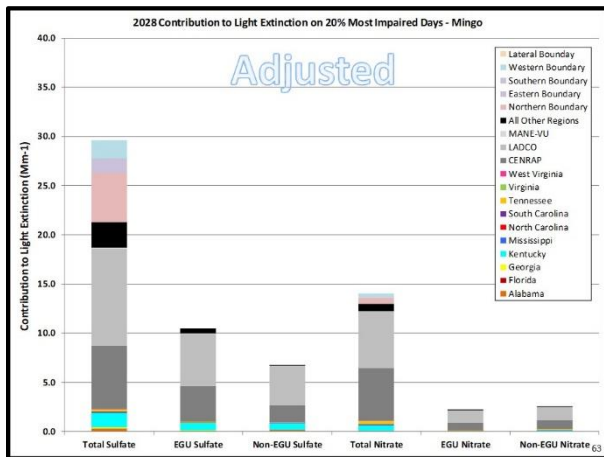
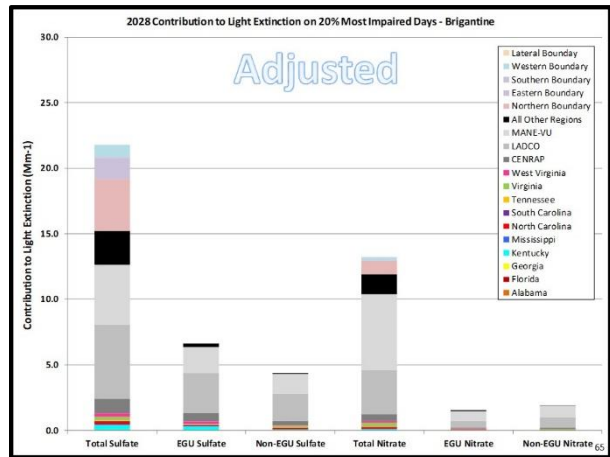
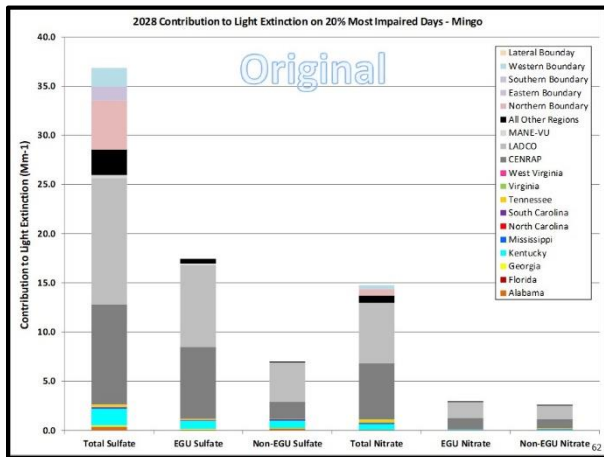
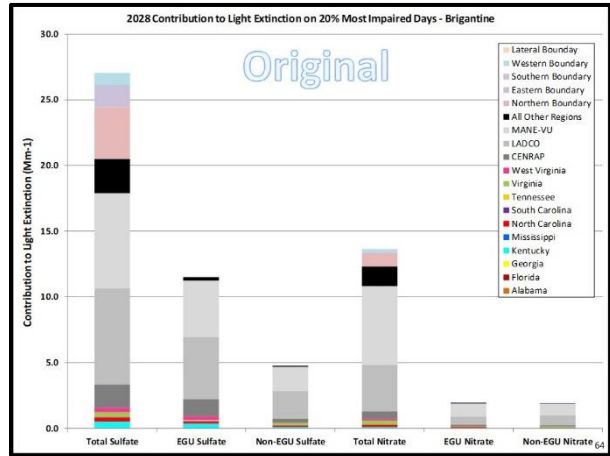
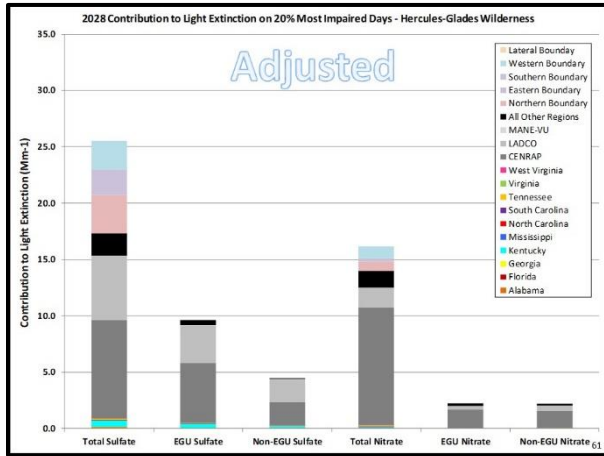












Four Factor Analysis

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 $\geq 1.00\%$ → SO₂ Four-Factor Analysis
 - If nitrate contribution $\geq 1.00\%$ → 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 (km)	NO _x 2028 (tons/year)	SO ₂ 2028 (tons/year)	NO _x Contribution	SO ₂ 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	10,655.3	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	359.0	1,111.9	6,934.2	0.01%	1.07%
OH	Duke Energy Ohio, With. H. Zimmer Station (1413090154)	454.6	7,150.0	22,133.9	0.06%	1.05%
GA	Ga Power Company - Plant Wansley	156.8	2,052.5	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	46.5	77.1	0.07%	1.02%
TN	EASTMAN CHEMICAL COMPANY	259.8	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 (km)	NO _x 2028 (tons/year)	SO ₂ 2028 (tons/year)	NO _x Contribution	SO ₂ Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	71.5	112.4	2,742.0	0.03%	14.63%
FL	ROCK TENN CO, 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	HT CHEMICAL HOLDINGS, INC.	56.8	37.7	808.9	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	Sanders Land 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	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	488.7	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%	0.63%

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AOI Point Contributions for WOLF

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	2.34%	8.84%
FL	ROCK TENN CP, LLC	74.0	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	0.03%	2.63%
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	173.6	112.4	2,745.0	0.01%	1.97%
SC	SANTEE COOPER CROSS GENERATING STATION	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	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.0	897.1	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	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%
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 SO₂ 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 SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

➔ 87 Total Facility Tags (both SO₂ 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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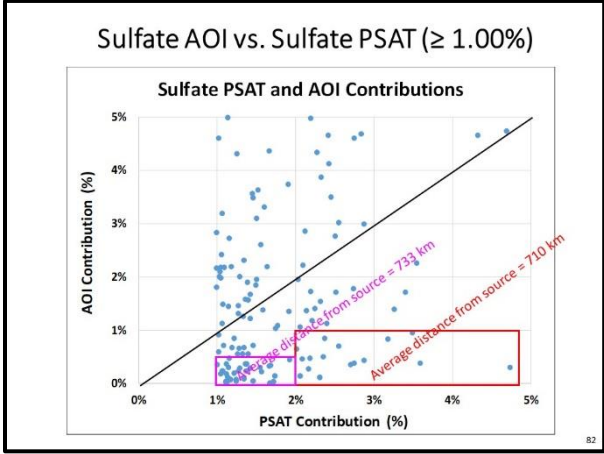
Facility Tags (AL, FL, GA)

Facility State	Facility RPO	FACILITY ID STD	FACILITY NAME STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01097-849811	Alzo Nobel Chemicals Inc	3,135.72	20.72
AL	VISTAS	01097-105611	Ala Power - Barry	6,633.17	2,275.76
AL	VISTAS	01179-102871	American Midstream Chattahoochee, LLC	3,105.39	426.87
AL	VISTAS	01079-101871	BRUMMOND COMPANY, INC.	2,562.17	1,228.33
AL	VISTAS	01053-744021	Escambia Operating Company LLC	18,574.39	849.32
AL	VISTAS	01053-88511	Escambia Operating Company LLC	8,589.80	149.64
AL	VISTAS	01103-100611	Purser Steel Decatur LLC	170.23	331.24
AL	VISTAS	01109-88571	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	12119-75241	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1,320.44	1,830.72
FL	VISTAS	12086-90011	CHALK CONSTRUCTION MATERIALS FL, LLC.	29.51	910.30
FL	VISTAS	12017-64061	DUKE ENERGY FLORIDA, INC. (DEF)	5,306.41	2,489.83
FL	VISTAS	12086-90021	FLORIDA POWER & LIGHT (PTF)	13.05	170.61
FL	VISTAS	12033-75271	GULF POWER - Crist	2,451.69	2,998.36
FL	VISTAS	12086-352721	HOMESTEAD CITY UTILITIES	0.00	97.09
FL	VISTAS	12031-64921	JEA	2,094.48	651.79
FL	VISTAS	12105-71721	MOSAIC FERTILIZER LLC	7,900.67	310.44
FL	VISTAS	12057-71681	MOSAIC FERTILIZER, LLC	3,034.06	159.71
FL	VISTAS	12105-91981	MOSAIC FERTILIZER, LLC	4,425.36	141.02
FL	VISTAS	12089-84581	RAYONIER PERFORMANCE FIBERS LLC	561.97	2,327.10
FL	VISTAS	12089-75371	ROCK TENN CP, LLC	2,608.72	2,316.77
FL	VISTAS	12005-53541	ROCK TENN CP LLC	2,590.88	1,404.89
FL	VISTAS	12129-273171	TALLAHASSEE CITY PURDOM GENERATING STA.	2.86	121.46
FL	VISTAS	12057-53981	TAMPA ELECTRIC COMPANY (TEC)	6,084.30	2,885.03
FL	VISTAS	12086-88991	TARDAC AMERICA LLC	9.38	879.70
FL	VISTAS	12047-76971	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	3,187.77	112.41
GA	VISTAS	13127-372101	Brunswick Cellulose Inc	294.20	1,554.51
GA	VISTAS	13015-281011	Ga Power Company - Plant Bowen	10,453.41	6,643.32
GA	VISTAS	13103-53631	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13031-36781	International Paper - Savannah	3,945.38	1,560.73
GA	VISTAS	13113-53931	TEMPLE INLAND	1,791.00	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	SO2 (TPY)	NOx (TPY)
KY	VISTAS	21183-581611		Big Rivers Electric Corp. - Whitson Station		8,324.18	1,131.55
KY	VISTAS	21091-7352811		Century Aluminum of KY LLC		5,054.18	1,397.66
KY	VISTAS	21177-5186711		Tennessee Valley Authority - Paradise Fossil Plant		3,011.01	3,114.52
KY	VISTAS	21145-6037011		Tennessee Valley Authority (TVA) - Shawnee Fossil Plant		19,504.79	7,007.24
MS	VISTAS	38059-6384811		Phonovo Products Company, Paragoula Refinery		791.69	1,534.12
MS	VISTAS	28059-6251011		Mississippi Power Company, Plant Victor J 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		Dominar Paper Company, LLC		187.45	1,796.48
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		BSL Carbon LLC		261.64	21.69
SC	VISTAS	45015-4648911		ALLIANCE OF SOUTH CAROLINA		3,791.69	108.66
SC	VISTAS	45043-5698811		INTERNATIONAL PAPER GEORGETOWN MILL		2,787.52	2,031.26
SC	VISTAS	45019-4978611		KAPSTONE CHARLESTON KRAFT LLC		1,863.69	2,355.82
SC	VISTAS	45015-4120411		SANTEC COOPER CROSS GENERATING STATION		4,281.17	3,273.47
SC	VISTAS	45043-4652811		SANTEC COOPER WINYAM GENERATING STATION		2,656.86	1,772.53
SC	VISTAS	45015-8306711		SC&G WILLIAMS		392.48	992.73
TN	VISTAS	47093-4979911		Cemex - Knoxville Plant		121.47	771.50
TN	VISTAS	47183-3982111		BAXMANN CHEMICAL COMPANY		6,420.18	6,900.81
TN	VISTAS	47185-4129211		TATE & LYLE, Loudon		472.78	883.25
TN	VISTAS	47081-8196011		TVA BULL RUN FOSSIL PLANT		622.54	964.16
TN	VISTAS	47183-4095911		TVA CUMBERLAND FOSSIL PLANT		8,427.33	4,876.10
TN	VISTAS	47145-4979111		TVA KINGSTON FOSSIL PLANT		1,856.09	1,687.58
VA	VISTAS	51027-4034811		Jewell Coke Company LLP		5,090.95	520.17
VA	VISTAS	51280-5789711		Meadwestvaco Packaging Resource Group		2,115.32	1,955.69
VA	VISTAS	51003-5039811		Roanoke Cement Company		2,290.17	1,972.57

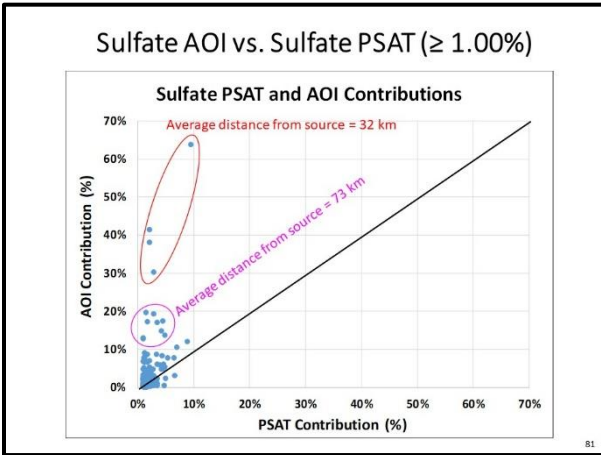


Facility Tags (WV, AR, MO, MD, PA, IL, IN, OH)

Facility State	Facility RPO	FACILITY_ID	STD	FACILITY_NAME	STD	SO2 (TPY)	NOx (TPY)
WV	VISTAS	54033-6271711		ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON		10,082.94	11,830.88
WV	VISTAS	54049-4846411		AMERICAN BITUMINOUS POWER-GRANT TOWN PLT		2,210.25	1,245.10
WV	VISTAS	54079-4789111		APPALACHIAN POWER COMPANY - JOHN W AMOS PLANT		16,986.24	4,876.10
WV	VISTAS	54023-6327011		Dominion Resources, Inc. - MOUNT STORM POWER STATION		1,223.64	1,984.14
WV	VISTAS	54041-6900311		EQUITRANS - COPLEY RUN CS 70		0.10	511.06
WV	VISTAS	54083-6790711		FILES CREEK 6C340		0.15	643.25
WV	VISTAS	54043-6790611		FLATRY 6C430		0.16	483.29
WV	VISTAS	54089-6827811		KINGSFORD MANUFACTURING COMPANY		16.90	140.88
WV	VISTAS	54061-1632011		LONGVIEW POWER		2,313.79	1,556.57
WV	VISTAS	54031-6802211		MICHELLE PLANT		3,372.46	2,719.62
WV	VISTAS	54061-6779611		MONONGAHELA POWER CO. - FORT MARTIN POWER		4,881.87	13,743.52
WV	VISTAS	54073-4782811		MONONGAHELA POWER CO - PLEASANTS POWER STA		16,817.43	5,497.37
WV	VISTAS	54084-6779811		MORGANTOWN ENERGY ASSOCIATES		828.64	655.58
AR	CENRAP	05063-1084811		ENTERGY ARKANSAS INC - INDEPENDENCE PLANT		32,050.48	14,133.01
MO	CENRAP	29143-5363811		NEW MADRID POWER PLANT - MARSTON		16,781.71	4,394.10
MD	MANE-VU	24001-7763811		Luke Paper Company		22,659.84	3,607.00
PA	MANE-VU	42005-3866111		GENON NE MONT CO-KYSTONE STA		54,939.23	6,578.47
PA	MANE-VU	42063-3005211		HOMER CITY GEN LPJ CENTER TWP		11,865.70	5,215.94
PA	MANE-VU	42063-3005311		NRG WHOLESALE GEN/SWARD GEN STA		8,880.28	2,254.64
IL	Midwest RPO	17127-7808911		Jopka Steam		20,509.28	4,706.25
IN	Midwest RPO	18173-8183111		Alcoa Warick Power Pk Age Div of AL		9,071.28	11,158.85
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		INDIANAPOLIS POWER & 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	39081-8115711		Cardinal Power Plant (Cardinal Operating Company) (0641050002)		7,460.79	2,467.31
OH	Midwest RPO	39031-8010811		Cornelius Power Plant (0416000005)		6,154.23	9,957.87
OH	Midwest RPO	39024-8094111		Duke Energy Ohio, N.M. St. Zimmer Station (1413090154)		23,131.90	7,149.67
OH	Midwest RPO	39033-8148511		General James M. Gavin Power Plant (0627010056)		41,595.81	8,122.51
OH	Midwest RPO	39033-7983011		Ohio Valley Electric Corp. - Kyger Creek Station (0627000001)		3,400.14	9,143.84

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.



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 SO₂ and NOx 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 SO₂ and/or NOx 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.

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 (%)**

$$\frac{\text{Facility Sulfate PSAT Contributions (Mm}^{-1}\text{)}}{\text{Total Sulfate + Nitrate Point Contribution (Mm}^{-1}\text{)}}$$
- **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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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	01097-1056111	Ala Power - Barry	0.035	1.000
AL	VISTAS	01129-1028711	American Midstream Chatham, LLC	0.000	0.000
AL	VISTAS	01073-1010711	BJIMMOND COMPANY, INC.	1.000	1.000
AL	VISTAS	01053-7440211	Escambia Operating Company LLC	0.315	1.000
AL	VISTAS	01053-851111	Escambia Operating Company LLC	0.010	0.000
AL	VISTAS	01103-1000011	Nucor Steel Decatur LLC	1.000	1.000
AL	VISTAS	01109-985711	Sanders Lead Co	1.000	1.000
AL	VISTAS	01097-1061611	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	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	1.000	1.000
FL	VISTAS	12017-640011	DUKE ENERGY FLORIDA, INC. (DEF)	0.785	0.621
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (FTL)	1.000	1.000
FL	VISTAS	12033-752711	GULF POWER - Crist	0.011	0.045
FL	VISTAS	12086-932711	HOMESTEAD CITY UTILITIES	1.000	1.000
FL	VISTAS	12031-640211	JEA	0.000	0.000
FL	VISTAS	12105-717711	MOSAIC FERTILIZER LLC	0.548	1.000
FL	VISTAS	12057-716411	MOSAIC FERTILIZER, LLC	0.075	1.000
FL	VISTAS	12109-919611	MOSAIC FERTILIZER, LLC	0.972	1.000
FL	VISTAS	12085-845811	RAVONIER 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	12129-2731711	TALLAHASSEE CITY PURDOM GENERATING STA.	1.000	1.000
FL	VISTAS	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	1.000	1.000
FL	VISTAS	12086-899911	TARIMAC AMERICA, LLC	1.000	1.000
FL	VISTAS	12047-789711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	0.007	0.959
GA	VISTAS	13127-3721011	Brunswick Cellulose Inc	1.000	1.000
GA	VISTAS	13015-2813011	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	13011-3678011	International Paper - Savannah	1.000	1.000
GA	VISTAS	13111-539311	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 * SO2 Ratio_Facility * Ratio_Class_I_Area**

$$\text{where, SO2 Ratio_Facility} = \frac{\text{(Revised facility SO2 emissions)}}{\text{(Original facility SO2 emissions)}}$$

$$\text{where, Ratio_Class_I_Area} = \frac{\text{(Original sulfate + nitrate point contribution)}}{\text{(Revised sulfate + nitrate point contribution)}}$$

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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	21103-5503111	Big Rivers Electric Corp. - Wilson Station	1.000	1.000
KY	VISTAS	21091-7524111	Century Aluminum of KY LLC	0.081	1.000
KY	VISTAS	21177-5106711	Tennessee Valley Authority - Paradise Fossil Plant	0.004	0.238
KY	VISTAS	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VISTAS	28059-8388111	Chevron Products Company - Pascagoula Refinery	1.000	1.000
MS	VISTAS	28059-6251011	Mississippi Power Company - Plant Victor J Daniel	1.000	1.000
NC	VISTAS	37087-7920011	Blue Ridge Paper Products - Canton Mill	0.326	0.976
NC	VISTAS	37117-8049011	Durham Paper Company, LLC	1.000	1.000
NC	VISTAS	37035-8378411	Duke Energy Carolinas, LLC - Marshall Steam Station	0.966	0.914
NC	VISTAS	37013-8479311	PCS Phosphate Company, Inc. - Aurora	1.000	1.000
NC	VISTAS	37023-8513011	SGL Carbon - LLC	1.000	1.000
SC	VISTAS	45015-4848011	ALLUMAX 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	45013-4120411	SANTELE COOPER CROSS GENERATING STATION	1.000	1.000
SC	VISTAS	45043-6602011	SANTELE COOPER WINYAH GENERATING STATION	1.000	1.000
SC	VISTAS	45015-8306711	SCE&G WILLIAMS	1.000	1.000
TN	VISTAS	47093-4079911	Cemex - Knoxville Plant	1.000	1.000
TN	VISTAS	47143-0823111	EASTMAN CHEMICAL COMPANY	1.000	1.000
TN	VISTAS	47105-4129211	TATE & LYLE, Loudon	0.132	0.261
TN	VISTAS	47001-6196011	TVA BULL RUN FOSSIL PLANT	0.000	0.000
TN	VISTAS	47181-4079311	TVA CUMBERLAND FOSSIL PLANT	1.000	1.000
TN	VISTAS	47145-4979111	TVA KINGSTON FOSSIL PLANT	0.225	0.262
VA	VISTAS	51027-4034811	Jewell Coke Company LP	1.000	1.000
VA	VISTAS	51280-5798711	Meadwestvaco Packaging Resource Group	1.000	1.000
VA	VISTAS	51023-9038011	Roanoke Cement Company	1.000	1.000

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

Facility State	Facility RPO	FACILITY_ID STD	FACILITY_NAME STD	SO2 Ratio	NHx Ratio
WV	VISTAS	54031-6271211	ALLIEDWAY ENERGY SUPPLY CO. LLC-HARRISON	0.711	0.341
WV	VISTAS	54049-4844511	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	0.833	0.262
WV	VISTAS	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	0.533	0.262
WV	VISTAS	54023-6257011	Dominion Resources, Inc. - MOUNT STORM POWER STATION	0.989	0.685
WV	VISTAS	54041-6905111	EQUITRANS - COOLEY RUN CS 70	1.000	1.000
WV	VISTAS	54083-6790711	FILES CREEK 6C4340	1.000	1.000
WV	VISTAS	54083-6790511	GLADY 6C4330	1.000	1.000
WV	VISTAS	54089-6327611	KINGSFORD MANUFACTURING COMPANY	1.000	1.000
WV	VISTAS	54061-1832011	LOWVEJEW POWER	0.787	0.270
WV	VISTAS	54031-6902311	MITCHELL PLANT	0.787	0.270
WV	VISTAS	54061-6773611	MONONGAHELA POWER CO. - FORT MARTIN POWER	0.626	0.373
WV	VISTAS	54079-4878211	MONONGAHELA POWER CO - PEASANTS POWER STA.	0.699	0.348
WV	VISTAS	54061-6773811	MORGANTOWN ENERGY ASSOCIATES	0.900	0.330
AR	CENRAP	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	0.426	0.317
MO	CENRAP	29143-1363811	NEW MADRID POWER PLANT-MARSTON	0.985	0.822
MD	MANE-VU	20091-7763811	Luke Paper Company	0.418	1.000
PA	MANE-VU	42005-3866311	SENON NE MGMT CO/KEYSTONE STA	0.326	0.773
PA	MANE-VU	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	0.762	0.891
PA	MANE-VU	42053-3005311	NINE WILLOUSE GEN/SWARD/GEN STA	0.792	0.724
IL	Midwest RPO	17127-7808911	Joppa Steam	0.392	0.424
IN	Midwest RPO	18173-8183111	Alcoa Warrick Power Pft Agc Div of AL	0.288	0.271
IN	Midwest RPO	18051-7363111	Clinton	0.562	0.763
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	0.332	0.961
IN	Midwest RPO	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	0.333	0.502
IN	Midwest RPO	18129-8146111	Bigeco AB Brown South Indiana Gas & Ele	0.000	0.011
OH	Midwest RPO	39031-8117111	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	0.000	0.000
OH	Midwest RPO	39031-8010811	Covesville Power Plant (0616000000)	0.000	0.000
OH	Midwest RPO	39028-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1433090154)	0.461	0.820
OH	Midwest RPO	39033-8148511	General James M. Gavin Power Plant (0627010050)	0.262	0.893
OH	Midwest RPO	39033-7983211	Ohio Valley Electric Corp. Cyber Creek Station (0627000003)	0.262	0.893

Sipsey 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 %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	3.31%	1.61%	2.22%	0.97%	0.04%	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%
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	448.7	2.85%	2.12%	1.65%	0.27%	0.19%	0.18%
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	444.4	1.72%	2.19%	1.57%	0.23%	0.23%	0.16%
TN	47141-4979311	TVA CLUMBERLAND FOSSIL PLANT	228.8	3.18%	1.07%	1.46%	0.48%	0.12%	0.17%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	314.5	3.48%	1.46%	1.34%	0.26%	0.06%	0.07%
KY	21145-5561611	Big Rivers Electric Corp - Wilson Station	345.5	1.89%	0.93%	1.29%	0.07%	0.04%	0.05%
Facilities That Dropped Off After REVISION									
IL	17127-7808911	Joppa Steam	346.5	1.04%	1.51%	0.82%	0.25%	0.03%	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%

Class I Area Ratios

State	Class I Area	Ratio_Class_I_Area
AL	Sipsey Wilderness Area	1.382
FL	Chassahowitzka Wilderness Area	1.225
FL	Everglades NP	1.290
FL	St Marks Wilderness Area	1.363
GA	Cohotta Wilderness Area	1.363
GA	Dialhenee 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	Swanquarter Wilderness Area	1.398
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	Ice Brook Wilderness	1.471

Chassahowitzka 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	12017-4606111	DUKE ENERGY FLORIDA, INC (DEF)	27.4	63.62%	0.95%	6.24%	1.95%	0.40%	0.23%
GA	13015-2813811	Gas Power Company - Plant Bowen	637.2	0.03%	1.72%	2.28%	0.00%	0.02%	0.03%
FL	12057-5198111	TAMPA ELECTRIC COMPANY (TEC)	106.6	4.73%	0.96%	1.38%	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	01109-9897111	Standard Laid Co	471.2	0.15%	0.76%	1.00%	0.00%	0.01%	0.01%
Facilities That Dropped Off After REVISION									
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	1,133.4	0.05%	1.47%	0.82%	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%	0.06%
AL	01053-7440211	Escombia Operating Company LLC	530.7	0.21%	1.57%	0.41%	0.00%	0.01%	0.01%

EXAMPLE: New Madrid Power at SIPS

- Revised Facility Sulfate PSAT Results = Original Facility Sulfate PSAT Results * SO2 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)

Everglades 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 %
FL	12057-5198111	TAMPA ELECTRIC COMPANY (TEC)	316.6	3.02%	3.56%	3.30%	0.68%	0.00%	0.00%
FL	12105-5198111	MOSAIC FERTILIZER, LLC	304.7	2.21%	2.08%	2.62%	0.61%	0.00%	0.00%
FL	12105-7177111	MOSAIC FERTILIZER, LLC	303.3	2.26%	3.55%	2.60%	0.62%	0.00%	0.00%
FL	12086-8999111	TARMAC AMERICA LLC	61.7	0.16%	0.17%	0.23%	2.02%	0.76%	2.63%

St Marks Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
GA	18015-2813011	Ge Power Company - Plant Bowen	452.9	0.88%	3.99%	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	01109-865711	Sanders Lead Co	255.9	3.06%	0.82%	1.12%	0.00%	0.00%	0.00%
Facilities That Dropped Off After REVISION									
AL	01097-1056111	Alfa Power - Barry	383.1	1.67%	1.43%	0.97%	0.03%	0.02%	0.03%
AL	01053-7440211	Escambia 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	Escambia Operating Company LLC	315.0	0.00%	2.68%	0.02%	0.00%	0.00%	0.00%

Wolf Island Wilderness

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate 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	Ge 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%	2.94%	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	18051-8679811	International Paper - Savannah	85.9	7.53%	1.18%	1.54%	0.24%	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	12081-4402111	JEAT Plant	105.3	4.48%	0.96%	1.29%	0.09%	0.03%	0.06%
SC	45015-4848411	ALUMAX OF SOUTH CAROLINA	232.6	1.84%	0.95%	1.25%	0.00%	0.01%	0.01%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	1,048.6	0.84%	2.37%	1.15%	0.01%	0.01%	0.01%
Facilities That Dropped Off After REVISION									
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%

Cohutta Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate 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	Ge Power Company - Plant Bowen	78.0	19.58%	1.96%	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%	0.67%	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	47163-8982311	EASTMAN CHEMICAL COMPANY	268.8	0.89%	0.82%	1.23%	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%
Facilities That Dropped Off After REVISION									
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%	0.94%	0.13%	0.06%	0.02%

Mammoth Cave NP

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate 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%	1.15%	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%	0.04%	0.27%
Facilities That Dropped Off After REVISION									
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%

Okefenokee Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate 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%	0.69%	0.01%	0.01%
GA	18015-2813011	Ge Power Company - Plant Bowen	458.1	1.02%	1.74%	2.30%	0.05%	0.04%	0.05%
FL	12123-792411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	193.5	2.18%	1.84%	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%	0.15%
SC	45015-4120411	Santee Cooper Cross Generating Station	248.1	0.85%	0.89%	1.18%	0.05%	0.03%	0.04%
GA	18051-8679811	International Paper - Savannah	178.9	2.81%	0.79%	1.04%	0.68%	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%
Facilities That Dropped Off After REVISION									
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%

Linville Gorge Wilderness Area

State	Facility ID	Facility Name	DISTANCE_km	Sulfate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %	Nitrate AOI %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
TN	47163-8982311	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%	3.49%	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	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.11%	0.85%	1.20%	0.00%	0.01%	0.01%
GA	18015-2813011	Ge Power Company - Plant Bowen	340.9	0.33%	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-MARSTON	688.6	0.03%	1.11%	1.04%	0.00%	0.00%	0.00%
VA	51073-4048111	Jenwell Coke Company LLP	1,464.1	5.84%	0.73%	1.02%	0.01%	0.00%	0.00%
Facilities That Dropped Off After REVISION									
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%

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	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	579.4	0.47%	1.16%	1.63%	0.01%	0.02%	0.02%	
TN	47163-8982811	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	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.13%	1.74%	1.04%	0.00%	0.01%	0.01%	
TN	47163-8982311	EASTMAN CHEMICAL COMPANY	136.5	4.48%	0.74%	1.04%	0.40%	0.02%	0.02%	
Facilities That Dropped Off After REVISION										
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	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.8	1.34%	0.94%	1.32%	0.02%	0.06%	0.08%	
TN	47163-8982311	EASTMAN CHEMICAL COMPANY	160.1	6.01%	0.88%	1.23%	0.19%	0.04%	0.05%	
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%	
Facilities That Dropped Off After REVISION										
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	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.72%	0.02%	0.01%	0.00%	
TN	47163-8979111	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%	3.44%	0.08%	0.08%	0.09%	
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora	52.5	87.89%	3.16%	3.02%	0.57%	0.69%	0.66%	
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	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	568.6	0.67%	1.19%	1.71%	0.08%	0.10%	0.13%	
PA	42063-3005211	POWER CITY GEN LV CENTER 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	0.84%	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	37117-8049311	Demetrius Paper Company, LLC	69.0	2.27%	0.72%	1.00%	1.02%	0.14%	0.20%	
Facilities That Dropped Off After REVISION										
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%	4.60%	3.45%	0.05%	0.01%	0.01%	
KY	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	472.8	0.84%	0.99%	1.38%	0.09%	0.07%	0.10%	
TN	47163-8982311	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%	
Facilities That Dropped Off After REVISION										
AR	05063-1083411	ENERGY 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%	2.00%	0.72%	0.14%	0.23%	0.16%	
TN	47163-8979111	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	48019-4973611	KAPSTONE CHARLESTON KRAFT LLC	29.3	30.18%	2.86%	3.73%	2.74%	0.25%	0.33%	
GA	13015-2813011	Ga Power Company - Plant Bowen	506.2	0.36%	2.71%	3.93%	0.01%	0.10%	0.14%	
SC	48019-4834911	ALLUMAX OF SOUTH CAROLINA	39.1	17.97%	1.79%	3.33%	0.05%	0.02%	0.02%	
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	857.1	0.30%	4.74%	2.28%	0.00%	0.01%	0.01%	
SC	49013-4120411	SANTAE COOPER CROSS GENERATING STATION	63.8	6.97%	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	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.64%	0.83%	0.11%	0.15%	
SC	45043-6652811	SANTAE COOPER WYNAH GENERATING STATION	51.4	4.60%	1.02%	1.33%	0.38%	0.13%	0.17%	
GA	13015-8679811	International Paper - Savannah	164.1	1.76%	0.99%	1.38%	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 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	54033-6271711	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%	
OH	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	248.0	3.87%	2.33%	2.26%	0.15%	0.03%	0.05%	
WV	54079-4789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	223.5	3.50%	2.46%	1.93%	0.13%	0.05%	0.11%	
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	337.1	2.38%	2.88%	1.51%	0.06%	0.03%	0.04%	
VA	51380-5798711	Meadwestvaco 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	54051-6902811	MITCHELL PLANT	269.6	0.68%	0.97%	1.05%	0.03%	0.02%	0.04%	
Facilities That Dropped Off After REVISION										
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.89%	1.39%	0.92%	0.05%	0.05%	0.06%	
IN	18051-7363111	Gibson	729.4	0.59%	1.02%	0.82%	0.03%	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%	1.0%	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%	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	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	263.0	4.97%	2.20%	2.20%	0.24%	0.18%	0.23%	
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	251.8	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%	
Facilities That Dropped Off After REVISION										
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 (141309154)	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 AEP ROCKPORT	755.8	0.71%	1.46%	0.76%	0.03%	0.02%	0.03%	

Non-VISTAS Class I Areas

- Only two VISTAS facilities have a contribution ≥ 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)

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	54031-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	89.6	19.58%	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	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 (141309154)	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%	0.01%	0.02%	
Facilities That Dropped Off After REVISION										
IN	18015-7358111	Gibson	729.5	0.04%	1.24%	0.95%	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	18125-7352411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	682.6	0.68%	2.05%	0.77%	0.02%	0.04%	0.03%	
OH	39012-8010811	Conestoga Power Plant (0616000000)	242.3	0.73%	1.09%	0.00%	0.12%	0.08%	0.00%	

VISTAS Facilities ≥ 1.00%

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
FL	12223-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	CHAS, SAMA
FL	12017-440611	DUKE ENERGY FLORIDA, INC. (DEF)	CHAS
FL	12013-640211	JEA	WOLF
FL	12105-717711	MOSECO FERTILIZER, LLC	EVER
FL	12105-419811	MOSECO FERTILIZER, LLC	EVER
FL	12089-793711	ROCK TREN CO, LLC	OKEF, WOLF
FL	12005-535411	ROCKTENN CP LLC	SAMA
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12036-899911	TANMEX AMERICA LLC	EVER
FL	12047-709711	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	OKEF
GA	13127-3721011	Brunswick Cellulose Inc	WOLF
GA	13015-24013011	Ex Power Company - Plant Bowen	CHAS, COHU, JKSR, LIGO, OKEF, ROMA, SAMA, SHRO, SWAN, WOLF
GA	13015-8079511	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, GRNU, GRMA, HELL, JKSR, LIGO, MACA, MINGO, OKEF, OTCR, PRRR, SHRO, SIPS
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	37117-8049411	Dominar Paper Company, LLC	SWAN
NC	37013-8479311	PCL Phosphate Company, Inc. - Aurora	SWAN
SC	45015-4834911	ALLIANCE OF SOUTH CAROLINA	ROMA, WOLF
SC	45043-5698911	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45018-4978611	KAYSTONE CHARLESTON GRANT LLC	ROMA
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	OKEF, ROMA, WOLF
SC	45043-6652811	SANTEE COOPER WINYAH GENERATING STATION	ROMA
TN	47169-2982111	EASTMAN CHEMICAL COMPANY	COHU, GRMA, JKSR, LIGO, SHRO
TN	47161-4979311	THE CLUMBERLAND FOSSIL PLANT	LIGO, SHRO, SIPS
VA	51027-4034811	Jewel Coke Company LLP	LIGO
VA	51580-5786711	Resident/Two Packaging Resonator Group	JARJ
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JARJ, MOOS, OTCR, SHEN, SWAN
WV	54079-6789111	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	DOSO, JARJ, OTCR, SHEN
WV	54051-6902311	MITCHELL PLANT	DOSO, JARJ, OTCR, SHEN
WV	54061-6773611	MONONGAHELA POWER CO. - FORT MARTIN POWER	DOSO, OTCR
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	DOSO, JARJ, OTCR, SHEN, SWAN

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	54031-6271711	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 (141309154)	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	18015-7358111	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%	
Facilities That Dropped Off After REVISION										
IN	18125-7352411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.04%	0.03%	
OH	39012-8010811	Conestoga Power Plant (0616000000)	232.8	1.12%	1.07%	0.00%	0.17%	0.08%	0.00%	

Non-VISTAS Facilities ≥ 1.00%

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
AR	05063-1094311	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	SHRO
IN	18051-7363111	Gibson	COHU, GRMA, JKSR, LIGO, MACA, OTCR, SHRO, SIPS
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	COHU, GRMA, JKSR, LIGO, MACA, OTCR, SHRO, SIPS
IN	18125-7352411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	MACA, SIPS
MD	28013-7763811	Luke Paper Company	SHEN, SWAN
MO	29143-5393811	NEW MADRID POWER PLANT-MARSTON	LIGO, MACA, SHRO, SIPS
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	DOSO, JARJ, OTCR, SHEN, SWAN
OH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (141309154)	COHU, DOSO, JKSR, OTCR, SHRO
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	COHU, DOSO, GRMA, JARJ, JKSR, LIGO, OKEF, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	DOSO, JARJ, OTCR, SHEN
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	COHU, DOSO, GRMA, JARJ, JKSR, LIGO, 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

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 SO₂ control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO₂ 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 SO₂ is necessary to make reasonable progress.”
 - “For the purposes of SO₂ and NO_x 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
Regional Haze SIPs Due to EPA	July 31, 2021

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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 SO₂ and NO_x 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)
 - CC – Jim Boylan (james.boylan@dnr.ga.gov)
- For general, contract, and funding questions, contact the Project Manager:
 - John Hornback (hornback@metro4-sesarm.org)



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Next Steps and Schedule

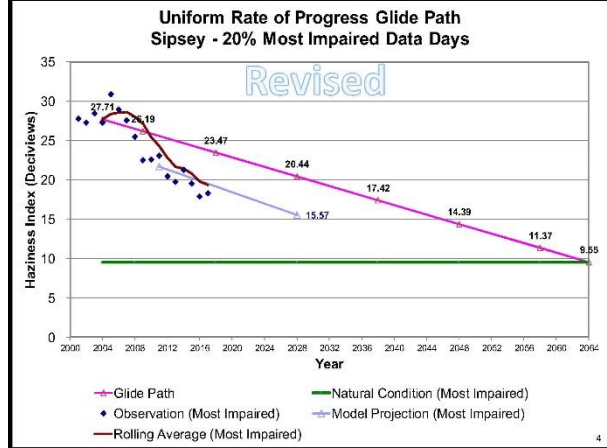
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**Appendix F-3j - VISTAS Regional Haze Project Update to
FLMs, EPA OAQPS, Region 3, Region 4, MJOs May 11,
2020**

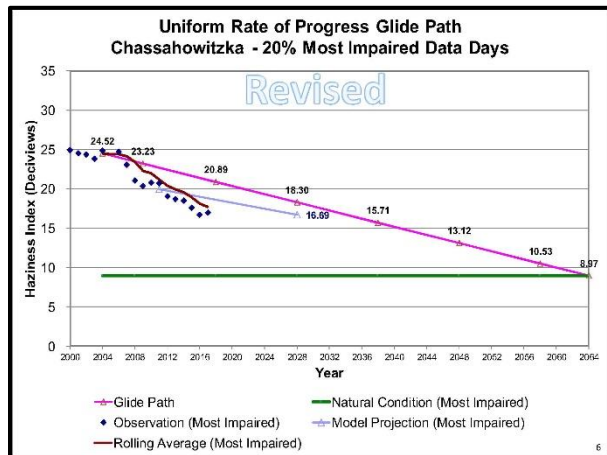
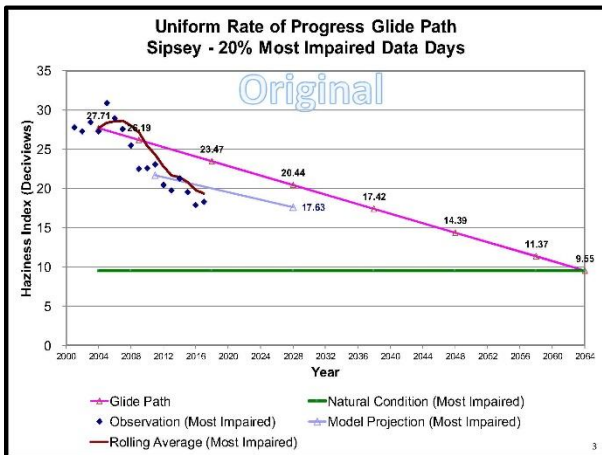
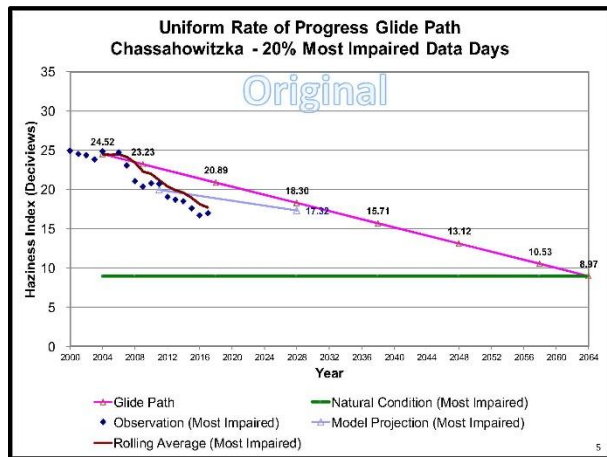
VISTAS Regional Haze Project Update, Part 1 URP Glide Path Adjustments

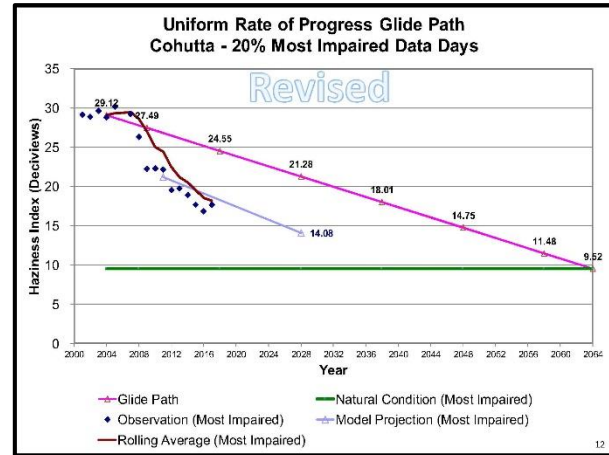
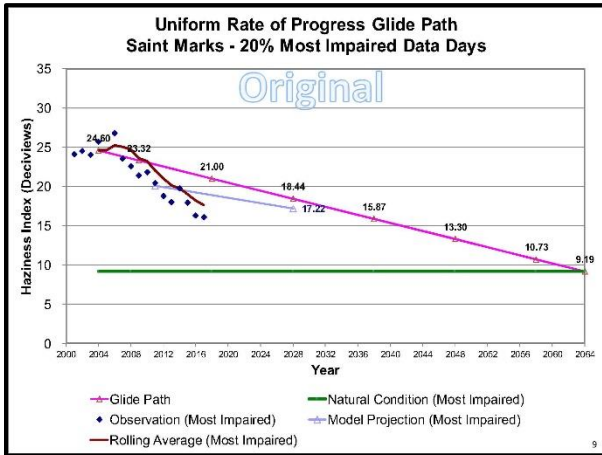
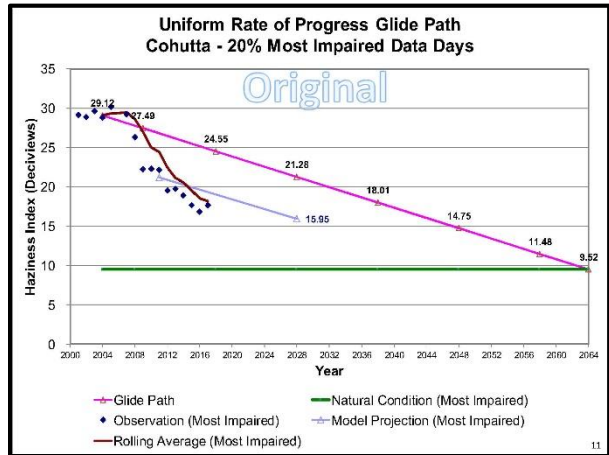
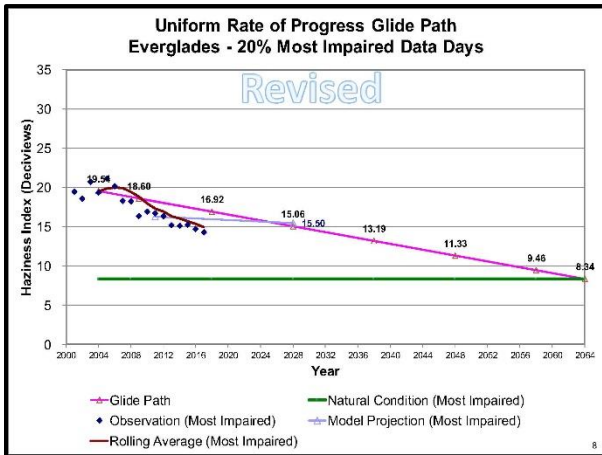
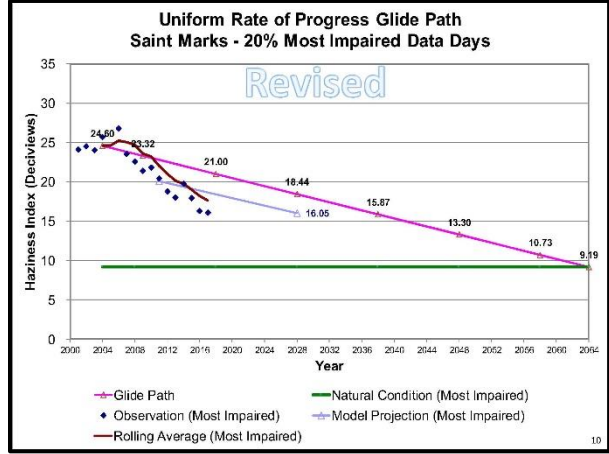
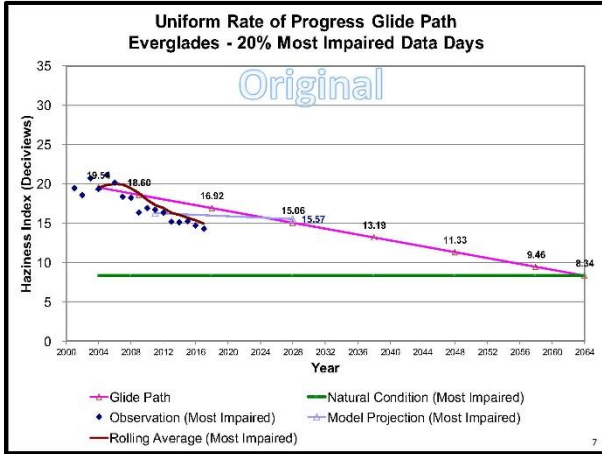


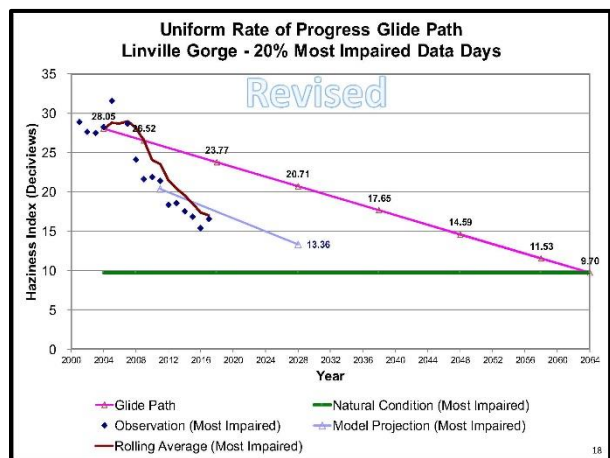
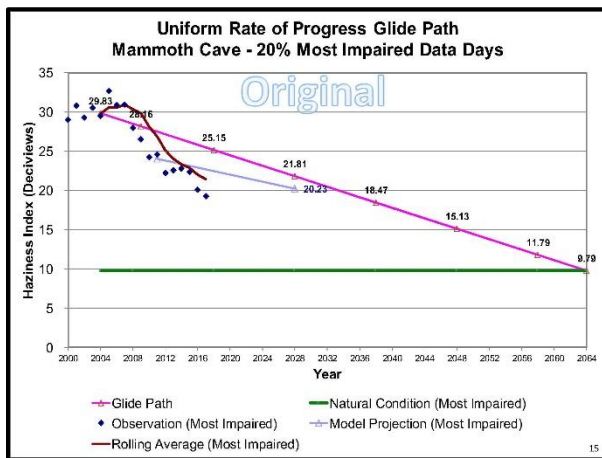
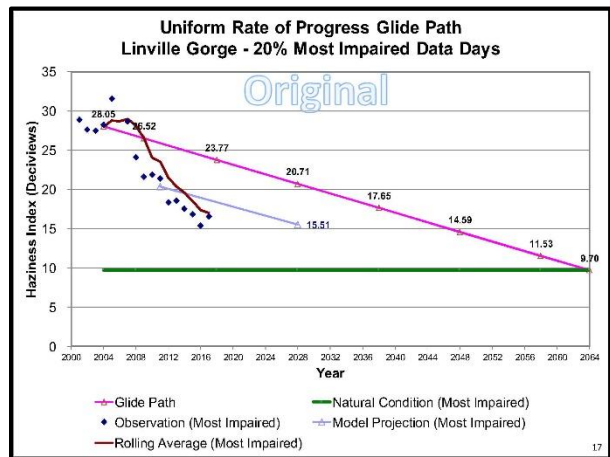
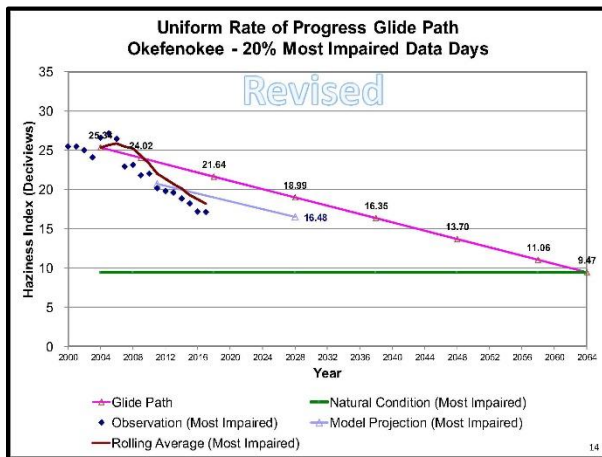
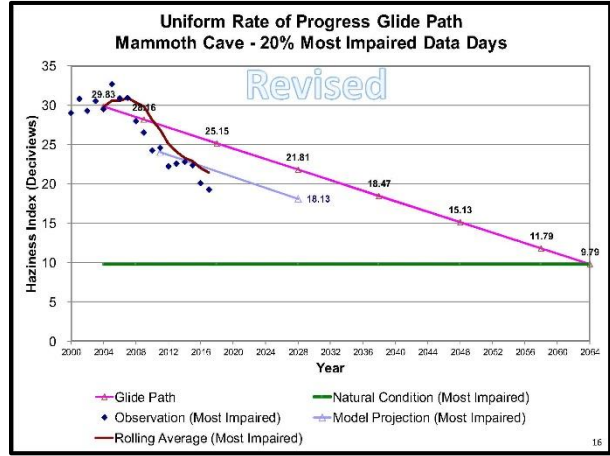
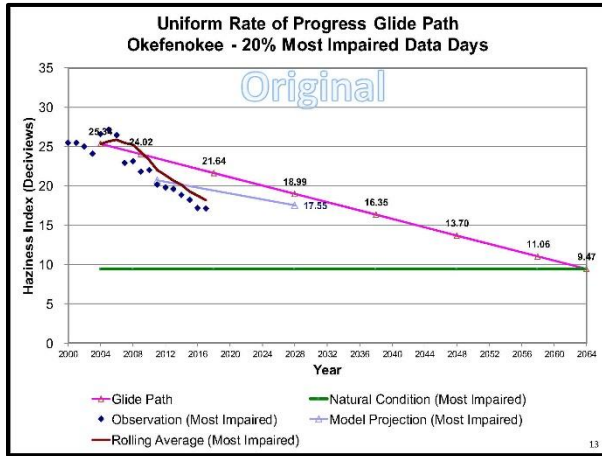
FLM/EPA Briefing
Jim Boylan
May 11, 2020

