ARKANSAS' 2025 REGIONAL HAZE PLAN PROGRESS REPORT FOR THE SECOND PLANNING PERIOD

State of Arkansas
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Executive Summary

The federal Clean Air Act (CAA) section 169A requires the U.S. Environmental Protection Agency (EPA) to adopt regulations to reduce visibility impairment resulting from anthropogenic air pollution in 156 mandatory Class I federal areas (Class I areas) under 40 CFR Part 81.400. In 1999, the EPA finalized the Regional Haze Rule (RHR) (64 FR 35714). Caney Creek Wilderness Area (Caney Creek) and the Upper Buffalo Wilderness Area (Upper Buffalo) are Arkansas' two Class I areas. For each 10-year planning period (PP) through 2064, States are required to develop State Implementation Plans (SIPs) to continue to reduce emissions that contribute to visibility impairment in Class I areas and to demonstrate progress towards achieving their visibility improvement goals.

On August 8, 2022, the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), submitted to EPA a Regional Haze SIP Revision for the second planning period (PP2 SIP). As of the date of preparation of this progress report for submittal to EPA, EPA had not finalized action on Arkansas' 2022 PP2 SIP submittal. A July 12, 2024, U.S. District Court for the District of Columbia consent decree[1] between Sierra Club, et al. and EPA provides a scheduled "Final Action Date" of August 31, 2025, for Arkansas' submission, and EPA proposed approval of Arkansas' PP2 SIP on September 5, 2025, and will prepare and publish final rulemaking after public comments are received and considered.

As provided in §51.308(g), states must also submit periodic progress reports evaluating progress made toward the reasonable progress goals (RPGs) established in the state's previously submitted SIP. Information contained in this progress report for the second planning period assesses the status of the proposed RPGs contained within DEQ's PP2 SIP submission.

The most recent haze indexes for Arkansas' two Class I areas and other evaluated state's Class I areas are all on track to meet reasonable progress goals established for 2028. For Arkansas, there are downward trends in $PM_{2.5}$, NOx, and SO_2 emissions when comparing 2014, 2017, 2020, as well as 2023 when available. Through various actions and programs at the federal and state levels, downward trending emissions are expected to continue.

To address 40 CFR §51.308(h) requirements, Arkansas declares that no revision to its PP2 SIP is necessary. Arkansas DEQ also continues to be involved in planning conversations with other states and with EPA for the upcoming Regional Haze PP3 evaluations and SIP revision.

[1] *Sierra Club v. EPA*, Docket No. 1:23-cv-01744-JDB (July 12, 2024)

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1. Introduction

Section 169A of the Clean Air Act (CAA) "declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Federal Class I areas (Class I areas) where impairment results from anthropogenic air pollution and therefore requires the U.S. Environmental Protection Agency (EPA) to promulgate regulations to reduce visibility impairment resulting from anthropogenic air pollution in 156 Class I areas (Figure 1) and restore natural visibility conditions in Class I areas by 2064. Class I areas consist of National Parks greater than 6,000 acres, wilderness areas and national memorial parks greater than 5,000 acres, and international parks, all of which were in existence as of August 7, 1977.

In Arkansas, Class I areas include the Caney Creek Wilderness Area (Caney Creek) and the Upper Buffalo Wilderness Area (Upper Buffalo), both managed by the USDA Forest Service[2]. Caney Creek includes 14,460 acres of forested area, streams, and hiking trails and is in the Ouachita National Forest in southwest Arkansas. The Upper Buffalo includes approximately 12,000 acres of mostly second and third growth oak hickory forest with scattered areas of Shortleaf Pine and located in the Ozark-Saint Francis National Forest in northern Arkansas.

Figure 1: 156 Mandatory Class I Federal Areas

The CAA directed the EPA to promulgate regulations aimed at meeting the goals of Section 169A. EPA originally finalized the Regional Haze Rule (RHR) in 1999. EPA amended and revised the RHR in 2005 and 2017, and the RHR is now codified under 40 CFR 51.300-309. The overarching

[2] 40 CFR PART 81.404

goal of the RHR is to achieve natural visibility conditions in Class I areas. The RHR requires that states submit two types of regional haze planning documents: regional haze State Implementation Plans (SIPs), each covering a 10-year planning period, and progress reports, which are typically submitted at the mid-point of each 10-year planning period.

This Arkansas Department of Energy and Environment Division of Environmental Quality (DEQ) Regional Haze Plan Progress Report is intended to fulfill the requirements[3] of paragraphs 51.308(g), (h), and (i) of the RHR and to serve as a progress report for the RHR PP2 SIP that was submitted to EPA on August 8, 2022, and covers the period of 2019 to 2028. For an early draft version of this document, DEQ offered review opportunity and consultation to the Federal Land Managers (FLMs) from June 9, 2025, through August 8, 2025. Comments received from FLMs and DEQ's responses are provided in Appendix A: *Federal Land Manager Correspondence*. DEQ published notice of availability on December 13 and 14, 2025 in the statewide newspaper, and made this progress report available for public review from December 13, 2025 through January 15, 2026, with a public hearing held on January 15, 2026 and related materials for review posted at http://www.adeq.state.ar.us/air/planning/sip/regional-haze.aspx. DEQ and FLM consultation, and the public review and comment period, address requirements in 40 CFR §51.308(i), and 40 CFR §51.308(g), respectively. Per EPA's 2017 RHR revisions[4], DEQ's Regional Haze Progress Report is not being submitted to EPA as a formal SIP revision and meets the federal RHR requirements for periodic progress reports[5].

DEQ's Regional Haze Plan Progress Report for the PP2 SIP contains the following elements:

- the status of the state's implementation of all measures included in DEQ's 2022 PP2 SIP for achieving reasonable progress goals (51.308(g)(1));
- a summary of the emissions reductions achieved (51.308(g)(2));
- an analysis tracking the changes since the previous Regional Haze plan (51.308(g)(3));
- an analysis of pollutant emissions contributing to visibility impairment since the period assessed in DEQ's 2022 PP2 SIP (51.308(g)(4));
- an assessment of significant changes in anthropogenic emissions (51.308(g)(5));
- and a determination of the adequacy of the current implementation plan elements and strategies (51.308(g)(6)).

Although no changes have been made to DEQ's monitoring strategy, DEQ determined that §51.308(g)(7), which pertains to any modifications to the visibility monitoring strategy and applies to the "first implementation period only," and is not applicable for this progress report[6]. DEQ also determined that §51.308(g)(8) was not applicable for this progress report as no changes were made to Arkansas' voluntary smoke management program, although a prescribed fire voluntary smoke management program-related synopsis is provided.

[3] https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-P/section-51.308
[4] 82 FR 3078
[5] 40 CFR 51.308
[6] https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-P/section-51.308

DEQ's PP2 SIP found that both Caney Creek and Upper Buffalo are projected to be below the adjusted glidepath at the end of PP2 (2028), and through the required control analyses, DEQ also determined that an emission limit for FutureFuel's coal-fired boilers based on fuel switching to 1.5% sulfur content coal would be reasonable to ensure continued progress toward natural visibility conditions at Class I areas (see Section 2.2.6 of this update for further discussion).

2. Status of Control Measures in the RH