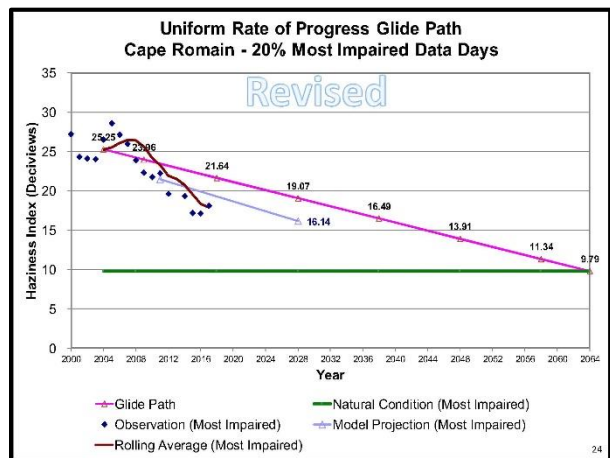
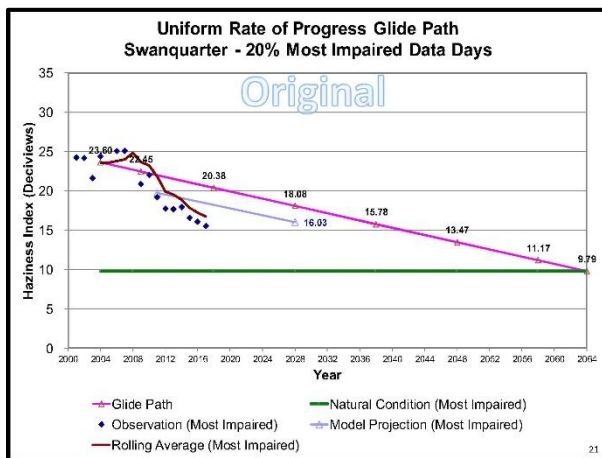
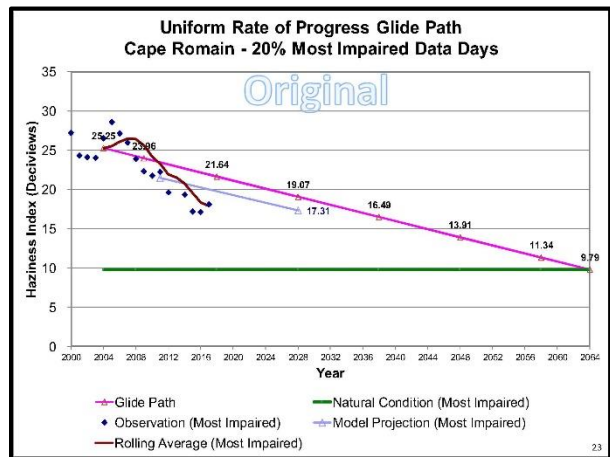
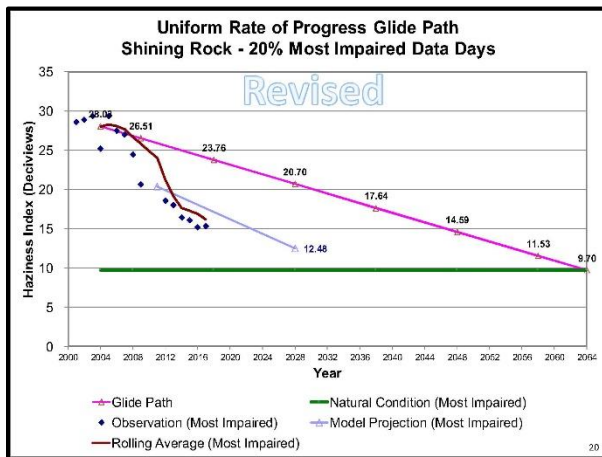
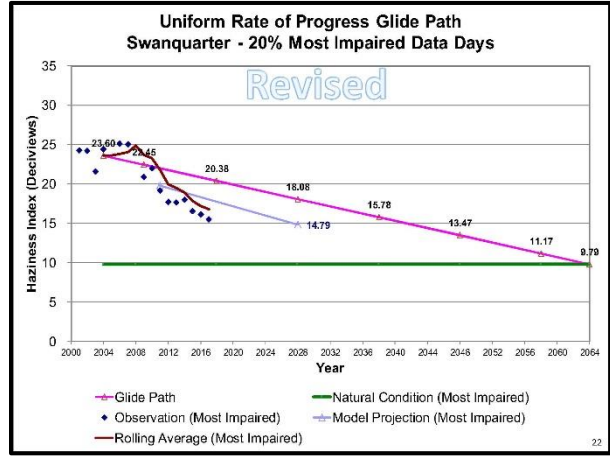
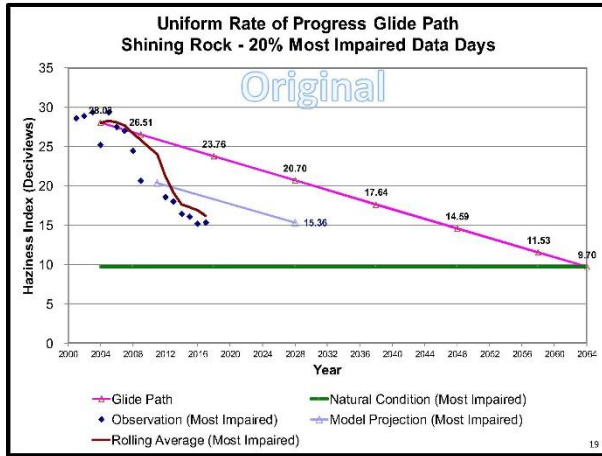


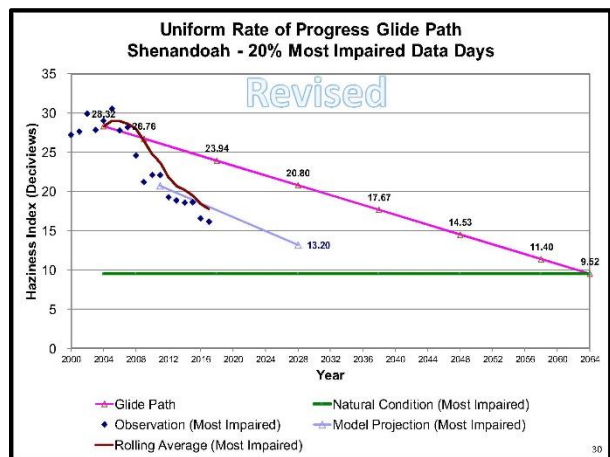
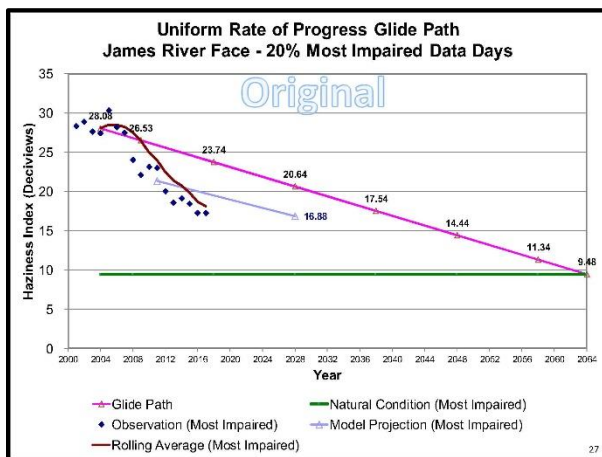
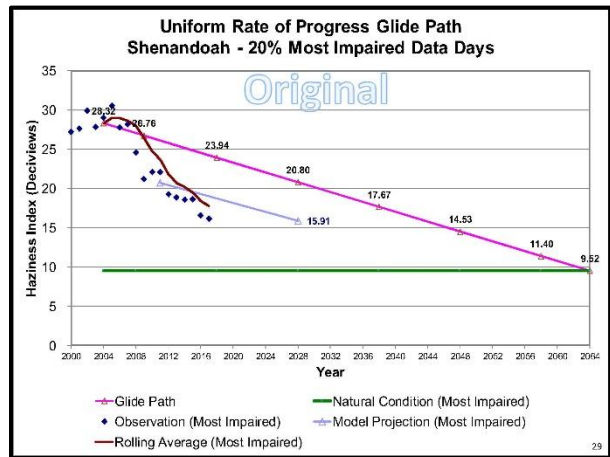
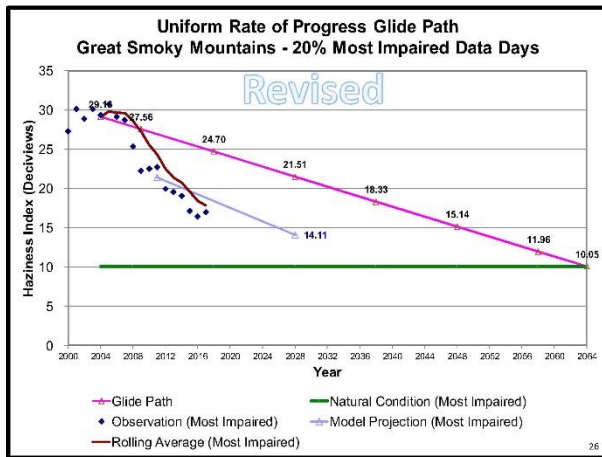
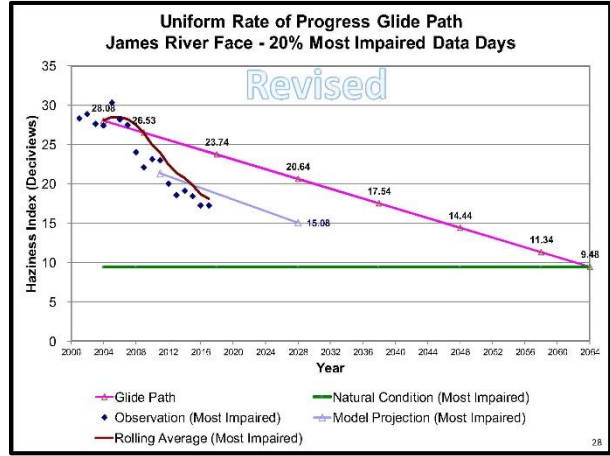
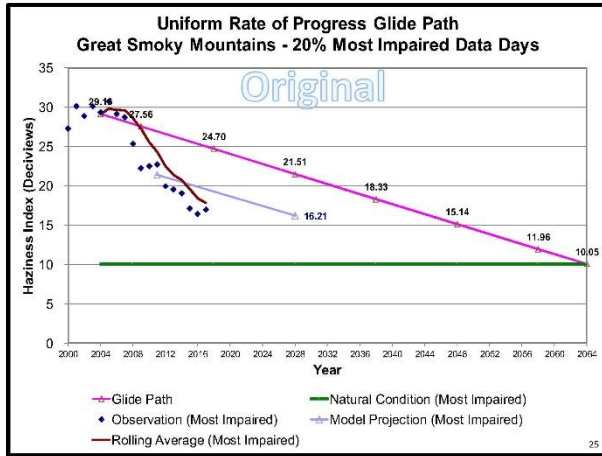
ORIGINAL AND REVISED 2028 MODEL PROJECTIONS

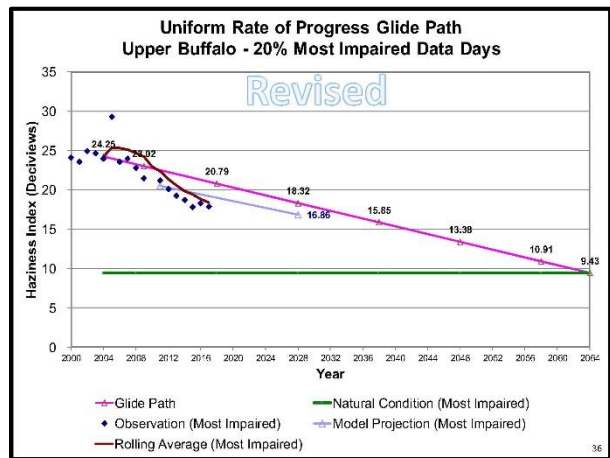
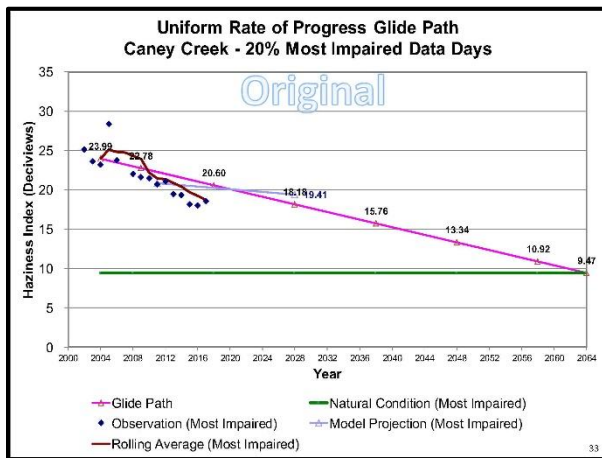
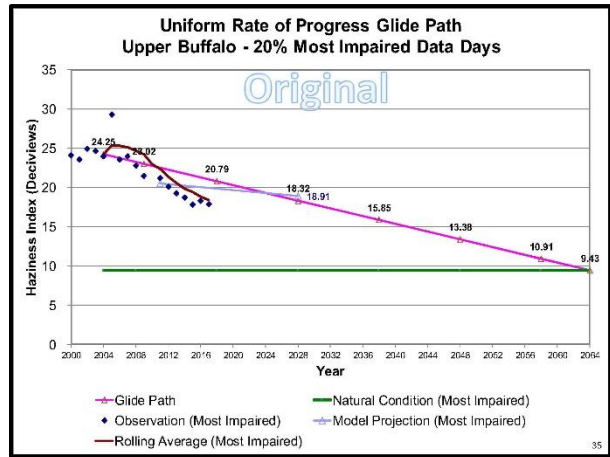
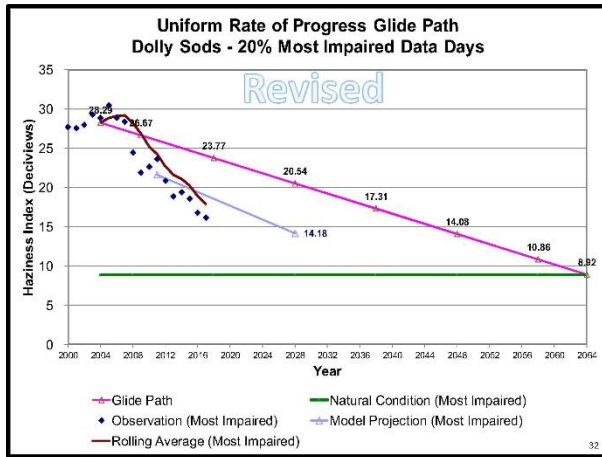
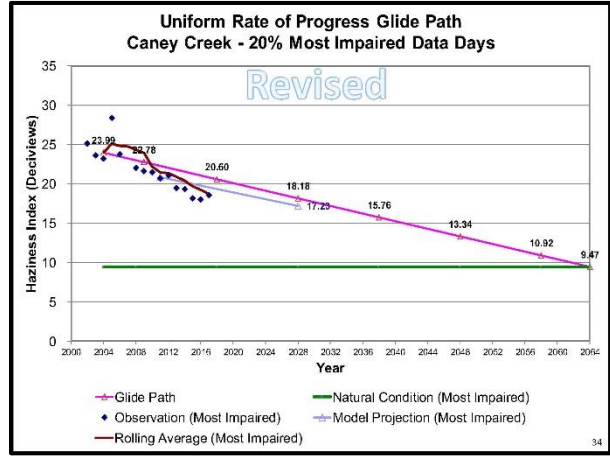
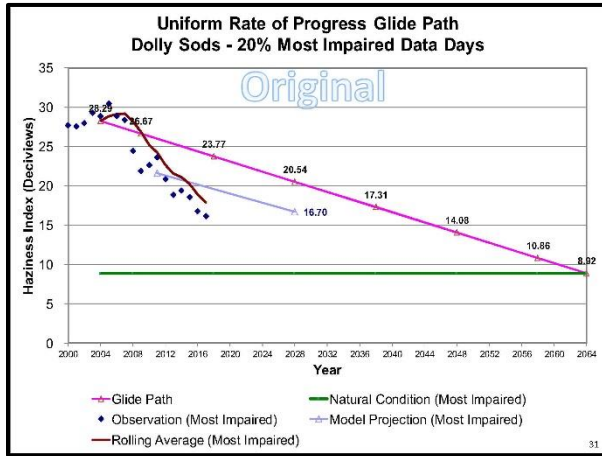


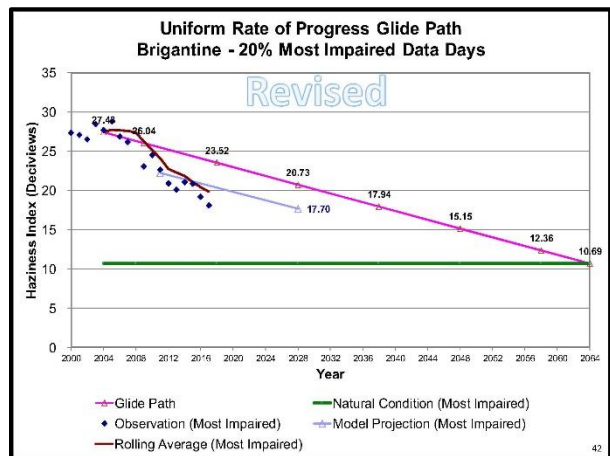
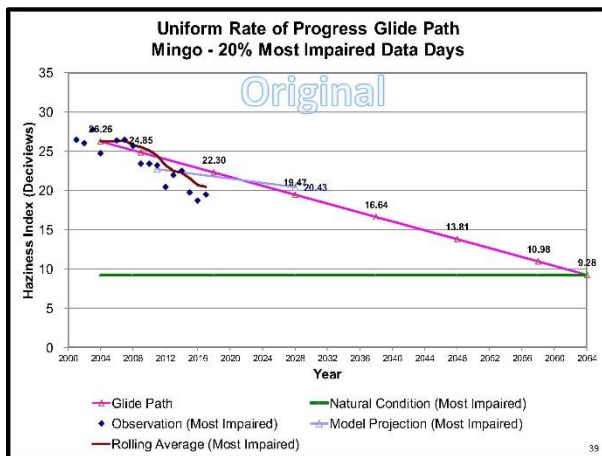
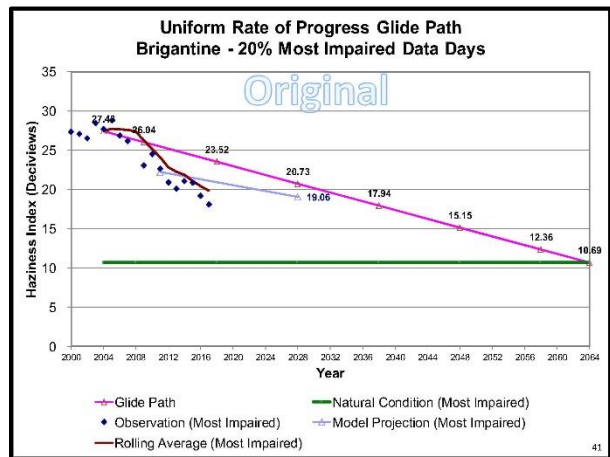
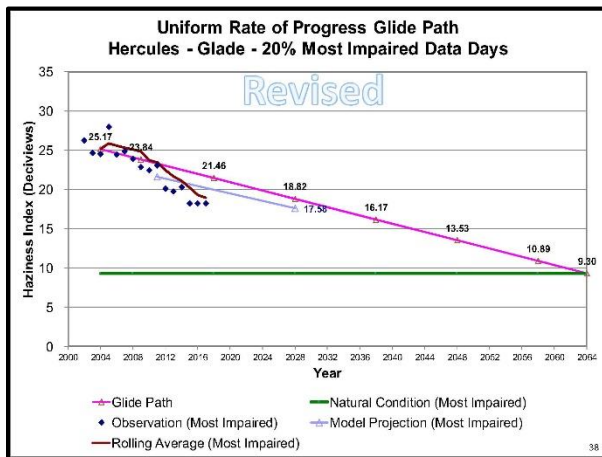
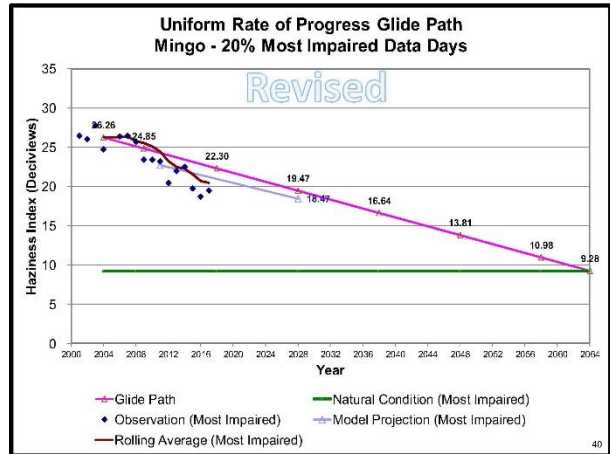
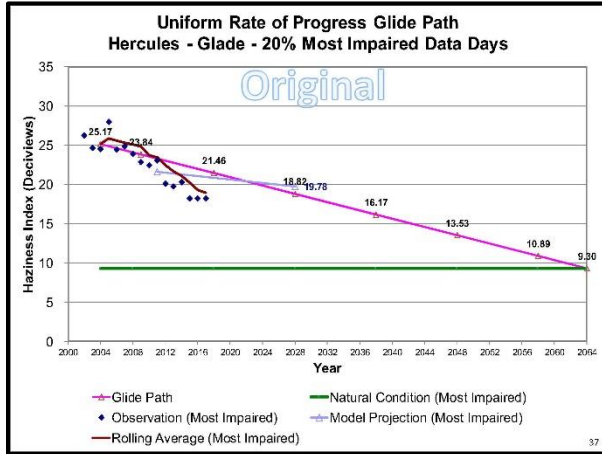












Contacts for Further Information

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



VISTAS Regional Haze Project Update – Part 2



FLM/EPA Briefing
Jim Boylan
May 11, 2020

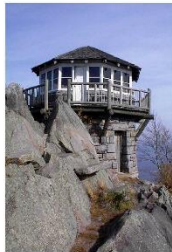
VISTAS Class I Areas

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 (CDHU)	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 – 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

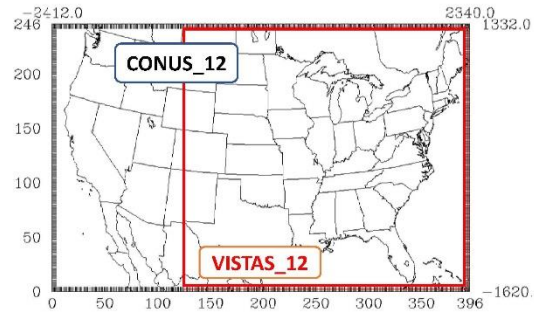
*This Class I Area does not have an IMPROVE monitor and will be represented by measurement data from a nearby Class I Area with an IMPROVE monitor.

Outline

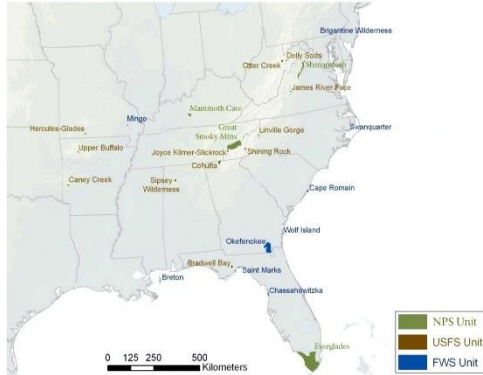
- Background Information
- 2028 Emissions Updates
- Revised 2028 PSAT Stacked Bar Charts
- Reasonable Progress Analysis
- Next Steps & Schedule



VISTAS Modeling Domains



Class I Areas of Interest to VISTAS States



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



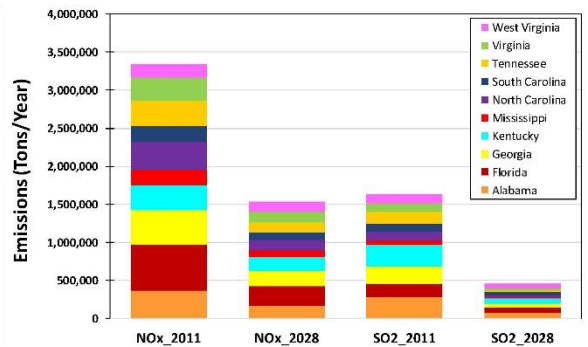
VISTAS vs. EPA Updated 2028 Emission Projections

- 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%
TOTAL	976,471.2	1,783,376.5	-806,905.3	-45.25%

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%
TOTAL	840,973.6	1,166,663.1	-325,689.5	-27.92%

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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 (SO₂, NOx, PM_{2.5}, PM₁₀, NH₃, 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 SO₂ 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 SO₂ 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	496,171.62	-24.9%	444,906.98	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%
TOTAL	2,581,643.20	1,779,936.20	-31.3%	1,788,132.63	1,032,667.35	-42.2%	793,510.56	741,268.85	-6.6%

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PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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	88,006.19	70,010.40	-2.0%	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%	10,522.79	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	903,979.85	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-VU	244,280.15	222,991.41	-9.7%	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	-32.7%	174,874.83	174,874.86	0.0%
TOTAL	2,649,998.14	2,370,804.22	-10.5%	1,159,405.80	879,790.66	-24.1%	1,490,592.35	1,491,013.55	0.0%

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PSAT SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ 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 ₂ EGU Ratio	SO ₂ 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

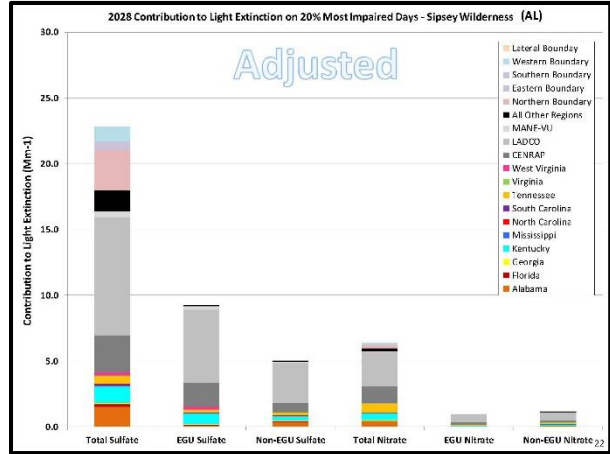
- Revised EGU Sulfate PSAT Results
= Original EGU Sulfate PSAT Results * SO₂ EGU Ratio

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

- Revised NEGU Sulfate PSAT Results
= Original NEGU Sulfate PSAT Results * SO₂ NEGU Ratio

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

19



Revised State/RPO PSAT Results

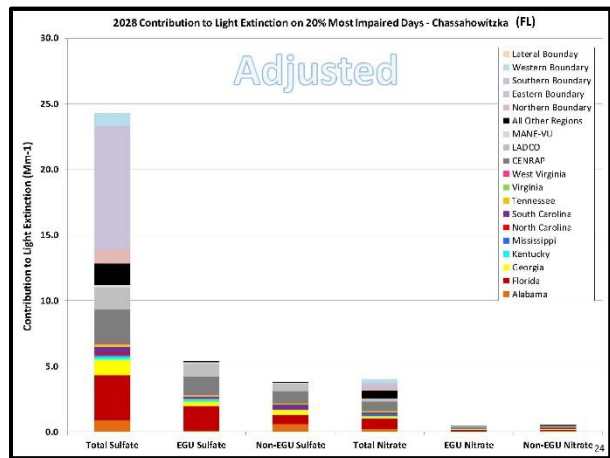
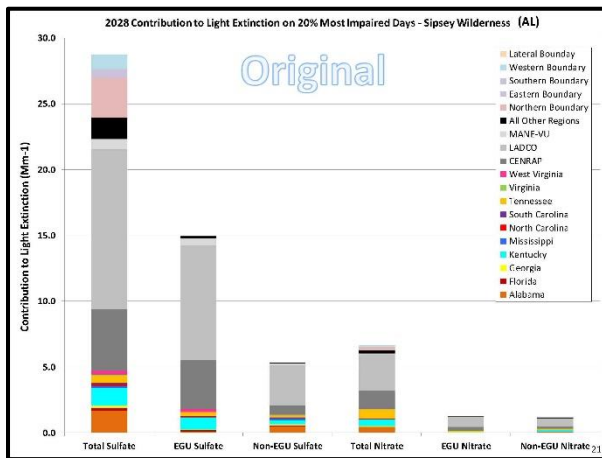
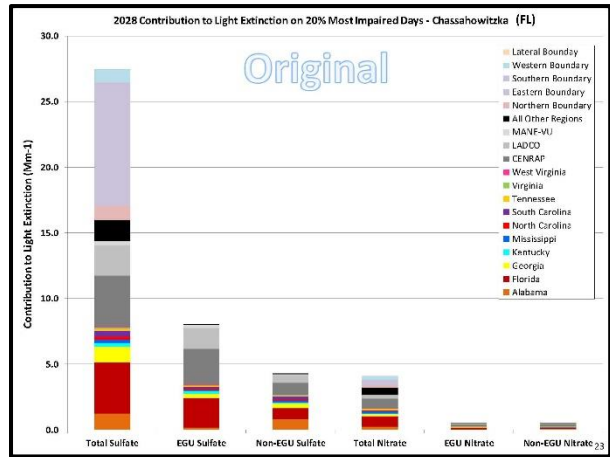
- Revised EGU Nitrate PSAT Results
= Original EGU Nitrate PSAT Results * NO_x EGU Ratio

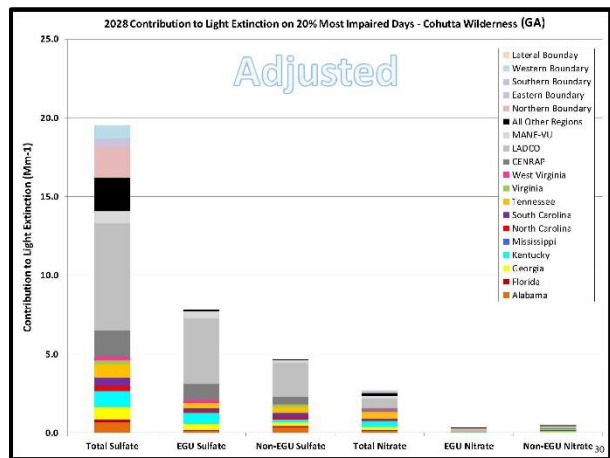
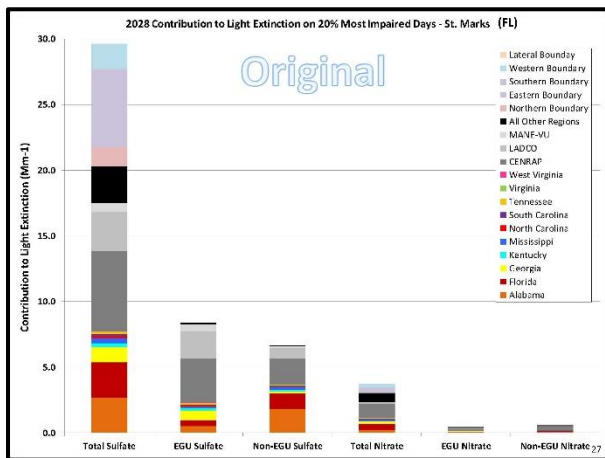
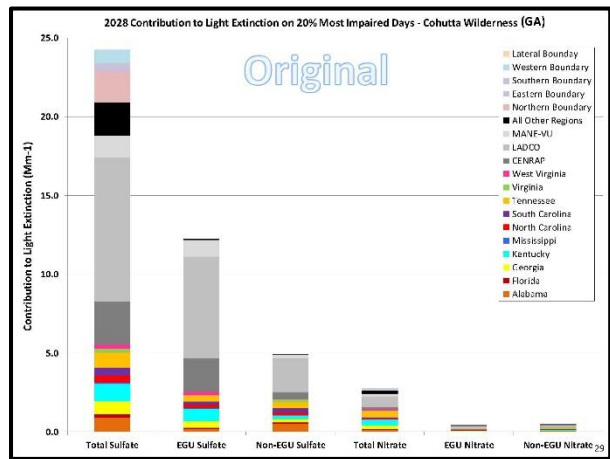
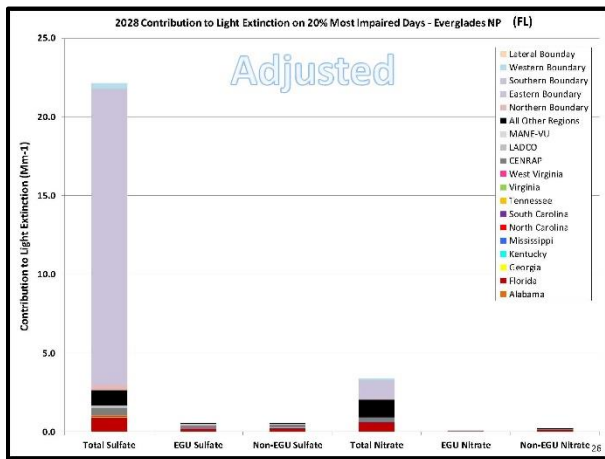
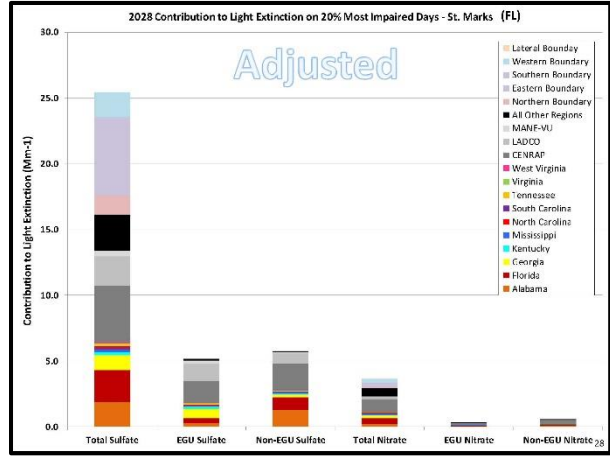
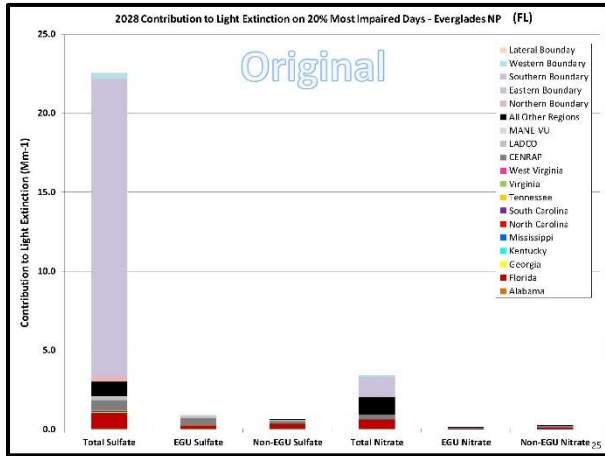
$$\text{where, } NO_x \text{ EGU Ratio} = \frac{\text{(Revised EGU } NO_x \text{ emissions)}}{\text{(Original EGU } NO_x \text{ emissions)}}$$

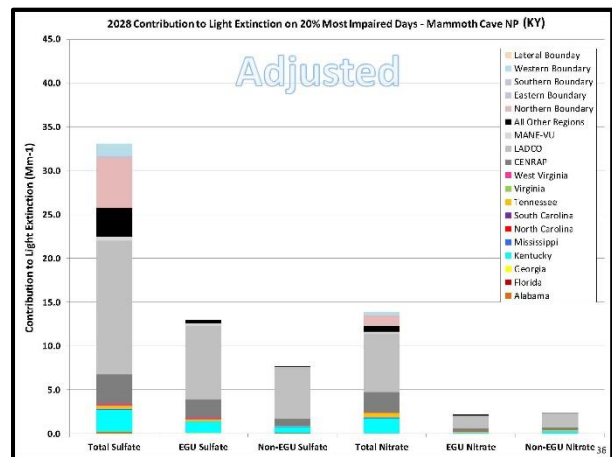
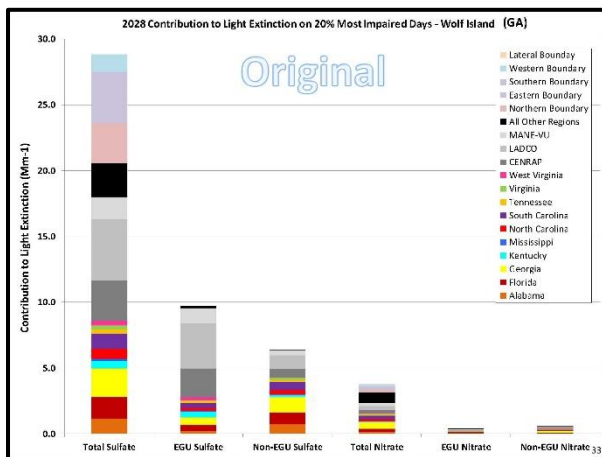
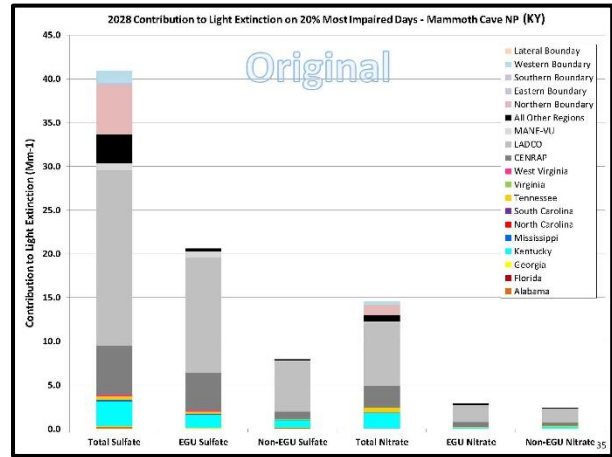
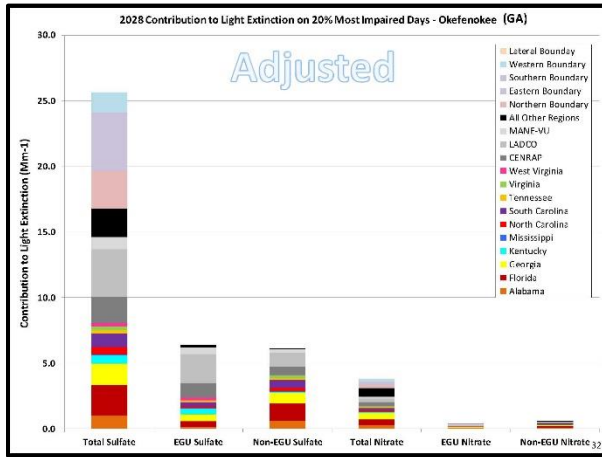
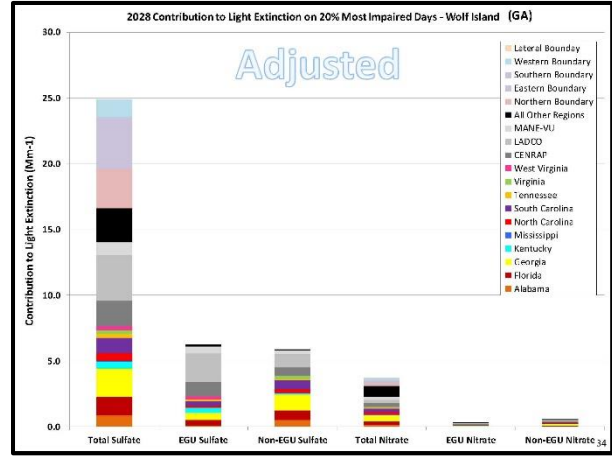
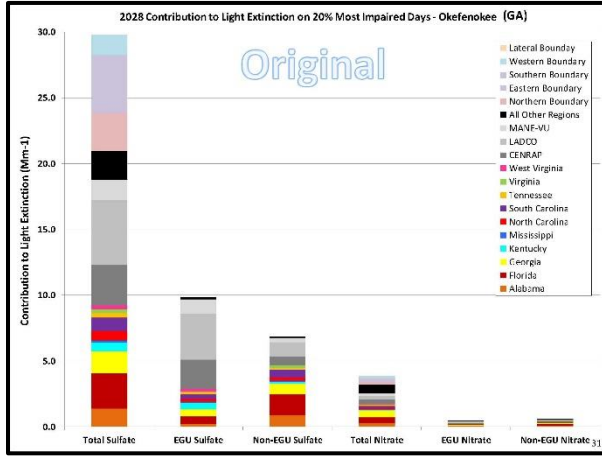
- Revised NEGU Nitrate PSAT Results
= Original NEGU Nitrate PSAT Results * NO_x NEGU Ratio

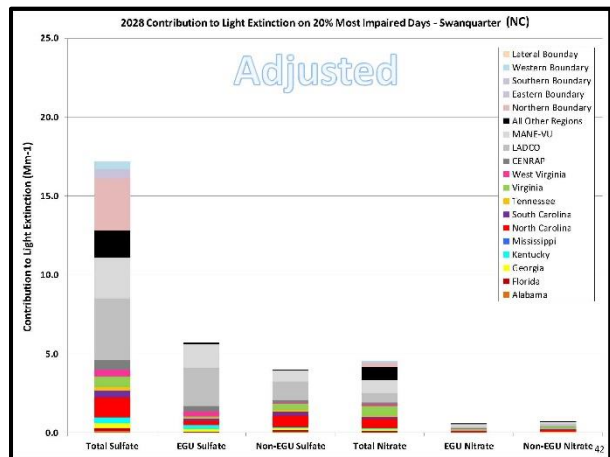
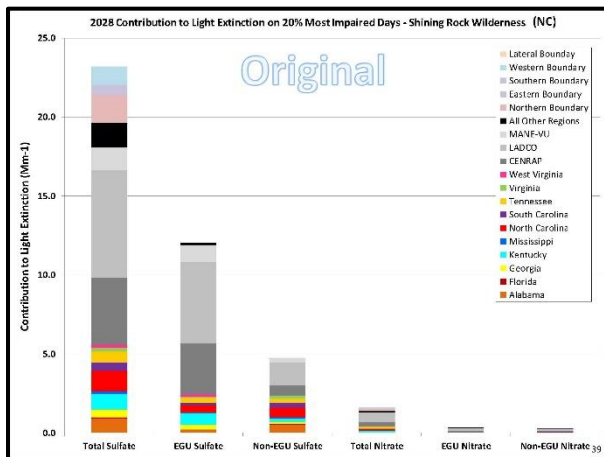
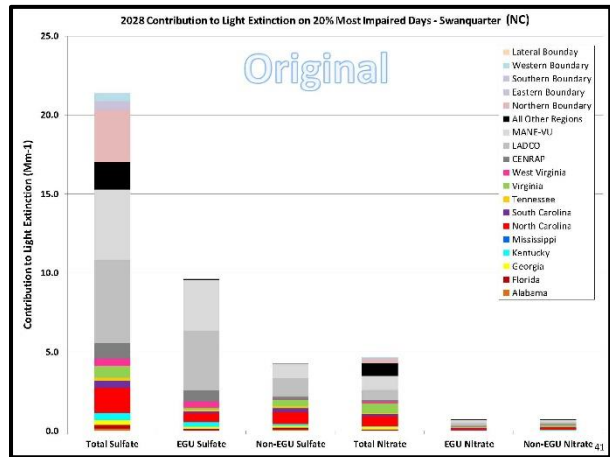
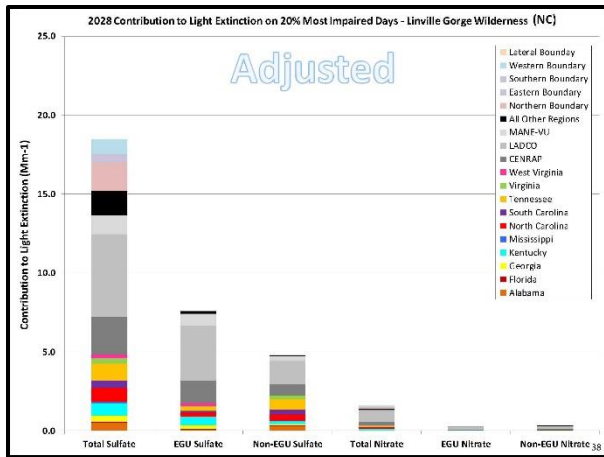
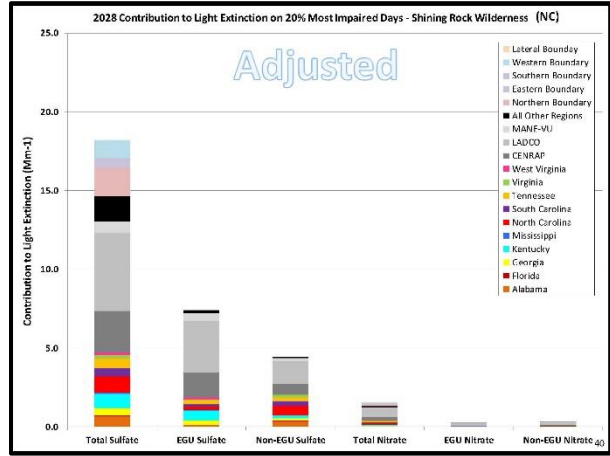
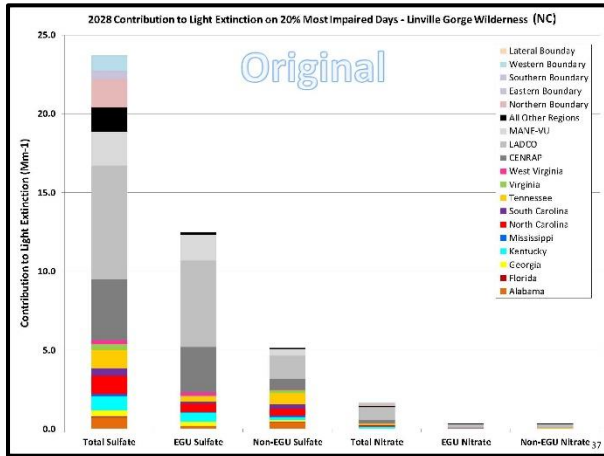
$$\text{where, } NO_x \text{ NEGU Ratio} = \frac{\text{(Revised NEGU } NO_x \text{ emissions)}}{\text{(Original NEGU } NO_x \text{ emissions)}}$$

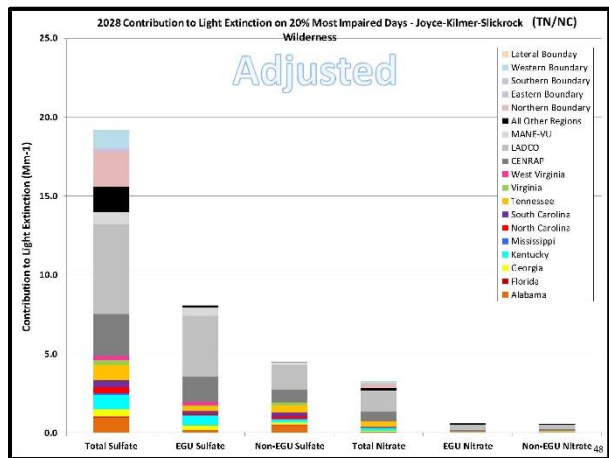
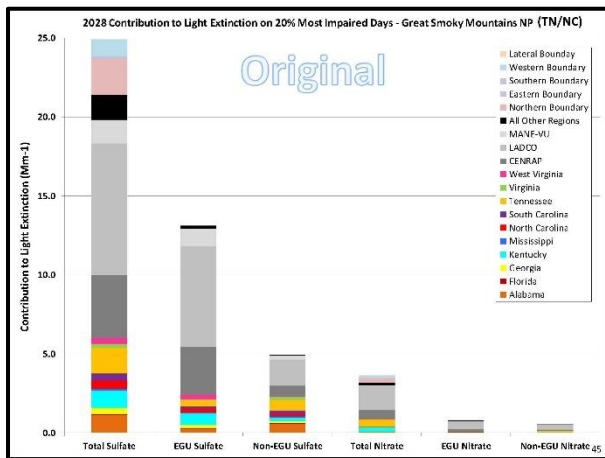
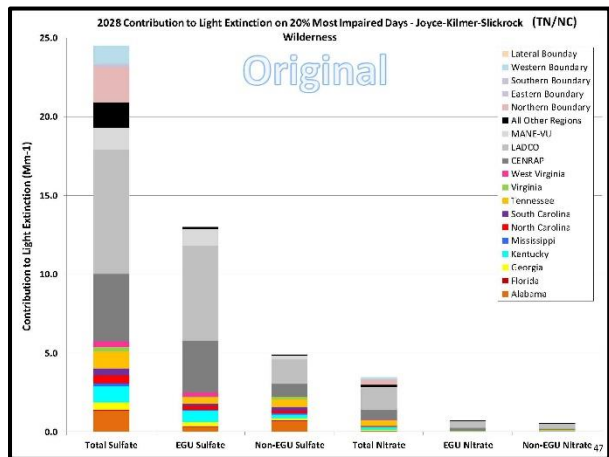
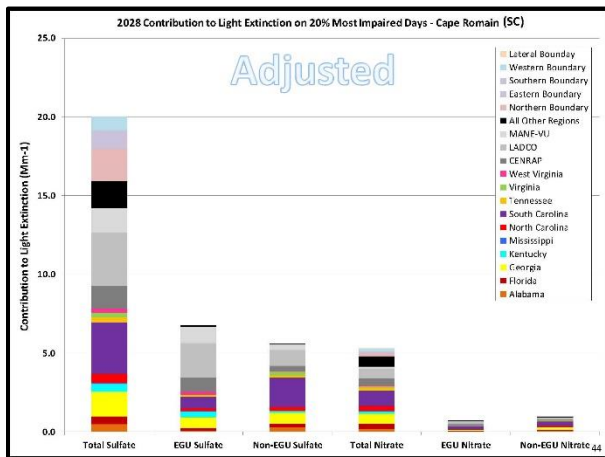
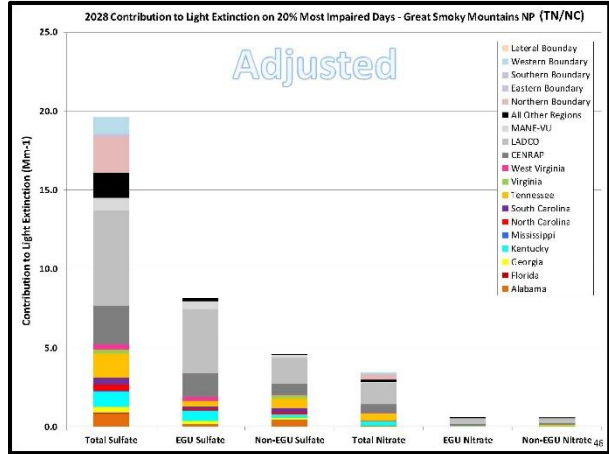
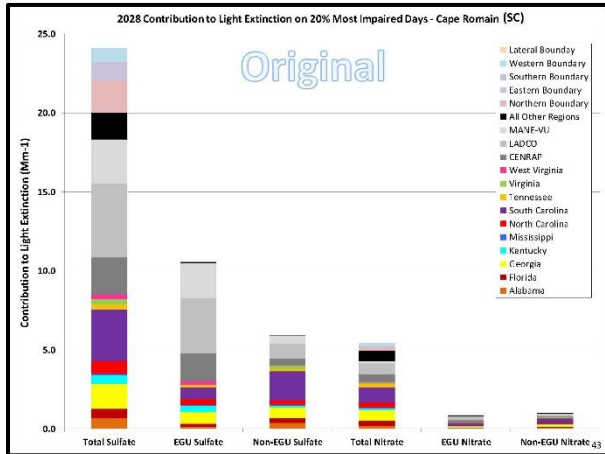
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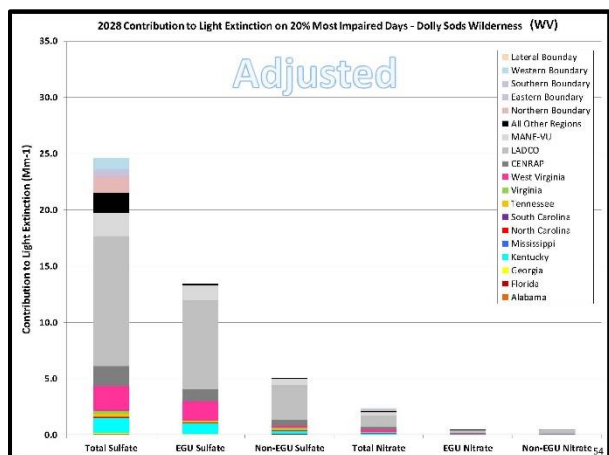
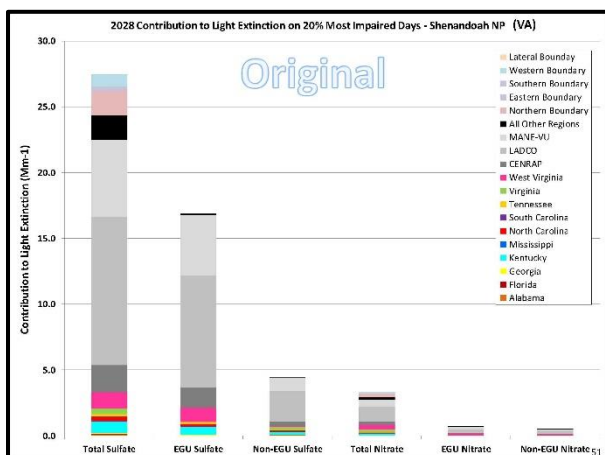
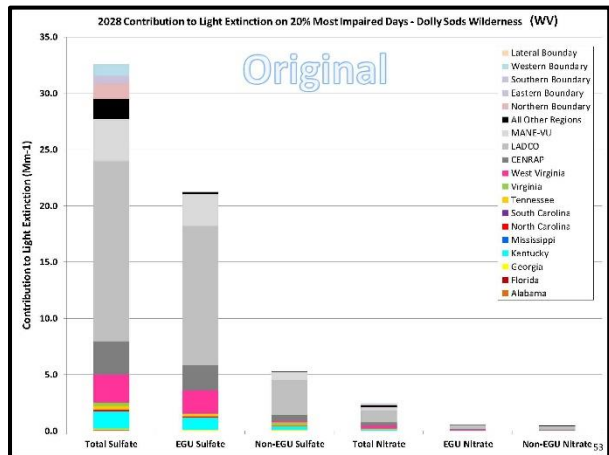
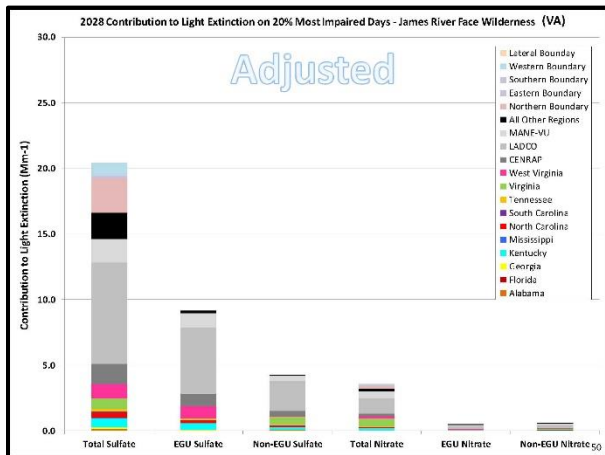
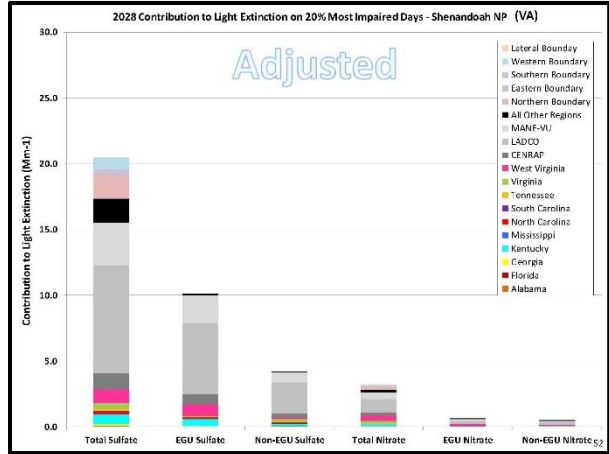
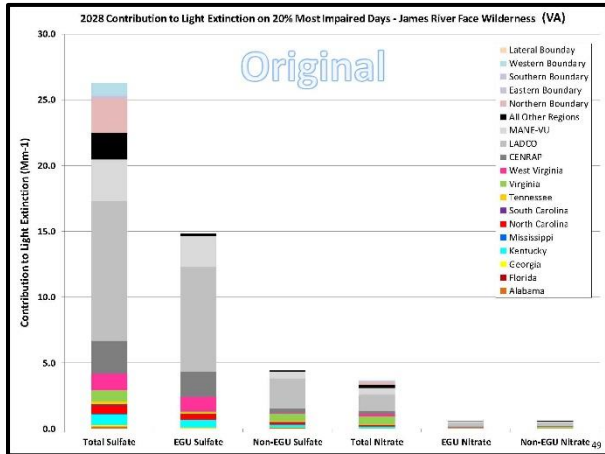


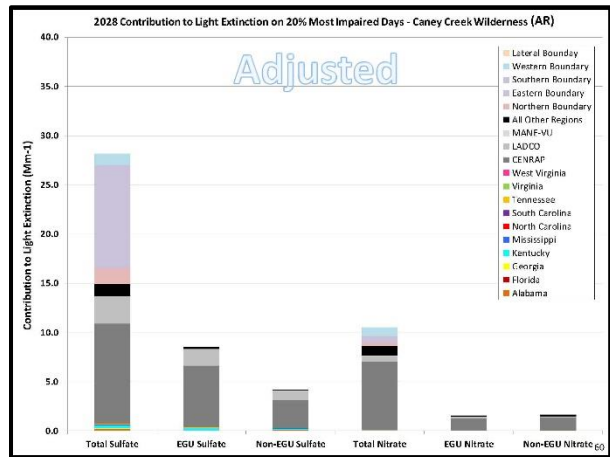
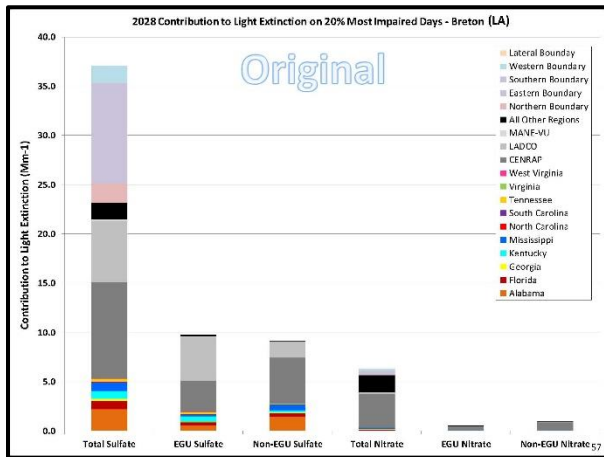
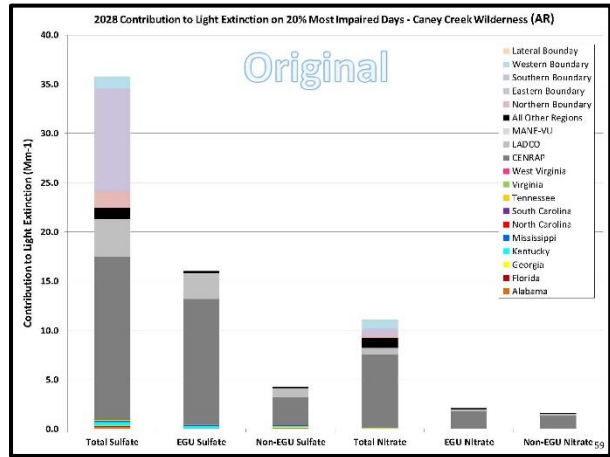
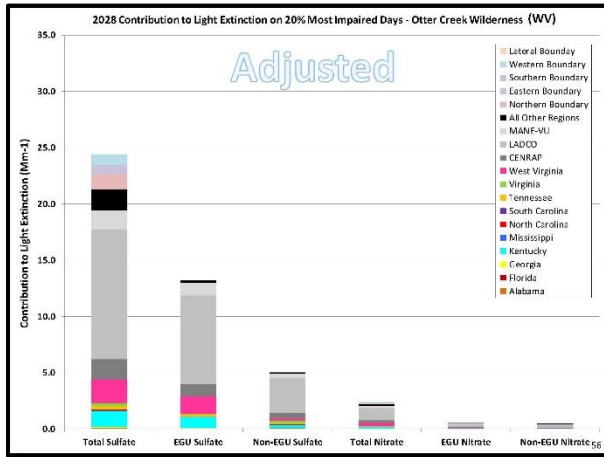
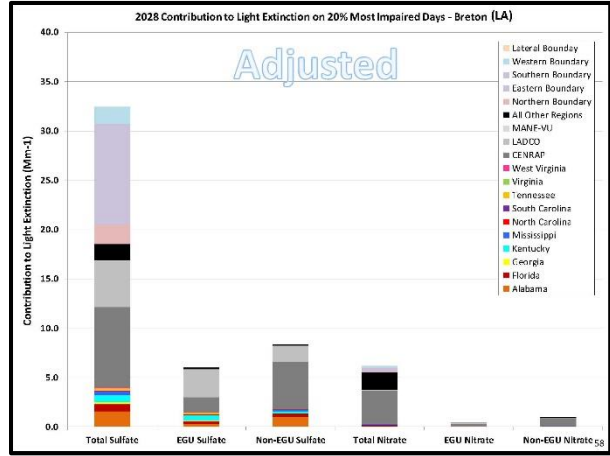
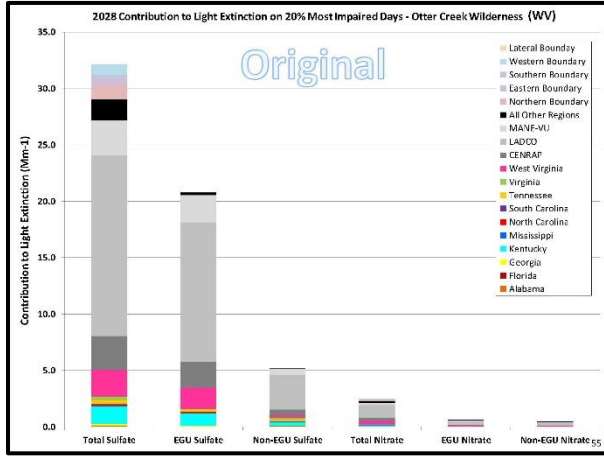


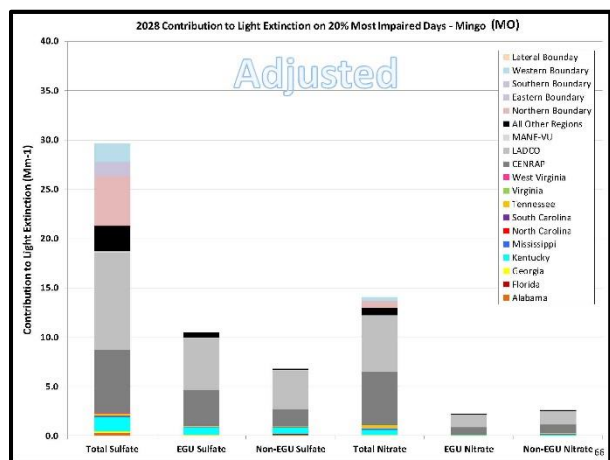
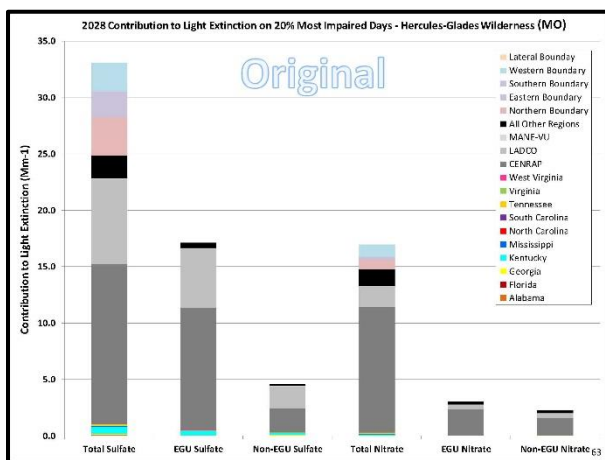
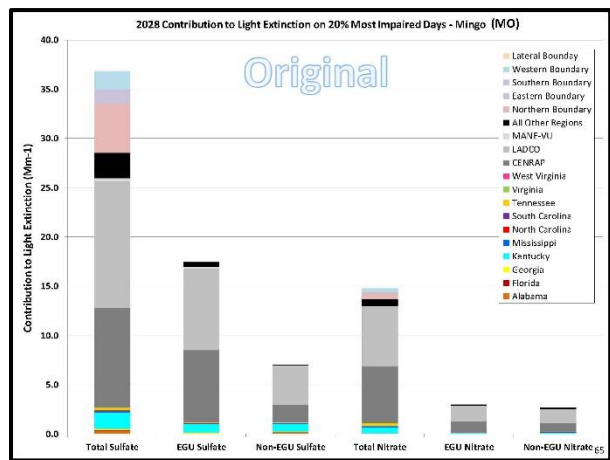
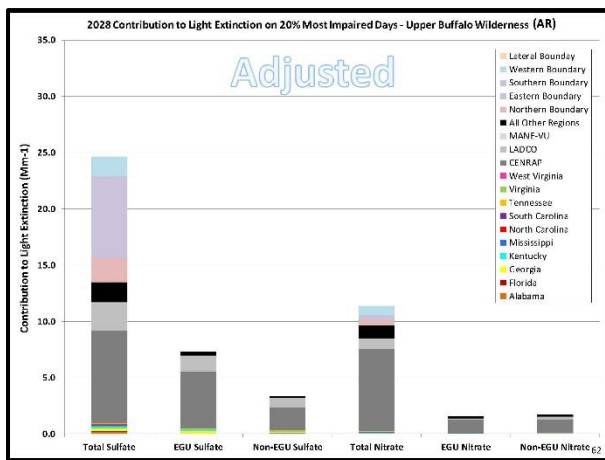
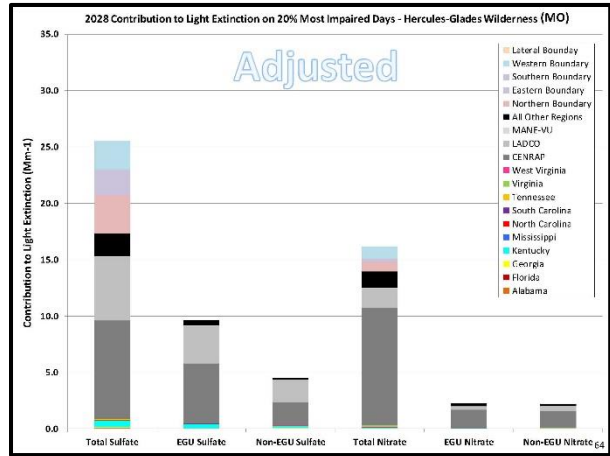
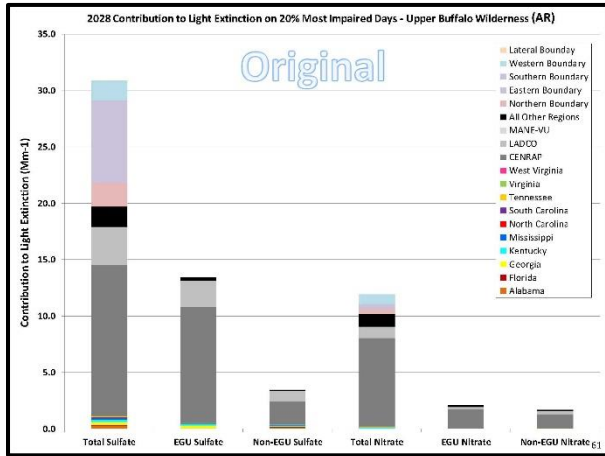


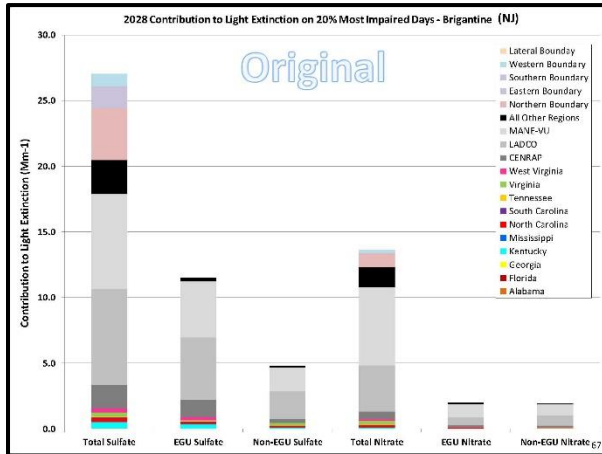






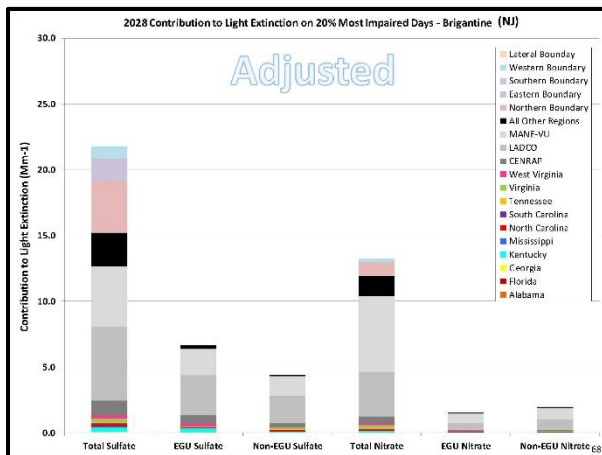






Reasonable Progress Screening Approach

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 $\geq 1.00\%$ → SO₂ Four-Factor Analysis
 - If nitrate contribution $\geq 1.00\%$ → NO_x Four-Factor Analysis



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⁻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 with the largest impacts.

Reasonable Progress Analysis

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**

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

AOI Point Contributions for Wolf Island

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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	2,806.7	0.39%	8.55%
GA	International Paper - Savannah	85.9	1,560.7	3,945.4	0.24%	7.53%
FL	IFA	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	2,745.0	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	EVINGLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
DH	General James M. Gavin Power Plant (0627010056)	845.3	8,172.5	41,506.8	0.07%	1.71%
SC	SANTÉE 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.	138.5	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	1,780.3	3,232.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	90.1	0.14%	0.93%
SC	KAPSTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	ELGIN COAL FERTILIZER COOPERATIVE	1,048.6	6,578.5	56,939.2	0.01%	0.84%

AOI Point Contributions for Cohutta

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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%	4.88%
GA	International Paper - Rome	87.4	1,773.4	1,791.0	0.18%	4.66%
IN	Gilman	487.7	12,280.3	23,117.2	0.10%	2.31%
IN	INDIANHOLZ POWER & LIGHT - PETERSBURG	477.0	10,665.3	18,141.9	0.16%	2.38%
KY	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	7,007.3	19,504.7	0.07%	2.38%
TN	TKA KINGSTON FOSIL PLANT	134.0	1,687.4	1,886.1	0.13%	2.17%
DH	General James M. Gavin Power Plant (0627010056)	512.0	8,122.5	41,506.8	0.02%	1.73%
TN	IVA CUMBERLAND COAL PLANT	327.0	4,916.5	8,427.3	0.09%	1.38%
KY	Rio Rivers Electric Corp. - Wilson Station	369.0	1,151.9	6,934.2	0.01%	1.07%
DH	Duke Energy Cleco, Wm. II - Zimmer Station (1411090154)	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	CV Utilities Co. - Chem Station	441.5	7,939.9	10,169.3	0.08%	1.05%
IL	Jopka Steam	466.9	4,706.5	20,309.3	0.02%	1.04%
GA	Michonak Industries Inc	32.9	66.5	77.1	0.07%	1.02%
TN	COUSMAN CHEMICAL COMPANY	289.8	6,900.3	6,420.2	0.09%	0.95%
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 FERTILIZER COOPERATION	444.4	6,188.5	9,038.1	0.09%	0.78%

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)
 - IEA (FL)

AOI Point Contributions for Okefenokee

State	FACILITY NAME	DISTANCE (mi)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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	2,806.7	0.88%	12.82%
FL	IFA	65.6	651.8	2,094.5	0.18%	6.60%
FL	EVINGLE 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	ROCKWY, CHRYSLER FINITE PARTNERSHIP	153.5	1,830.7	1,520.4	0.14%	2.38%
FL	KESSNER 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	Sandus - coal 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	1,554.5	294.2	0.34%	1.01%
SC	ALUMAX OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA 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%	0.85%
FL	CITY OF GAINESVILLE GRI	111.7	410.0	891.4	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%

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

PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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)
VA	VISTAS	21189-281811	Int. Jones Electric Corp. - Wilson Station	8,554.13	1,151.33
KY	VISTAS	21091-735241	Century Aluminum of KY LLC	5,044.13	107.58
KY	VISTAS	21177-1195711	Tennessee Valley Authority - Parrott Road Plant	3,011.01	3,114.72
KY	VISTAS	21145-2033011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	19,924.75	2,087.14
MS	VISTAS	38019-8184311	Chemura Products Company, Potomacville Refinery	731.24	1,584.17
MS	VISTAS	28059-8251011	Mississippi Power Company, Plant Victor, J. Daniel	231.52	3,829.72
NC	VISTAS	37037-7920511	Blue Ridge Paper Products - Canton Mill	1,127.07	2,982.37
NC	VISTAS	37187-8093911	Dominic Paper Company, LLC	597.85	1,795.49
NC	VISTAS	37935-8370411	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.31
NC	VISTAS	37013-8473911	PCS Phosphate Company, Inc. - Aurora	4,845.93	495.58
NC	VISTAS	37023-8514011	SGL Carbon, LLC	261.49	21.69
NC	VISTAS	45019-4850911	INTERNATIONAL PAPER GEORGETOWN MILL	3,021.85	109.39
SC	VISTAS	45043-1508511	INTERNATIONAL PAPER GEORGETOWN MILL	2,491.52	2,601.24
SC	VISTAS	45019-4873011	KAPTON CEMENTATION KRAFT, LLC	1,863.82	2,355.82
SC	VISTAS	45015-4378811	SANTIT COOPER EPOX GUM BAIT MIL STATION	4,281.13	3,771.47
SC	VISTAS	45043-5557811	SANTIT COOPER WYVAH GENERATING STATION	7,246.42	1,777.72
SC	VISTAS	45015-8302711	SCEGG WILLIAMS	392.43	892.72
TN	VISTAS	47033-4973911	Cemex - Knoxville Plant	121.47	711.59
TN	VISTAS	47105-3983111	EASTMAN CHEMICAL COMPANY	6,400.12	6,900.13
TN	VISTAS	47105-4122211	TATE & LYLE - London	472.78	883.23
TN	VISTAS	47033-4196011	TVA BULL RUN Fossil PLANT	622.54	964.18
TN	VISTAS	47105-4073911	TVA CUMBERLAND Fossil PLANT	8,427.33	4,915.23
TN	VISTAS	47145-4973911	TVA KINGSTON Fossil PLANT	1,889.05	1,387.18
VA	VISTAS	51027-4034811	Jewell Coker Company L.P.	5,090.05	520.14
VA	VISTAS	51580-4798711	MeadeWestco Packaging Resource Group	2,115.21	1,985.59
VA	VISTAS	51023-5036011	Roanoke Cement Company	2,295.17	1,372.93

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PSAT SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

→ 87 Total Facility Tags (both SO₂ 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	SO2 (TPY)	NOx (TPY)
WV	VISTAS	54029-0271111	ALLEGANY ENERGY GROUP LLC - CHESAIRE	2,210.23	1,245.18
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWER GENERATION CO INC - TOWN 211	10,984.24	4,878.11
WV	VISTAS	54078-0790111	APPALACHIAN POWER COMPANY - JOINT AMOS PLANT	2,172.54	1,084.12
WV	VISTAS	54013-0261011	Beckman Resources, Inc. - MICHIGAN STEAM POWER STATION	0.15	511.02
WV	VISTAS	54041-9080311	BOITHEMAN - COAL-FIRE PLANT	0.15	643.33
WV	VISTAS	54033-0790111	FILES CREEK COALFIRE	0.11	343.29
WV	VISTAS	54033-0790111	GLADY COALFIRE	0.11	343.29
WV	VISTAS	54033-0790111	LONGVIEW POWER	2,313.73	1,555.57
WV	VISTAS	54031-0202311	MITCHELL PLANT	5,372.40	2,719.62
WV	VISTAS	54033-0736111	MORGANTHAU POWER CO. - FORT MARTIN POWER	4,881.87	15,749.24
WV	VISTAS	54029-0271111	MORGANTHAU POWER CO. - FORT MARTIN POWER	16,811.42	5,497.17
WV	VISTAS	54031-0736111	MORGANTHAU POWER CO. - FORT MARTIN POWER	826.64	655.38
AR	CRNOZ	09625-1084111	ENERGY ARKANSAS INC - BENTON RICE PLANT	22,050.48	34,131.31
CO	CRNOZ	29143-7053811	NEW MADRID POWER PLANT - MADISON	16,283.71	4,984.18
MD	VIAE WV	34001-7763611	Juko Paper Company	77,559.84	3,677.07
PA	VIAE WV	42005-1865111	GENCO NE MGMT CO/LEVISTON STA	56,938.21	6,573.17
PA	VIAE WV	42033-3005211	HOMER CITY GEN CO/ CENTER TWP	11,865.23	5,215.99
PA	VIAE WV	42033-3005111	MS WOOD FLEET GENERATION GEN STA	8,880.25	2,554.64
IL	Midwest RPO	17147-7808911	Joppa Steam	10,509.28	4,765.33
IN	Midwest RPO	18173-8193111	Alcoa Warrick Power 7# Age Div of Al	5,071.28	11,558.53
IN	Midwest RPO	18053-7653111	Edison	23,117.20	12,380.34
IN	Midwest RPO	18147-8017211	INDIANA MICHIGAN POWER USA/ALP - HOOVER	10,336.53	8,605.77
IN	Midwest RPO	18115-7362411	INDIANAPOLIS POWER & LIGHT PHOENIX	18,141.88	10,665.27
IN	Midwest RPO	18179-8103111	Sargent & Shriver South Indiana Gas & Elec	7,644.41	1,578.83
OH	Midwest RPO	19031-8117211	Central Power Plant (Central Operating Company) (0541050000)	7,460.74	7,467.31
OH	Midwest RPO	19011-8010811	Catawba Power Plant (0512000000)	6,356.23	9,967.87
OH	Midwest RPO	19025-0294311	Duke Energy Ohio, Wm. J. Premier Station (143008114)	27,143.47	7,485.67
OH	Midwest RPO	19031-8117211	Edison Power Plant (0527000000)	4,155.33	4,332.52
OH	Midwest RPO	19053-7993011	Ohio Valley Electric Corp. - Tower Creek Station (0527000000)	3,400.19	9,143.24

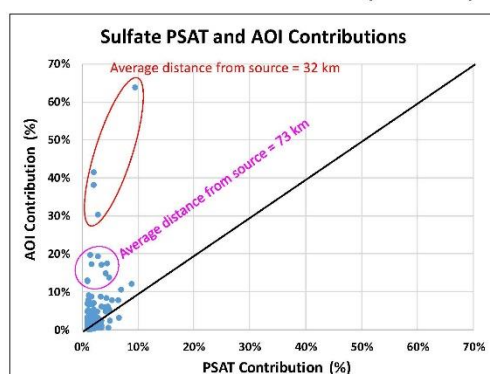
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Facility Tags (AL, FL, GA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01017-3498111	Alcoa Nobel Chemical Inc	3,339.72	201.41
AL	VISTAS	03027-1055111	Vita Power - Barry	6,042.14	2,275.78
AL	VISTAS	03178-1029711	American Multi-Incinerators, LLC	3,196.70	471.47
AL	VISTAS	03073-1018111	PRIMAVERNO COMPANY, INC.	7,562.13	1,208.52
AL	VISTAS	03013-7440011	Columbia Operating Company, LLC	18,974.76	349.13
AL	VISTAS	01053-8551111	Escambia Operating Company, LLC	6,589.60	149.54
AL	VISTAS	01103-8600011	Nucor Steel Decatur, LLC	170.23	331.24
AL	VISTAS	01009-8957111	Senders, Legal Co.	7,993.09	121.21
AL	VISTAS	03027-1061611	Union Oil of California - Chucushula Gas Plant	2,573.15	349.23
FL	VISTAS	12123-7524111	BUCKEYE FLOUIDA, LIMITED PARTNERSHIP	1,520.42	1,880.71
FL	VISTAS	12088-8001111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.51	310.38
FL	VISTAS	12017-8408111	DUCHE ENERGY LLC/FLORIDA, INC. (DUC)	5,309.41	2,489.83
FL	VISTAS	12088-8000111	FLORIDA POWER & LIGHT (FPL)	13.09	170.81
FL	VISTAS	12033-7527111	DUJ POWER - DUJ	2,610.55	2,928.23
FL	VISTAS	12086-7327111	HOMESTEAD CITY UTILITIES	0.00	87.04
FL	VISTAS	17011-8407111	JTA	7,094.48	661.74
FL	VISTAS	12105-2127111	MOGAS FERTILIZER, LLC	7,900.67	310.42
FL	VISTAS	12057-7161111	MOGAS FERTILIZER, LLC	3,030.00	159.72
FL	VISTAS	12105-9198111	MOGAS FERTILIZER, LLC	4,425.55	141.00
FL	VISTAS	12089-8458111	RAYONIER PERFORMANCE FIBERS, LLC	561.97	2,327.18
FL	VISTAS	12089-7537111	ROCK TOWN CO, LLC	2,666.72	2,319.77
FL	VISTAS	12005-9154111	ROCK TOWN CO, LLC	2,890.88	1,404.88
FL	VISTAS	12119-2731711	SA. LA. ASSOCI. CITY PUBLIC POWER GENERATING STA.	7.85	121.44
FL	VISTAS	12105-9198111	SAVONER LLC/FLORIDA COMMUNITY (FL-C)	6,084.90	2,865.00
FL	VISTAS	12089-8458111	SAVONER LLC/FLORIDA COMMUNITY (FL-C)	9.98	879.18
FL	VISTAS	12047-7697111	WILIT SPRINGS AGRICULTURAL CHEMICALS, INC	3,187.77	112.41
GA	VISTAS	13127-3721011	Branzwick Cultural Center	294.20	1,554.51
GA	VISTAS	13015-2813011	Gas Power Company - Plant Bowen	10,457.41	6,641.32
GA	VISTAS	13103-9181111	Georgia Pacific Consumer Products LP (Savannah River VIII)	3,266.15	351.52
GA	VISTAS	13051-3079811	International Paper - Savannah	3,945.33	1,560.73
GA	VISTAS	13115-8393111	TEWLEE ISLAND	1,791.00	1,773.93

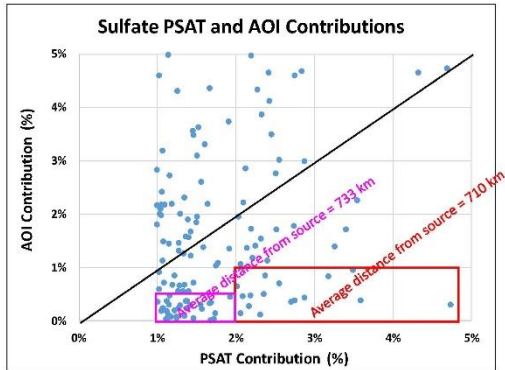
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Sulfate AOI vs. Sulfate PSAT (> 1.00%)



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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 Ratios (AL, FL, GA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
AL	VSTAS	0107-440811	Ala. Ind. Chem. Co., Inc.	1.000	1.000
AL	VSTAS	0207-1055111	Ala. Power - Barry	0.492	1.000
AL	VSTAS	01118-1024711	American Midstream Charters, LLC	0.000	0.000
AL	VSTAS	01073-1018711	DRUM MCDONALD COMPANY, INC.	1.000	1.000
AL	VSTAS	01013-7440211	Escambia Generating Company I, C	0.796	1.000
AL	VSTAS	01053-885111	Escambia Operating Company LLC	0.910	0.000
AL	VSTAS	01103-1000011	Husor Steel Decatur, LLC	1.000	1.000
AL	VSTAS	01099-885711	Sanders Lead Co	1.000	1.000
AL	VSTAS	01027-1061811	Union Oil of California - Chocoma Gas Plant	0.000	0.000
FL	VSTAS	12223-752411	BUCKEYE FLOUIDA, LIMITED PARTNERSHIP	1.000	1.000
FL	VSTAS	12068-800111	CEMEX CONSTRUCTION MATERIALS FL, LLC	1.000	1.000
FL	VSTAS	12011-840011	DUKE ENERGY FLORIDA, INC. (DUKE)	0.756	0.211
FL	VSTAS	12088-900011	FLORIDA POWER & LIGHT (FPL)	1.000	1.000
FL	VSTAS	12033-752711	GULF POWER - Cost	0.235	0.281
FL	VSTAS	12086-753711	HOMESTEAD CITY UTILITIES	1.000	1.000
FL	VSTAS	12011-840711	IP*	1.000	1.000
FL	VSTAS	12205-217711	MOSASC FERTILIZER, LLC	0.556	1.000
FL	VSTAS	12057-216111	MOSASC FERTILIZER, LLC	0.597	1.000
FL	VSTAS	12205-219111	MOSASC FERTILIZER, LLC	0.572	1.000
FL	VSTAS	12089-845811	RAYONIER PAPER MANMADE FIBERS, LLC	1.000	1.000
FL	VSTAS	12089-753711	ROCK TENN CP, LLC	1.000	1.000
FL	VSTAS	12065-215411	ROCK STEIN, LLC	1.000	1.000
FL	VSTAS	12149-2741711	VALA-FASSIS CITY PUBLIC GENERATING STA.	1.000	1.000
FL	VSTAS	12097-838811	VALPARAISE CITY COMPANY (V-C)	1.000	1.000
FL	VSTAS	12088-899211	VANAKA AMERICA, LLC	1.000	1.000
FL	VSTAS	12047-740711	WALTON GRANULES AER CHEMICALS, INC	0.760	0.760
GA	VSTAS	13117-7771011	Bran-walk Columbia	1.000	1.000
GA	VSTAS	13015-7813011	Co Power Company - Plant Newton	1.000	1.000
GA	VSTAS	13003-726311	Georgia-Pacific Consumer Products LP (Swanah River VIII)	1.000	1.000
GA	VSTAS	13011-823911	International Paper - Savannah	1.000	1.000
GA	VSTAS	13115-839311	PEWEE ISLAND	1.000	1.000

Class I Area Ratios

State	Class I Area	Ratio Class I Area
AL	Sipsey Wilderness Area (SIPS)	1.382
FL	Chassahowitzka Wilderness Area (CHAS)	1.325
FL	Lverglades NP (LVLV)	1.290
FL	St Marks Wilderness Area (SAMA)	1.363
GA	Cohutta Wilderness Area (COHU)	1.363
CA	Dierkefense Wilderness Area (DKFF)	1.317
GA	Wolf Island Wilderness (WOLI)	1.311
KY	Mammoth Cave NP (MACA)	1.437
NC	Linnville Gorge Wilderness Area (LIGD)	1.411
NC	Shining Rock Wilderness Area (SHRO)	1.410
NC	Swainquarter Wilderness Area (SWAQ)	1.298
SC	Cape Romain Wilderness (ROMA)	1.302
TN/KC	Great Smoky Mountains NP (GSMV)	1.394
TN/KC	Joyce Kilmer-Slickrock Wilderness (JOW)	1.401
VA	James River Esc. Wilderness (JARE)	1.416
VA	Shenandoah NP (SHLN)	1.463
WV	Dolly Sods Wilderness (DOSD)	1.417
WV	Otter Creek Wilderness (OTCR)	1.412
AR	Caneey Creek Wilderness Area (CACR)	1.496
AR	Ligon Buffalo Wilderness Area (LBPBU)	1.496
LA	Breton Wilderness (BRE1)	1.306
ME	Acadia National Park (ACAD)	1.402
ME	Moosehorn Wilderness (MWOOS)	1.417
MI	Seller Wilderness Area (SEWP)	1.269
MO	Hickories Glades Wilderness Area (HIGL)	1.456
MO	Mingo Wilderness Area (MINS)	1.360
NH	Great Gulf Wilderness Area (GGRU)	1.463
NH	Presidential Range-Dry River Wilderness (PRDR)	1.463
NY	Hugobone Wilderness Area (HUGO)	1.391
VT	Lye Brook Wilderness (LYBR)	1.471

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

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
KY	VSTAS	21183-5461811	Big Rivers Electric Corp. - Wilson Station	1.000	1.000
KY	VSTAS	21091-7157411	Century Aluminum of KY LLC	0.461	1.000
KY	VSTAS	21177-4187211	Tennessee Valley Authority - Jaxville Fossil Plant	0.728	0.728
KY	VSTAS	21145-5037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VSTAS	28019-8184111	Chemron Products Company, Panagoula Refinery	1.000	1.000
MS	VSTAS	28058-8251011	Mississippi Power Company - Plant Vicksburg - Daniel	1.000	1.000
NC	VSTAS	37037-709011	Blue Ridge Paper Products - Gosport Mill	1.000	1.000
NC	VSTAS	37117-8049311	Domtar Paper Company, LLC	1.000	1.000
NC	VSTAS	37025-8270011	Duke Energy Carolina, LLC - Marshall Steam Station	0.841	0.714
NC	VSTAS	37028-8492011	PCS Therapeutic Company, Inc. - Aurora	1.000	1.000
NC	VSTAS	37023-8513011	SGI Carbon LLC	1.000	1.000
SC	VSTAS	45015-4834911	ALLUMAR (I) SOUTH CAROLINA	1.000	1.000
SC	VSTAS	45043-8383211	INTERNAT. ONAL PARTNERSHIP GEORGETOWN W. FL	1.000	1.000
SC	VSTAS	45019-8027011	RAKSTONE (I) BRISTOL PLANT, LLC	1.000	1.000
SC	VSTAS	45015-4120411	KANITTY CROSS (I) CROSS (I) NAT RATING STATION	1.000	1.000
SC	VSTAS	45043-8267811	KANITTY CROSS (I) WYVAI (I) NAT RATING STATION	1.000	1.000
SC	VSTAS	45015-8087211	SCBBS MILL PLANT	1.000	1.000
TN	VSTAS	47093-4979911	Center - Knoxville Plant	1.000	1.000
TN	VSTAS	47163-3982811	EASTVAN CHEMICAL COMPANY	1.000	1.000
TN	VSTAS	47105-4122111	FATE & LYLE - 29980	0.241	0.274
TN	VSTAS	47003-8493011	TVA BULL RUN FOSSIL PLANT	1.000	0.000
TN	VSTAS	47161-4979311	TVA CLUMBERLAND FOSSIL PLANT	0.665	0.000
TN	VSTAS	47145-4979311	TVA KIMSHEEP FOSSIL PLANT	0.628	0.000
VA	VSTAS	51540-5748711	Meadwestvaco Packaging Resource Group	1.000	1.000
VA	VSTAS	51073-5038811	Ryanuku Cement Company	1.000	1.000

EXAMPLE: New Madrid Power at SIPS

- Revised Facility Sulfate PSAT Results = Original Facility Sulfate PSAT Results * SO₂ Ratio_Facility * Ratio_Class_I_Area
- Original Facility Sulfate PSAT Results = 1.46%
- Revised Facility Sulfate PSAT Results = 1.46% * 0.665 (Slide 94) * 1.382 (Slide 95) = 1.34% (Slide 97)

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

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
WV	VSTAS	14023-8217111	ALLEGHENY ENERGY SUPPLY CO., LLC-ARLISON	0.71	0.34
WV	VSTAS	14049-8404111	APPALACHIAN POWER-GARDNER WHARTON PL	0.555	0.274
WV	VSTAS	14079-5795111	APPALACHIAN POWER-COMPANY ID IN FARMOS PLANT	0.555	0.274
WV	VSTAS	14073-5257011	Domtar Resources, Inc. - MOUNT STORM POWER STATION	0.44	0.44
WV	VSTAS	14041-9000111	FOOTBRAMP - COAL FURN RUM CS 70	1.000	1.000
WV	VSTAS	14033-5790511	GLADY GC-450	1.000	1.000
WV	VSTAS	14093-6327811	KINGSFORD MANUFACTURING COMPANY	1.000	1.000
WV	VSTAS	14061-3822011	LONGVIEW POWER	0.722	0.100
WV	VSTAS	14051-8024111	MITCHELL PLANT	0.722	0.100
WV	VSTAS	14051-6778611	MONTICELLO POWER CO. - FORT MARTIN POWER	0.632	0.811
WV	VSTAS	14074-4782811	MONTICELLO POWER CO. - PLEASANT POWERS HA	0.684	0.970
WV	VSTAS	14053-5748211	MONTICELLO POWER CO. - NEWBERRY PLANT	0.722	0.100
AR	ENRPA	09053-1084811	ENERGY ATKINS&S INC IN SPINDRICE PLANT	0.412	0.211
MO	CFRPA	79143-5763811	NEW MADRID POWER PLANT MARSTON	0.550	0.321
MD	VAE-VU	24001-7703811	Duke Paper Company	0.440	1.000
PA	VAE-VU	42005-3066111	BERNCO NE MONT CO/KEYSTONE STA	0.725	0.771
PA	VAE-VU	42003-3005111	HOMER CITY GEN LP CENTER TW*	0.762	0.861
PA	VAE-VU	42003-3005111	NRG WHOLESALE GEN/SEWARD GEN STA	0.762	0.774
IL	Midwest RPO	17117-8050111	Jopka Steam	0.721	0.243
IN	Midwest RPO	18173-8493111	Alcoa Warlick Power 7th Age Div of AL	0.762	0.211
IN	Midwest RPO	18051-7363111	Libison	0.550	0.702
IN	Midwest RPO	18144-8017111	INDIANA MICHIGAN POWER (I) DRA AEP - REDSPOT	0.351	0.867
IN	Midwest RPO	18149-8464111	INDIANA MICHIGAN POWER & LIGHT - PETERSBURG	0.351	0.867
IN	Midwest RPO	18178-8165111	Ligeon AS Brown south nobata Gas & Ele	0.000	0.014
OH	Midwest RPO	19031-8115711	Central Power Plant (Central Operating Company) (054109000)	0.000	0.008
OH	Midwest RPO	19011-8101811	Cincinnati Power Plant (061500000)	0.000	0.008
OH	Midwest RPO	19075-8794111	Duke Energy Ohio, Wm. L. Zimmerman Station (1413096154)	0.47	0.210
OH	Midwest RPO	19053-8413511	General James M. Gavin Power Plant (062701005)	0.511	0.361
OH	Midwest RPO	19053-7983011	Ohio Valley Electric Corp. - Kyster Creek Station (0627000003)	0.762	0.665

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Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE (mi)	Sulfate ADI %	Original Sulfate PSAT %	Revised Sulfate PSAT %	Original Nitrate ADI %	Revised Nitrate ADI %	Original Nitrate PSAT %	Revised Nitrate PSAT %	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	3.31%	1.61%	2.22%	0.57%	0.04%	0.05%		
OH	39053-8148511	General James M. Gavin Power Plant (062701005)	690.9	0.38%	2.75%	1.99%	0.03%	0.09%	0.13%		
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP CO/CPDR	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%	0.23%	0.19%	0.18%		
IN	18123-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	1.72%	2.19%	1.57%	0.23%	0.23%	0.18%		
TN	47161-4979311	TVA CLUMBERLAND FOSSIL PLANT	228.8	3.18%	1.07%	1.48%	0.48%	0.12%	0.17%		
MO	29143-5763811	NEW MADRID POWER PLANT MARSTON	314.5	1.48%	1.40%	1.34%	0.26%	0.08%	0.07%		
KY	21145-6037011	Big Rivers Electric Corp. - Wilson Station	346.5	1.89%	0.98%	1.29%	0.07%	0.04%	0.05%		
Facilities That Dropped Off After REVISION											
IL	17127-7808011	Jopka Steam	346.5	1.94%	1.51%	0.82%	0.75%	0.03%	0.02%		
IN	18173-8113711	ALCOA - WARRICK POWER PLT AGC DIV OF AL	396.7	0.91%	1.07%	0.41%	0.62%	0.52%	0.19%		

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Appendix F-1
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Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	0.864	16.370	2.22%	0.805	16.370	0.05%	
OH	39053-8148511	General James M. Gavin Power Plant (3927030056)	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	418.7	0.270	16.370	1.65%	0.029	16.370	0.18%	
IN	18125-7362111	INDIANA POLARIS POWER & LIGHT - PETERSBURG	464.1	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%	
MO	29143-5361811	NLW MADRID POWER PLANT - VARS'ON	314.5	0.220	16.370	1.44%	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%	
Facilities That Dropped Off After REVISION										
IL	17112-7508911	Joppe Steam	342.5	0.134	16.370	0.82%	0.002	16.370	0.02%	
IN	18173-8181111	ALCOA - WARRICK POWER PIT ACC DIV OF AL	306.3	0.066	16.370	0.41%	0.032	16.370	0.19%	

Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate 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	12105-919611	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%	2.69%	0.02%	0.00%	0.00%
FL	12088-899911	PARMAC AMERICA LLC	61.7	0.16%	0.17%	0.23%	2.02%	0.76%	2.63%

Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
FL	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	63.62%	9.55%	6.24%	1.95%	0.40%	0.23%	
GA	13015-2813011	Ge 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%	0.86%	1.28%	0.24%	0.65%	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%	
Facilities That Dropped Off After REVISION										
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%	1.23%	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%	

Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.04%	1.33%	3.30%	0.00%	1.33%	0.00%
FL	12105-919611	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%	2.69%	0.00%	1.33%	0.00%
FL	12088-899911	PARMAC AMERICA LLC	61.7	0.00%	1.33%	0.23%	0.03%	1.33%	2.63%

Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
FL	12017-640611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	6.25%	10.09%	6.24%	0.03%	10.09%	0.23%	
GA	13015-2813011	Ge 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%	
Facilities That Dropped Off After REVISION										
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%	

St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised EGU + NREGD Min ¹	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT %	
GA	13015-2813011	Ge Power Company - Plant Bowen	452.5	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%	
Facilities That Dropped Off After REVISION										
AL	01097-1056111	Hot Springs Camp	383.1	1.67%	1.45%	0.97%	0.03%	0.02%	0.03%	
AL	01053-7440211	Escambia Operating Company LLC	375.6	5.95%	3.55%	0.96%	0.01%	0.02%	0.02%	
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	SPACON NE NIGHT CO/KEYSTONE STA	1,751.0	0.29%	1.29%	0.65%	0.01%	0.00%	0.00%	
AL	01053-985111	Escambia Operating Company LLC	315.0	0.02%	1.68%	0.02%	0.00%	0.00%	0.00%	

St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate 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	12005-533411	ROCKTENN CP LLC	149.8	0.540	11.729	2.60%	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%
Facilities That Dropped Off After REVISION										
AL	01059-1056111	Alto Power - Barry	583.1	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	42025-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	1,751.0	0.076	11.729	0.65%	0.000	11.729	0.02%	0.02%
AL	01053-985111	Escambia Operating Company LLC	315.0	0.062	11.729	0.20%	0.000	11.729	0.02%	0.02%

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Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised 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%	0.01%
GA	13015-2813011	GA Power Company - Plant Bowen	458.1	1.02%	11.74%	2.30%	0.05%	0.04%	0.05%	0.05%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.3	2.16%	1.64%	2.16%	0.14%	0.11%	0.14%	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%	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	42003-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	1,129.0	0.46%	2.05%	1.02%	0.01%	0.01%	0.01%	0.01%
Facilities That Dropped Off After REVISION										
DH	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 Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised 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%	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%
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%	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	42003-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	801.1	0.14%	2.06%	1.04%	0.00%	0.01%	0.01%	0.01%
IN	18051-7363111	Dillon	487.1	2.31%	1.35%	1.03%	0.10%	0.07%	0.07%	0.07%
Facilities That Dropped Off After REVISION										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	2.18%	1.29%	0.81%	0.16%	0.03%	0.02%	0.02%
TN	47145-4399111	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.0%	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 Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate 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	153.3	0.283	13.40%	2.16%	0.019	13.40%	0.14%	0.14%
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	909.1	0.203	13.40%	1.51%	0.012	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	42003-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	1,129.0	0.137	13.40%	1.02%	0.002	13.40%	0.01%	0.01%
Facilities That Dropped Off After REVISION										
DH	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%	0.02%	0.02%

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Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	512.0	0.322	13.22%	2.44%	0.009	13.22%	0.07%	0.07%
GA	13015-2813011	GA Power Company - Plant Bowen	78.0	0.282	13.22%	2.13%	0.005	13.22%	0.04%	0.04%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	457.2	0.190	13.22%	1.44%	0.002	13.22%	0.02%	0.02%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	410.1	0.181	13.22%	1.37%	0.005	13.22%	0.04%	0.04%
DH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	0.173	13.22%	1.31%	0.005	13.22%	0.04%	0.04%
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	269.8	0.165	13.22%	1.25%	0.012	13.22%	0.09%	0.09%
PA	42003-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	801.1	0.137	13.22%	1.04%	0.002	13.22%	0.01%	0.01%
IN	18051-7363111	Dillon	487.1	0.137	13.22%	1.03%	0.002	13.22%	0.03%	0.03%
Facilities That Dropped Off After REVISION										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	0.111	13.22%	0.81%	0.003	13.22%	0.02%	0.02%
TN	47145-4399111	TVA KINGSTON FOSSIL PLANT	124.0	0.045	13.22%	0.34%	0.002	13.22%	0.02%	0.02%

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Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	FINAL Revised EGU + NREGD Min ³ Sulfate PSAT %	FINAL Revised 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%	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	Branswick Cellulose Inc.	27.9	8.84%	1.34%	1.76%	2.94%	0.10%	0.13%	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%	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%	1.39%	0.09%	0.06%	0.08%	0.08%
FL	12011-640211	SEA	109.1	4.43%	0.86%	1.79%	0.09%	0.03%	0.06%	0.06%
SC	45015-4849411	ALLUMAX OF SOUTH CAROLINA	223.0	1.84%	0.95%	1.35%	0.00%	0.01%	0.01%	0.01%
PA	42003-3866111	SENON NE N.G.M.T CO/KEYSTONE STA	1,048.6	0.84%	2.97%	1.12%	0.01%	0.01%	0.01%	0.01%
Facilities That Dropped Off After REVISION										
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%	0.02%
FL	12047-769711	WHITE SPRINGS AGRICULTURAL CHEMICALS,INC	173.6	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	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
FL	12089-753711	ROCK TENN CP, LLC	74.9	0.304	12.957	2.35%	0.018	12.957	0.14%			
GA	19015-2813011	Ga Power Company - Plant Bowen	458.1	0.302	12.957	2.33%	0.007	12.957	0.05%			
GA	19127-8721011	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	12031-640211	SEA	189.1	0.167	12.957	1.29%	0.008	12.957	0.06%			
SC	45015-4819411	ALLIANCE OF SOUTH CAROLINA	229.0	0.162	12.957	1.25%	0.001	12.957	0.01%			
PA	42003-3866111	SLVCON NL V G W T CO/KEYSTONE STA	1,048.6	0.149	12.957	1.15%	0.002	12.957	0.01%			
Facilities That Dropped Off After REVISION												
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	876.1	0.099	12.957	0.76%	0.002	12.957	0.02%			
FL	12047-769712	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%			

Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	19.23%	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	CFVCON NE 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	19015-2813011	Ga 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%	0.09%			
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	688.6	0.63%	1.11%	1.04%	0.00%	0.00%	0.00%			
VA	51027-4034811	Jewell Coke Company LLP	1,149.4	5.84%	0.33%	1.03%	0.01%	0.00%	0.00%			
Facilities That Dropped Off After REVISION												
AR	05063-1083412	ENTERGY ARKANSAS INC- INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.86%	0.00%	0.01%	0.00%			
MD	24001-7763812	Luke Paper Company	461.8	0.23%	1.37%	0.84%	0.00%	0.00%	0.00%			
IN	18125-7362412	INDIANAPOLIS POWER & LIGHT PLT/CRSBRG	550.5	0.30%	1.12%	0.82%	0.01%	0.07%	0.05%			
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.2	2.82%	1.00%	0.66%	0.03%	0.02%	0.03%			

Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
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	21145-5561611	Big Rivers Electric Corp - Wilson Station	89.9	6.73%	1.07%	1.43%	0.57%	0.06%	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/CRSBRG	182.9	3.09%	1.50%	1.04%	0.96%	0.40%	0.27%			
Facilities That Dropped Off After REVISION												
OH	39025-8294312	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%	1.25%	0.81%	0.04%	0.02%	0.02%			
AR	05063-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.30%	1.15%	0.65%	0.04%	0.05%	0.02%			
IN	18173-8183112	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	2.02%	1.03%	0.40%	1.74%	0.82%	0.30%			
IN	18123-8166112	Egeco AB Brown South Indiana Gas & Ele	162.9	2.73%	1.16%	0.60%	0.27%	0.06%	0.00%			

Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	81.9	0.52%	13.88%	4.05%	0.01%	12.88%	0.10%			
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	379.2	0.44%	13.86%	3.46%	0.00%	12.88%	0.07%			
PA	42003-3866111	CFVCON NE V G W T CO/KEYSTONE STA	567.5	0.23%	12.86%	1.82%	0.00%	12.88%	0.09%			
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	626.3	0.17%	12.88%	1.34%	0.00%	12.88%	0.02%			
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	516.6	0.15%	12.88%	1.20%	0.00%	12.88%	0.01%			
GA	19015-2813011	Ga Power Company - Plant Bowen	340.9	0.14%	12.88%	1.13%	0.00%	12.88%	0.00%			
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	503.5	0.34%	12.88%	1.10%	0.01%	12.88%	0.09%			
IN	18051-7363111	Gibson	582.3	0.13%	12.88%	1.07%	0.00%	12.88%	0.07%			
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	688.6	0.31%	12.88%	1.04%	0.00%	12.88%	0.00%			
VA	51027-4034811	Jewell Coke Company LLP	1,149.4	0.13%	12.88%	1.03%	0.00%	12.88%	0.00%			
Facilities That Dropped Off After REVISION												
AR	05063-1083412	ENTERGY ARKANSAS INC- INDEPENDENCE PLANT	856.4	0.11%	12.88%	0.86%	0.00%	12.88%	0.00%			
MD	24001-7763812	Luke Paper Company	461.8	0.10%	12.88%	0.84%	0.00%	12.88%	0.00%			
IN	18125-7362412	INDIANAPOLIS POWER & LIGHT PLT/CRSBRG	550.5	0.10%	12.88%	0.84%	0.00%	12.88%	0.00%			
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	380.2	0.08%	12.88%	0.66%	0.00%	12.88%	0.03%			

Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	118.0	0.42%	25.289	1.68%	0.085	25.289	0.33%			
IN	18051-7363111	Gibson	198.2	0.41%	25.289	1.63%	0.084	25.289	0.33%			
KY	21145-5561611	Big Rivers Electric Corp - Wilson Station	89.9	0.36%	25.289	1.43%	0.020	25.289	0.08%			
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	233.6	0.29%	25.289	1.15%	0.049	25.289	0.19%			
MO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	312.7	0.28%	25.289	1.14%	0.027	25.289	0.09%			
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PLT/CRSBRG	182.9	0.26%	25.289	1.04%	0.068	25.289	0.27%			
Facilities That Dropped Off After REVISION												
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	256.1	0.22%	25.289	0.89%	0.030	25.289	0.12%			
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	406.5	0.20%	25.289	0.81%	0.006	25.289	0.02%			
AR	05063-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	498.6	0.16%	25.289	0.65%	0.005	25.289	0.02%			
IN	18173-8183112	ALCOA WARRICK POWER PLT AGC DIV OF AL	136.1	0.10%	25.289	0.40%	0.075	25.289	0.30%			
IN	18123-8166112	Egeco AB Brown South Indiana Gas & Ele	162.9	0.00%	25.289	0.00%	0.000	25.289	0.00%			

Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ¹	FINAL Revised Sulfate PSAT Min ²	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ¹	FINAL Revised Nitrate PSAT Min ²	FINAL Revised Nitrate PSAT %	FINAL Revised SO ₂ + NIOU Min ¹	FINAL Revised SO ₂ + NIOU Min ²	FINAL Revised SO ₂ + NIOU %
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%	1.63%	0.01%	0.02%	0.02%			
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	454.4	0.54%	0.89%	1.32%	0.02%	0.01%	0.02%			
GA	19015-2813011	Ga Power Company - Plant Bowen	241.6	1.70%	0.95%	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	SLVCON NL V G W T CO/KEYSTONE STA	657.6	0.49%	2.36%	1.23%	0.00%	0.00%	0.00%			
IN	18051-7363111	Gibson	584.2	0.29%	1.55%	1.23%	0.01%	0.07%	0.07%			
NC	37007-7920511	Blue Ridge Paper Products - Canton Mill	16.9	41.29%	2.14%	1.08%	6.65%	0.07%	0.10%			
OH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	1.37%	1.50%	1.05%	0.03%	0.01%	0.01%			
AR	05063-1083412	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%			

Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised SO ₂ + NiSO ₄ M/m ³	FINAL Revised Sulfate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %	FINAL Revised NiSO ₄ + NiSO ₄ M/m ³	FINAL Revised Nitrate PM ₁₀ %	
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	397.3	0.297	12.313	2.414	0.001	12.313	0.016
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	573.4	0.201	12.313	1.630	0.009	12.313	0.020
TN	47161-4879311	TVA CUMBERLAND FOSSIL PLANT	454.1	0.162	12.313	1.320	0.002	12.313	0.020
GA	13015-2813011	Ea Power Company - Plant Bowen	241.6	0.159	12.313	1.290	0.001	12.313	0.016
VO	29143-5363811	NFW MADRID POWER PLANT-VARSTON	625.2	0.158	12.313	1.280	0.001	12.313	0.016
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	473.3	0.156	12.313	1.270	0.012	12.313	0.095
PA	42003-3866111	GLNVON NL M/GM/T CO/KEYSTONE STA	657.8	0.151	12.311	1.240	0.000	12.313	0.020
IN	18051-7363111	Edison	554.2	0.151	12.313	1.230	0.008	12.313	0.076
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	16.9	0.133	12.313	1.080	0.012	12.313	0.100
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413020154)	406.7	0.129	12.313	1.050	0.007	12.313	0.016
AR	05063-1083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	783.3	0.129	12.313	1.040	0.001	12.313	0.016
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	326.5	0.128	12.313	1.040	0.009	12.313	0.020
Facilities That Dropped Off After REVISION									
IN	18125-7362412	INDIANA MICHIGAN POWER & LIGHT - PETERSBURG	529.0	0.107	12.313	0.820	0.010	12.313	0.080
IL	17127-7808911	Voggo Steam	582.4	0.073	12.313	0.590	0.000	12.313	0.026

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Swanquarter Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised SO ₂ + NiSO ₄ M/m ³	FINAL Revised Sulfate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %	FINAL Revised NiSO ₄ + NiSO ₄ M/m ³	FINAL Revised Nitrate PM ₁₀ %	
PA	42003-3866111	GENON NE M/GM/T CO/KEYSTONE STA	640.2	0.375	10.894	3.440	0.003	10.894	0.030
NC	37013-8479311	PCS Phosphate Company, Inc. - Aurora (0627010056)	52.5	0.329	10.894	3.020	0.007	10.894	0.060
OH	39053-8148511	General James M. Gavin Power Plant	651.5	0.219	10.894	2.010	0.005	10.894	0.050
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	659.6	0.203	10.894	1.860	0.007	10.894	0.080
MD	74001-7763811	Luke Paper Company	512.5	0.191	10.894	1.750	0.008	10.894	0.070
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	568.6	0.186	10.894	1.710	0.013	10.894	0.120
PA	42003-3866111	IONLER CITY GLN LP/CLNLR TWP	620.1	0.151	10.894	1.380	0.008	10.894	0.070
WV	54073-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.127	10.894	1.170	0.005	10.894	0.050
GA	13015-2813011	Ea Power Company - Plant Bowen	810.6	0.112	10.894	1.030	0.003	10.894	0.030
NC	37117-8049311	Dorstar Paper Company, LLC	89.0	0.109	10.894	1.000	0.022	10.894	0.200
Facilities That Dropped Off After REVISION									
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ALP ROCKPORT	1,005.3	0.091	10.894	0.830	0.005	10.894	0.040

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Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	Original Sulfate AOI %	Original Sulfate PM ₁₀ %	FINAL Revised Sulfate PM ₁₀ %	Original Nitrate AOI %	Original Nitrate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %
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%	1.30%	0.16%	0.02%	0.02%
PA	42003-3866111	GLNVON NL M/GM/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	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413020154)	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%
TN	47125-7362412	INDIANA MICHIGAN POWER & LIGHT - PETERSBURG	453.0	2.16%	1.00%	0.72%	0.24%	0.23%	0.16%
TN	47145-4379112	TVA KINGSTON FOSSIL PLANT	73.7	7.86%	2.48%	0.39%	0.57%	0.13%	0.03%

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Cape Romain Wilderness Area (SC)

State	Facility ID	Facility Name	DISTANCE_m	Original Sulfate AOI %	Original Sulfate PM ₁₀ %	FINAL Revised Sulfate PM ₁₀ %	Original Nitrate AOI %	Original Nitrate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %
SC	45019-4973611	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	506.3	0.36%	2.71%	3.53%	0.01%	0.10%	0.14%
NC	45015-4834911	ALUMAX OF SOUTH CAROLINA	39.1	17.07%	1.79%	2.33%	0.03%	0.02%	0.02%
PA	42003-3866111	GLNVON NL M/GM/T CO/KEYSTONE STA	857.1	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	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	SANTEE COOPER WINYAH 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%	1.23%	0.04%	0.05%	0.06%
Facilities That Dropped Off After REVISION									
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413020154)	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	Original Sulfate AOI %	Original Sulfate PM ₁₀ %	FINAL Revised Sulfate PM ₁₀ %	Original Nitrate AOI %	Original Nitrate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %
PA	42003-3866111	GENON NE M/GM/T CO/KEYSTONE STA	640.2	3.00%	6.66%	3.81%	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 (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%	0.05%
MD	74001-7763811	Luke Paper Company	512.5	0.43%	2.88%	1.75%	0.02%	0.00%	0.02%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	568.6	0.67%	1.19%	1.71%	0.08%	0.10%	0.12%
PA	42003-3866111	IONLER CITY GLN LP/CLNLR 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	0.84%	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	Dorstar Paper Company, LLC	89.0	3.27%	0.72%	1.00%	1.02%	0.14%	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	Original Sulfate AOI %	Original Sulfate PM ₁₀ %	FINAL Revised Sulfate PM ₁₀ %	Original Nitrate AOI %	Original Nitrate PM ₁₀ %	FINAL Revised Nitrate PM ₁₀ %
SC	45019-4973611	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	506.3	0.48%	14.02%	3.53%	0.01%	14.02%	0.14%
NC	45015-4834911	ALUMAX OF SOUTH CAROLINA	39.1	0.327	14.02%	2.33%	0.019	14.02%	0.02%
PA	42003-3866111	GLNVON NL M/GM/T CO/KEYSTONE STA	857.1	0.320	14.02%	2.28%	0.002	14.02%	0.01%
SC	45015-4120411	SANTEE 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	701.0	0.305	14.07%	2.17%	0.005	14.07%	0.04%
SC	45043-5698611	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	0.230	14.07%	1.64%	0.024	14.07%	0.15%
SC	45043-6652811	SANTEE COOPER WINYAH GENERATING STATION	51.4	0.187	14.07%	1.33%	0.040	14.07%	0.17%
GA	13051-3679811	International Paper - Savannah	166.1	0.180	14.07%	1.28%	0.009	14.07%	0.06%
Facilities That Dropped Off After REVISION									
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413020154)	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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
DH	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	GENCON NE N/GV/T CO/KEYSTONE STA	688.2	0.186	13.916	1.19%	0.001	13.916	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWLR 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%
Facilities That Dropped Off After REVISION									
DH	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	435.6	0.109	13.916	0.78%	0.028	13.916	0.20%
AR	05063-1083412	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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
DH	39053-8148511	General James M. Gavin Power Plant (0627010056)	270.2	7.66%	5.44%	4.07%	0.19%	0.08%	0.11%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	207.6	2.76%	2.51%	3.65%	0.36%	0.12%	0.14%
DH	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%	0.05%
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	GENCON NE N/GV/T CO/KLYSTONL STA	337.1	2.98%	2.88%	1.51%	0.06%	0.03%	0.04%
VA	51580-5798711	Westwestpack Packaging Resource Group	46.5	12.64%	1.02%	1.45%	1.14%	0.15%	0.22%
DH	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%
Facilities That Dropped Off After REVISION									
DH	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	18051-7363111	Gibson	729.4	0.59%	1.02%	0.82%	0.02%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWLR 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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
DH	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	GENCON NE N/GV/T CO/KEYSTONE STA	688.2	0.11%	2.31%	1.19%	0.00%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWLR 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%
Facilities That Dropped Off After REVISION									
DH	39025-8294312	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	360.0	1.87%	1.50%	0.98%	0.09%	0.02%	0.02%
IN	18125-7262412	INDIANAPOLIS POWER & LIGHT - PETERSBURG	435.6	1.48%	1.08%	0.78%	0.12%	0.23%	0.20%
AR	05063-1083412	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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
DH	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%
DH	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 N/GV/T CO/KLYSTONL STA	337.1	0.217	14.404	1.51%	0.005	14.404	0.04%
VA	51580-5798711	Westwestpack Packaging Resource Group	46.5	0.269	14.404	1.45%	0.031	14.404	0.22%
DH	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%
Facilities That Dropped Off After REVISION									
DH	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	18051-7363111	Gibson	729.4	0.118	14.404	0.82%	0.007	14.404	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWLR 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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
DH	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	GENCON NE N/GV/T CO/KEYSTONE STA	711.0	0.154	13.694	1.12%	0.000	13.694	0.00%
IN	18147-8017211	INDIANA MICHIGAN POWLR DBA ALP ROCKPORT	391.2	0.154	13.694	1.12%	0.030	13.694	0.22%
GA	13015-2813011	Ea 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%
DH	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	0.137	13.694	1.00%	0.002	13.694	0.01%
Facilities That Dropped Off After REVISION									
AR	05063-1083412	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 (Mm ³)	FINAL Revised Nitrate PSAT (Mm ³)	FINAL Revised SO ₂ + NEQ (Mm ³)	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT %	
PA	42003-3866111	GENCON NE N/GV/T CO/KEYSTONE STA	249.8	11.83%	8.89%	4.81%	0.10%	0.03%	0.06%
DH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	1.53%	2.32%	4.50%	0.06%	0.05%	0.17%
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC- HARRISON	189.7	4.60%	2.75%	4.14%	0.99%	0.37%	0.46%
DH	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	42063-3005711	HOMER CITY GEN LP/ CENTER TWP	230.4	2.60%	1.56%	1.78%	0.13%	0.01%	0.06%
MD	24201-17263811	Duke Paper Company	118.4	6.92%	2.20%	1.41%	0.23%	0.09%	0.14%
PA	47063-3095111	NRC WHITE FACE CFN/SEWARD CFN STA	315.5	1.80%	1.00%	1.12%	0.04%	0.02%	0.07%
WV	54051-6902311	MITCHELL PLANT	251.8	1.46%	0.88%	1.01%	0.11%	0.08%	0.16%
DH	39053-7983011	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.43%	0.55%	1.01%	0.16%	0.06%	0.06%
Facilities That Dropped Off After REVISION									
WV	54061-6773611	MONONGAHELA POWER CO- FORT MARTIN POWER	181.4	2.42%	1.06%	0.97%	1.27%	0.47%	0.60%
DH	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%	0.08%	0.19%
IN	18147-8017211	INDIANA MICHIGAN POWLR 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 P&T %	FINAL Revised Sulfate P&T %	Nitrate AOI %	Original Nitrate P&T %	FINAL Revised Nitrate P&T %	
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	1.86%	2.14%	4.02%	0.03%	0.01%	0.03%	
O-	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station ("413090-54)	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	42005-189611	LINCOLN NE MGMT CO/KEYSTONE STA	172.8	4.12%	2.43%	1.27%	0.01%	0.00%	0.00%	
O-	39013-798301	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	54061-677361	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	18051-736311	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%	0.04%	
IN	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	682.6	0.18%	1.05%	0.77%	0.02%	0.04%	0.03%	
OH	39031-801081	Ceresville Power Plant (0615000000)	242.3	0.71%	1.00%	0.00%	0.17%	0.08%	0.00%	

Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	Sulfate AOI %	Original Sulfate P&T %	FINAL Revised Sulfate P&T %	Nitrate AOI %	Original Nitrate P&T %	FINAL Revised Nitrate P&T %	
WV	54033-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	17.37%	4.49%	6.51%	1.81%	0.26%	0.31%	
O-	39033-814851	General James M. Gavin Power Plant (06270-0056)	214.2	10.46%	7.08%	5.25%	0.18%	0.04%	0.06%	
WV	54073-478281	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	8.19%	4.39%	4.24%	0.30%	0.08%	0.12%	
O-	39081-811371	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	1.94%	2.03%	3.81%	0.05%	0.02%	0.04%	
O-	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station ("413090-54)	397.5	1.12%	2.40%	1.58%	0.02%	0.06%	0.06%	
WV	54051-690231	MITCHELL PLANT	136.8	1.56%	1.40%	1.50%	0.08%	0.03%	0.05%	
WV	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	4.36%	1.67%	1.31%	0.12%	0.02%	0.04%	
O-	39013-798301	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.85%	0.71%	1.27%	0.20%	0.02%	0.02%	
KY	21145-603701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	825.5	0.18%	0.77%	1.09%	0.00%	0.01%	0.02%	
IN	18051-736311	Elkhart	709.7	0.24%	1.27%	1.01%	0.01%	0.03%	0.05%	
WV	54061-677361	MONONGAHELA POWER CO- FORT MARTIN POWER	82.7	4.98%	1.14%	1.00%	0.92%	0.20%	0.24%	
IN	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	655.7	0.64%	2.01%	1.00%	0.01%	0.03%	0.04%	
PA	42005-189611	LINCOLN NE 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	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.04%	0.03%	
OH	39031-801081	Ceresville Power Plant (0615000000)	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	FINAL Revised Sulfate P&T %	FINAL Revised Nitrate P&T %	FINAL Revised EGU + NREGU M/m
PA	42005-189611	LINCOLN NE MGMT CO/KEYSTONE STA	219.8	0.74%	15.37%	1.61%
OH	39081-811371	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	269.6	0.69%	15.37%	4.50%
WV	54033-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	189.7	0.63%	15.37%	4.14%
OH	39053-814851	General James M. Gavin Power Plant (0627010056)	873.4	0.57%	15.37%	3.75%
WV	54073-478281	MONONGAHELA POWER CO-PLEASANTS POWER STA	265.0	0.39%	15.37%	2.20%
MD	42063-300521	HOMER CITY GEN LDY CENTER TWP	230.4	0.27%	15.37%	0.78%
PA	74001-176381	Luke Paper Company	118.4	0.21%	15.37%	1.41%
PA	42083-300511	NRC WHOI/ESAIF GFN/SWARD GFN STA	215.5	0.17%	15.37%	1.17%
WV	54051-690231	MITCHELL PLANT	251.8	0.15%	15.37%	1.01%
OH	39053-798301	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.15%	15.37%	1.01%
Facilities That Dropped Off After REVISION						
WV	54061-677361	MONONGAHELA POWER CO- FORT MARTIN POWER	184.4	0.14%	15.37%	0.97%
OH	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station ("413090-54)	505.4	0.13%	15.37%	0.87%
WV	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	295.6	0.13%	15.37%	0.84%
IN	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	755.8	0.11%	15.37%	0.76%

Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate P&T %	FINAL Revised Nitrate P&T %	FINAL Revised EGU + NREGU M/m
WV	54033-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	72.8	3.24%	19.07%	6.51%
O-	39033-814851	General James M. Gavin Power Plant (06270-0056)	214.2	1.00%	19.07%	5.25%
WV	54073-478281	MONONGAHELA POWER CO-PLEASANTS POWER STA	148.3	0.80%	19.07%	4.24%
O-	39081-811371	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	0.77%	19.07%	3.81%
O-	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station ("413090-54)	397.5	0.30%	19.07%	1.58%
WV	54051-690231	MITCHELL PLANT	136.8	0.29%	19.07%	1.50%
WV	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	198.0	0.24%	19.07%	1.31%
O-	39013-798301	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	215.3	0.24%	19.07%	1.27%
KY	21145-603701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	825.5	0.20%	19.07%	1.09%
IN	18051-736311	Elkhart	709.7	0.19%	19.07%	1.01%
WV	54061-677361	MONONGAHELA POWER CO- FORT MARTIN POWER	82.7	0.19%	19.07%	1.00%
IN	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	655.7	0.19%	19.07%	1.00%
PA	42005-189611	LINCOLN NE MGMT CO/KEYSTONE STA	186.5	0.19%	19.07%	1.00%
Facilities That Dropped Off After REVISION						
IN	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	663.0	0.15%	19.07%	0.79%
OH	39031-801081	Ceresville Power Plant (0615000000)	232.8	0.09%	19.07%	0.00%

Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate P&T %	FINAL Revised EGU + NREGU M/m	FINAL Revised Nitrate P&T %	FINAL Revised EGU + NREGU M/m	FINAL Revised Nitrate P&T %
WV	54033-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	1.35%	19.34%	7.18%	0.05%	19.34%
O-	39033-814851	General James M. Gavin Power Plant (06270-0056)	233.8	0.94%	19.34%	4.88%	0.00%	19.34%
WV	54073-478281	MONONGAHELA POWER CO-PLEASANTS POWER STA	163.9	0.80%	19.34%	4.19%	0.02%	19.34%
O-	39081-811371	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	0.77%	19.34%	4.02%	0.00%	19.34%
O-	39025-829431	Duke Energy Ohio, Wm. H. Zimmer Station ("413090-54)	416.9	0.28%	19.34%	1.49%	0.01%	19.34%
WV	54051-690231	MITCHELL PLANT	144.2	0.27%	19.34%	1.42%	0.00%	19.34%
PA	42005-189611	LINCOLN NE MGMT CO/KEYSTONE STA	172.8	0.24%	19.34%	1.27%	0.00%	19.34%
O-	39013-798301	Ohio Valley Electric Corp., Kyger Creek Station (0627000003)	234.9	0.22%	19.34%	1.18%	0.00%	19.34%
WV	54079-678911	APPALACHIAN POWER COMPANY - JOHN E AMOS PLANT	219.8	0.22%	19.34%	1.14%	0.00%	19.34%
WV	54061-677361	MONONGAHELA POWER CO- FORT MARTIN POWER	75.8	0.21%	19.34%	1.13%	0.04%	19.34%
KY	21145-603701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	847.6	0.20%	19.34%	1.05%	0.00%	19.34%
Facilities That Dropped Off After REVISION								
IN	18051-736311	Elkhart	729.5	0.19%	19.34%	0.99%	0.00%	19.34%
IN	18147-801721	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	676.3	0.18%	19.34%	0.97%	0.00%	19.34%
IN	18125-736241	INDIANAPOLIS POWER & LIGHT PETERSBURG	682.6	0.14%	19.34%	0.77%	0.00%	19.34%
OH	39031-801081	Ceresville Power Plant (0615000000)	242.3	0.09%	19.34%	0.00%	0.00%	19.34%

Non-VISTAS Class I Areas

- Only two VISTAS facilities have a contribution ≥ 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
IL	09050-1003411	ENVIRO-A-MOLVISTAS INC-IND/PULP/NEWS-PLANT	SHRO
IN	18051-7361111	Tribbon	COHU, GRSV, JOYC, LIGO, VMCA, OTCR, SHRO, SIPS
IN	18141-8011711	INDIANA MICHIGAN POWER JBR AEP (COCKPICK)	COHU, GRSV, JOYC, LIGO, VMCA, OTCR, SHRO, SIPS
IN	18125-7362111	INDIANAPOLIS POWER & LIGHT - PETERSBURG	MACA, SIPS
ND	24001-7761311	Lake Paper Company	SHEN, SWAN
ND	24013-8350311	NEW HANDED POWER PLANT- MARSTON V	IGSO, 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. F. Zimmer Station (1413090154)	COHU, DOJO, JOYC, OTCR, SHRO
OH	39053-8148511	General James M. Gavin Power Plant (0527010096)	COHU, DOJO, GRSV, JAR, JOYC, LIGO, OKEF, OTCR, ROMM, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39071-7987011	Duke Valley Electric Corp., Koger Creek Station (0527000003)	DOJO, JAR, OTCR, SHEN
PA	42005-3865111	GENCON NE MGMT CO/KEYSTONE STA	COHU, DOJO, GRSV, JAR, JOYC, LIGO, OKEF, OTCR, ROMM, SHEN, SHRO, SIPS, SWAN, WOLF
PA	42053-3097011	ICMFR CITY GEN P/CF/ATB TWP	SHEN, SWAN
PA	42053-3095111	IRNG W- HOLLIFIELD/CF/SPWARD CO'S STA	SHEN

- ### 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 SO₂ and NO_x 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.

VISTAS Facilities ≥ 1.00%

State	FACILITY_ID_STD	FACILITY_NAME STD	IMPACTED CLASS / AREAS
AL	01109-9607111	Sandco Log Co	CHAS, SAMA
FL	12131-7024111	FLORIDA FLORIDA, LIMITED PARTNERSHIP	OKEF
FL	12072-6405111	PLUKT ENERGY FLORIDA, INC. (OPE)	CHAS
FL	12001-4605111	PER	WOLF
FL	12109-7171111	MOSAC FERTILIZER LLC	EVER
FL	12109-9108111	MOSAC FERTILIZER, LLC	EVER
FL	12069-7532111	ROCK TENN CP, LLC	OKEF, WOLF
FL	12067-6524111	ROCKSTAR CP, LLC	SAMA
FL	12067-5385111	JANPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12068-8898111	FARMAC AMERICA, LLC	EVER
FL	12067-6012111	ROYAL SPRINGS AGRICULTURAL CHEMICALS, INC	OKEF
GA	13127-3721011	Riverside Cellulose Inc.	WOLF
GA	13015-2513011	Sea Power Company - Flint Bowen	CHAS, COHU, JOYC, LIGO, OKEF, ROMM, SAMA, SHRO, SWAN, WOLF
GA	13001-8298011	International Paper - Suwanah	OKEF, ROMM, WOLF
KY	21183-9251011	Riv Electric Corp - Wilson Station	MACA, SIPS
KY	21145-6087011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, COHU, DOJO, OREL, GRSM, HFGI, JOYC, LIGO, MACA, MING, OKEF, OTCR, SHRO, SHRO, SIPS
NC	31087-7520511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	31117-8048311	Durham Paper Company, LLC	SWAN
NC	31013-3089211	ICE Phosphate Company, Inc. - Axtion	SWAN
SC	45015-4814911	ALUMAX OF SOUTH CAROLINA	ROMM, WOLF
SC	45013-5525211	INTERNATIONAL PAPER, GEORGE TOWN MILL	ROMM
SC	45016-4873611	ARPTON CHEMICALS IN KAFFILLE	ROMM
SC	45019-4120411	SANTEE COOPER CROSS GENERATING STATION	OKEF, ROMM, WOLF
SC	45043-5532811	SANTEE COOPER WINNDAH GENERATING STATION	ROMM
TN	41283-3532211	ASTROMAN CHEMICAL COMPANY	COHU, GRSM, JOYC, LIGO, SHRO
TN	47021-8979311	THE CUMBERLAND FOSIL PLANT	LIGO, SHRO, SIPS
VA	54027-6034511	Jewel Coke Company LLP	LIGO
VA	57020-0788711	Mitsubishi Power Kogata, Richmond Group	JAR
WV	54010-8211211	ALLEGHENY ENERGY SERVICES LLC-CAMDEN	DOJO, JAR, MING, OTCR, SHEN, SWAN
WV	54078-0788711	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	DOJO, JAR, OTCR
WV	54091-4502211	MITCHELL PLANT	DOJO, JAR, OTCR
WV	54081-6213611	MONONGAHELI POWER CO - FORT MARTIN POWER	DOJO, OTCR
WV	54073-4243811	MONONGAHELI POWER CO PLANTASNT POWER STA	DOJO, JAR, OTCR, SHEN, SWAN

Next Steps and Schedule

- ### 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 SO₂ control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO₂ 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 SO₂ is necessary to make reasonable progress.”
 - “For the purposes of SO₂ and NO_x 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.”

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
Regional Haze SIPs Due to EPA	July 31, 2021

* References technical work completion. Draft reports to follow.

Contacts for Further Information

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



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State	SO ₂ EGU Ratio	SO ₂ NEGLU Ratio	NOx EGU Ratio	NOx NEGLU Ratio
AL	0.048	0.078	0.784	0.000
AK	0.000	0.000	0.000	0.000
AR	0.000	0.000	0.000	0.000
AZ	0.000	0.000	0.000	0.000
CA	0.000	0.000	0.000	0.000
CO	0.000	0.000	0.000	0.000
CT	0.000	0.000	0.000	0.000
DC	0.000	0.000	0.000	0.000
DE	0.000	0.000	0.000	0.000
FL	0.000	0.000	0.000	0.000
GA	0.000	0.000	0.000	0.000
HI	0.000	0.000	0.000	0.000
IA	0.000	0.000	0.000	0.000
ID	0.000	0.000	0.000	0.000
IL	0.000	0.000	0.000	0.000
IN	0.000	0.000	0.000	0.000
KS	0.000	0.000	0.000	0.000
KY	0.000	0.000	0.000	0.000
LA	0.000	0.000	0.000	0.000
MA	0.000	0.000	0.000	0.000
MD	0.000	0.000	0.000	0.000
ME	0.000	0.000	0.000	0.000
MI	0.000	0.000	0.000	0.000
MN	0.000	0.000	0.000	0.000
MO	0.000	0.000	0.000	0.000
MS	0.000	0.000	0.000	0.000
MT	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000
ND	0.000	0.000	0.000	0.000
OH	0.000	0.000	0.000	0.000
OK	0.000	0.000	0.000	0.000
OR	0.000	0.000	0.000	0.000
PA	0.000	0.000	0.000	0.000
RI	0.000	0.000	0.000	0.000
SC	0.000	0.000	0.000	0.000
SD	0.000	0.000	0.000	0.000
TN	0.000	0.000	0.000	0.000
TX	0.000	0.000	0.000	0.000
UT	0.000	0.000	0.000	0.000
VA	0.000	0.000	0.000	0.000
VT	0.000	0.000	0.000	0.000
WA	0.000	0.000	0.000	0.000
WI	0.000	0.000	0.000	0.000
WV	0.000	0.000	0.000	0.000
WY	0.000	0.000	0.000	0.000

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Appendix B

Table of selected emissions-to-growth ratios for SO₂ EGU, SO₂ NEGLU, NOx EGU, and NOx NEGLU for each state and DC. Ratios indicate relative emissions, not relative to any "baseline" and reflect emissions in 2010 (values > 1.0).

State/DC	SO ₂ EGU Ratio	SO ₂ NEGLU Ratio	NOx EGU Ratio	NOx NEGLU Ratio
AL	0.048	0.078	0.784	0.000
AK	0.000	0.000	0.000	0.000
AR	0.000	0.000	0.000	0.000
AZ	0.000	0.000	0.000	0.000
CA	0.000	0.000	0.000	0.000
CO	0.000	0.000	0.000	0.000
CT	0.000	0.000	0.000	0.000
DC	0.000	0.000	0.000	0.000
DE	0.000	0.000	0.000	0.000
FL	0.000	0.000	0.000	0.000
GA	0.000	0.000	0.000	0.000
HI	0.000	0.000	0.000	0.000
IA	0.000	0.000	0.000	0.000
ID	0.000	0.000	0.000	0.000
IL	0.000	0.000	0.000	0.000
IN	0.000	0.000	0.000	0.000
KS	0.000	0.000	0.000	0.000
KY	0.000	0.000	0.000	0.000
LA	0.000	0.000	0.000	0.000
MA	0.000	0.000	0.000	0.000
MD	0.000	0.000	0.000	0.000
ME	0.000	0.000	0.000	0.000
MI	0.000	0.000	0.000	0.000
MN	0.000	0.000	0.000	0.000
MO	0.000	0.000	0.000	0.000
MS	0.000	0.000	0.000	0.000
MT	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000
ND	0.000	0.000	0.000	0.000
OH	0.000	0.000	0.000	0.000
OK	0.000	0.000	0.000	0.000
OR	0.000	0.000	0.000	0.000
PA	0.000	0.000	0.000	0.000
RI	0.000	0.000	0.000	0.000
SC	0.000	0.000	0.000	0.000
SD	0.000	0.000	0.000	0.000
TN	0.000	0.000	0.000	0.000
TX	0.000	0.000	0.000	0.000
UT	0.000	0.000	0.000	0.000
VA	0.000	0.000	0.000	0.000
VT	0.000	0.000	0.000	0.000
WA	0.000	0.000	0.000	0.000
WI	0.000	0.000	0.000	0.000
WV	0.000	0.000	0.000	0.000
WY	0.000	0.000	0.000	0.000

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Appendix C

Table of the selected emissions-to-growth ratios for SO₂ EGU, SO₂ NEGLU, NOx EGU, and NOx NEGLU for each state and DC. Ratios indicate relative emissions, not relative to any "baseline" and reflect emissions in 2010 (values > 1.0).

State	SO ₂ EGU Ratio	SO ₂ NEGLU Ratio	NOx EGU Ratio	NOx NEGLU Ratio
AL	0.048	0.078	0.784	0.000
AK	0.000	0.000	0.000	0.000
AR	0.000	0.000	0.000	0.000
AZ	0.000	0.000	0.000	0.000
CA	0.000	0.000	0.000	0.000
CO	0.000	0.000	0.000	0.000
CT	0.000	0.000	0.000	0.000
DC	0.000	0.000	0.000	0.000
DE	0.000	0.000	0.000	0.000
FL	0.000	0.000	0.000	0.000
GA	0.000	0.000	0.000	0.000
HI	0.000	0.000	0.000	0.000
IA	0.000	0.000	0.000	0.000
ID	0.000	0.000	0.000	0.000
IL	0.000	0.000	0.000	0.000
IN	0.000	0.000	0.000	0.000
KS	0.000	0.000	0.000	0.000
KY	0.000	0.000	0.000	0.000
LA	0.000	0.000	0.000	0.000
MA	0.000	0.000	0.000	0.000
MD	0.000	0.000	0.000	0.000
ME	0.000	0.000	0.000	0.000
MI	0.000	0.000	0.000	0.000
MN	0.000	0.000	0.000	0.000
MO	0.000	0.000	0.000	0.000
MS	0.000	0.000	0.000	0.000
MT	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000
ND	0.000	0.000	0.000	0.000
OH	0.000	0.000	0.000	0.000
OK	0.000	0.000	0.000	0.000
OR	0.000	0.000	0.000	0.000
PA	0.000	0.000	0.000	0.000
RI	0.000	0.000	0.000	0.000
SC	0.000	0.000	0.000	0.000
SD	0.000	0.000	0.000	0.000
TN	0.000	0.000	0.000	0.000
TX	0.000	0.000	0.000	0.000
UT	0.000	0.000	0.000	0.000
VA	0.000	0.000	0.000	0.000
VT	0.000	0.000	0.000	0.000
WA	0.000	0.000	0.000	0.000
WI	0.000	0.000	0.000	0.000
WV	0.000	0.000	0.000	0.000
WY	0.000	0.000	0.000	0.000

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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

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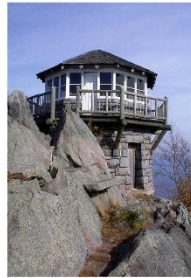
VISTAS Organization

- 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)

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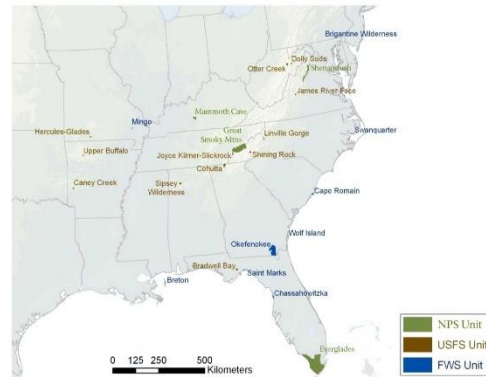
Outline

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



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Class I Areas of Interest to VISTAS States



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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

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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 – 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 (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.

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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

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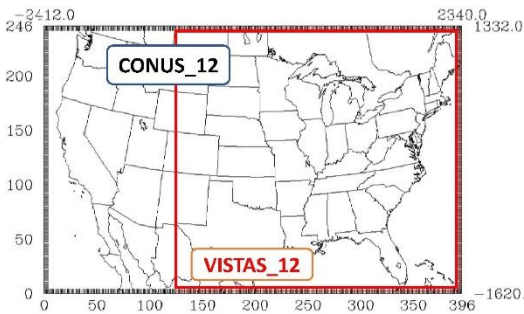
Initial VISTAS vs. Updated EPA 2028 Emissions

- 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%
TOTAL	1,783,376.5	976,471.2	-806,905.3	-45.25%

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%
TOTAL	1,166,663.1	840,973.6	-325,689.5	-27.92%

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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 (SO₂, NO_x, PM_{2.5}, PM₁₀, NH₃, 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 SO₂ and NO_x 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 NOx 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	62,130.83	-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	65,883.97	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%
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%

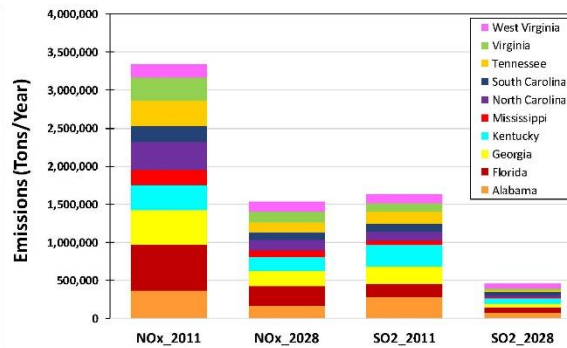
RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
VISTAS	590,051.60	563,636.80	-4.5%	241,253.76	214,359.73	-11.1%	348,797.84	349,277.07	0.1%
CENSARA	903,979.85	791,397.69	-12.5%	392,706.66	270,182.46	-31.0%	513,273.19	521,215.14	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	-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%
TOTAL	2,649,998.14	2,370,804.22	-10.5%	1,159,405.80	879,790.66	-24.1%	1,490,592.35	1,491,013.55	0.0%

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Recent 2028 Emissions Updates

14

VISTAS States Emissions: 2011 vs. 2028



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2028 EGU & NEGU SO₂ Comparison

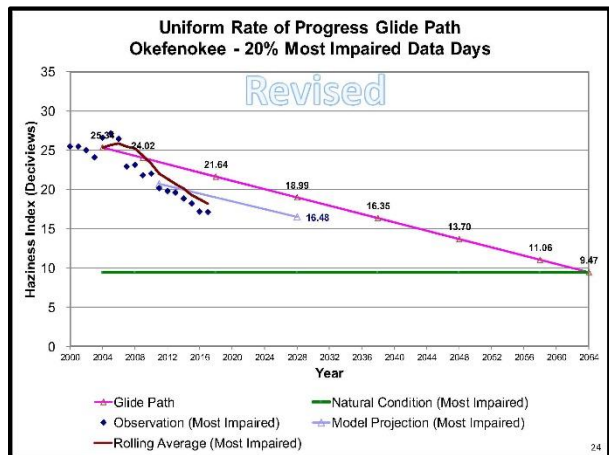
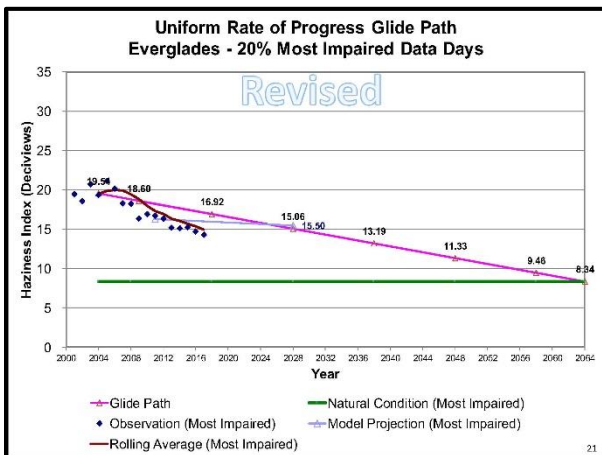
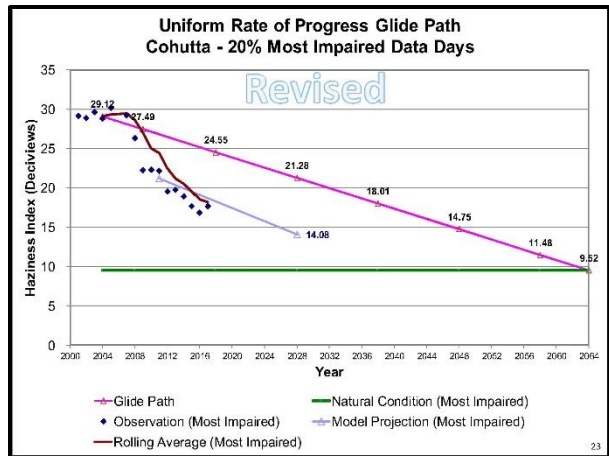
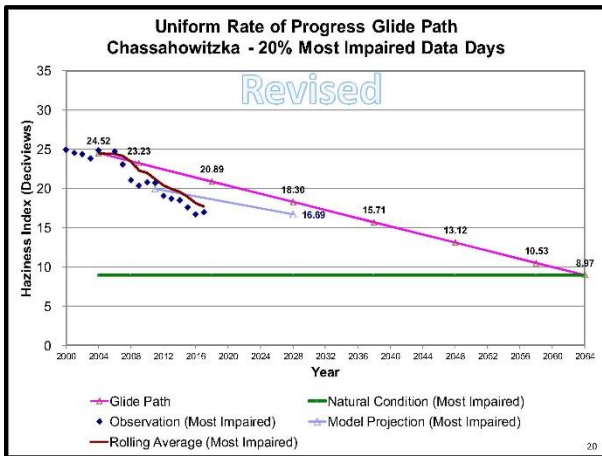
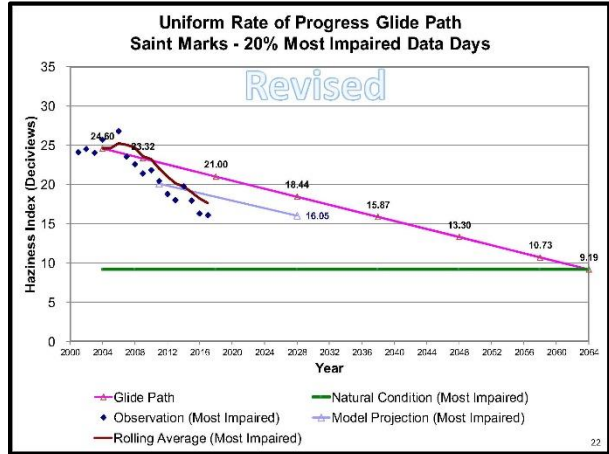
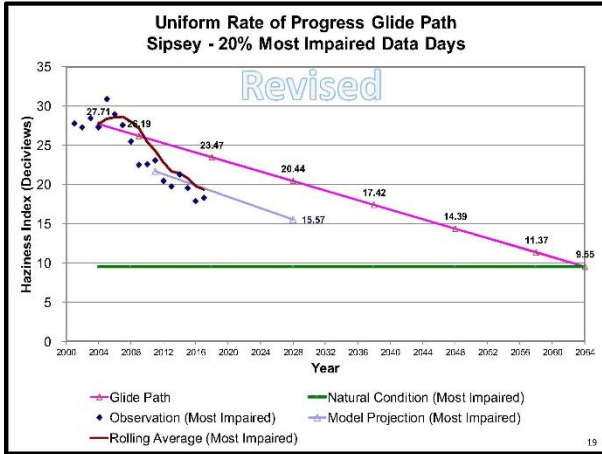
State	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
AL	87,111.28	59,056.98	-32.2%	15,480.96	8,365.96	-46.0%	71,630.32	50,691.02	-29.2%
FL	63,501.23	52,982.68	-16.6%	28,547.41	24,004.67	-15.9%	34,953.82	28,978.01	-17.1%
GA	37,065.83	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	35,231.88	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%
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%

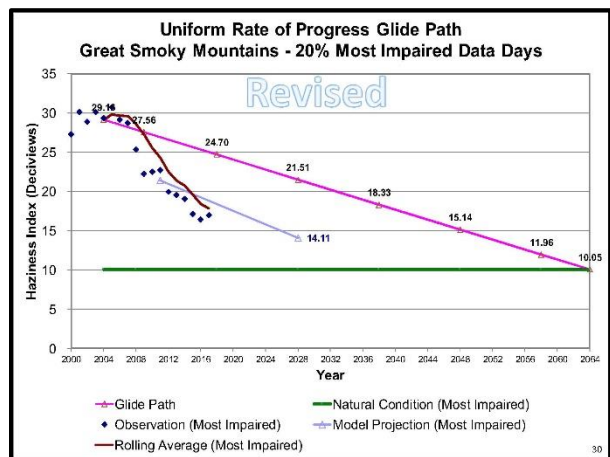
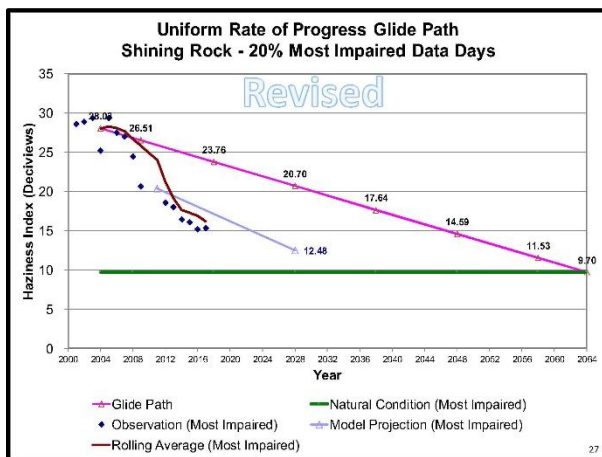
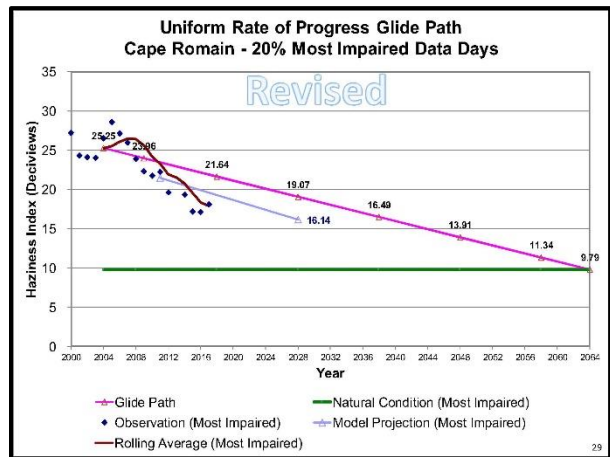
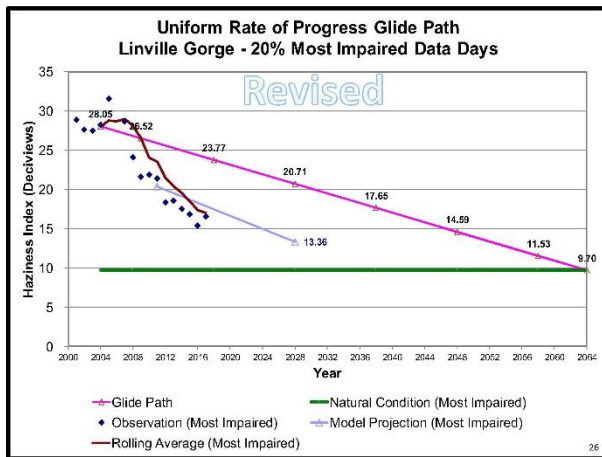
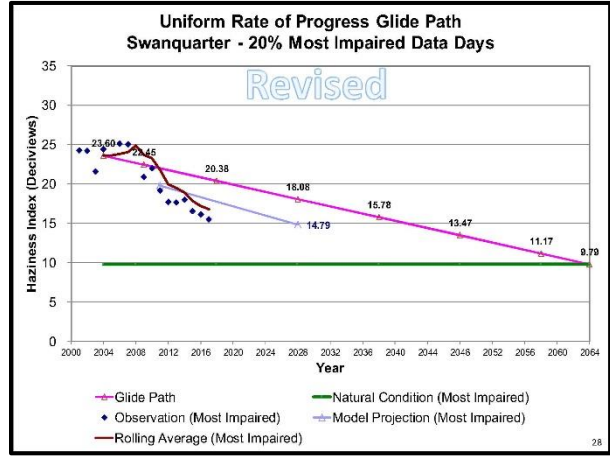
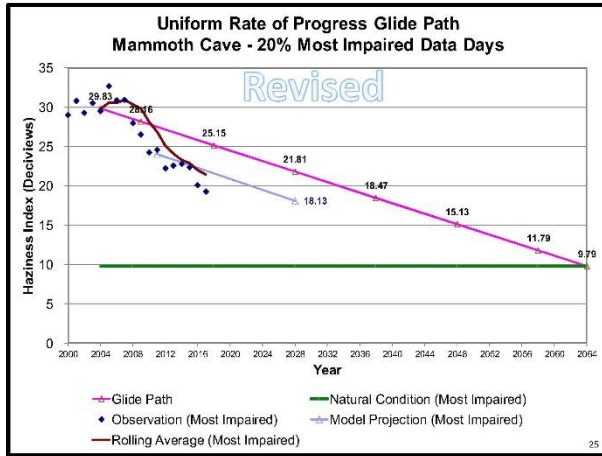
RPO	Point_OLD (tpy)	Point_NEW (tpy)	Delta (%)	EGU_OLD (tpy)	EGU_NEW (tpy)	Delta (%)	NEGU_OLD (tpy)	NEGU_NEW (tpy)	Delta (%)
VISTAS	455,577.46	369,520.35	-18.9%	229,383.91	182,783.96	-20.3%	226,193.55	186,736.39	-17.4%
CENSARA	1,012,946.59	621,221.29	-38.7%	773,626.13	382,000.54	-50.6%	239,321.46	239,320.75	-0.0%
LADCO	860,186.42	498,171.62	-42.1%	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%
TOTAL	2,581,643.20	1,773,936.20	-31.3%	1,788,132.63	1,032,667.35	-42.2%	793,510.56	741,268.85	-6.6%

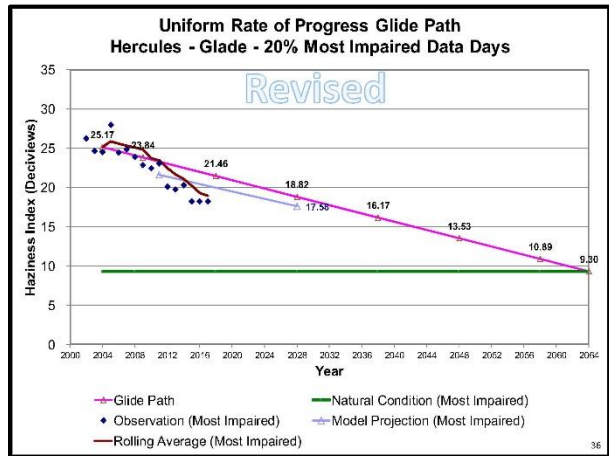
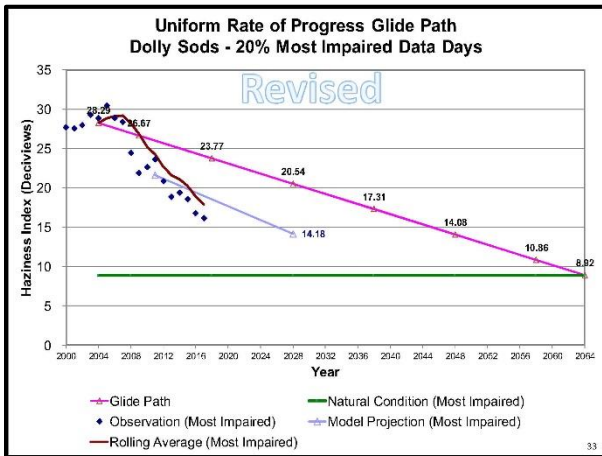
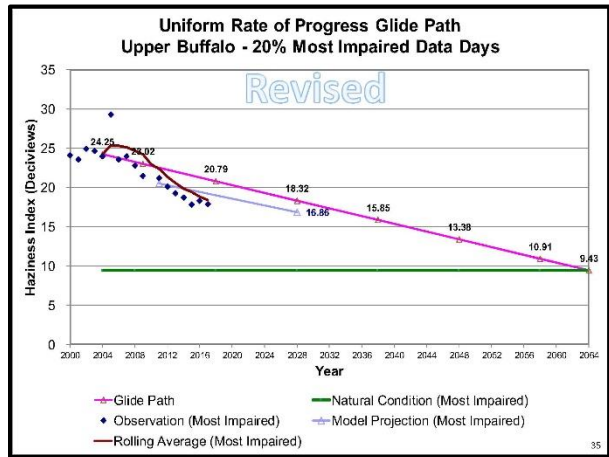
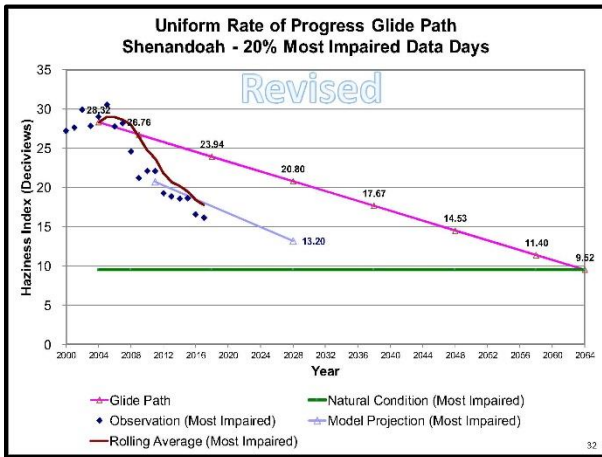
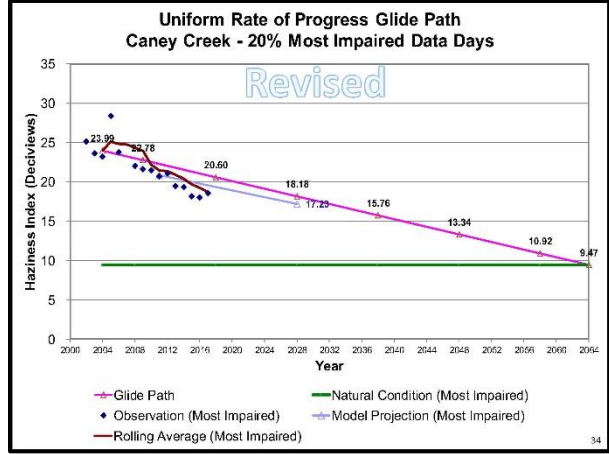
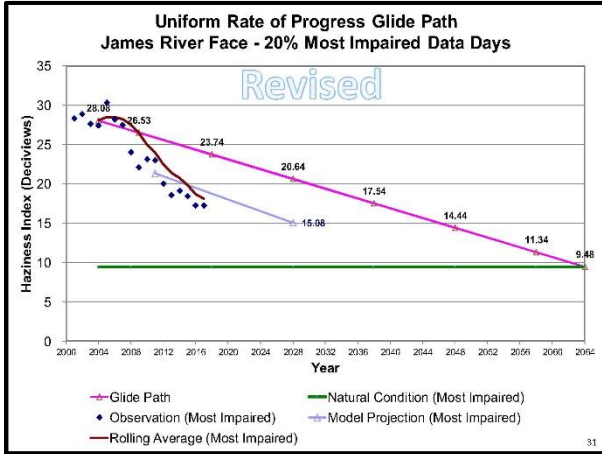
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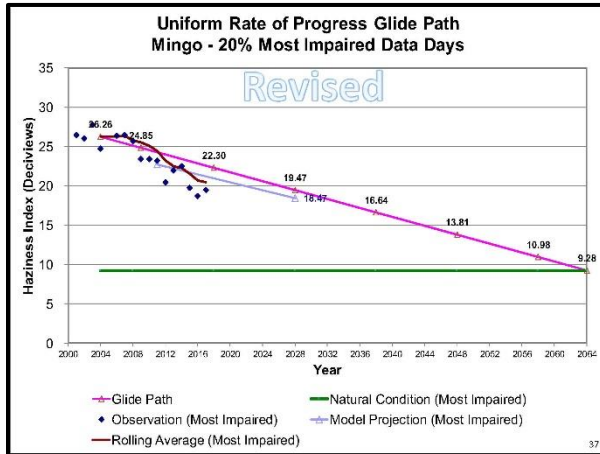
2028 Model Projections

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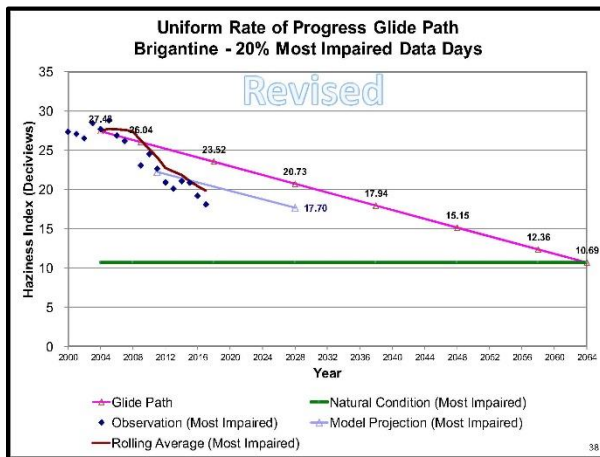








- ### PSAT Source Apportionment Modeling
- PSAT = Particulate Matter Source Apportionment Technology
 - Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
 - NOx and SO₂ tagging
 - Used for further evaluation of AOI results
 - Refines information on contributions 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



- ### PSAT SO₂ and NOx Tags (209)
- Round 1 (122 tags)**
- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
 - Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
 - EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
 - EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
 - SO₂ tags for individual VISTAS facilities = 50 tags
 - NOx tags for individual VISTAS facilities = 20 tags
- Round 2 (87 tags)**
- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
 - Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
 - SO₂ and NOx for N/S/W/E boundaries = 8 tags
 - SO₂ tags for individual VISTAS facilities = 10 tags
 - NOx tags for individual VISTAS facilities = 16 tags
 - SO₂ tags for individual non-VISTAS facilities = 17 tags
 - NOx tags for individual non-VISTAS facilities = 10 tags

Adjusted 2028 PSAT Stacked Bar Charts

- ### Revised State/RPO PSAT Results
- **Revised EGU Sulfate PSAT Results**
= Original EGU Sulfate PSAT Results * SO₂ 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 * SO₂ NEGU Ratio
- $$\text{where, } SO_2 \text{ NEGU Ratio} = \frac{(\text{Revised NEGU } SO_2 \text{ emissions})}{(\text{Original NEGU } SO_2 \text{ emissions})}$$

Revised State/RPO PSAT Results

• Revised EGU Nitrate PSAT Results

= Original EGU Nitrate PSAT Results * NOx EGU Ratio

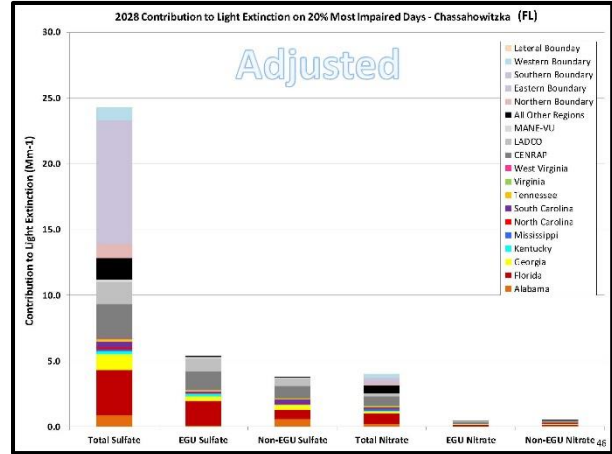
$$\text{where, NOx EGU Ratio} = \frac{(\text{Revised EGU NOx emissions})}{(\text{Original EGU NOx emissions})}$$

• 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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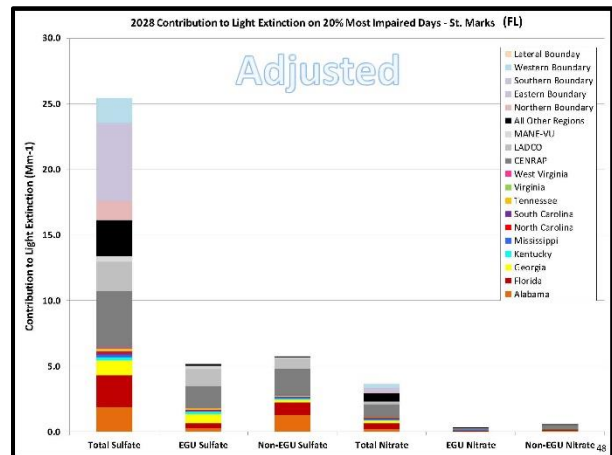
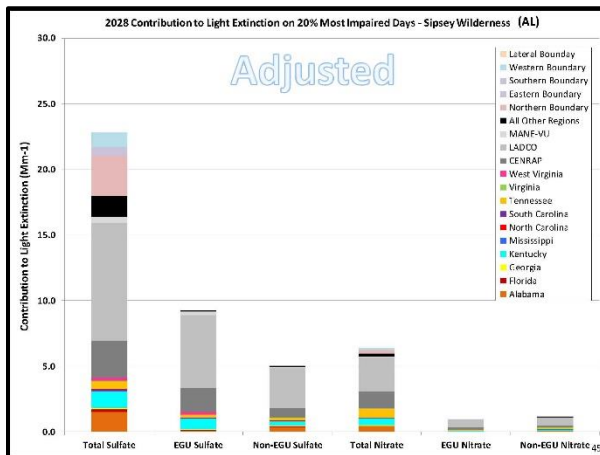
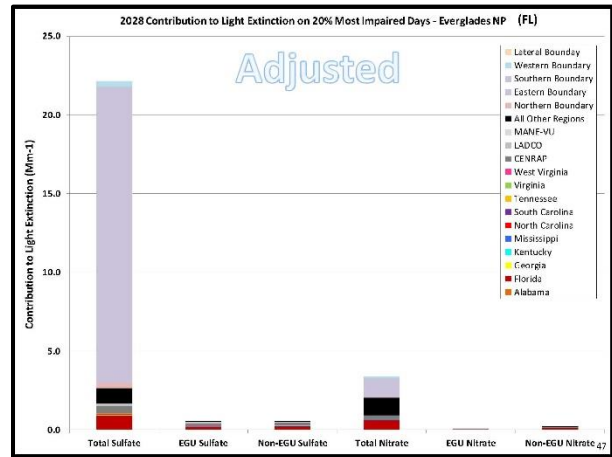


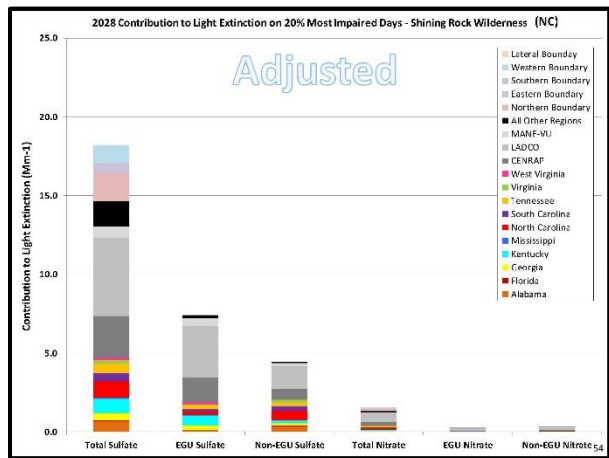
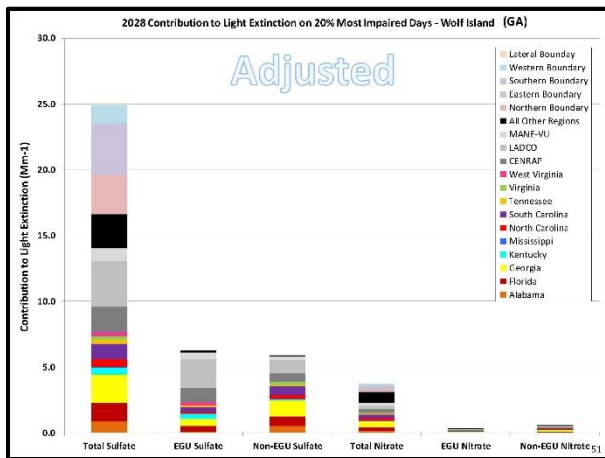
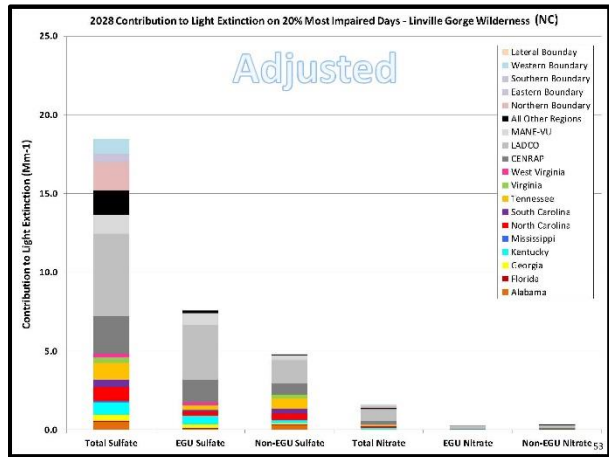
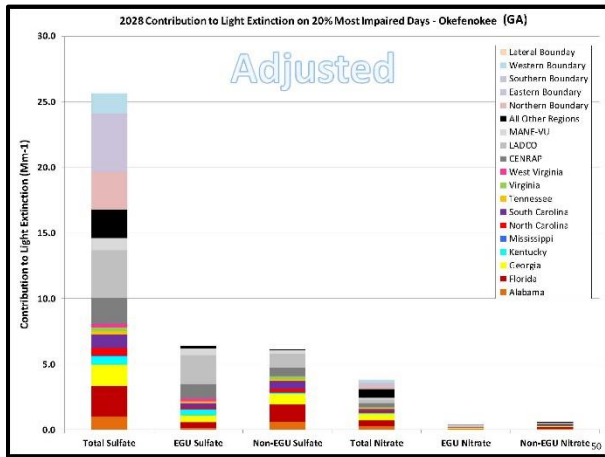
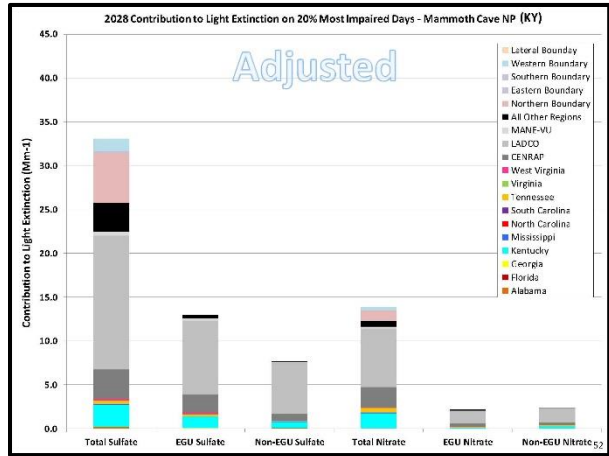
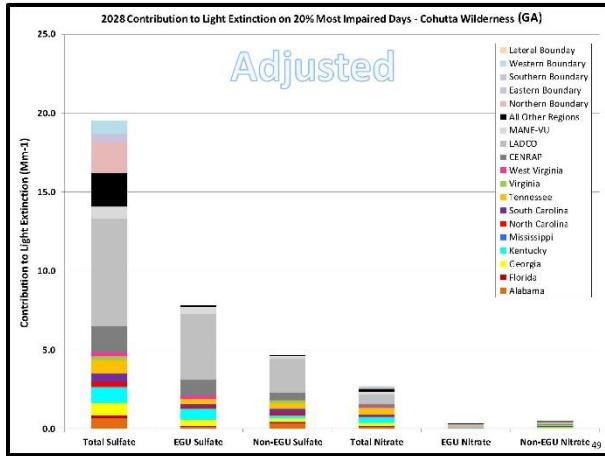
PSAT Adjustment Ratios

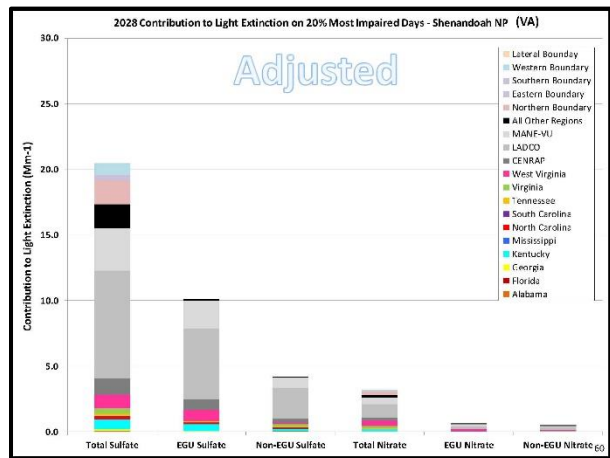
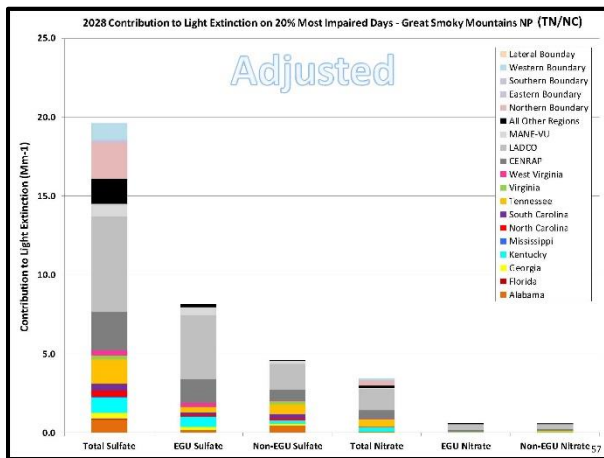
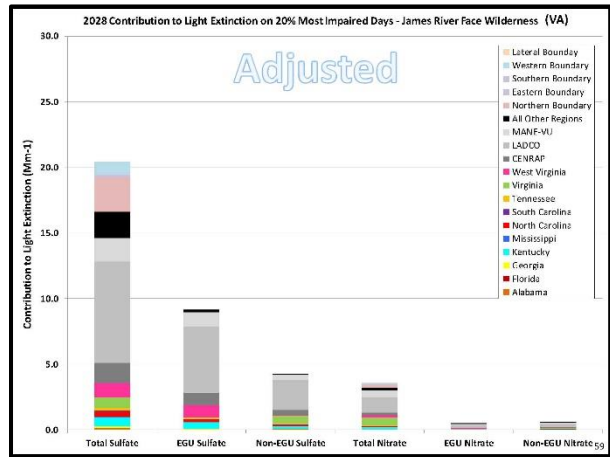
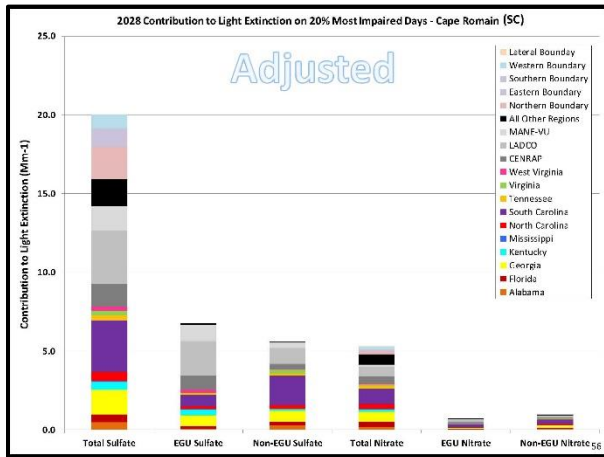
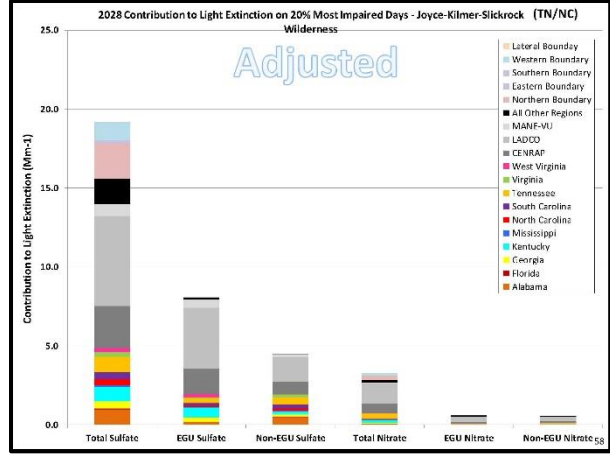
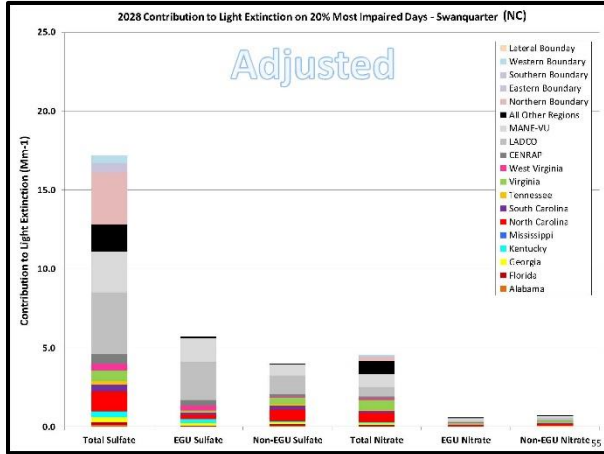
State/RPO	SO ₂ EGU Ratio	SO ₂ NEGU Ratio	NOx EGU Ratio	NOx NEGU Ratio
AL	0.540	0.708	0.744	0.950
FL	0.841	0.829	0.954	1.077
GA	0.951	1.000	0.949	1.000
KY	0.881	0.850	0.889	0.999
MS	0.463	0.363	0.668	1.023
NC	0.485	0.953	0.753	0.998
SC	1.000	1.000	1.018	0.997
TN	0.828	0.973	0.775	0.982
VA	0.605	1.000	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

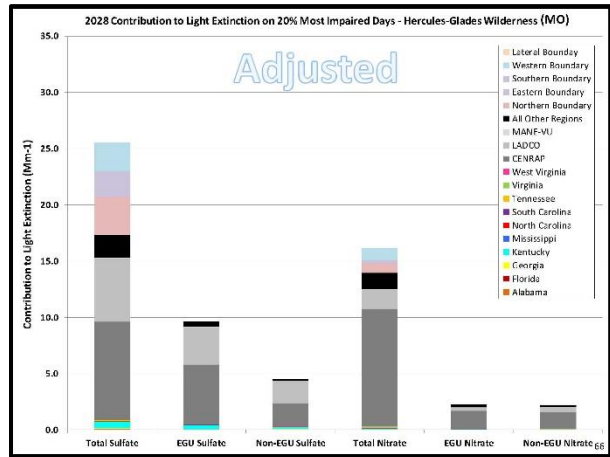
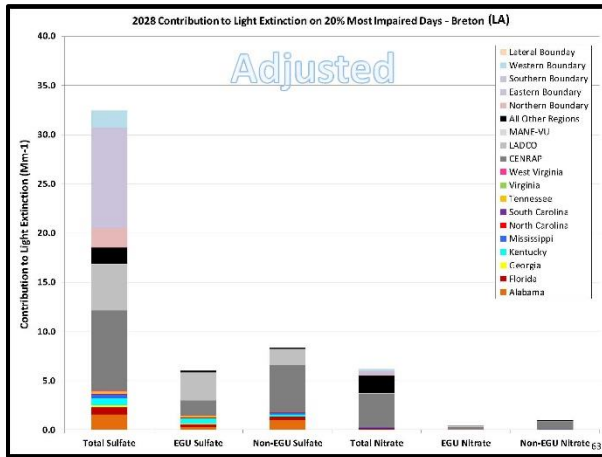
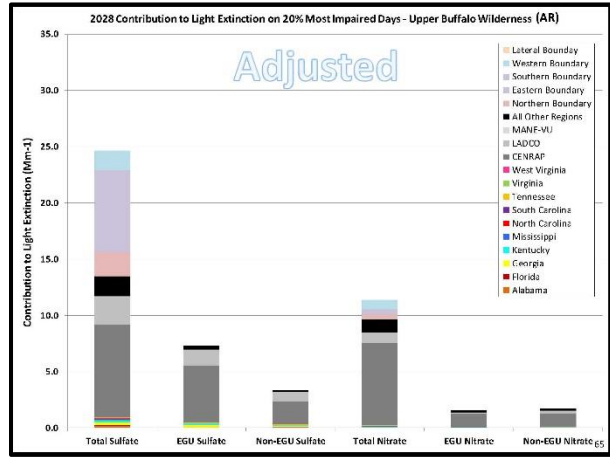
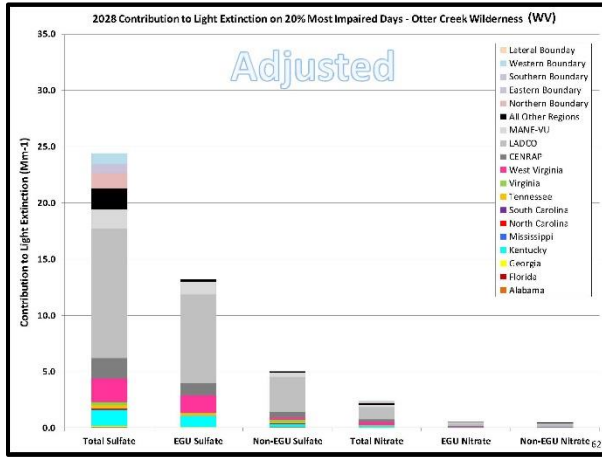
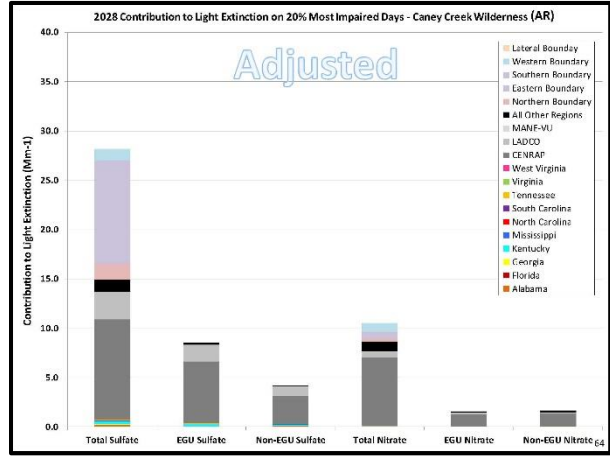
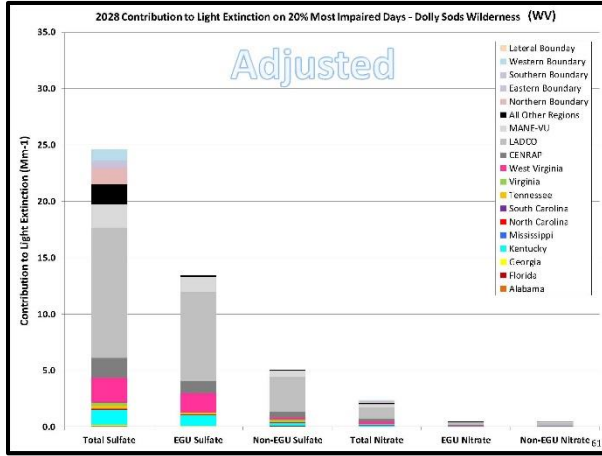
For detailed calculations, see [Handout - Roadmap](https://www.metro4-sesarm.org/content/vistas-regional-haze-program) located at: <https://www.metro4-sesarm.org/content/vistas-regional-haze-program>

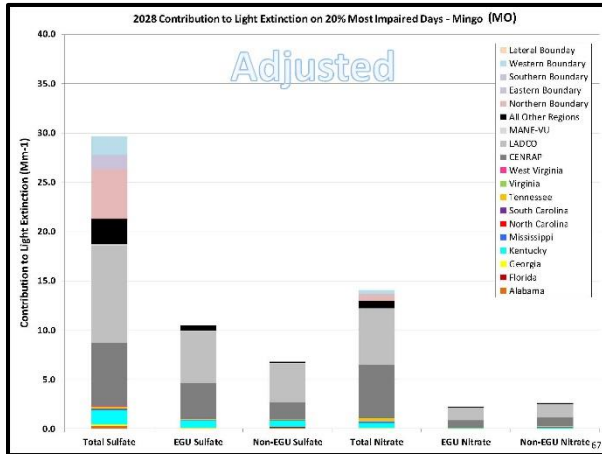
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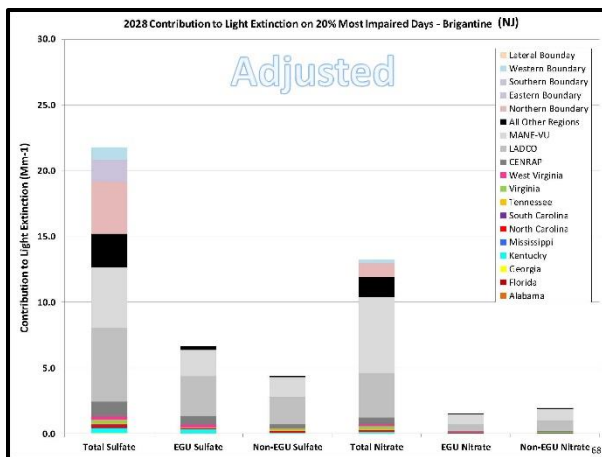






Reasonable Progress Screening Approach

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 $\geq 1.00\%$ → SO₂ Four-Factor Analysis
 - If nitrate contribution $\geq 1.00\%$ → NO_x Four-Factor Analysis



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^{-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 with the largest impacts.

Reasonable Progress Screening Analysis

Area of Influence (AOI) Analysis

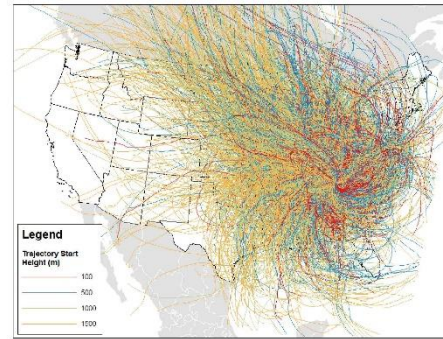
- Evaluates emissions (Q), distance to Class I area (d), and extinction weighted residence time (EWRT) in model grid cells (point) or counties (source categories)
- Formula: $(Q/d)*EWRT$
- Establishes each county's and each facility's contribution to light extinction at each Class I area on the 20% most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

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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All Trajectories at GRSM



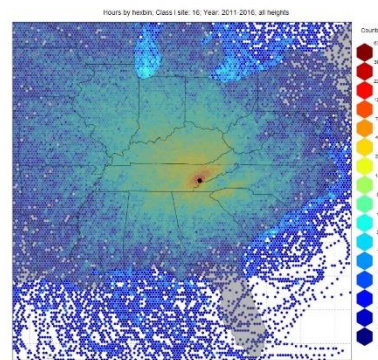
76

Class I Areas Analyzed



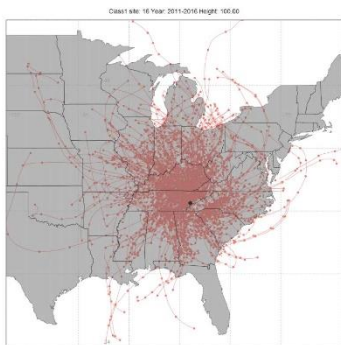
74

Residence Time for GRSM



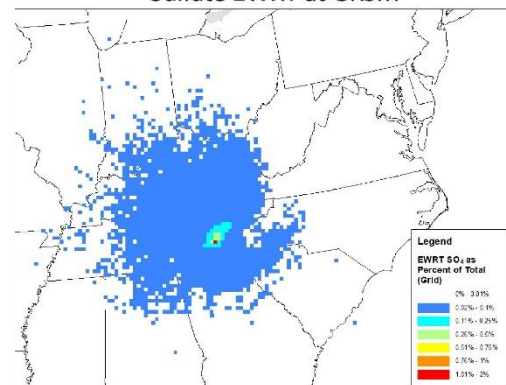
77

100 Meter Trajectories at GRSM



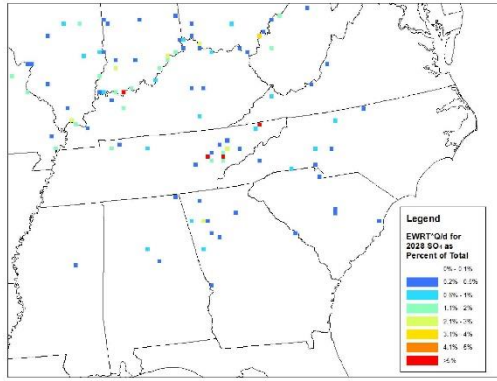
75

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 (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
GA	Brunswick Cellulose Inc	27.9	3,554.5	294.2	2.94%	8.54%
FL	ROCK TENN CP, LLC	74.9	2,316.8	2,806.7	0.39%	8.55%
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%	4.83%
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	123.6	112.4	2,745.0	0.01%	1.97%
SC	ALUMINA 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	SVINDLE ELECTRIC COOPERATIVE, INC.	181.4	917.8	3,713.4	0.02%	1.77%
DH	General James M. Gavin Power Plant (0627010056)	845.3	8,172.5	41,595.8	0.07%	1.71%
SC	SANTÉE COOPER CROSS GENERATING STATION	251.0	3,273.5	4,281.2	0.09%	1.59%
GA	Southern States Phosphate & Fertilizer	84.1	1.9	597.1	0.00%	1.55%
FL	ICI CHEMICAL HOLDINGS, INC.	138.5	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	1,780.3	3,212.9	0.05%	0.95%
GA	Ga Power Company - Plant McManus	27.1	72.2	90.1	0.14%	0.93%
SC	CAPESTONE CHARLESTON KRAFT LLC	213.6	2,355.8	1,863.7	0.09%	0.89%
PA	KELCON NE VIRGINIA CO/KY/STONE 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 (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 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	39,536.3	0.13%	4.68%
GA	International Paper - Rome	87.4	3,773.4	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 (TVA) - Swanee Fossil Plant	457.2	7,007.3	19,304.7	0.07%	2.18%
TN	THE WASHINGTON POST PLANT	134.0	1,857.4	1,886.1	0.13%	2.17%
DH	General James M. Gavin Power Plant (0627010056)	532.0	8,122.5	41,595.8	0.02%	1.71%
TN	THE CUMBERLAND OXIDE PLANT	327.0	4,916.5	8,427.3	0.09%	1.81%
KY	Bla Rivers Electric Corp - Wilson Station	369.0	1,151.9	6,934.7	0.01%	1.07%
DH	Duke Energy Ohio, Wm. H. Hammer Station (1417081154)	454.6	2,153.0	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 - Chateaufort Station	441.5	7,929.9	10,169.3	0.08%	1.05%
IL	Joppla 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	EASTMAN CHEMICAL COMPANY	289.8	6,900.3	6,420.2	0.09%	0.99%
MO	MARSHEN MISSOURI-LABADEE PLANT	652.4	9,185.5	41,740.3	0.01%	0.98%
IL	Newcom	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%	0.78%

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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 (km)	NOx_2028 (tons/year)	SO2_2028 (tons/year)	NOx Contribution	SO2 Contribution
FL	WHITE SPRINGS AGRICULTURAL CHEMICALS INC	71.5	112.4	2,745.0	0.03%	14.63%
FL	ROCK TENN CP, LLC	84.8	2,316.8	2,806.7	0.88%	12.82%
FL	JEA	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	ICI CHEMICAL HOLDINGS, INC.	56.8	37.7	898.9	0.01%	3.25%
FL	RAYONIER PERFORMANCE FIBERS LLC	83.4	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	NICKERBOCKER/DONALDSON PARTNERSHIP	153.5	1,830.7	1,520.4	0.16%	2.18%
FL	RESSENEZ 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 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	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	ALUMINA OF SOUTH CAROLINA	322.7	108.1	3,751.7	0.00%	0.97%
GA	PCA Vulcraft 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%	0.85%
FL	CITY OF GAINESVILLE, FLORIDA	111.7	410.0	881.4	0.03%	0.79%
SC	CAPESTONE CHARLESTON KRAFT LLC	334.0	2,355.8	1,863.7	0.06%	0.85%
GA	Ga Power Company - Plant Wansley	403.7	2,052.5	4,856.0	0.02%	0.85%

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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 SO₂ 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	21189-289111	Int. Jones Electric Corp. - Wilcox Manor	8,554.13	1,151.23
KY	VISTAS	21091-715241	Century Aluminum of KY LLC	5,044.13	107.58
KY	VISTAS	21177-119571	Tennessee Valley Authority - Parrottton Fossil Plant	3,011.01	3,114.72
KY	VISTAS	21145-203701	Tennessee Valley Authority - TVA - Shawnee Fossil Plant	19,924.70	2,087.74
MS	VISTAS	38019-818411	Chemura Products Company - Potomacville Battery	781.22	1,584.12
MS	VISTAS	28059-825101	Mississippi Power Company - Plant Victor - Daniel	231.50	3,829.72
NC	VISTAS	37037-792051	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-809311	Dominion Paper Company, LLC	597.85	1,795.08
NC	VISTAS	37935-837041	Duke Energy Carolinas, LLC - Marshall Steam Station	4,139.21	7,511.31
NC	VISTAS	37013-847311	PCS Phosphate Company, Inc. - Aurora	4,845.90	495.58
NC	VISTAS	37023-851801	SGL Carbon, LLC	261.94	21.69
NC	VISTAS	42019-860011	WILSON CITY NORTH CEMENT	3,021.84	106.90
SC	VISTAS	45043-150851	INTERNATIONAL PAPER GEORGETOWN MILL	2,476.52	2,601.24
SC	VISTAS	45019-489751	KAPTON CEMENT ABRIKTON KRAFT, LLC	1,863.83	2,355.82
SC	VISTAS	45015-437811	SANTIT COOPER CEMENTS (SANTIT) MILL STATION	4,281.13	3,771.47
SC	VISTAS	45043-555761	SANTIT COOPER WYNATH GENERATING STATION	2,746.42	1,777.25
SC	VISTAS	45015-808711	SCEGG WILLIAMS	392.43	892.73
TN	VISTAS	47033-497311	Cemex - Knoxville Plant	121.47	1,113.50
TN	VISTAS	47115-398311	EASTMAN CHEMICAL COMPANY	6,400.12	6,900.13
TN	VISTAS	47105-412921	TAI & WELDON	472.78	883.23
TN	VISTAS	47031-619611	TVA BULL RUN FOSIL PLANT	622.54	964.18
TN	VISTAS	47115-407311	TVA CUMBERLAND FOSIL PLANT	8,427.33	4,916.52
TN	VISTAS	47145-497311	TVA KINGSTON FOSIL PLANT	1,886.05	1,887.18
VA	VISTAS	51027-405811	Jewell Cakes Company L.P.	5,090.05	520.14
VA	VISTAS	51580-479871	MeadeWestco Packaging Resource Group	2,115.21	1,985.50
VA	VISTAS	51023-503611	Roanoke Cement Company	2,256.12	1,872.03

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PSAT SO₂ and NOx Tags (209)

Round 1 (122 tags)

- Total SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- Total NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point SO₂ tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- EGU point NOx tags for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ tags for individual VISTAS facilities = 50 tags
- NOx tags for individual VISTAS facilities = 20 tags

Round 2 (87 tags)

- Non-EGU point SO₂ for 10 individual VISTAS states + 3 RPOs = 13 tags
- Non-EGU point NOx for 10 individual VISTAS states + 3 RPOs = 13 tags
- SO₂ and NOx for N/S/W/E boundaries = 8 tags
- SO₂ tags for individual VISTAS facilities = 10 tags
- NOx tags for individual VISTAS facilities = 16 tags
- SO₂ tags for individual non-VISTAS facilities = 17 tags
- NOx tags for individual non-VISTAS facilities = 10 tags

→ 87 Total Facility Tags (both SO₂ 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	SO2 (TPY)	NOx (TPY)
WV	VISTAS	34019-627111	ALLEGHENY WEIGHT SUPPLY CO. LLC-HARISON	10,082.50	11,880.88
WV	VISTAS	34049-486451	AMERICAN BITUMINOUS POWDER WORKS - LOWN PLE	2,210.23	3,245.18
WV	VISTAS	34019-627111	AMERICAN BITUMINOUS POWDER WORKS - PLANT	10,082.50	4,878.18
WV	VISTAS	34073-525701	Dominion Resources, Inc. - MOUNT STORM POWER STATION	2,173.54	1,984.14
WV	VISTAS	34043-580311	PERITRANS - CEMEX RUN CO.	6.10	511.09
WV	VISTAS	34033-578071	PILES CREEK CO-BO	6.15	643.39
WV	VISTAS	34033-578071	READY CO-BO	0.10	343.29
WV	VISTAS	34033-578071	KINGSFORD MANUFACTURING COMPANY	16.50	140.88
WV	VISTAS	34061-163201	LONGVIEW POWER	2,113.73	1,555.57
WV	VISTAS	34033-578071	M-T CELL PLANT	5,372.84	2,719.58
WV	VISTAS	34051-677361	MONONGAHELA POWER CO. - FORT MARTIN POWER	4,881.87	15,743.32
WV	VISTAS	34073-525701	MONONGAHELA POWER CO. PLANT - LASANS POWER PLANT	16,817.45	5,497.27
WV	VISTAS	34051-677361	MONONGAHELA POWER CO. - NORTH FACILITIES	826.84	855.36
AR	CENRAP	05030-308441	ENERGY SERVICES INC-INDEPENDENCE PLANT	22,050.48	14,133.18
MO	CENRAP	29143-116381	NEW MADRID POWER PLANT - MADRTN	16,283.71	4,944.18
MD	VA NE WV	24031-776381	Duke Power Company	27,059.44	3,677.08
PA	VA NE WV	42005-306511	GENCO NEWMART COLEBYSTON STA	16,039.27	6,728.17
PA	VA NE WV	42005-306511	HOMER CITY GEN LP/CENTER TW ³	11,865.70	5,216.06
PA	VA NE WV	42005-306511	NRS WHOESALE GEN/SEWARD GEN STA	8,880.20	2,254.04
IL	Midwest RPO	17127-780311	Joppe Steam	20,652.28	4,705.35
IN	Midwest RPO	18175-818311	Hoosier Water Power 7th Age Div of AL	5,071.28	11,558.53
IN	Midwest RPO	18051-786311	Gilson	23,117.23	12,880.34
IN	Midwest RPO	18147-801711	INDIANA MICHIGAN POWER CORP - HICKSPINK	10,336.27	8,880.77
IN	Midwest RPO	18175-818311	INDIANA MICHIGAN POWER - EL HIGH - POKESHONG	18,141.89	10,665.22
IN	Midwest RPO	18175-818311	Shesha AS Brown South Indiana Gas & Ele	7,544.41	1,678.33
OH	Midwest RPO	39031-811771	Cardinal Power Plant (Cardinal Operating Company) (0041050003)	7,450.74	2,467.73
OH	Midwest RPO	39031-811771	Cardinal Power Plant (0041050003)	6,356.20	9,877.83
OH	Midwest RPO	39025-829431	Duke Energy Ohio, West. - 17 Former Gilson (1413098154)	27,133.54	7,149.29
OH	Midwest RPO	39053-813511	General James V. Gavin Power Plant (0027040056)	41,595.81	8,122.52
OH	Midwest RPO	39053-798301	Ohio Valley Electric Corp. - Kuyser Creek Station (0027000003)	3,400.14	9,143.84

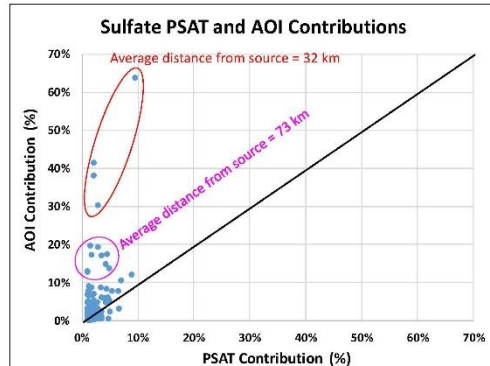
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Facility Tags (AL, FL, GA)

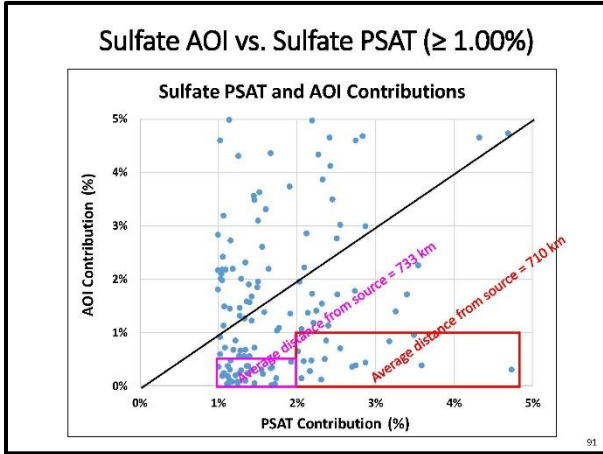
Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01071-249811	Alco Nobel Chemical, Inc	8,335.74	291.72
AL	VISTAS	01071-249811	Ala Power - Berry	8,002.17	2,275.09
AL	VISTAS	01114-102871	American Multi-Tech Chemicals, LLC	3,106.38	475.47
AL	VISTAS	01071-101871	DIRHAM MCHD CO-PAVNY, INC	2,562.17	1,228.52
AL	VISTAS	01053-748011	Parabola Operating Company, LLC	18,923.78	3,863.37
AL	VISTAS	01053-885111	Escambia Operating Company, LLC	6,589.00	149.54
AL	VISTAS	01103-100011	Nucor Steel Decatur, LLC	170.23	331.24
AL	VISTAS	01109-805711	Sanders Lead Co	7,951.02	121.72
AL	VISTAS	01071-249811	Union Oil of California - Churchill Gas Plant	2,573.35	892.22
FL	VISTAS	12123-752411	BUCKEYE FLO-VIDA, LIMITED PARTNERSHIP	1,520.42	1,880.74
FL	VISTAS	12088-800111	CEMEX CONSTRUCTION MATERIALS FL, LLC	29.51	910.39
FL	VISTAS	12017-840811	DUKE ENERGY FLOW-36, NC (RPO)	3,369.41	2,469.82
FL	VISTAS	12088-800011	FLO-VIDA POWER & LIGHT (P)1	13.09	170.83
FL	VISTAS	12033-752711	GUJ POWER - Gen	2,515.88	2,998.21
FL	VISTAS	12081-733711	HOAMI STAD CITY UTIL, IT'S	0.00	87.00
FL	VISTAS	12031-640711	IFA	2,094.48	651.74
FL	VISTAS	12105-717711	MOSAK FERTILIZER, LLC	7,900.67	310.42
FL	VISTAS	12057-716411	MOSAK FERTILIZER, LLC	3,034.02	159.71
FL	VISTAS	12105-716411	MOSAK FERTILIZER, LLC	4,425.53	141.02
FL	VISTAS	12089-845811	RAYONIER PERFORMANCE FIBERS, LLC	561.27	2,327.18
FL	VISTAS	12089-753711	ROCK TENN CP, LLC	2,606.72	2,316.77
FL	VISTAS	12005-215411	ROCK TENN CP, LLC	2,590.88	3,404.89
FL	VISTAS	12102-731711	TALVA POWER CITY PLANT GENERATING STA	2.80	174.48
FL	VISTAS	1209-748811	VAPORELL CHEM COMPANY (I-1)	6,084.90	2,865.03
FL	VISTAS	12088-809911	VAMAC AMERICA, LLC	9.38	872.71
GA	VISTAS	13087-799711	WILLY SPINNES AOK C/O TURAL CHEMICALS, INC	3,182.77	112.41
GA	VISTAS	13117-772101	Branswick Cellulose, Inc	284.20	1,554.53
GA	VISTAS	13015-281301	Gas Power Company - Plant Newnan	10,453.41	6,641.37
GA	VISTAS	13103-273811	Georgia-Pacific Consumer Products LP (Savannah River VIII)	1,860.18	824.52
GA	VISTAS	13015-279111	International Paper - Savannah	3,975.35	3,560.22
GA	VISTAS	13115-539311	TEV PLS INLAND	1,781.00	1,773.33

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Sulfate AOI vs. Sulfate PSAT (≥ 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.**

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.

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 (%)**

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

PSAT Reasonable Progress Screening

- The **facility sulfate and nitrate contributions (Mm⁻¹)** from the individual 87 tagged facilities should not change unless a facility has reduced or increased SO₂ and/or 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 SO₂ and 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 (%) =

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

Revised Facility Sulfate PSAT Results

- **Revised Facility Sulfate PSAT Results**

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

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

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

Revised Facility Nitrate PSAT Results

- Revised Facility Nitrate PSAT Results = Original Facility Nitrate PSAT Results * NOx Ratio_Facility * Ratio_Class_I_Area

(Revised facility NOx emissions)

where, $NOx\ Ratio_Facility = \frac{\text{Revised facility NOx emissions}}{\text{Original facility NOx emissions}}$

(Original sulfate + nitrate point contribution)

where, $Ratio_Class_I_Area = \frac{\text{Revised sulfate + nitrate point contribution}}{\text{Original sulfate + nitrate point contribution}}$

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

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
WV	VISTAS	54039-277111	CLARKSVILLE ENERGY SUPPLY CO. LICHAMERSON	1.465	0.655
WV	VISTAS	54049-4864511	AMERICAN BITUMINOUS POWDER & GUM TOWN PL1	1.000	1.000
WV	VISTAS	54076-6789111	APPALACHIAN POWER COMPANY - JO-IN F.A.MOS PLANT	0.505	0.505
WV	VISTAS	54073-6789111	Dominion Resources, Inc. - MOUNT STORM POWER STATION	1.000	1.000
WV	VISTAS	54041-9803111	FOOTMOUNTAIN - COAL-FIRE CO-2	1.000	1.000
WV	VISTAS	54033-6790711	FILES CREEK GC4340	1.000	1.000
WV	VISTAS	54033-6790511	GLADY GC4339	1.000	1.000
WV	VISTAS	54039-3338111	KNIVESHORN MANUFACTURING COMPANY	1.000	1.000
WV	VISTAS	54061-1632011	LONGVIEW POWER	0.767	0.767
WV	VISTAS	54051-6902311	M/T CELL PLANT	0.626	0.626
WV	VISTAS	54053-6776111	MONONGAHELA POWER CO. - EAST MARTIN POWER	0.626	0.626
WV	VISTAS	54074-6790111	MONONGAHELA POWER CO. - COAL CASASNY POWER PL1	0.626	0.626
WV	VISTAS	54051-6776111	MORGANTHAUWEN ENERGY ASSOCIATES	0.626	0.626
AR	CRBRO7	06235-1085411	ENERGY Arkansas INC-INDEPENDENCE PLANT	0.420	0.411
MO	CRBRO7	29143-1763811	NEW MADRID POWER PLANT - MADRID	0.655	0.655
MD	VANF-VU	24001-7763811	Juko Paper Company	0.416	1.000
PA	VIANE-VU	42005-1866111	GENCO NE MGMT CO/LEYSTONE STA	0.320	0.723
PA	VIANE-VU	42053-3005111	HOMER CITY GEN LPT CENTER TWP	0.724	0.951
PA	VIANE-VU	42053-3005111	RES WOOD COAL GEN/EVERARD GEN STA	0.724	0.724
IL	Midwest RPO	17127-7898911	Joppat Steam	0.393	0.424
IN	Midwest RPO	18179-8189111	Alcoa Warrick Power 7# Age Div of AL	0.288	0.273
IN	Midwest RPO	18155-7891111	Indianapolis Power & Light - P1 HERSBURG	0.551	0.562
IN	Midwest RPO	18174-8107111	Superior Brown South Indiana Gas & Ele	0.000	0.011
OH	Midwest RPO	19031-8117111	Midwest Power Plant (Central Ohio Energy Company) (05410500007)	0.000	0.000
OH	Midwest RPO	19031-8117111	Cincinnati Power Plant (0515000000)	0.000	0.000
OH	Midwest RPO	19035-8794111	Duke Energy Ohio, West. I. Zimmer Station (1212006114)	0.481	0.616
OH	Midwest RPO	19035-8794111	General James H. Zimmer Power Plant (0521000000)	0.481	0.616
OH	Midwest RPO	19035-7983011	Ohio Valley Electric Corp. - Kener Creek Station (0527000003)	0.226	0.665

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Facility Ratios (AL, FL, GA)

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
AL	VISTAS	01077-1481111	Alco Tech Chemical Inc.	1.000	1.000
AL	VISTAS	01027-1055111	Alfa Power - Barry	0.472	1.000
AL	VISTAS	01178-1024711	American Multi-Stream Chemicals, LLC	0.000	0.000
AL	VISTAS	01073-1016711	TRIMMINGTON EDUPANBY, INC.	1.000	1.000
AL	VISTAS	01053-1440011	Packaging Operations Company L.C.	0.776	1.000
AL	VISTAS	01053-9851111	Escambia Operations Company L.C.	0.510	0.000
AL	VISTAS	01103-1000011	Nucor Steel Decatur LLC	1.000	1.000
AL	VISTAS	01109-8857111	Sanders Lead Co.	1.000	1.000
AL	VISTAS	01027-1061611	Union Oil of California - Chocoma Gas Plant	0.000	0.000
FL	VISTAS	12223-7524111	BUCKEYE FLOUIDAL, LIMITED PARTNERSHIP	1.000	1.000
FL	VISTAS	12089-8001111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	1.000	1.000
FL	VISTAS	12017-6480111	BUCKEYEBOND (FLORIDA, INC. (081)	0.000	0.000
FL	VISTAS	12089-8000111	FLORIDA POWER & LIGHT (FPL)	1.000	1.000
FL	VISTAS	12033-7527111	GUJ POWER - Guat	0.233	0.381
FL	VISTAS	12036-7837111	ICM/STAD COP/UT/IT/CS	1.000	1.000
FL	VISTAS	12031-6407111	I/P	1.000	1.000
FL	VISTAS	12205-2137111	MOGAS FERTILIZER, LLC	0.556	1.000
FL	VISTAS	12057-7161111	MOGAS FERTILIZER, LLC	0.597	1.000
FL	VISTAS	12205-8198111	MOGAS FERTILIZER, LLC	0.572	1.000
FL	VISTAS	12089-8458111	RAYONIER PERFORMANCE FIBERS, LLC	1.000	1.000
FL	VISTAS	12089-7537111	ROCKTENN CP, L.C.	1.000	1.000
FL	VISTAS	12089-7535111	ROCKTENN C/LC	1.000	1.000
FL	VISTAS	12129-2731711	VALA-VAHSE CITY PUBLIC UTILITY GENERATING STA.	1.000	1.000
FL	VISTAS	12067-8388111	WAGGONER ELECTRIC COMPANY (L-15)	1.000	1.000
FL	VISTAS	12089-8099111	WAGGONER ELECTRIC COMPANY (L-15)	1.000	1.000
FL	VISTAS	12047-7497111	WITTSPHOSPHATE CULTURAL CHEMICALS, INC.	0.000	0.000
GA	VISTAS	13127-1771011	Brunswick Cultural Center	1.000	1.000
GA	VISTAS	13015-2813011	Big Power Company - Plant Newton	1.000	1.000
GA	VISTAS	13203-7631111	Georgia Pacific Container Products LP (Savannah River VIII)	1.000	1.000
GA	VISTAS	13011-1675011	International Paper - Savannah	1.000	1.000
GA	VISTAS	13115-5393111	TEWEE ISLAND	1.000	1.000

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Class I Area Ratios

State	Class I Area	Ratio Class I Area
AL	Sipsey Wilderness Area (SIPSE)	1.382
FL	Chassahowitzka Wilderness Area (CHAS)	1.925
FL	Everglades NP (LVLV)	1.290
FL	St Marks Wilderness Area (SAMA)	1.363
GA	Cohutta Wilderness Area (COHU)	1.363
CA	Diablo National Wilderness Area (DNWF)	1.317
GA	Wolf Island Wilderness (WOLF)	1.311
KY	Mumfords Cove NP (MCA)	1.337
NC	Linnville Gorge Wilderness Area (LUGD)	1.113
NC	Shining Rock Wilderness Area (SHRO)	1.410
NC	Swanquarter Wilderness Area (SWAN)	1.298
SC	Cape Roman Wilderness (ROMA)	1.302
TN/NC	Great Smoky Mountains NP (GRSM)	1.394
TN/NC	Joyce Kilmer-Slicker Wilderness Area (JDKC)	1.401
VA	James River Face Wilderness (JAFB)	1.416
VA	Shenandoah NP (SHLN)	1.403
WV	Dolly Sods Wilderness (DOSD)	1.417
WV	Otter Creek Wilderness (OTCR)	1.417
AR	Caney Creek Wilderness Area (CACR)	1.496
AR	Jacks Buffalo Wilderness Area (JUPBU)	1.496
LA	Breton Wilderness (BRLT)	1.306
ME	Acadia National Park (ACAD)	1.402
ME	Moosehorn Wilderness EDM (W005)	1.417
MI	Setsu Wilderness Area (SEWE)	1.263
MO	Hercules Glades Wilderness Area (HIGL)	1.450
MO	Mingo Wilderness Area (MING)	1.360
NH	Great Gulf Wilderness Area (GRGL)	1.463
NH	Presidential Range-Dry River Wilderness (PRDR)	1.465
VT	Brigance Wilderness Area (BRIG)	1.393
VT	Lye Brook Wilderness (LYLB)	1.471

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

Facility State	Facility RPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 Ratio	NOx Ratio
KY	VISTAS	21163-8541111	Big Rivers Electric Corp. - Wilhoit Station	1.000	1.000
VISTAS	21091-7752111	Century Aluminum of KY LLC	0.811	1.000	
KY	VISTAS	21177-1192711	Tennessee Valley Authority - Paradise Fossil Plant	0.505	0.214
KY	VISTAS	21145-2037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	1.000	1.000
MS	VISTAS	28058-8284111	Chemura Products Company, Paradise Refinery	1.000	1.000
MS	VISTAS	28058-8251011	Mississippi Power Company - Plant Victor - Daniel	1.000	1.000
NC	VISTAS	37037-7920511	Blue Ridge Paper Products - Canton Mill	0.355	0.374
NC	VISTAS	37117-8049111	Dominion Paper Company - LC	1.000	1.000
NC	VISTAS	37038-8290111	Duke Energy Carolina, LLC - Marshall Steam Station	0.811	0.711
NC	VISTAS	37038-8479311	PCS Phosphate Company, Inc. - Aurora	1.000	1.000
NC	VISTAS	37038-8513011	SGL Carbon - LC	1.000	1.000
SC	VISTAS	45018-4646011	BEWING CO. SOUTH CAROLINA	1.000	1.000
SC	VISTAS	45043-1598011	INTERMAT ONA PAPER GEORGETOWN M L	1.000	1.000
SC	VISTAS	45018-4671011	KAPSTONE CORPORATION KRAFT - LC	1.000	1.000
SC	VISTAS	45015-4126111	KANTITE COOPER CROSS RIVER BLS STATION	1.000	1.000
SC	VISTAS	45043-1550111	KANTITE COOPER WYMANIC WREATHING STAT ON	1.000	1.000
SC	VISTAS	45015-3802711	SC BGS WILLIAMS	1.000	1.000
TN	VISTAS	47093-4929911	Cemex - Knoxville Plant	1.000	1.000
TN	VISTAS	47123-3983111	EASTMAN CHEMICAL COMPANY	1.000	1.000
TN	VISTAS	47109-4122111	FATE & VELS - Jordan	0.752	0.741
TN	VISTAS	47093-6196011	TVA BULL RUN FOSSIL PLANT	0.000	0.000
TN	VISTAS	47161-4079311	TVA CUMBERLAND FOSSIL PLANT	1.000	1.000
TN	VISTAS	47145-4079311	TVA KINGDOM FOSSIL PLANT	0.226	0.665
VA	VISTAS	51017-4034811	Jewell Coke Company L.P.	1.000	1.000
VA	VISTAS	51040-5748711	Midwest Paper Packaging Resource Group	1.000	1.000
VA	VISTAS	51023-5036011	Roanoke Cement Company	1.000	1.000

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EXAMPLE: New Madrid Power at SIPS

- Revised Facility Sulfate PSAT Results = Original Facility Sulfate PSAT Results * SO₂ Ratio_Facility * Ratio_Class_I_Area

Original Facility Sulfate PSAT Results = 1.46%

- Revised Facility Sulfate PSAT Results = 1.46% * 0.665 (Slide 100) * 1.382 (Slide 101) = 1.34% (Slide 103)

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

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Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Nitrate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	0.364	16.370	2.22%	0.009	16.370	0.05%
OH	39053-8148511	General James M. Gavin Power Plant (0927010056)	650.9	0.327	16.370	1.9%	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	18125-7362111	INDIANA POLIS POWER & LIGHT - PETERSBURG	464.1	0.255	16.370	1.57%	0.016	16.370	0.10%
TN	47161-4879311	TVA CLUMBERLAND FOSSIL PLANT	228.9	0.242	16.370	1.46%	0.008	16.370	0.17%
VO	29343-5363811	NLW MADRID POWER PLANT - VARS'ON	314.5	0.220	16.370	1.34%	0.012	16.370	0.07%
KY	21181-5561611	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 Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Nitrate PSAT %
GA	13015-2813011	Ea Power Company - Plant Bowen	452.9	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	Randers Lead Co	255.8	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 Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Nitrate PSAT %
FL	12017-640611	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	2.28%	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	0.05%
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 Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Nitrate PSAT %
DH	39053-8148511	General James M. Gavin Power Plant (0927010056)	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 (1413090154)	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 NE M GM 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	0.02%

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Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Nitrate PSAT %
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.044	3.333	3.30%	0.000	3.333	0.00%
FL	12109-919811	MOSAG FERTILIZER, LLC	304.7	0.035	3.333	2.62%	0.000	3.333	0.00%
FL	12109-717711	MOSAG FERTILIZER LLC	303.3	0.035	3.333	2.60%	0.000	3.333	0.00%
FL	12088-899911	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 Revised Sulfate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ³	FINAL Revised EGU + NREGU Min ³	FINAL Revised 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%
FL	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	153.5	0.280	13.400	2.16%	0.019	13.400	0.14%
DH	39053-8148511	General James M. Gavin Power Plant (0927010056)	909.1	0.203	13.400	1.51%	0.002	13.400	0.01%
FL	12089-753711	ROCKTECH CP, LLC	64.8	0.176	13.400	1.31%	0.020	13.400	0.15%
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	178.5	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 NE M GM T CO/KEYSTONE STA	1,129.0	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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	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	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. 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	12031-640211	EA	189.1	0.167	12.957	1.29%	0.006	12.957	0.06%
SC	45015-4834911	ALUMAX OF SOUTH CAROLINA	233.0	0.162	12.957	1.25%	0.001	12.957	0.01%
PA	42003-3866111	GLYNON NL V G W T CO/KEYSTONE 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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	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%	0.009	12.313	0.02%
TN	47161-4979311	TVA CLUMBERLAND 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	675.2	0.158	12.313	1.28%	0.001	12.313	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.156	12.313	1.27%	0.012	12.313	0.09%
PA	42003-3866111	GLYNON NL V G W T CO/KEYSTONE STA	637.6	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	37087-7920511	Blue Ridge Paper Products - Canton Mill	16.9	0.133	12.313	1.08%	0.012	12.313	0.10%
OH	39073-8794311	Duke Energy Ohio, Wm. H. Zimmer Station (113309154)	406.7	0.129	12.313	1.05%	0.002	12.313	0.01%
AR	05063-1083411	ENERGY ARKANSAS INC-INDEPENDENCE PLANT	783.1	0.129	12.313	1.04%	0.001	12.313	0.01%
TN	47163-3982311	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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	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	21145-6037011	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%
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 POWLR & LIGHT PTLERSBURG	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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Nitrate PSAT %
PA	42003-3866111	GENON NF V G W T CO/KEYSTONE STA	640.2	0.375	10.894	3.44%	0.009	10.894	0.09%
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	0.06%
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%
PA	42063-3005211	IONLR CITY GLN LP/ CLNLR 'WP	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	Domtar 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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	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)	379.7	0.446	12.884	3.46%	0.007	12.884	0.07%
PA	42003-3866111	GENON NF V G W 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	626.3	0.172	12.884	1.34%	0.002	12.884	0.02%
TN	47161-4979311	TVA CLUMBERLAND 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	51077-4034811	Dewell Coke Company LLP	140.4	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 Sulfate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Sulfate PSAT %	FINAL Revised Nitrate PSAT Min ⁻³	FINAL Revised EDU + NEDU Min ⁻³	FINAL Revised Nitrate PSAT %
SC	45015-4973611	KEYSTONE 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%	0.003	14.028	0.02%
PA	42003-3866111	GLYNON NL V G W T 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%	0.038	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 WYVAH 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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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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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 SO₂ control measures, an EGU that has add-on flue gas desulfurization (FGD) and that meets the applicable alternative SO₂ 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 SO₂ is necessary to make reasonable progress."
 - "For the purposes of SO₂ and NO_x 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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VISTAS Facilities $\geq 1.00\%$

State	FACILITY ID STD	FACILITY NAME STD	IMPACTED CLASS I AREAS
AL	01109-26711	Savannah Electric Co	CHAS, SAVA
FL	12123-752411	BLUEKEYE FLORIDA, LIMITED PARTNERSHIP	ORFV
FL	12077-620511	PLANT ENERGY SERVICES, INC. (TEP)	CHAS
FL	12001-640211	IPA	WOLF
FL	12109-717111	MOSBAC HERRINGER, LLC	EVER
FL	12109-918811	MOSBAC FERTILIZER, LLC	EVER
FL	12009-293711	ROCK TERN CO, LLC	ORFV, WOLF
FL	12009-535411	ROCKTAN CO, LLC	SAVA
FL	12009-538811	TAMPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12009-809311	ZONAC AMERICA, LLC	EVER
FL	12097-869111	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.	ORFV
GA	13127-372101	Pfizer/Ark Cellulose Inc	WOLF
GA	13019-251301	Sea Pines Company - Fleet Haven	CHAS, CONL, JOYC, LIQO, ORFV, ROMA, SAVA, SHRO, SWAN, WOLF
GA	13019-327801	International Paper - Swainnah	ORFV, ROMA, WOLF
KY	21283-5251611	Pitt Rivers Electric Corp - Wilson Station	MACA, SIPS
KY	21245-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, CONL, DOSO, ORFV, ROMA, SHRO, JOYC, LIQO, MACA, MING, ORFV, OTCR, SROB, SHRO, SIPS
NC	31087-7520511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	31177-8440111	Boonville Paper Company, LLC	SWAN
NC	31018-82975511	W.S. PROGRESS COMPANY, INC. - A-100A	SWAN
SC	45019-4834911	ALUMAX OF SOUTH CAROLINA	ROMA, WOLF
SC	75019-52292611	INDUSTRIAL PAPER, GEORGE OWAN MILL	ROMA
SC	45019-4873611	APPPOINT CHARLESTON KRAFT, LLC	ROMA
SC	45019-4120411	DAVEE COOPER CROSS GENERATING STATION	ORFV, ROMA, WOLF
SC	45019-4120411	DAVEE COOPER WINN-DIXIE GENERATING STATION	ROMA
TN	47161-4579311	TVA CLUMBERLAND FOSSIL PLANT	CONL, CRSM, JOYC, LIQO, SHRO
VA	51027-40234211	Powell Colke Company LUP	LIQO
VA	51027-2788711	Memphis International Packaging Resources Group	IRB
WV	54003-8271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JMBI, NGOS, OTCR, SHEN, SWAN
WV	54076-6789111	APPALACHIAN POWER COMPANY - JOHN F AMOS PLANT	ORFV, JMBI, OTCR
WV	54001-1050211	MITCHELL PLANT	DOSO, JMBI, OTCR, SHEN
WV	54061-6773611	MORGANBAHRELA POWER CO. FORT MARTIN POWER	DOSO, OTCR
WV	54073-4783811	MORGANBAHRELA POWER CO. PLATASANT POWER STA	DOSO, JMBI, OTCR, SHEN, SWAN

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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 122.
- States will verify projected SO₂ and NO_x 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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Non-VISTAS Facilities $\geq 1.00\%$

State	FACILITY ID STD	FACILITY NAME STD	IMPACTED CLASS I AREAS
AR	06053-1085411	E-11-ROY-A-KANSAS INC-INDUSTRIAL-PLANT	SHRO
IN	18051-7367111	Gibson	COHU, GRSV, JOYC, LIQO, MACA, OTCR, SHRO, SIPS
IN	18147-8017211	INDIANA MICHIGAN POWER JBA AEP - KCCP0301	COHU, GRSV, JOYC, LIQO, MACA, OTCR, SHRO, SIPS
IN	18176-7862411	INDIANA POWER & LIGHT - PETERSBURG	MACA, SIPS
ND	34005-7753511	Lake Paper Company	SHEN, SWAN
MO	29143-5363511	NEW MADRID POWER PLANT-MARSTON	LIQO, MACA, SHRO, SIPS
OH	33651-8115711	Cardinal Power Plant (Cardinal Operating Company) (08-41050002)	DOSO, JMBI, OTCR, SHEN, SWAN
OH	33023-8234211	Duke Energy Ohio, Wm. F. Zimmerman Station (41-3090154)	COHU, DOSO, JOYC, OTCR, SHRO
OH	39013-8148511	Fennel Energy, W. Greer Power Plant (0527010956)	COHU, DOSO, GRSV, JAR, JOYC, LIQO, ORFV, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
OH	39013-7983011	Ohio Valley Electric Corp., Eggen Creek Station (0527000003)	DOSO, JMBI, OTCR, SHEN
PA	42009-3865111	LEONON NE MGMT CO/KEYSTONE STA	COHU, DOSO, GRSV, JAR, JOYC, LIQO, ORFV, OTCR, ROMA, SHEN, SHRO, SWAN, WOLF
PA	42053-7097111	HENRICH CITY GEN. PLANT UNIT 1&2	SIFU, SWAN
PA	42053-7097111	HENRICH CITY GEN. PLANT UNIT 3&4	SIFU, SWAN

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Next Steps and Schedule

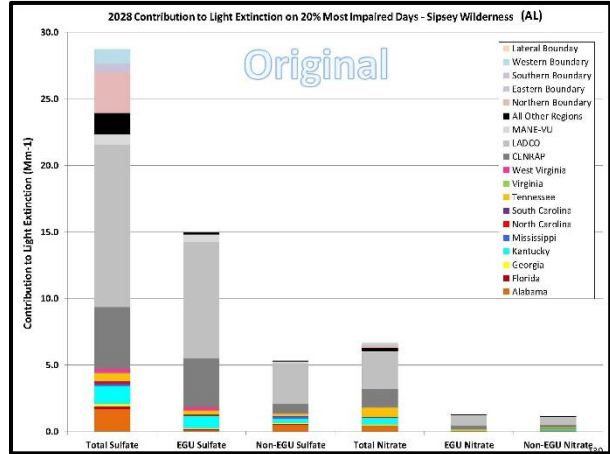
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Remaining VISTAS Work Schedule

Task	Schedule
2028 Point Emissions Updates	Completed *
2028 Emissions Processing	Completed *
2028 CAMx Modeling	Completed *
2028 Visibility Projections	Completed *
2028 Deposition Projections	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
Regional Haze SIPs Due to EPA	July 31, 2021

* References technical work completion. Draft reports to follow.

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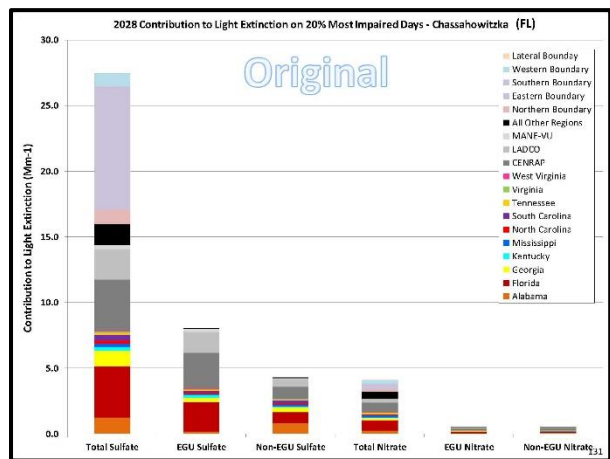


Contacts for Further Information

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

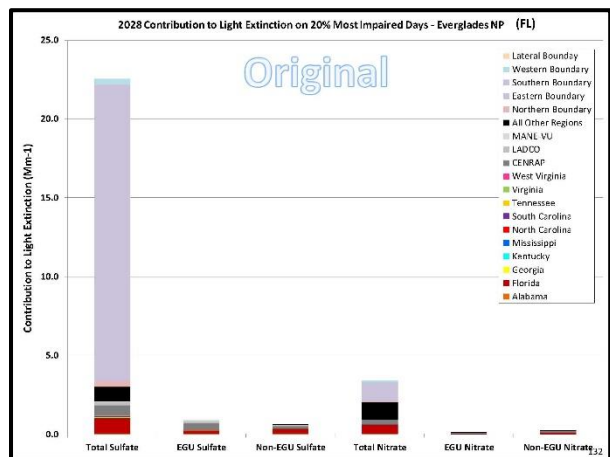


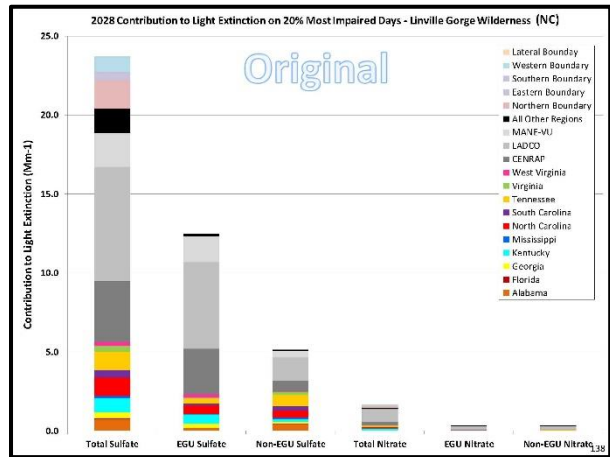
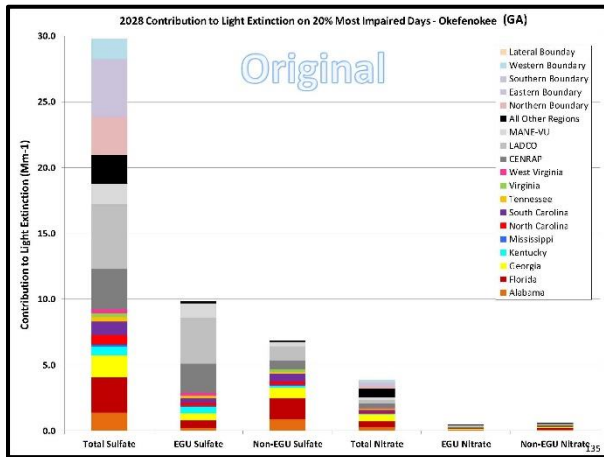
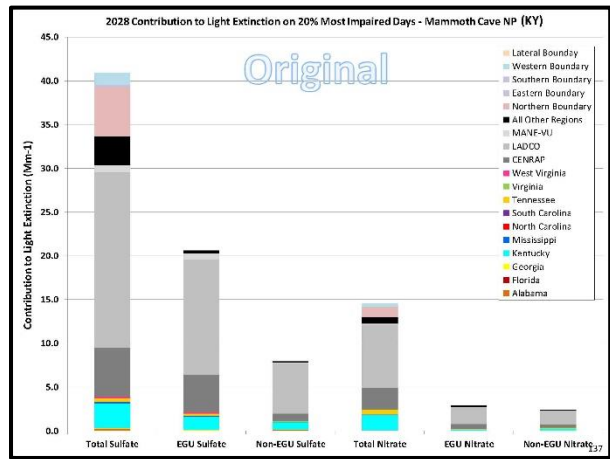
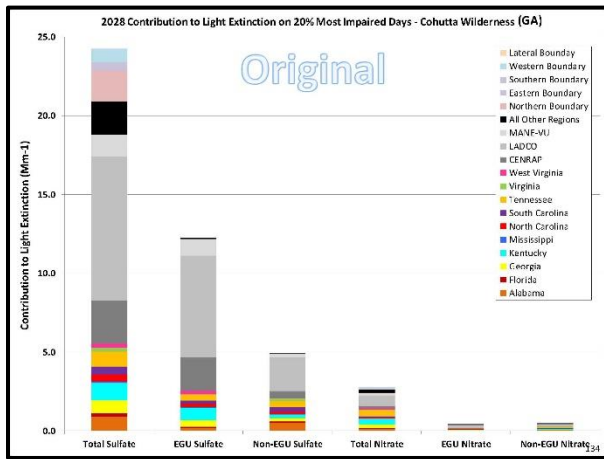
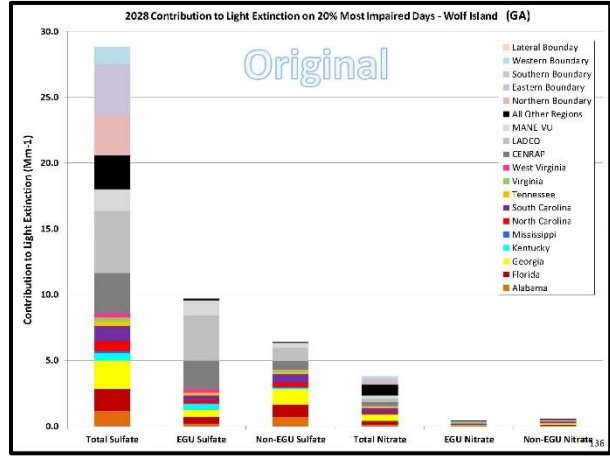
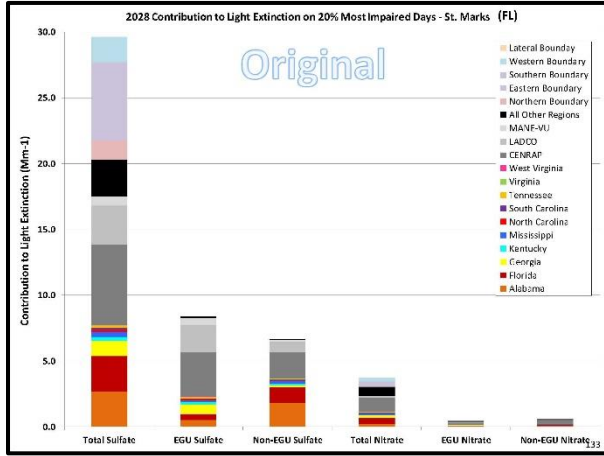
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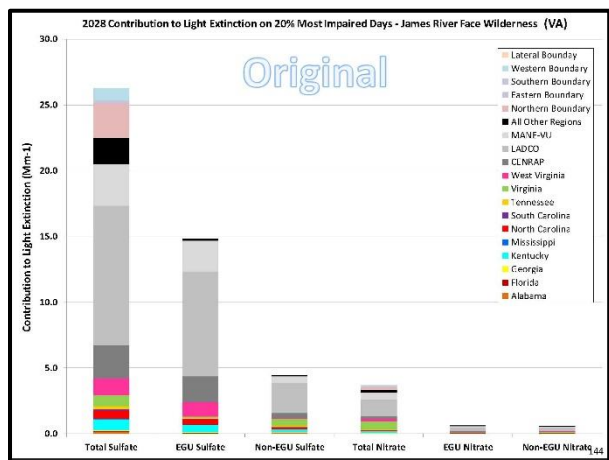
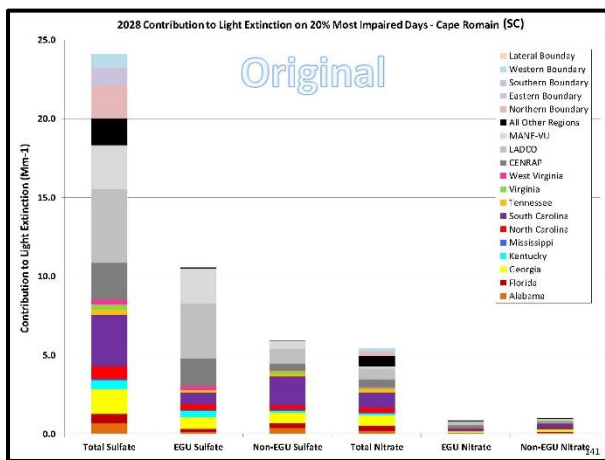
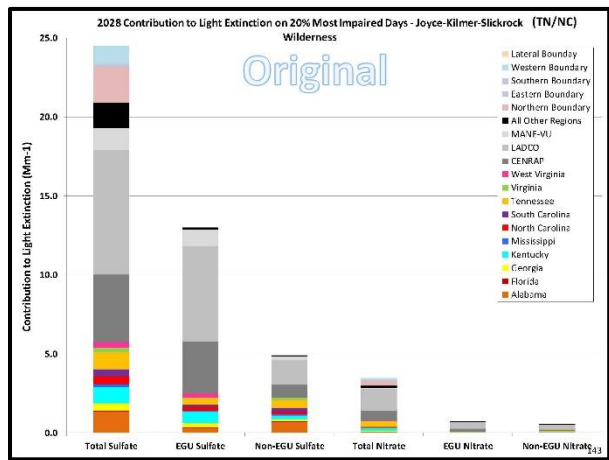
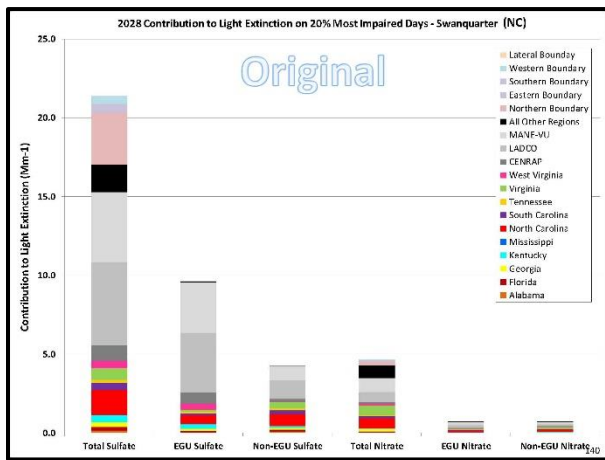
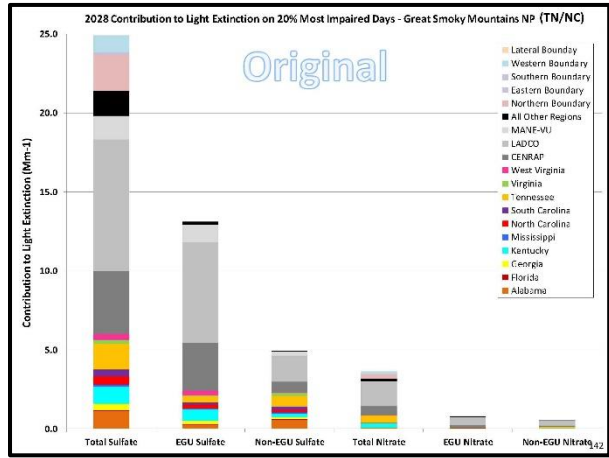
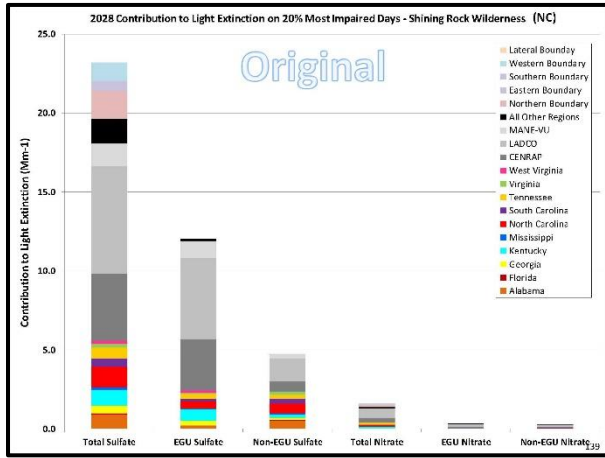


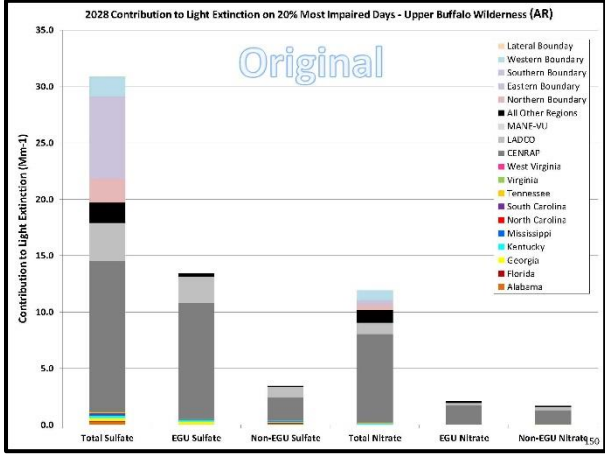
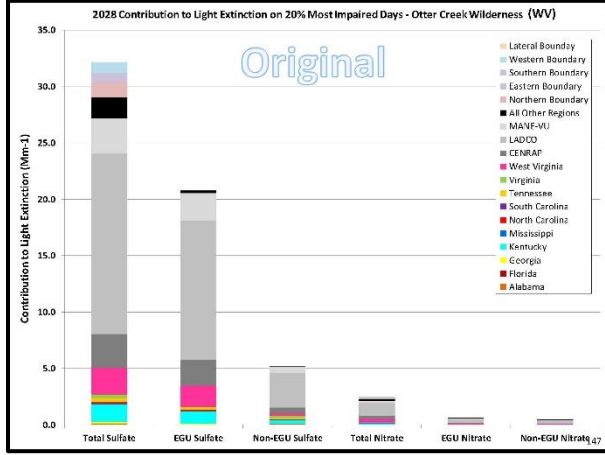
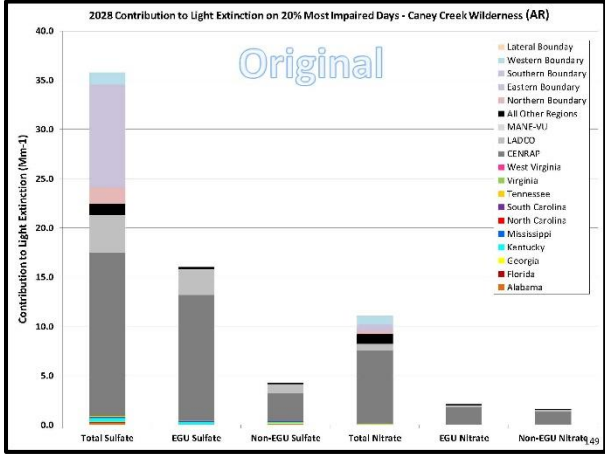
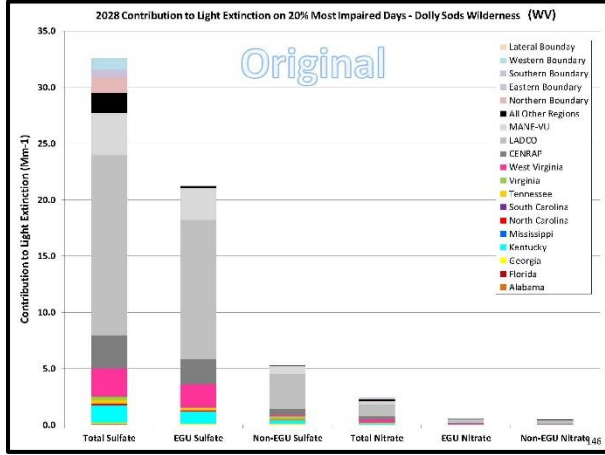
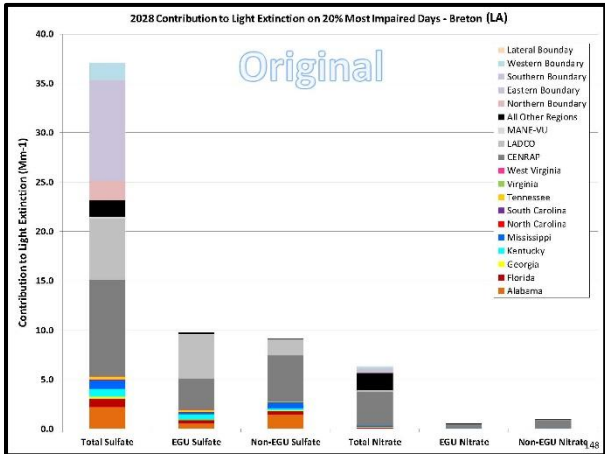
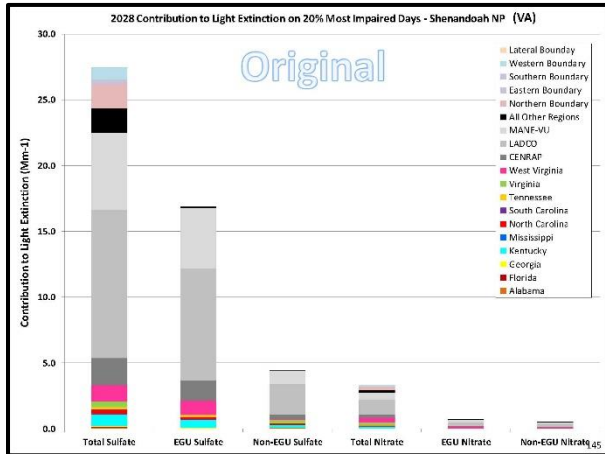
Appendix: Original Analysis (Conducted 2018-2019)

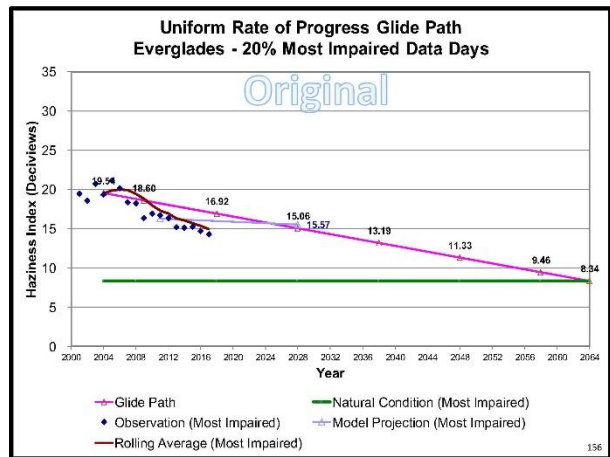
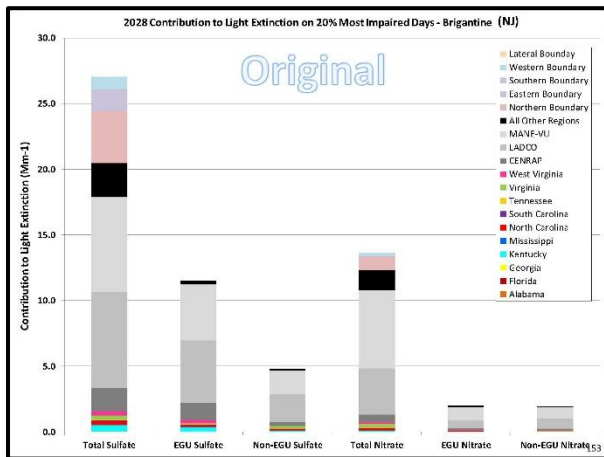
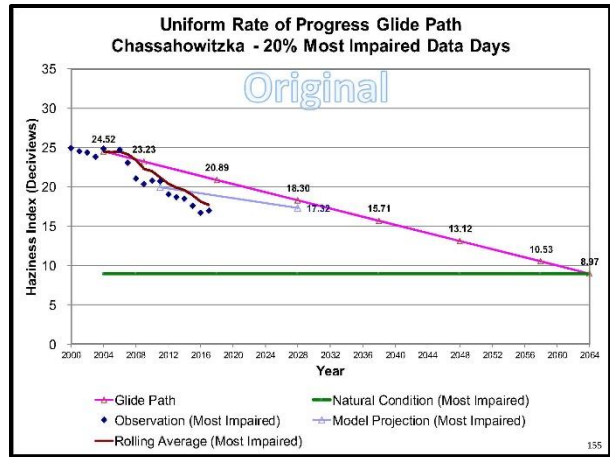
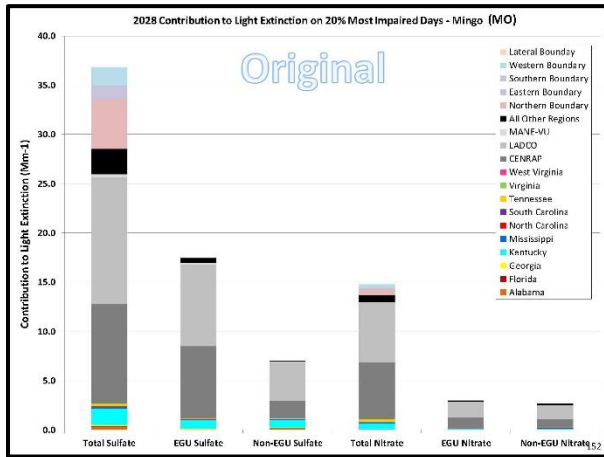
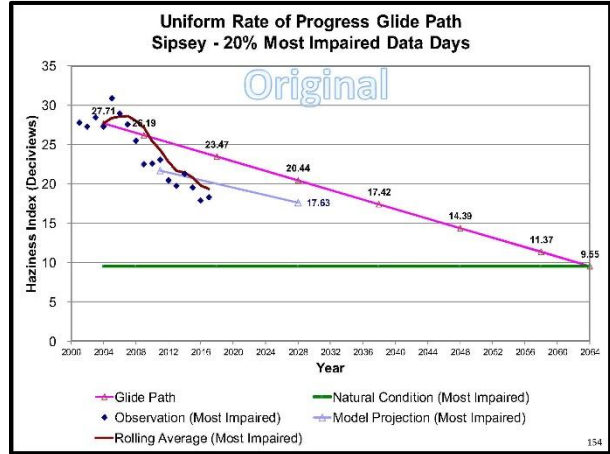
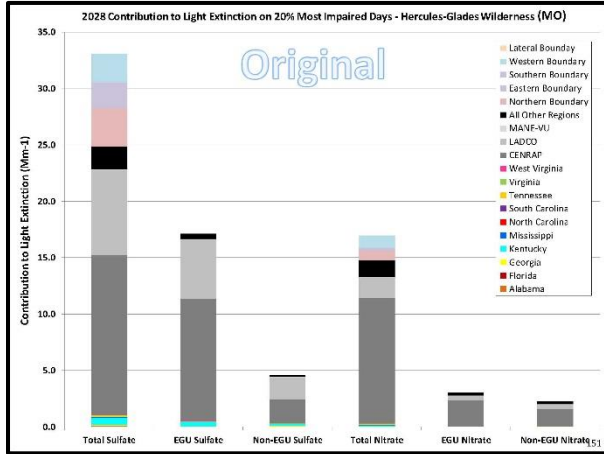
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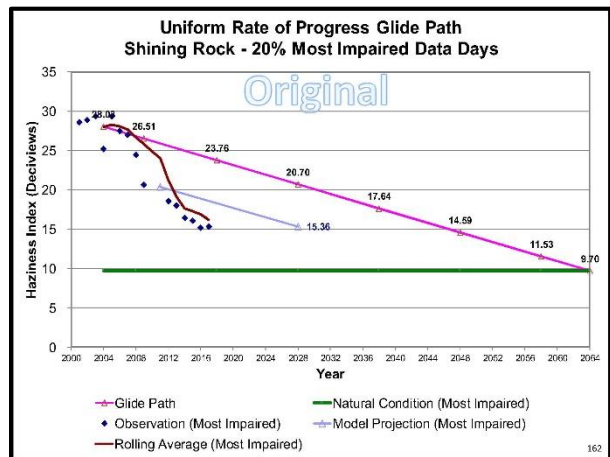
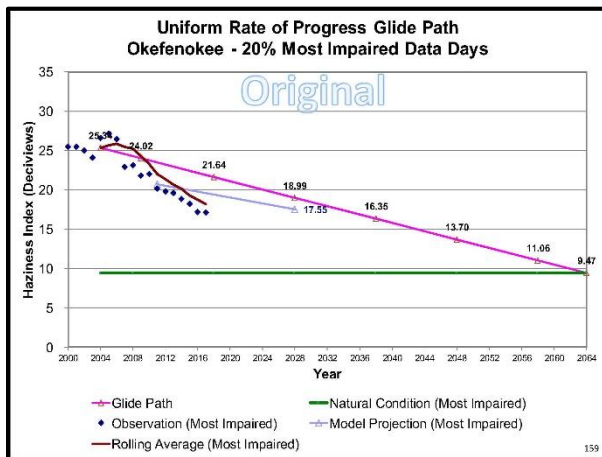
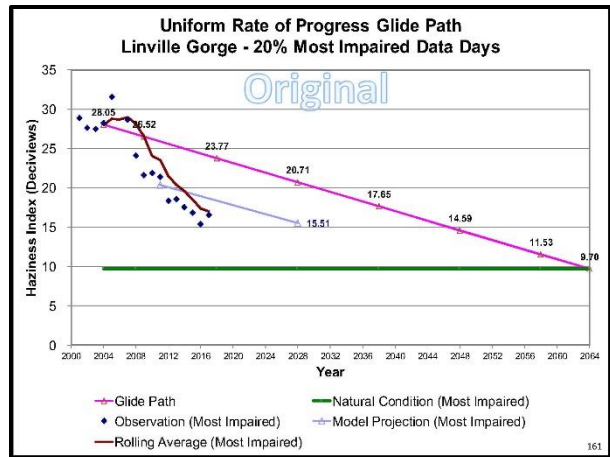
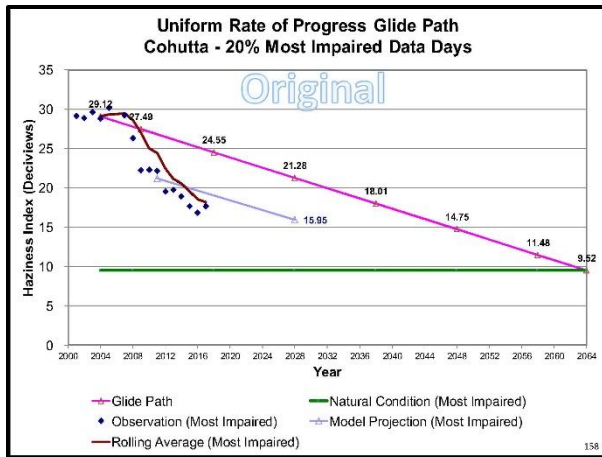
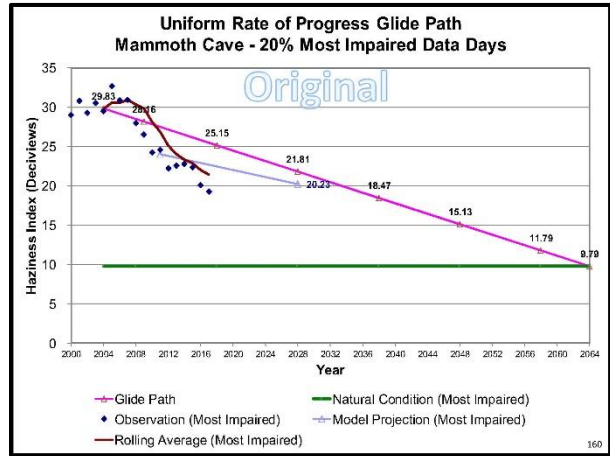
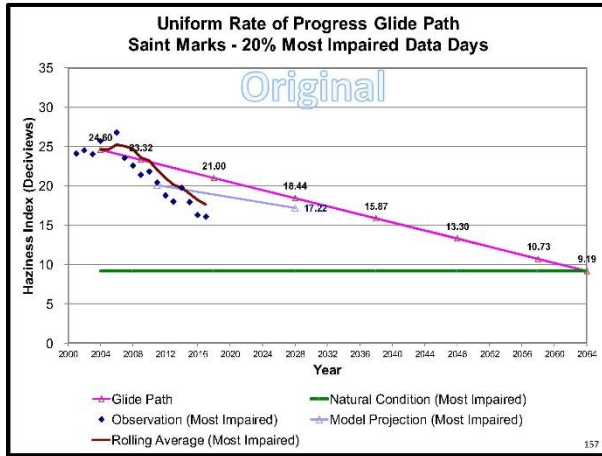


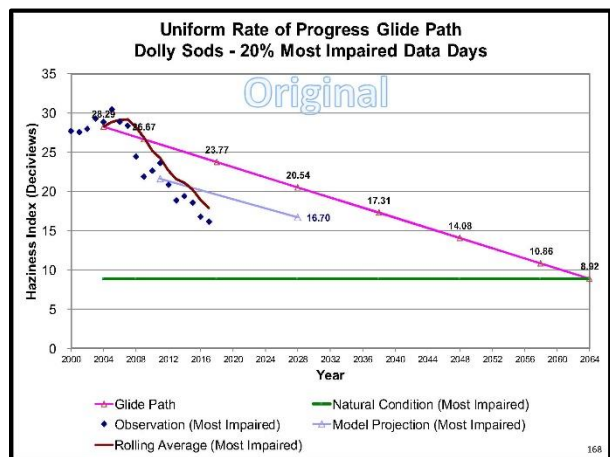
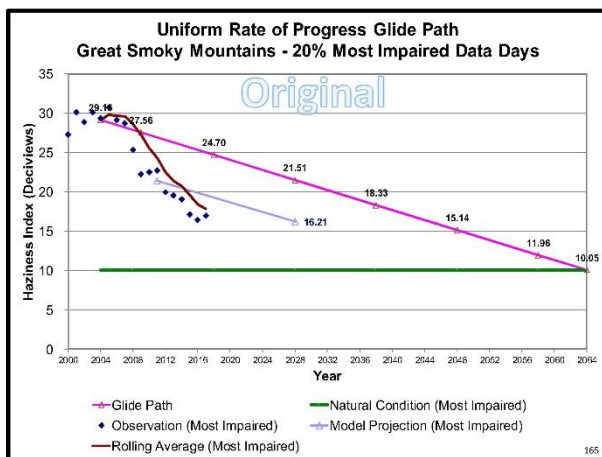
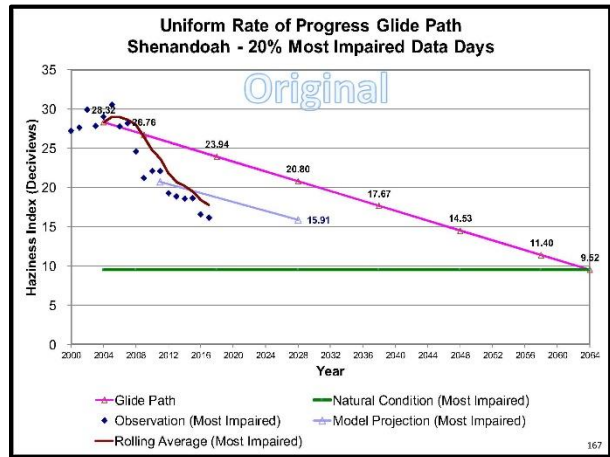
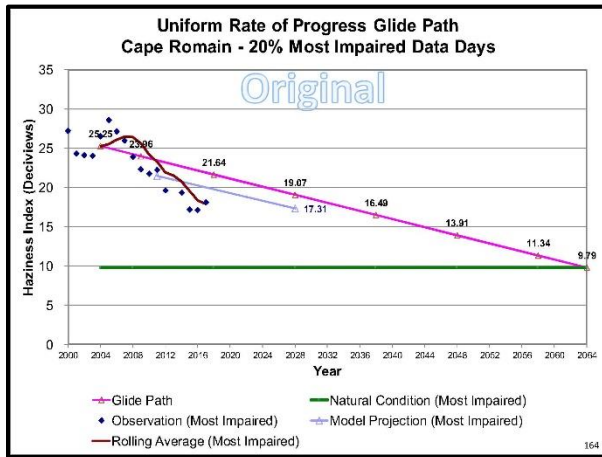
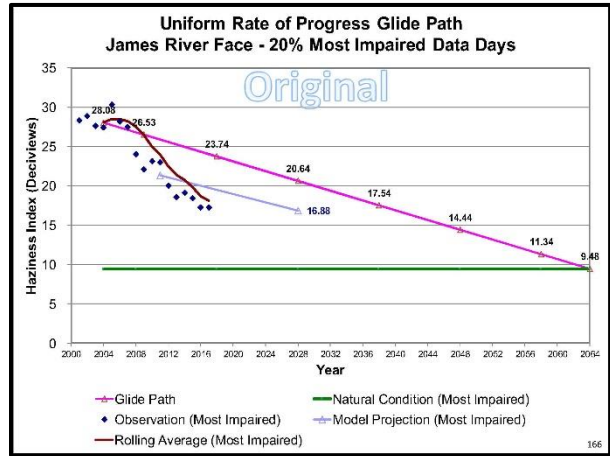
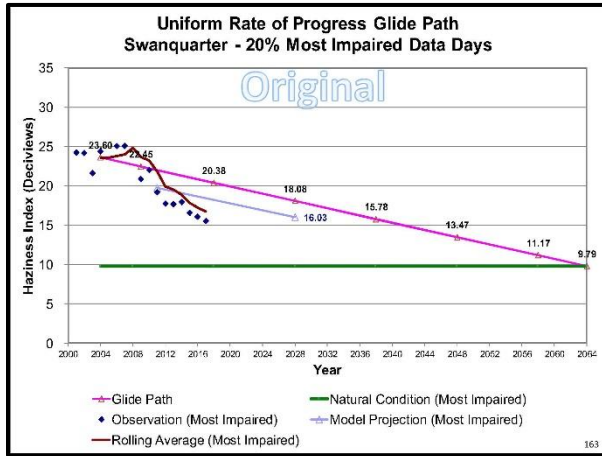


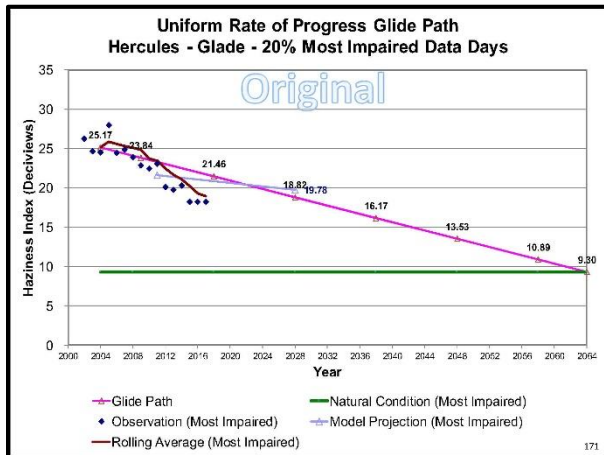
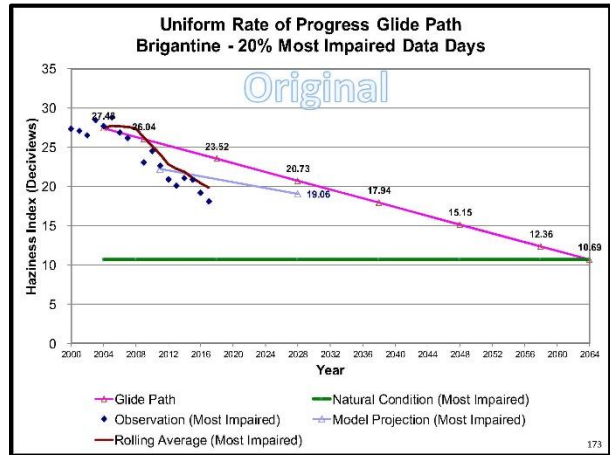
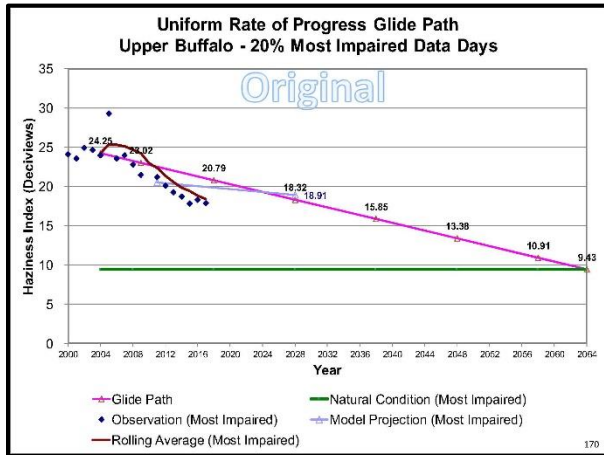
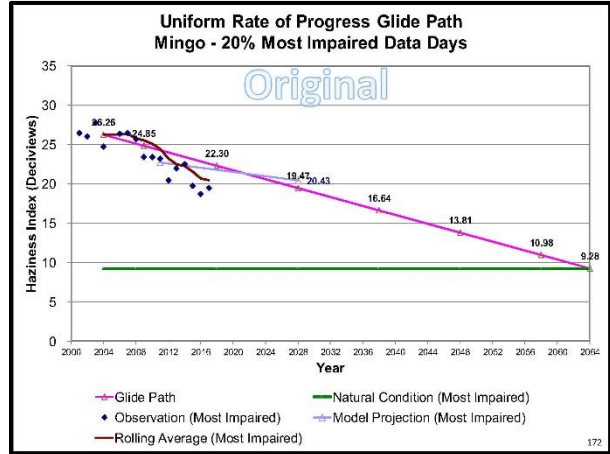
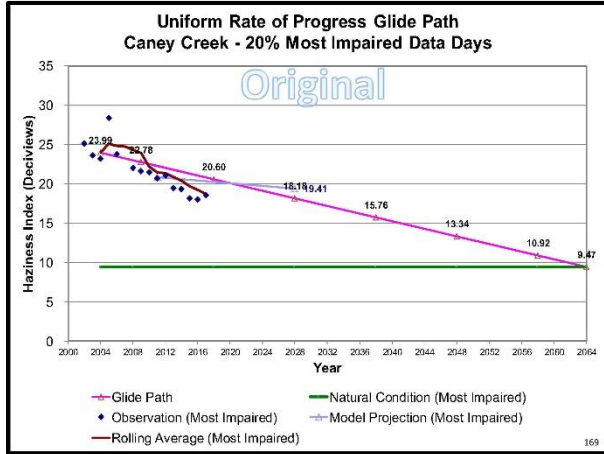












Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE, km	Sulfate A01 %	Original Sulfate PSAT %	FINAL Revised Sulfate PSAT %	Nitrate A01 %	Original Nitrate PSAT %	FINAL Revised Nitrate PSAT %
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	337.7	3.31%	1.61%	2.22%	0.57%	0.04%	0.05%
DH	39053-8148511	General James M. Gavin Power Plant (3627010056)	690.9	0.38%	2.75%	1.59%	0.03%	0.09%	0.13%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	398.4	5.72%	4.09%	3.99%	0.31%	0.23%	0.31%
IN	18051-7363111	Gibson	448.7	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%	0.18%
TN	47161-4979311	TVA CLIMBERLAND FOSSIL PLANT	228.9	3.18%	1.07%	1.48%	0.48%	0.12%	0.17%
MO	29163-5363811	NEW MADRID POWER PLANT WARS'ON	314.5	3.48%	1.46%	1.94%	0.25%	0.03%	0.07%
KY	21183-5561011	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	Joplin Steam	346.5	1.94%	1.51%	0.87%	0.75%	0.03%	0.02%
IN	18178-8181111	ALCOA WARRICK POWER PLT ACG DIV OF AL	396.7	0.91%	1.07%	0.41%	0.62%	0.52%	0.19%

Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_Lin	Sulfate AOI %	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%	9.55%	6.24%	1.95%	0.00%	0.03%	
GA	13015-2813011	Ba Power Company - Plant Bowen	637.2	0.03%	1.72%	2.23%	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%	
Facilities That Dropped Off After REVISION										
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	01053-7440211	Escalante Operating Company LLC	530.7	0.21%	1.57%	0.41%	0.00%	0.02%	0.02%	

Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_Lin	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	19.58%	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 NE MGMT CO/KFYSTONE 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%	
Facilities That Dropped Off After REVISION										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	477.0	2.18%	1.59%	0.89%	0.16%	0.03%	0.02%	
TN	47145-4979111	TVA KINGSTON FOSSIL PLANT	124.0	2.17%	1.10%	0.31%	0.13%	0.06%	0.02%	

Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_Lin	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	12105-919811	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	2.28%	3.55%	2.60%	0.03%	0.00%	0.00%
FL	12086-899911	TARMAC AMERICA LLC	61.7	0.16%	0.17%	0.23%	2.02%	0.76%	2.63%

Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_Lin	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%	2.30%	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%	0.15%	
SC	45015-4120411	SANTEE COOPER CROSS GENERATING STATION	348.1	0.85%	0.89%	1.18%	0.05%	0.03%	0.04%	
FL	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 NE MGMT CO/KEYSTONE STA	1,129.0	0.46%	2.09%	1.02%	0.01%	0.01%	0.01%	
Facilities That Dropped Off After REVISION										
IN	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%	

St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_Lin	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%	4.89%	0.01%	0.02%	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	253.5	3.06%	0.82%	1.12%	0.00%	0.00%	0.00%	
Facilities That Dropped Off After REVISION										
AL	01097-1056111	Ba Power - Berry	383.1	1.67%	1.43%	0.77%	0.02%	0.02%	0.02%	
AL	01053-7440211	Escalante Operating Company LLC	375.4	5.95%	5.53%	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 NE MGMT CO/KEYSTONE STA	1,251.0	0.29%	1.79%	0.65%	0.01%	0.02%	0.02%	
AL	01053-7440211	Escalante Operating Company LLC	313.0	0.02%	1.68%	0.02%	0.00%	0.02%	0.02%	

Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_Lin	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%	1.76%	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	SANTEE COOPER CROSS GENERATING STATION	251.0	1.59%	0.99%	1.30%	0.09%	0.06%	0.08%	
FL	12031-640211	IEA	105.1	4.43%	0.96%	1.29%	0.09%	0.03%	0.06%	
SC	45015-4894911	ALUMASK OF SOUTH CAROLINA	223.0	1.84%	0.95%	1.25%	0.00%	0.01%	0.01%	
PA	42003-3866111	GENON NE MGMT CO/KYSTONE STA	1,048.6	0.84%	2.97%	1.15%	0.01%	0.01%	0.01%	
Facilities That Dropped Off After REVISION										
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%	0.61%	0.00%	0.02%	0.03%	

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%	7.16%	1.63%	1.20%	0.35%	0.33%	
KY	21145-5561611	Big Rivers Electric Corp. - Wilson Station	89.9	6.73%	1.07%	1.83%	0.37%	0.66%	0.66%	
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	238.6	1.40%	0.86%	1.15%	0.15%	0.14%	0.19%	
VO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	317.7	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%	0.96%	0.40%	0.27%	
Facilities That Dropped Off After REVISION										
OH	39025-8294312	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%	1.25%	0.81%	0.04%	0.02%	0.02%	
AR	05063-1083412	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 PL. AGC DIV OF AL	136.1	2.05%	1.03%	0.40%	1.74%	0.82%	0.30%	
IN	18125-8166111	Elysee 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	GENON NE M/GM/T CO/KEYSTONE STA	640.2	3.00%	6.66%	3.44%	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	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	74001-7763811	Luke Paper Company	512.5	0.43%	7.88%	1.75%	0.02%	0.05%	0.07%	
WV	54033-6271711	HALEPHENT ENERGY SUPPLY CO, LLC- HARRISON	568.8	0.67%	1.19%	1.71%	0.08%	0.10%	0.12%	
PA	42063-3005211	IONLER CITY GLN LP/ CLNLR 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	0.84%	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	Bombard Paper Company, LLC	89.0	2.27%	0.72%	1.00%	1.02%	0.14%	0.20%	
Facilities That Dropped Off After REVISION										
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 (0627010056)	379.3	5.93%	4.67%	3.46%	0.04%	0.01%	0.02%	
PA	42003-3866111	GENON 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 CUMBERLAND FOSSIL PLANT	516.6	0.11%	0.85%	1.20%	0.00%	0.01%	0.01%	
GA	13015-2813011	Ea Power Company - Plant Bowen	349.0	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	382.3	0.67%	1.35%	1.07%	0.01%	0.07%	0.07%	
VO	29143-5363811	NEW MADRID POWER PLANT-VARSTON	691.6	0.33%	1.11%	1.01%	0.00%	0.00%	0.00%	
VA	51027-4034811	Brewell Coke Company LLP	140.4	5.94%	0.73%	1.02%	0.01%	0.00%	0.00%	
Facilities That Dropped Off After REVISION										
AR	05063-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	856.4	0.29%	1.43%	0.86%	0.00%	0.01%	0.00%	
MD	24021-7763812	Luke Paper Company	463.8	0.23%	1.27%	0.84%	0.00%	0.00%	0.00%	
IN	18125-7362412	INDIANAPOLIS POWER & LIGHT PETERSBURG	550.5	0.36%	1.22%	0.82%	0.01%	0.07%	0.05%	
OH	39025-8294312	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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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	45019-4973611	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	ALURMAR OF SOUTH CAROLINA	19.1	12.07%	1.79%	2.33%	0.03%	0.02%	0.02%	
PA	42003-3866111	GENON NE M/GM/T CO/KEYSTONE STA	827.3	0.30%	4.74%	2.28%	0.06%	0.01%	0.01%	
SC	45015-4120411	SANTE 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	45043-6462811	INTERNATIONAL PAPER GEORGETOWN MILL	57.4	4.31%	1.26%	1.64%	0.35%	0.11%	0.15%	
SC	45043-6462811	SANTE COOPER WINYAH GENERATING STATION	61.4	4.60%	1.02%	1.33%	0.38%	0.13%	0.17%	
GA	13015-3679811	International Paper - Savannah	166.1	1.76%	0.99%	1.20%	0.04%	0.05%	0.06%	
Facilities That Dropped Off After REVISION										
OH	39025-8294312	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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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 (0627010056)	397.3	1.93%	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 CUMBERLAND 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%	1.29%	0.07%	0.01%	0.01%	
VO	29143-5363811	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 ALP ROCKPORT	473.3	0.70%	2.55%	1.27%	0.01%	0.07%	0.09%	
PA	42003-3866111	GENON NE M/GM/T CO/KEYSTONE STA	637.6	0.49%	2.36%	1.23%	0.00%	0.00%	0.00%	
IN	18051-7363111	Gibson	524.2	0.29%	1.55%	1.23%	0.01%	0.07%	0.07%	
NC	37087-7920511	Blue Ridge Paper Products - Canton/MB	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	126.5	4.43%	0.74%	1.04%	0.40%	0.02%	0.02%	
Facilities That Dropped Off After REVISION										
IN	18125-7362411	INDIANAPOLIS POWER & LIGHT PETERSBURG	529.0	0.18%	1.72%	0.82%	0.01%	0.11%	0.08%	
IL	17127-7868912	Joppa Steam	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 (0627010056)	400.5	2.75%	5.10%	3.73%	0.04%	0.03%	0.03%	
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	GENON NE M/GM/T CO/KEYSTONE STA	688.7	0.11%	2.51%	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	1.25%	1.34%	1.05%	0.07%	0.17%	0.27%	
Facilities That Dropped Off After REVISION										
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	18125-7362412	INDIANAPOLIS POWER & LIGHT PETERSBURG	435.6	1.48%	1.08%	0.78%	0.12%	0.29%	0.20%	
AR	05063-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	675.9	0.19%	1.22%	0.72%	0.02%	0.01%	0.00%	
TN	47145-4979112	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 (062701005E)	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%	0.16%	0.62%	0.02%
PA	42003-3866111	GENCON 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 POWLR 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%	0.61%	0.01%
IN	18051-7363111	Sibson	471.7	2.00%	1.29%	1.02%	0.11%	0.21%	0.21%
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	385.1	3.63%	1.53%	1.00%	0.06%	0.01%	0.03%
Facilities That Dropped Off After REVISION									
AR	05062-1083412	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	674.4	1.58%	1.36%	0.81%	0.05%	0.02%	0.02%
IN	18125-7362412	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	7.68%	1.24%	0.39%	0.57%	0.10%	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%
O-	39033-8148511	General James M. Gavin Power Plant (062701005E)	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%
O-	39061-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	163.9	1.36%	2.14%	4.02%	0.03%	0.01%	0.03%
O-	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	42003-3866111	GENCON NE V.G.V.T CO/KEYSTONE STA	172.8	4.12%	2.43%	1.27%	0.01%	0.00%	0.00%
O-	39033-7983011	Duke 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	54063-6773611	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%
Facilities That Dropped Off After REVISION									
IN	18051-7363111	Sibson	729.5	0.0%	1.24%	0.90%	0.02%	0.04%	0.04%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ASP ROCKPORT	676.3	0.44%	1.53%	0.97%	0.01%	0.02%	0.03%
IN	18125-7362412	INDIANAPOLIS POWER & LIGHT PETERSBURG	682.6	0.18%	1.05%	0.79%	0.02%	0.04%	0.03%
OH	39031-8010811	Kenesha Power Plant (0615000000)	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 (062701005E)	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%	0.12%	0.14%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	306.4	1.95%	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	GENCON 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	39033-7983011	Duke Valley Electric Corp., Kyger Creek Station (0627000003)	270.0	0.63%	0.66%	1.19%	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%
Facilities That Dropped Off After REVISION									
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	435.2	1.89%	1.39%	0.92%	0.05%	0.05%	0.06%
IN	18051-7363111	Sibson	729.4	0.59%	1.07%	0.82%	0.02%	0.01%	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA ASP 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%
O-	39033-8148511	General James M. Gavin Power Plant (062701005E)	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-	39061-8115711	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 (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%
O-	39033-7983011	Duke 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	Sibson	709.7	0.24%	1.27%	1.01%	0.03%	0.05%	0.05%
WV	54063-6773611	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 ASP ROCKPORT	655.7	0.64%	2.01%	1.00%	0.01%	0.03%	0.04%
PA	42003-3866111	GENCON NE V.G.V.T CO/KEYSTONE STA	186.5	3.73%	1.91%	1.00%	0.03%	0.00%	0.00%
Facilities That Dropped Off After REVISION									
IN	18125-7362412	INDIANAPOLIS POWER & LIGHT PETERSBURG	663.0	0.23%	1.07%	0.79%	0.02%	0.04%	0.03%
OH	39031-8010811	Kenesha Power Plant (0615000000)	232.1	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	GENCON 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%	4.14%	0.99%	0.37%	0.46%
OH	39053-8148511	General James M. Gavin Power Plant (062701005E)	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	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	230.1	2.60%	1.36%	1.78%	0.13%	0.04%	0.06%
MD	24001-2763811	Luke Paper Company	118.4	6.90%	2.20%	1.41%	0.23%	0.09%	0.14%
PA	42063-3005111	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%	0.68%	0.16%
OH	39033-7983011	Duke Valley Electric Corp., Kyger Creek Station (0627000003)	324.1	0.43%	0.55%	1.01%	0.16%	0.06%	0.06%
Facilities That Dropped Off After REVISION									
WV	54063-6773611	MONONGAHELA POWER CO - FORT MARTIN POWER	184.4	2.41%	1.06%	0.97%	1.27%	0.47%	0.60%
OH	39023-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (1413090154)	505.4	1.31%	1.28%	0.87%	0.11%	0.05%	0.08%
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 ASP ROCKPORT	755.8	0.71%	1.46%	0.76%	0.03%	0.02%	0.03%

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**Appendix F-31 - 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

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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 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 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.

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Outline

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



2

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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Reasonable Progress Screening Approach

1. The VISTAS reasonable progress work started with AOI screening ($Q/d * EWRT$) 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 $\geq 1.00\%$ → SO_2 Four-Factor Analysis
 - If nitrate contribution $\geq 1.00\%$ → NO_x Four-Factor Analysis

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AOI Source Categories for WOLF

SOURCE CATEGORY	NO _x	SO ₂	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%
TOTAL	21.8%	78.2%	100.0%

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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% - 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	21183-536011	Big Rivers Electric Corp - Wilson Station	6,334.16	1,131.05
KY	VISTAS	21091-735241	Century Aluminum of KY LLC	5,044.16	197.66
KY	VISTAS	21177-519671	Tennessee Valley Authority - Paradise Fossil Plant	3,011.01	3,114.52
KY	VISTAS	21145-403701	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	15,304.76	7,007.34
MS	VISTAS	28059-838811	Chevron Products Company - Passapatanz Refinery	761.60	1,534.12
MS	VISTAS	28059-825101	Mississippi Power Company - Plant Victor J Daniel	231.52	3,829.72
NC	VISTAS	37087-792011	Blue Ridge Paper Products - Canton Mill	1,127.07	2,992.37
NC	VISTAS	37117-904911	Dominion Paper Company, LLC	697.48	1,786.49
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	37023-851301	SGL Carbon - LLC	261.64	21.09
SC	VISTAS	45015-404011	ALUMAX OF SOUTH CAROLINA	3,751.69	108.08
SC	VISTAS	45043-509811	INTERNATIONAL PAPER GEORGETOWN MILL	2,787.52	2,031.26
SC	VISTAS	45019-497301	KAPSTONE CHARLESTON KRAFT LLC	1,863.65	2,355.82
SC	VISTAS	48013-417411	SANTEE COOPER CROSS GENERATING STATION	4,281.17	3,773.47
SC	VISTAS	45043-606211	SANTEE COOPER WINYAH GENERATING STATION	2,456.86	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	47143-198211	EASTMAN CHEMICAL COMPANY	6,620.16	6,900.31
TN	VISTAS	47105-412921	TATE & LYLE, Loudon	472.76	883.25
TN	VISTAS	47001-619601	TVA BULL RUN FOSSIL PLANT	6,222.24	964.16
TN	VISTAS	47161-407301	TVA CUMBERLAND FOSSIL PLANT	8,627.23	4,936.15
TN	VISTAS	47145-497911	TVA KINGSTON FOSSIL PLANT	1,586.09	1,687.38
VA	VISTAS	51027-404811	Jewell Coke Company LP	5,090.55	520.17
VA	VISTAS	51280-579871	Meadwestvaco Packaging Resource Group	2,115.11	1,985.69
VA	VISTAS	51023-503811	Roadruner 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%
FL	IEA	105.1	651.3	2,094.5	0.09%	4.43%
GA	Georgia-Pacific Consumer Products LP (Savannah River Mill)	109.9	951.5	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	917.9	3,713.4	0.02%	1.77%
OH	General James M. Gavin Power Plant (062700050)	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. (DEF)	296.6	2,489.8	5,206.4	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	GENON/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	54031-627171	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	10,082.94	11,830.08
WV	VISTAS	54049-486611	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT	2,210.25	1,245.10
WV	VISTAS	54079-879911	APPALACHIAN POWER COMPANY - JOHN AMOS PLANT	4,878.10	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 - COPLEY RUN CS 70	0.10	511.06
WV	VISTAS	54083-679071	FILES CREEK 6C340	0.15	643.39
WV	VISTAS	54083-679071	FILES CREEK 6C350	0.11	384.29
WV	VISTAS	54089-632781	KINGSFORD MANUFACTURING COMPANY	16.96	140.88
WV	VISTAS	54061-1632011	LONGVIEW POWER	2,313.78	1,556.57
WV	VISTAS	54051-690211	MICHELL PLANT	5,372.68	2,729.62
WV	VISTAS	54061-677861	MONONGAHELA POWER CO - FORT MARTIN POWER	4,881.87	13,743.52
WV	VISTAS	54079-478281	MONONGAHELA POWER CO - PLEASANTS POWER STA	16,617.43	5,497.37
WV	VISTAS	54061-677861	MORGANTOWN ENERGY ASSOCIATES	6,228.66	655.38
AR	CENRAP	05003-108411	ENTERGY ARKANSAS INC- INDEPENDENCE PLANT	32,659.48	14,133.10
MO	CENRAP	21941-536381	NEW MADRID POWER PLANT-MARSTON	16,783.71	4,394.10
MD	MANE-VU	24001-776381	Lux Paper Company	22,659.84	3,607.00
PA	MANE-VU	42005-366611	GENON/NE MGMT CO/KEYSTONE STA	56,539.25	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	NRS WHOLESALE GEN/SEWARD GEN STA	8,880.26	2,254.04
IL	Midwest RPO	17127-788911	Joppla Steam	20,599.28	4,706.35
IN	Midwest RPO	18172-918111	Alcoa Warrick Power Pittt Agc Div of AL	5,671.29	11,158.58
IN	Midwest RPO	18051-796311	Gibson	23,117.23	12,280.34
IN	Midwest RPO	18147-801721	INDIANA MICHIGAN POWER DBA AEP - ROCKPORT	30,536.33	8,806.77
IN	Midwest RPO	18125-796211	INDIANAPOLIS POWER & LIGHT - PETERSBURG	18,141.88	10,665.27
IN	Midwest RPO	18129-816611	Sigeco AB Brown South Indiana Gas & Ele	7,644.70	1,578.59
OH	Midwest RPO	39081-811571	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	7,460.79	2,467.31
OH	Midwest RPO	39031-801011	Cornellville Power Plant (061800000)	6,156.23	9,987.87
OH	Midwest RPO	39025-829611	Duke Energy Ohio, Wm. H. Zimmer Station (141300154)	22,133.80	2,149.57
OH	Midwest RPO	39053-814851	General James M. Gavin Power Plant (062700050)	41,595.81	8,122.51
OH	Midwest RPO	39053-796301	Ohio Valley Electric Corp. - Kyger Creek Station (0627000001)	3,400.14	9,143.08

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Facility Tags (AL, FL, GA)

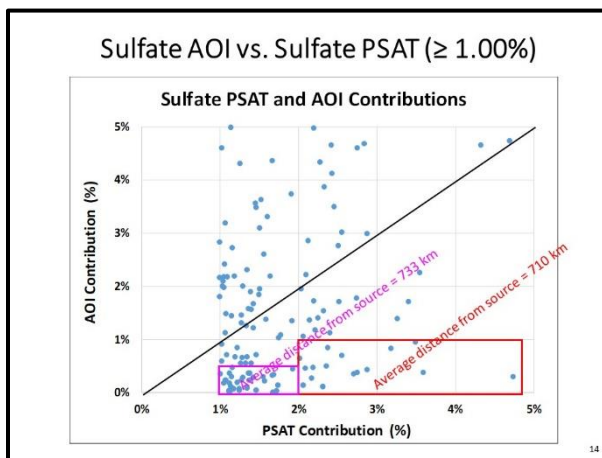
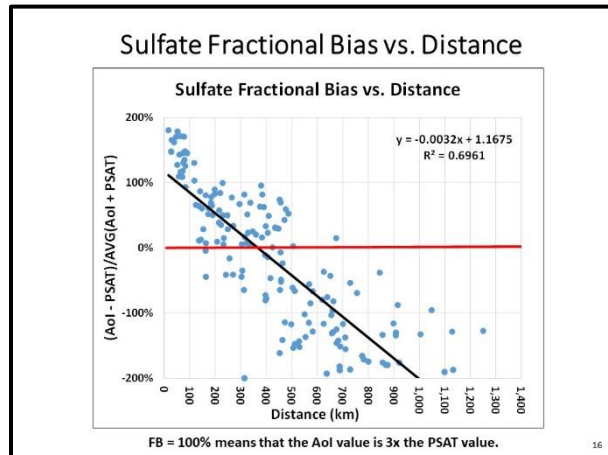
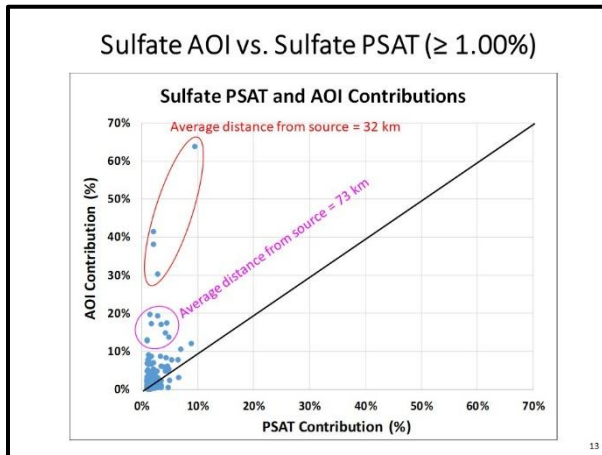
Facility State	Facility BPO	FACILITY_ID_STD	FACILITY_NAME_STD	SO2 (TPY)	NOx (TPY)
AL	VISTAS	01697-549811	Akzo Nobel Chemicals Inc	3,135.72	20.72
AL	VISTAS	01029-200611	Ala Power - Barry	6,620.127	2,275.76
AL	VISTAS	01129-102871	American Midstream Chatham, LLC	1,106.38	425.83
AL	VISTAS	01073-101871	DRUMMOND COMPANY, INC.	2,362.17	1,228.55
AL	VISTAS	01053-740211	Esambia Operating Company LLC	18,574.39	349.32
AL	VISTAS	01053-985111	Esambia Operating Company LLC	8,585.69	149.64
AL	VISTAS	01103-100011	Nucor Steel Decatur LLC	170.23	331.24
AL	VISTAS	01109-985711	Sanders Lead Co	7,951.06	121.71
AL	VISTAS	01057-100611	Union Oil of California - Chunchula Gas Plant	2,575.15	349.23
FL	VISTAS	12123-752411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	1,520.42	1,830.71
FL	VISTAS	12086-900111	CEMEX CONSTRUCTION MATERIALS FL, LLC.	29.52	910.36
FL	VISTAS	12017-440611	DUKE ENERGY FLORIDA, INC. (DEF)	3,505.41	2,489.85
FL	VISTAS	12086-900011	FLORIDA POWER & LIGHT (FTL)	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	97.69
FL	VISTAS	12011-440211	IEA	2,094.48	601.79
FL	VISTAS	12105-717171	MOSAIC FERTILIZER LLC	7,900.67	810.42
FL	VISTAS	12057-716411	MOSAIC FERTILIZER, LLC	3,034.06	159.71
FL	VISTAS	12105-909811	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 TENN CP, LLC	2,608.72	2,316.77
FL	VISTAS	12005-335411	ROCK TENN CP LLC	2,590.88	1,404.89
FL	VISTAS	12119-729171	TALLAHASSEE CITY PURDUM 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	13127-372101	Brunswick Cellulose Inc	754.20	1,554.51
GA	VISTAS	13015-281301	Ga Power Company - Plant Bowen	10,453.42	6,643.32
GA	VISTAS	13103-578311	Georgia-Pacific Consumer Products LP (Savannah River Mill)	1,860.18	351.52
GA	VISTAS	13013-307811	International Paper - Savannah	1,365.38	1,560.71
GA	VISTAS	13115-539311	TEMPLE INLAND	1,791.00	1,773.33

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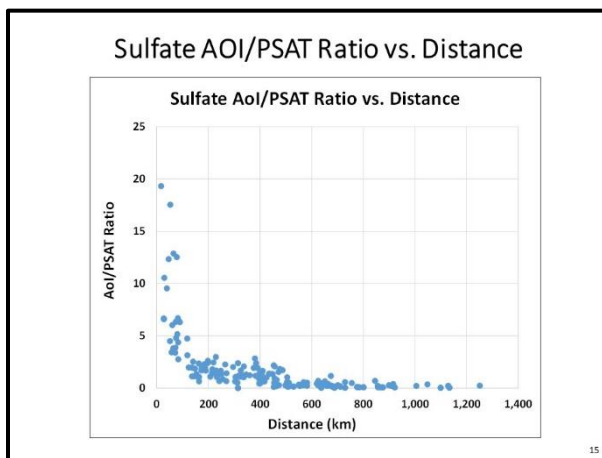
PSAT Source Apportionment Modeling

- Quantifies visibility impacts from individual point sources, source sectors, and geographic regions
- NOx and SO₂ 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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- ### 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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- ### PSAT Reasonable Progress Screening
- The **facility sulfate and nitrate contributions** (Mm^{-1}) from the individual 87 tagged facilities should not change unless a facility has reduced or increased SO_2 and/or 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 SO_2 and 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 (%) =**
- $$\frac{\text{Facility Sulfate Impact (Mm}^{-1}\text{)} \uparrow \downarrow}{\text{Total Impact of All Point Sources of Sulfate + Nitrate (Mm}^{-1}\text{)} \downarrow}$$
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Sipsey Wilderness Area (AL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	837.7	0.364	16.870	2.22%	0.009	16.370	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	18125-7362411	INDIANAPOLIS POWER & LIGHT - PETERSBURG	464.4	0.258	16.370	1.57%	0.036	16.370	0.16%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	228.9	0.242	16.870	1.48%	0.038	16.870	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	345.5	0.211	16.870	1.29%	0.008	16.870	0.05%

8 Facilities Identified for Reasonable Progress Analysis addressing more than 13.5% of the entire sulfate plus nitrate point source visibility impact in 2028.

St Marks Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
GA	13015-2813011	Ga Power Company - Plant Bowen	492.9	0.574	11.729	4.89%	0.004	11.729	0.03%
FL	12005-935411	ROCKTENN 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.

Chassahowitzka Wilderness Area (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
FL	12017-540611	DUKE ENERGY FLORIDA, INC. (DEF)	27.4	0.629	10.092	6.24%	0.023	10.092	0.23%
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	0.05%
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.

Cohutta Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
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	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%
OH	39025-8294311	Puke Energy Ohio, Wm. H. Zimmer Station (1413090154)	454.6	0.173	13.229	1.31%	0.005	13.229	0.04%
TN	47163-8982311	EASTMAN CHEMICAL COMPANY	269.8	0.165	13.229	1.25%	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	1.03%	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.

Everglades NP (FL)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
FL	12057-538611	TAMPA ELECTRIC COMPANY (TEC)	316.6	0.044	1.333	3.30%	0.000	1.333	0.00%
FL	12105-919811	MOSAIC FERTILIZER, LLC	384.7	0.035	1.333	2.42%	0.000	1.333	0.00%
FL	12105-717711	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%	0.039	1.333	2.83%

4 Facilities Identified for Reasonable Progress Analysis addressing more than 11.2% of the entire sulfate plus nitrate point source visibility impact in 2028.

Okefenokee Wilderness Area (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT %	FINAL Revised Sulfate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³	FINAL Revised Nitrate PSAT %	FINAL Revised Nitrate PSAT % EGU + HEGU Mm ⁻³
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%
KY	12123-732411	BUCKEYE FLORIDA, LIMITED PARTNERSHIP	133.3	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 TENN CP, LLC	64.8	0.176	13.400	1.31%	0.020	13.400	0.15%
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.

Wolf Island Wilderness (GA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Mm ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	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	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	12081-6402111	SEA	105.1	0.147	12.957	1.13%	0.008	12.957	0.06%
SC	45015-4834911	ALLUMAX OF SOUTH CAROLINA	228.0	0.142	12.957	1.10%	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.

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Shining Rock Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Mm ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	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	21145-6097011	Tennessee Valley Authority (TVA) - Shawnee Plant	578.4	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	Ga Power Company - Plant Bowen	241.6	0.159	12.313	1.29%	0.001	12.313	0.01%
MO	29143-5363811	NEW MADRID POWER PLANT-MARSTON	625.2	0.158	12.313	1.28%	0.001	12.313	0.01%
IN	18147-8017211	INDIANA MICHIGAN POWER DBA AEP ROCKPORT	473.3	0.156	12.313	1.27%	0.012	12.313	0.09%
PA	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	657.6	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	39025-8294311	Pulse Energy Ohio, Wm. H. Zimmer Station (1413090154)	406.7	0.129	12.313	1.05%	0.002	12.313	0.01%
AR	05063-1083411	ENERGY 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%

12 Facilities Identified for Reasonable Progress Analysis addressing more than 15.9% of the entire sulfate plus nitrate point source visibility impact in 2028.

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Mammoth Cave NP (KY)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Mm ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	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	0.32%
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	0.164	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 ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	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	0.09%
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	0.06%
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 - HARRISON	568.6	0.186	10.894	1.71%	0.013	10.894	0.12%
PA	42063-3005211	HOMER CITY GEN LP/ CENTER TWP	620.1	0.151	10.894	1.38%	0.008	10.894	0.07%
WV	54079-4782811	MONONGAHELA POWER CO-PLEASANTS POWER STA	625.7	0.127	10.894	1.17%	0.005	10.894	0.05%
GA	13015-2813011	Ga Power Company - Plant Bowen	810.6	0.112	10.894	1.03%	0.003	10.894	0.03%
NC	37117-8049311	Domtar Paper Company, LLC	69.0	0.109	10.894	1.00%	0.022	10.894	0.20%

10 Facilities Identified for Reasonable Progress Analysis addressing more than 18.4% of the entire sulfate plus nitrate point source visibility impact in 2028.

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Linville Gorge Wilderness Area (NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PSAT Mm ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT %
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%
TN	47161-4979311	TVA CUMBERLAND FOSSIL PLANT	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	Gibson	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 ³	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT Mm ³	FINAL Revised Sulfate PSAT %	FINAL Revised EGU + HEGU Mm ³	FINAL Revised Nitrate PSAT %
SC	45015-4834911	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	45015-4834911	ALLUMAX OF SOUTH CAROLINA	19.1	0.327	14.028	2.33%	0.005	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%	0.038	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 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%

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 PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
OH	39053-8148511	General James M. Gavin Power Plant (0627010056)	400.5	0.520	13.916	5.72%	0.003	13.916	0.02%
KY	21145-6037011	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	465.3	0.188	13.916	1.32%	0.011	13.916	0.08%
TN	47169-3982311	EASTMAN CHEMICAL COMPANY	160.1	0.170	13.916	1.22%	0.007	13.916	0.05%
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.

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Shenandoah National Park (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
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	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	NRG WHOLESAL E 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	0.153	15.375	1.01%	0.019	15.375	0.13%
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.

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Joyce Kilmer-Slickrock Wilderness Area (TN/NC)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
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	1.38%	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	18015-2813011	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.

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Dolly Sods Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
WV	54033-6271711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	83.6	1.350	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	169.9	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	1.49%	0.010	19.349	0.05%
WV	54001-6902311	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	0.246	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.

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James River Face Wilderness Area (VA)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
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	42005-3866111	GENON NE MGMT CO/KEYSTONE STA	337.1	0.217	14.404	1.51%	0.005	14.404	0.04%
VA	51580-5798711	MeadsAntesco Packaging Resources Group	46.5	0.209	14.404	1.45%	0.011	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.

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Otter Creek Wilderness Area (WV)

State	Facility ID	Facility Name	DISTANCE_m	FINAL Revised Sulfate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Sulfate PstM ¹ %	FINAL Revised Nitrate PstM ¹	FINAL Revised EGU + NEDU Mm ¹	FINAL Revised Nitrate PstM ¹ %
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	148.3	0.809	19.077	4.24%	0.023	19.077	0.12%
OH	39081-8115711	Cardinal Power Plant (Cardinal Operating Company) (0641050002)	162.7	0.727	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	54001-6902311	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	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	05083-2083411	ENTERGY ARKANSAS INC-INDEPENDENCE PLANT	(SHRO)
IN	18053-7983111	Ribson	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	18125-7962411	INDIANAPOLIS POWER & LIGHT PETERSBURG	MACA, SIPS
MD	24003-7783811	Luke Paper Company	SHEN, SWAN
MO	29148-5660811	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	39025-8294311	Duke Energy Ohio, Wm. H. Zimmer Station (4413090154)	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., Eyger Creek Station (0627000003)	DOSO, JARI, OTCR, SHEN
PA	42005-3886111	GENON NE MGMT CO/KEYSTONE STA	COHU, DOSO, GRSM, JARI, JOYC, LIGO, OKEF, OTCR, ROMA, SHEN, SHRO, SIPS, SWAN, WOLF
PA	42063-3095211	HOMER CITY GEN LP/ CENTER TWP	SHEN, SWAN
PA	42063-3095111	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%
WV – 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%
AVERAGE	8.3	16.4%

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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.

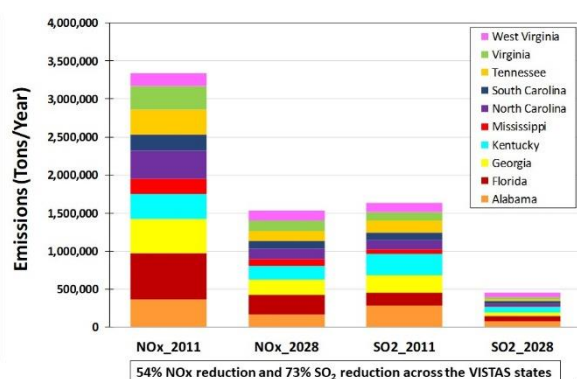
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VISTAS Facilities $\geq 1.00\%$

State	FACILITY_ID_STD	FACILITY_NAME_STD	IMPACTED CLASS I AREAS
AL	01109-985711	Banders Lead Co	CHAS, SAMA
FL	12129-2923211	BUCKEYE FLORIDA LIMITED PARTNERSHIP	OKEF
FL	12031-6400611	DUKE ENERGY FLORIDA, INC. (DEF)	CHAS
FL	12031-6402111	IEA	WOLF
FL	12105-5717711	MOSAIC FERTILIZER LLC	EVER
FL	12105-5158111	MOSAIC FERTILIZER, LLC	EVER
FL	12089-7537111	ROCK TENN CP, LLC	OKEF, WOLF
FL	12005-5554111	ROCK TENDY CO, LLC	SAMA
FL	12053-5388611	TAMPA ELECTRIC COMPANY (TEC)	CHAS, EVER
FL	12086-8999111	TARMAC AMERICA LLC	EVER
FL	12040-7697111	WHITE SPRINGS AGRICULTURAL CHEMICALS, INC	OKEF
GA	13141-2711011	Biovonka Cellulose, Inc	WOLF
GA	13015-2813021	Eia Power Company - Plant Bowen	CHAS, COHU, JOYC, LIGO, OKEF, ROMA, SAMA, SHRO, SWAN, WOLF
GA	13021-3679811	International Paper - Savannah	OKEF, ROMA, WOLF
KY	21183-5561611	Big Rivers Electric Corp. - Wilson Station	MACA, SIPS
KY	21145-6037021	Tennessee Valley Authority (TVA) - Shawnee Fossil Plant	CACR, CHAS, COHU, DOSO, GRGU, GRSM, HESL, JOYC, LIGO, MACA, MING, OKEF, OTCR, PRDR, SHRO, SIPS
NC	37087-7920511	Blue Ridge Paper Products - Canton Mill	SHRO
NC	37117-8049311	Domtar Paper Company, LLC	SWAN
NC	37011-8479311	PCS Phosphate Company, Inc. - Aurora	SWAN
SC	45053-44834911	ALLIANCE OF SOUTH CAROLINA	ROMA, WOLF
SC	45043-5698811	INTERNATIONAL PAPER GEORGETOWN MILL	ROMA
SC	45019-4973611	KAPSTONE CHARLESTON KRAFT LLC	ROMA
SC	45024-4220411	SANTEE COOPER CROSS GENERATING STATION	OKEF, ROMA, WOLF
SC	45043-6652811	SANTEE COOPER WINYAH GENERATING STATION	ROMA
TN	47163-3982311	EASTMAN CHEMICAL COMPANY	COHU, GRSM, JOYC, LIGO, SHRO
TN	47161-4979311	TVA COMBESLAND FOSSIL PLANT	LIGO, SHRO, SIPS
VA	51027-4214811	Jeeffs Coke Company LLP	LIGO
VA	51580-5788711	Meadwestvaco Packaging Resource Group	JARI
WV	54013-6217711	ALLEGHENY ENERGY SUPPLY CO, LLC-HARRISON	DOSO, JARI, MING, OTCR, SHEN, SWAN
WV	54078-6759111	APPALACHIAN POWER COMPANY - SCHN & AMOS PLANT	DOSO, JARI, OTCR
WV	54051-6902311	MITCHELL PLANT	DOSO, JARI, OTCR, SHEN
WV	54061-6773611	MONONGAHELA POWER CO - FORT MARTIN PLANT	DOSO, OTCR
WV	54071-6782611	MONONGAHELA POWER CO/CLARKS 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

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 - TAWG – Randy Strait (randy.strait@ncdenr.gov)
 - TAWG – Doris McLeod (doris.mcleod@deq.virginia.gov)
 - CC – Jim Boylan (james.boylan@dnr.ga.gov)
 - CC – Jimmy Johnston (james.johnston@tn.gov)
- For project and contract management questions, contact the Project Manager:
 - John Hornback (hornback@metro4-sesarm.org)



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**Appendix F-3m - VISTAS Regional Haze Project Update,
August 4, 2020**

VISTAS Regional Haze Project Update



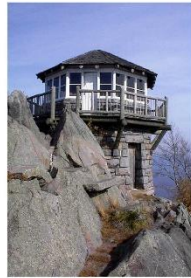
EPA, FLM, RPO Briefing
 Jim Boylan
 August 4, 2020

Overview

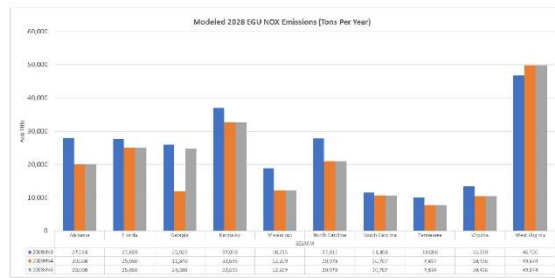
- During the QA process, an issue was identified with the emissions used in the CAMx modeling that was previously presented on May 20, 2020
- The emissions inventory was correct, but some SO₂ and NO_x emissions from EGUs were dropped during the SMOKE processing
- This issues does not impact any of the PSAT modeling or adjustments to the PSAT modeling
- This issue does impact the projected visibility in 2028 for comparison to the URP glide slope

Outline

- Recent Issue with 2028 Modeling
- Updated 2028 Model Projections
- Next Steps & Schedule

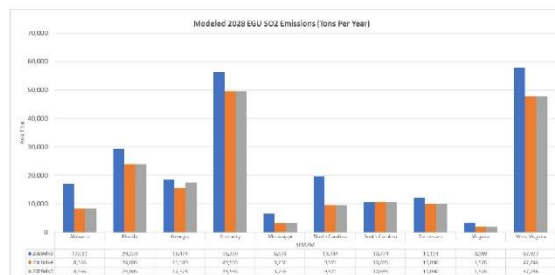


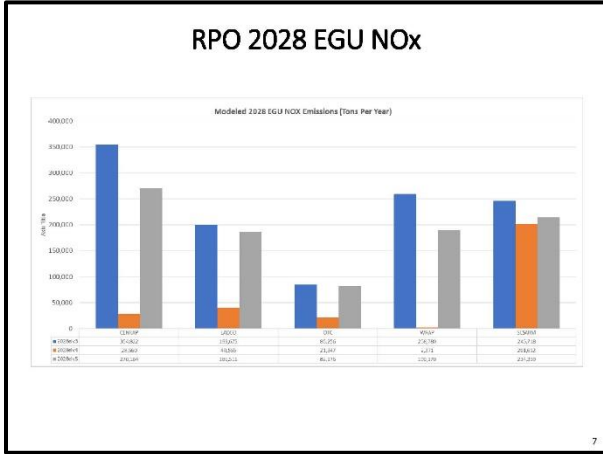
VISTAS 2028 EGU NO_x



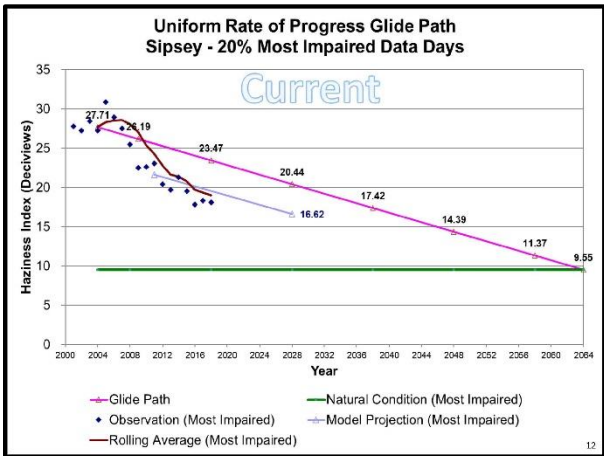
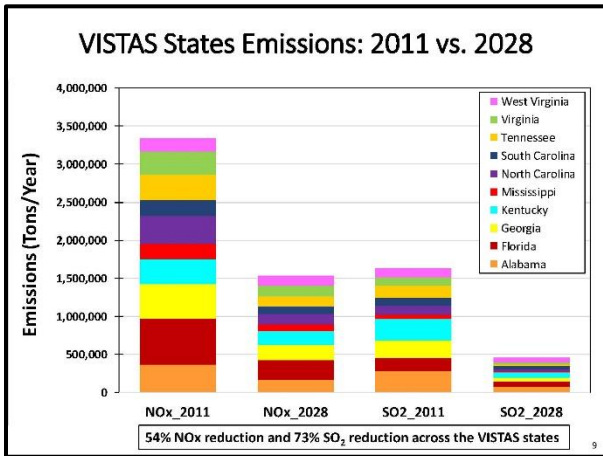
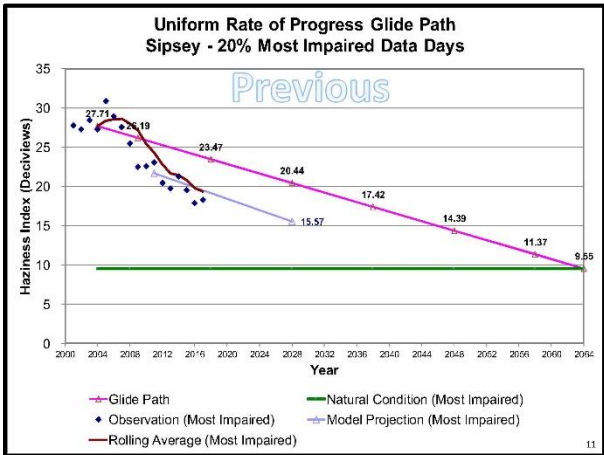
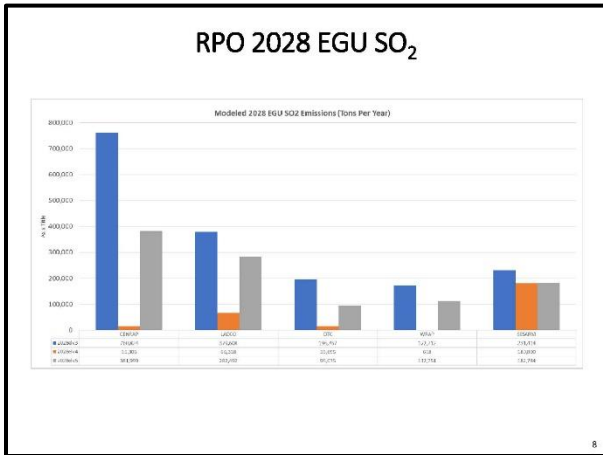
Recent Issue with 2028 Modeling

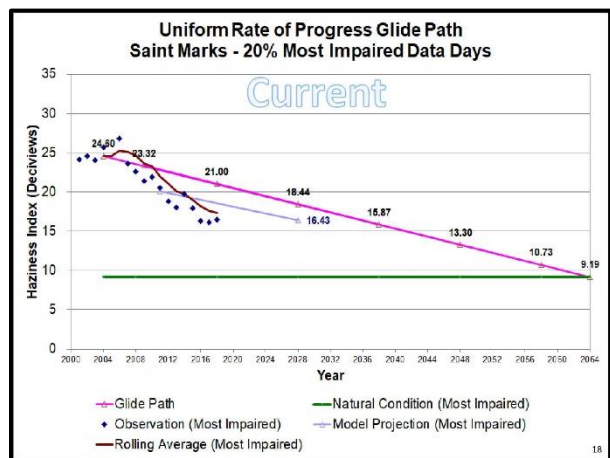
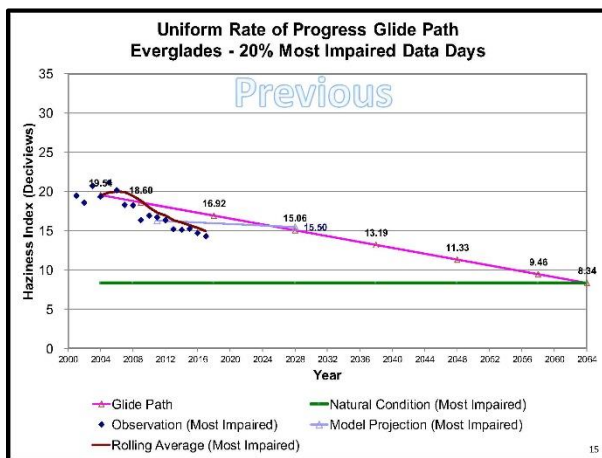
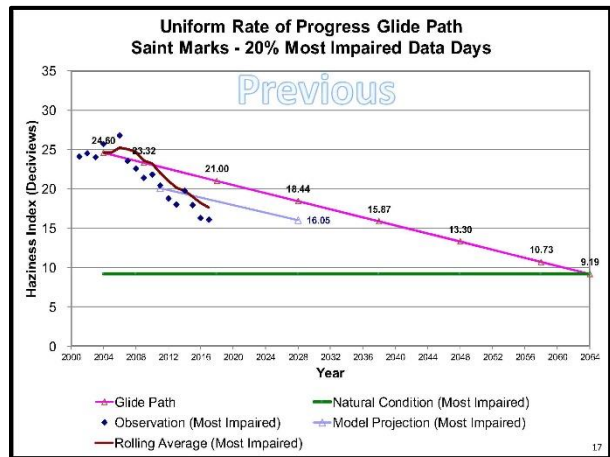
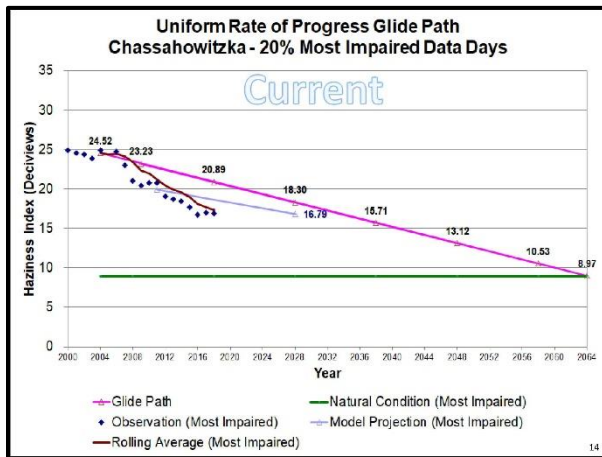
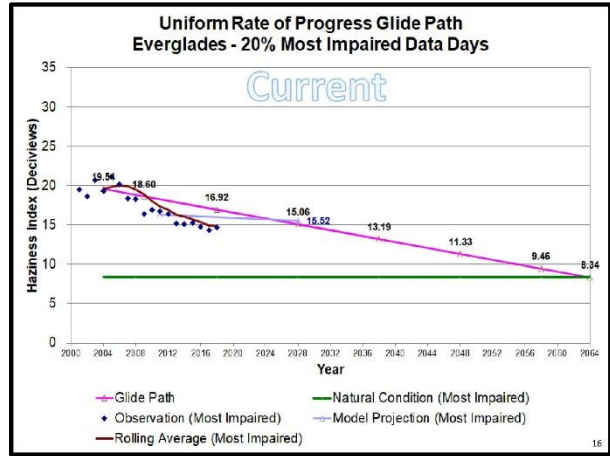
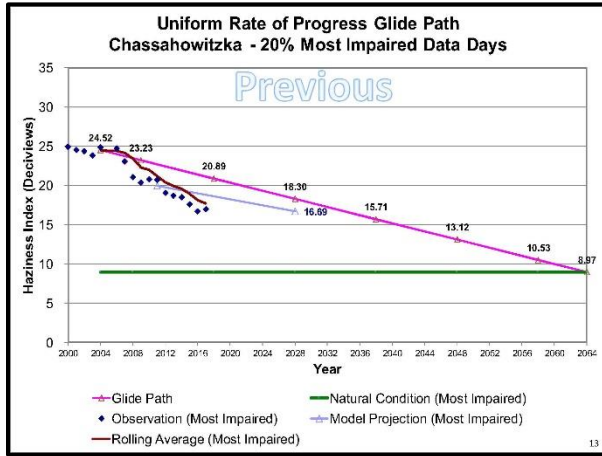
VISTAS 2028 EGU SO₂

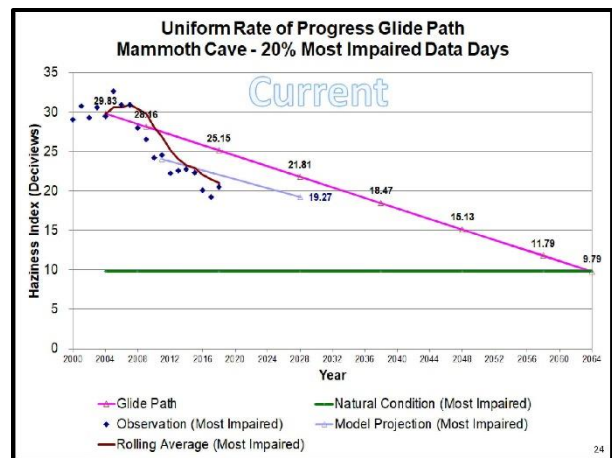
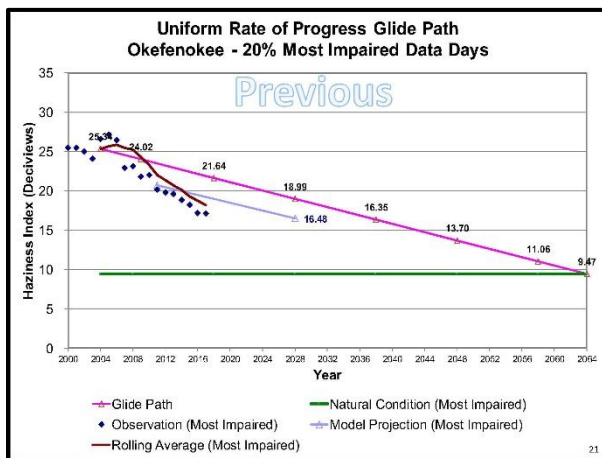
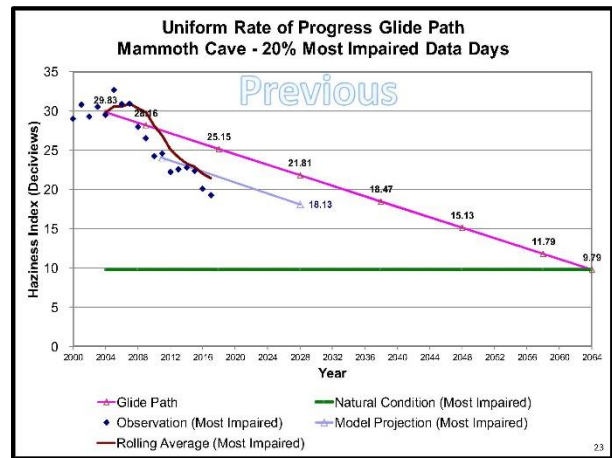
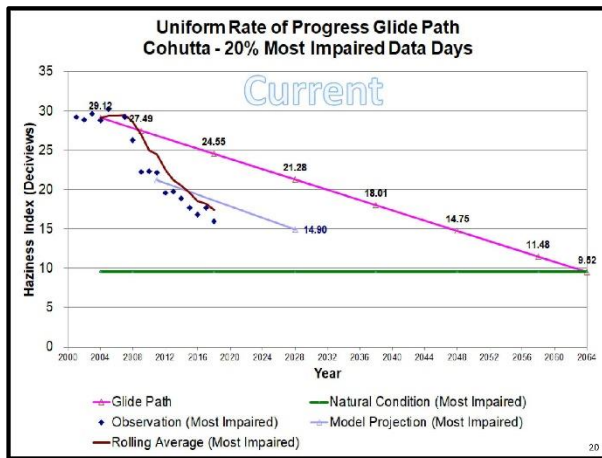
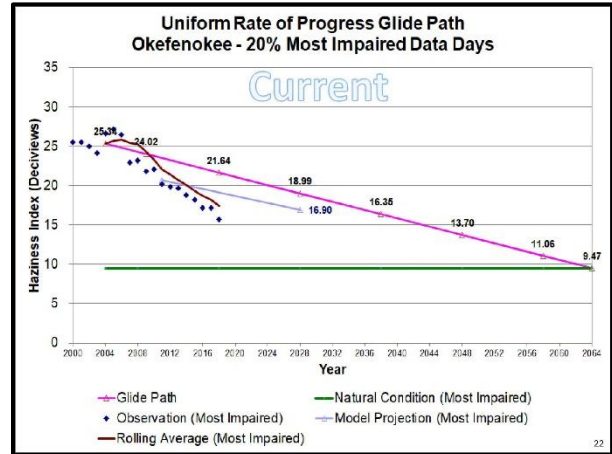
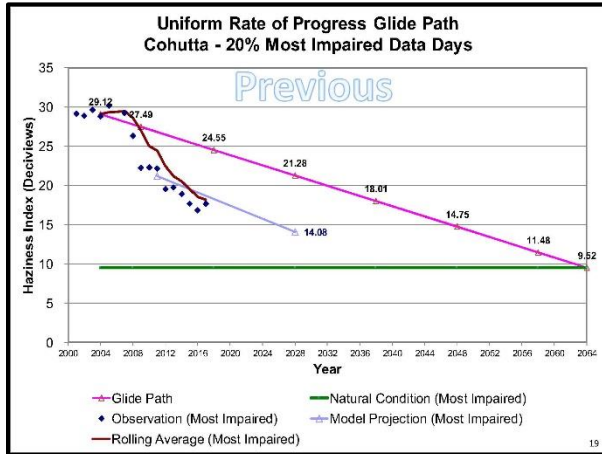


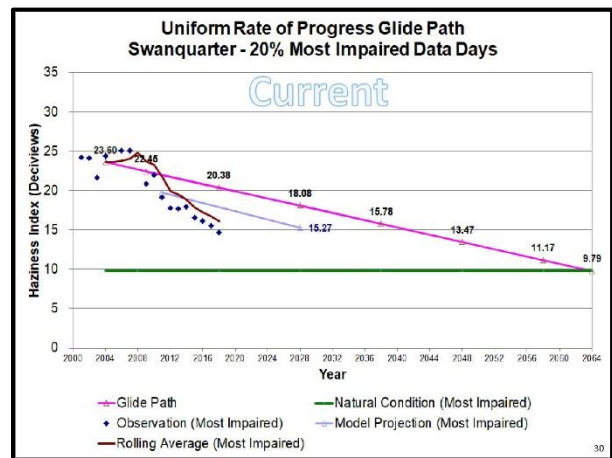
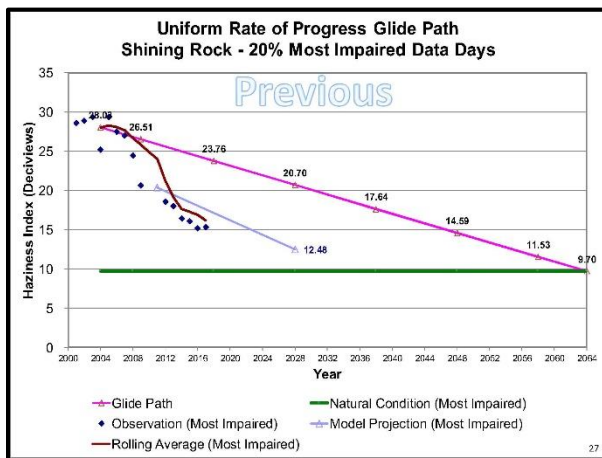
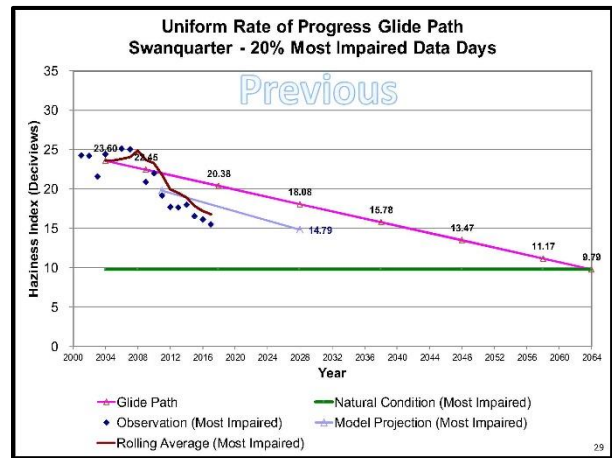
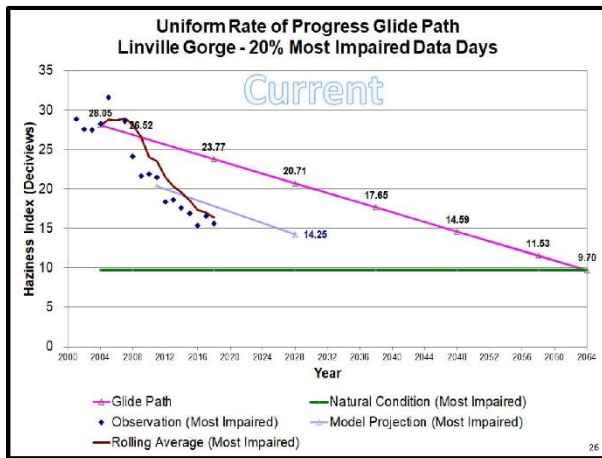
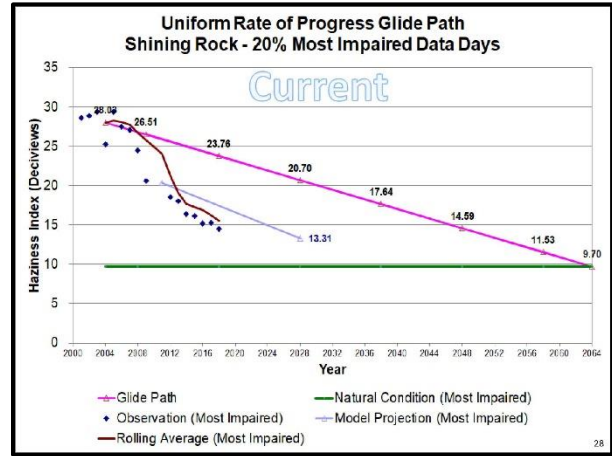
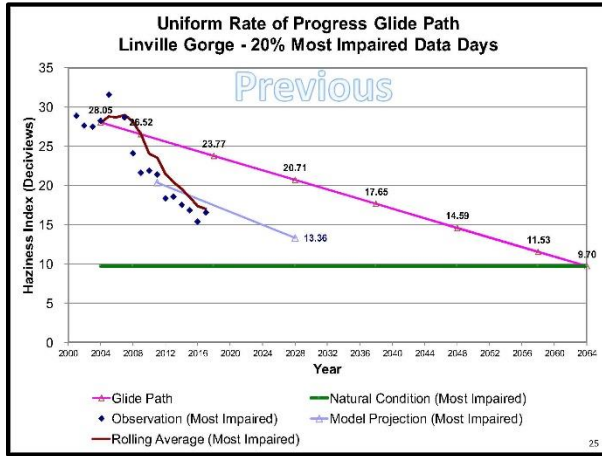


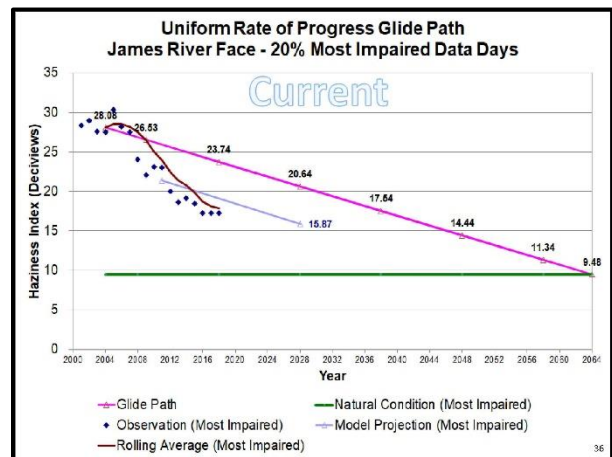
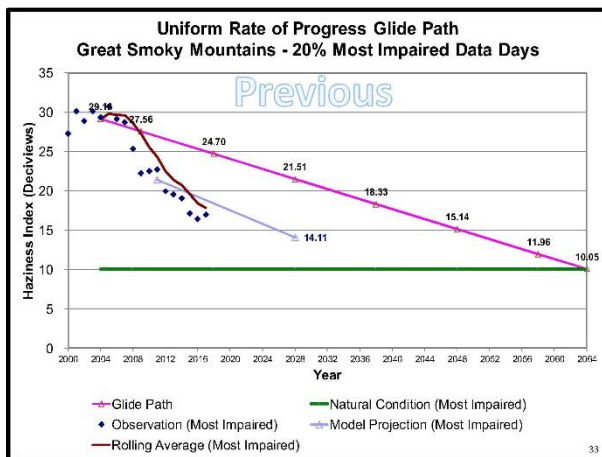
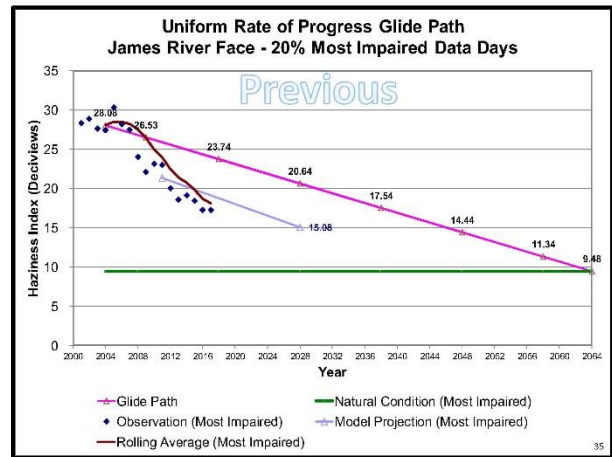
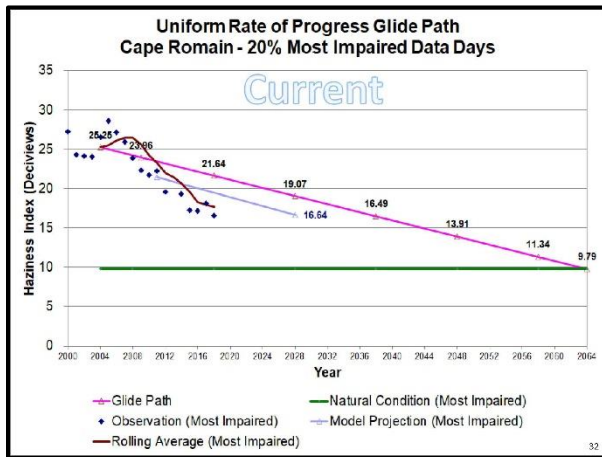
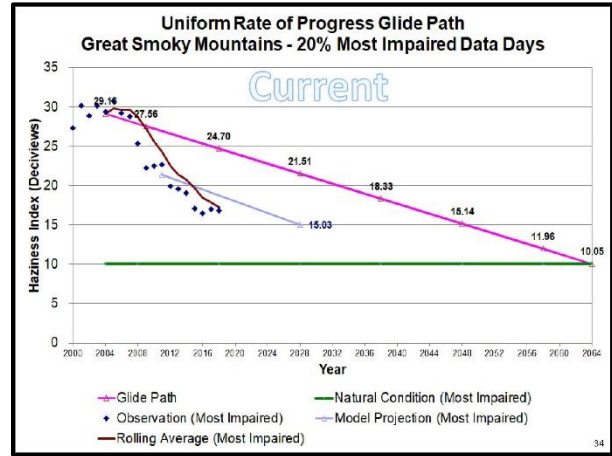
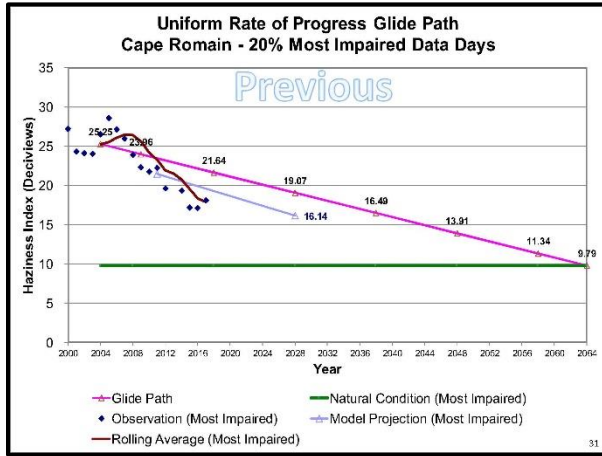
Updated 2028 Model Projections

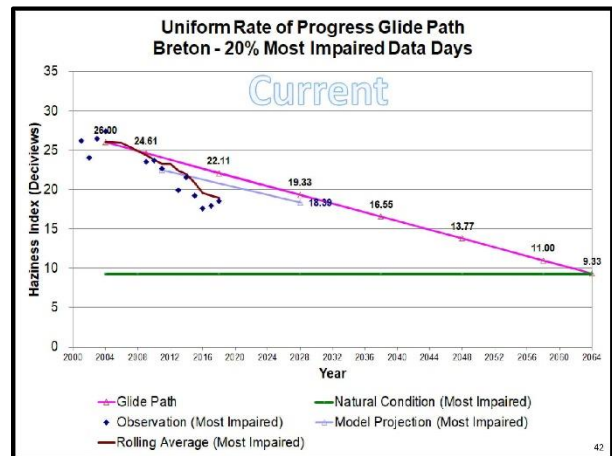
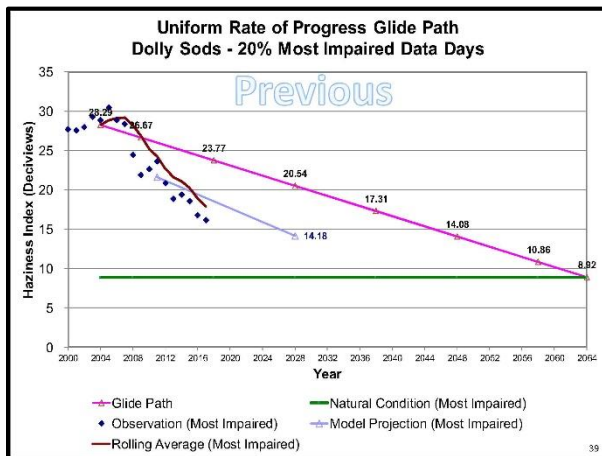
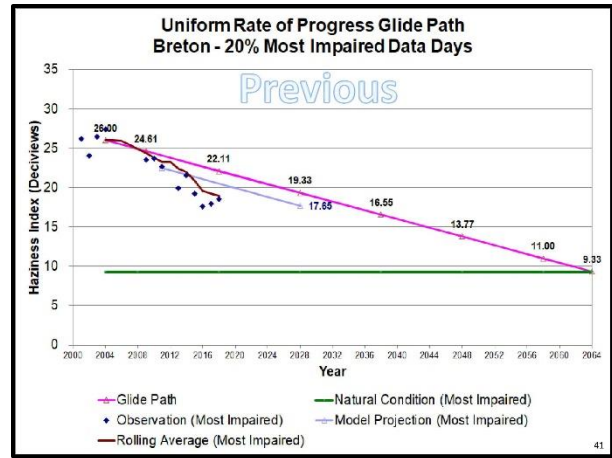
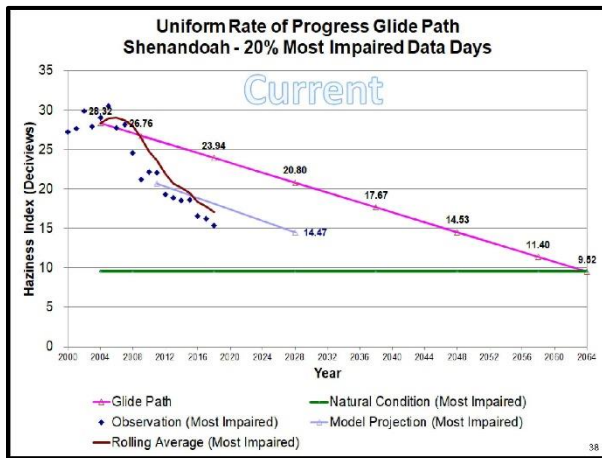
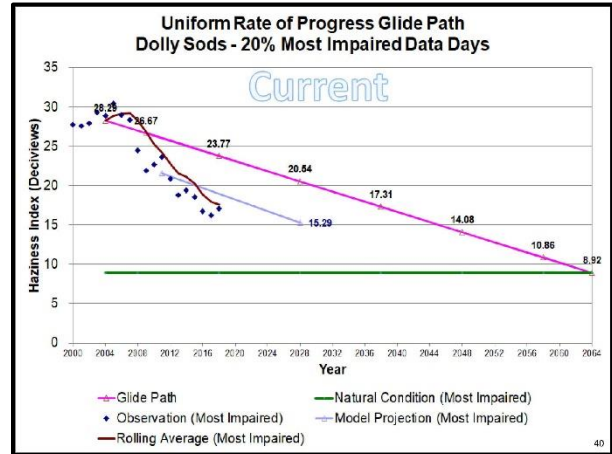
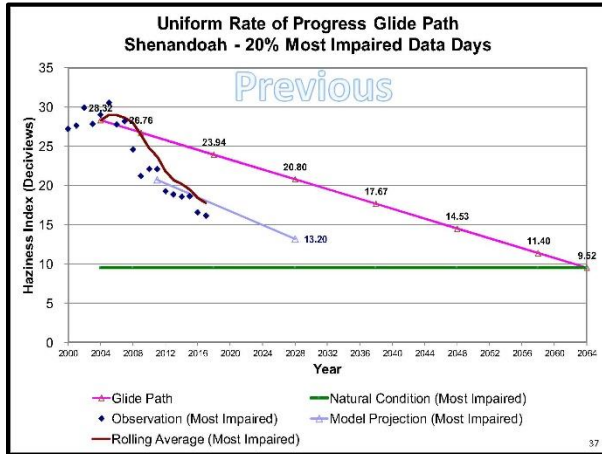


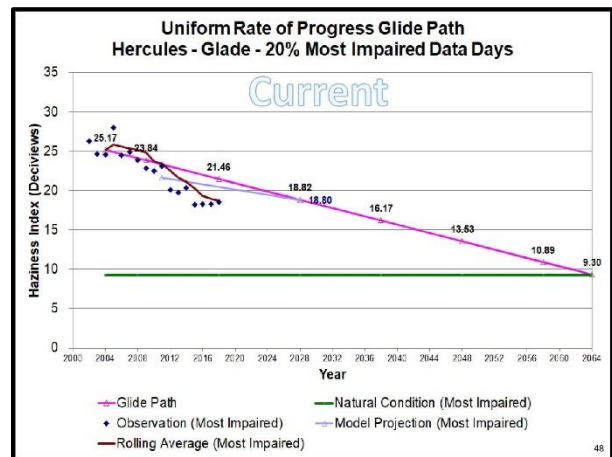
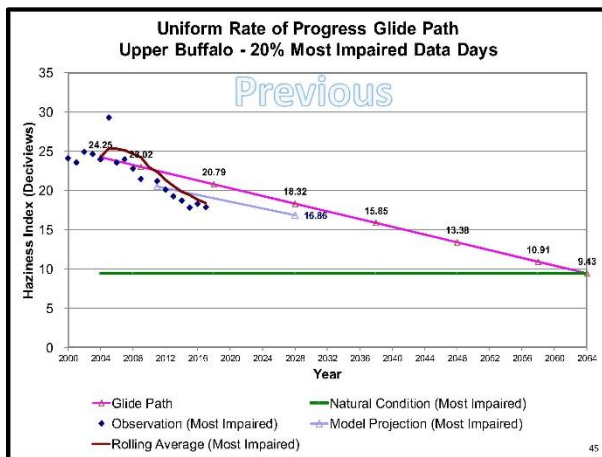
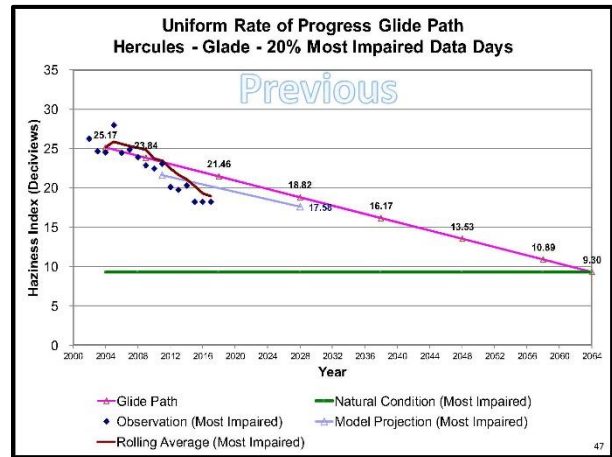
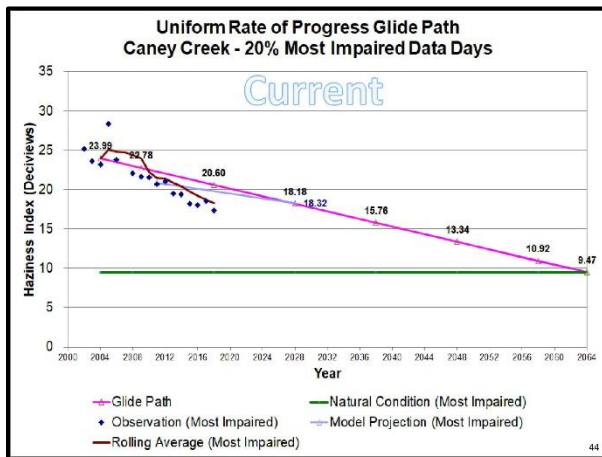
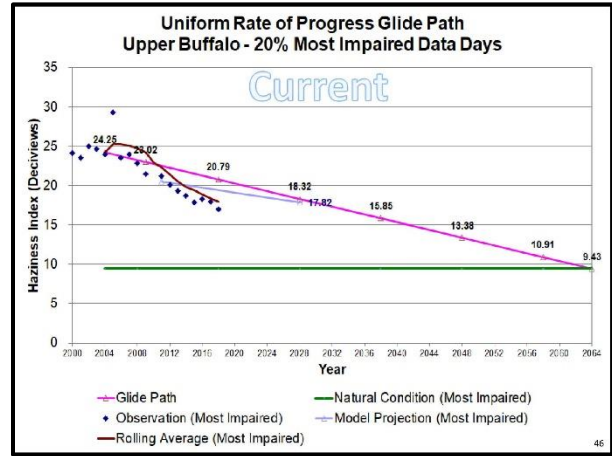
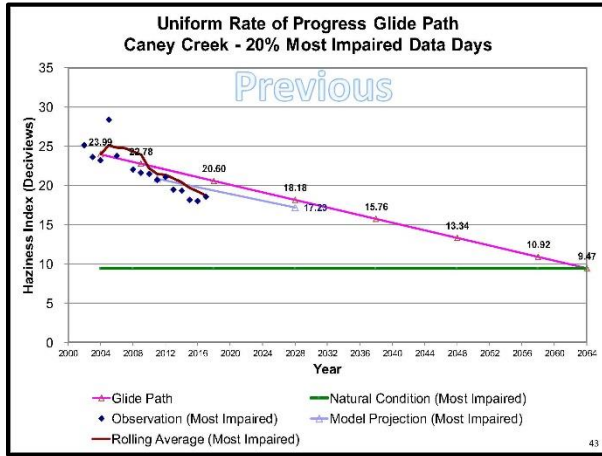


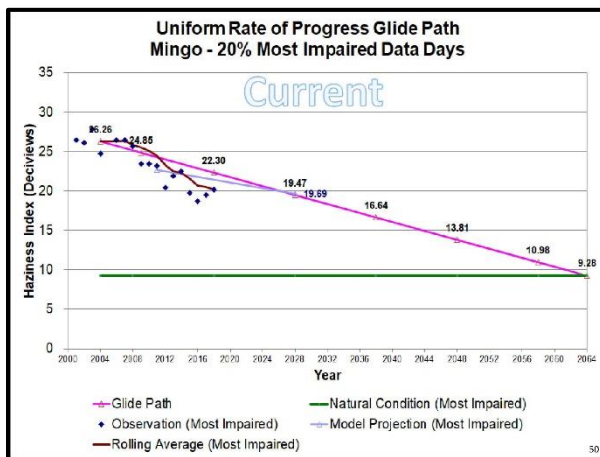
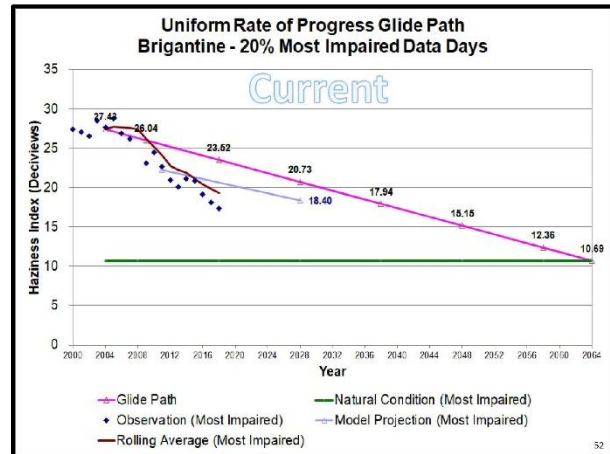
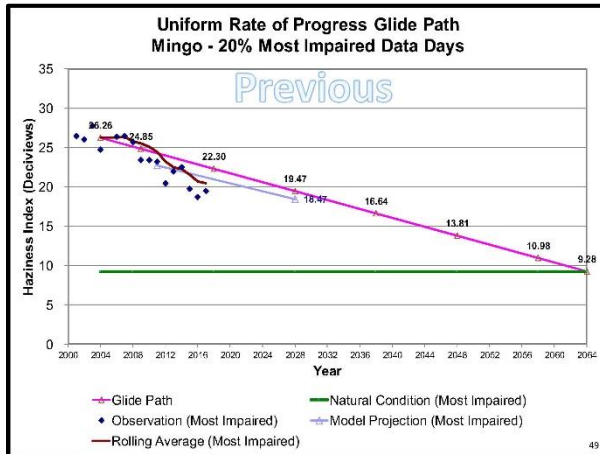




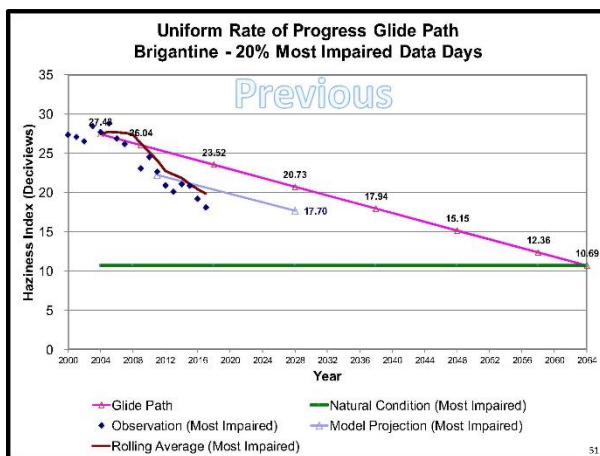








Next Steps and Schedule



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
Regional Haze SIPs Due to EPA	July 31, 2021

* References technical work completion. Draft reports to follow.

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)
 - TAWG – Doris McLeod (doris.mcleod@deq.virginia.gov)
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**Appendix F-3n - EPA Region 4 Fall 2020 Air Director's
Meeting-Regional Haze Update October 26, 2020**

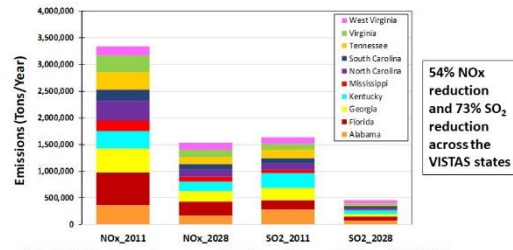
VISTAS II Regional Haze Project Update



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)"

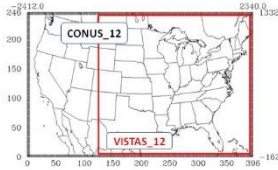
Project Background

- 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:



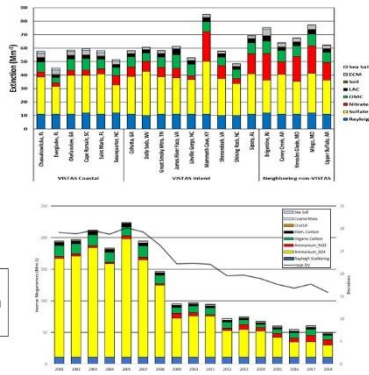
Air Quality Modeling

- "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"



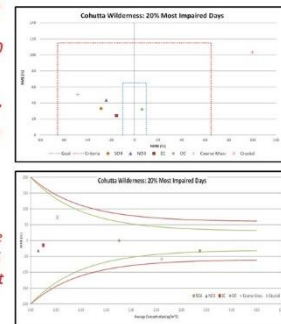
Data Acquisition and Analysis

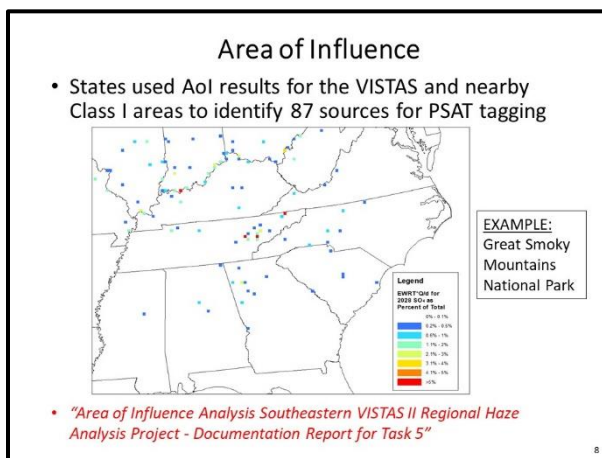
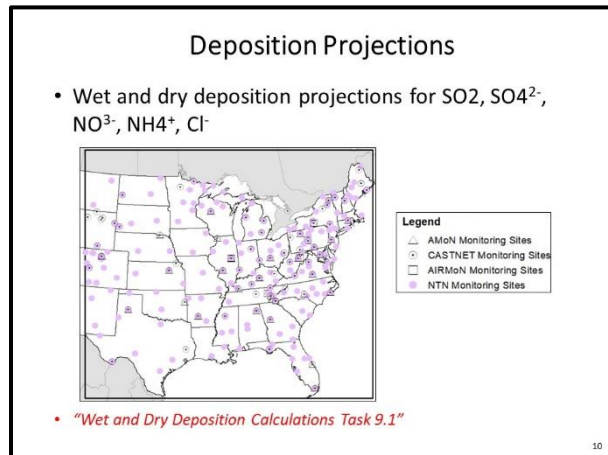
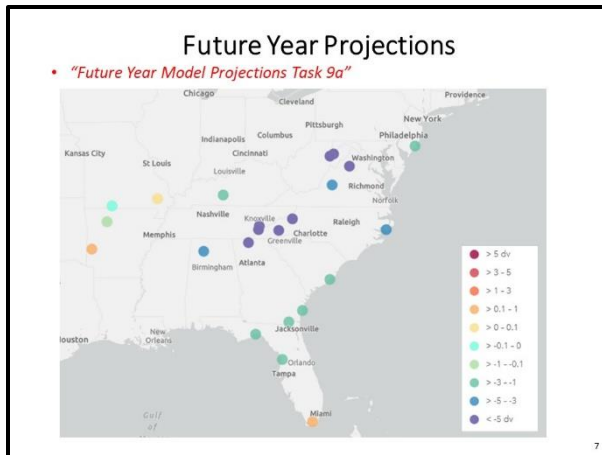
- "Task 4 Report"
- IMPROVE
- AQS
- NADP
- CASTNET
- WBAN



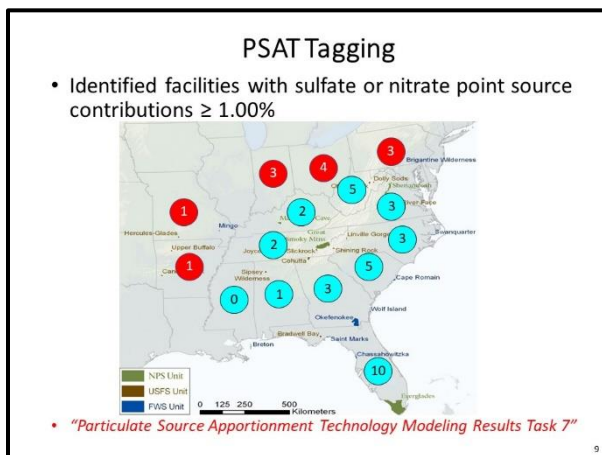
Model Performance Evaluation

- "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)"





- ### 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



- ### 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⁻¹)
 - 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. Glidepaths 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)
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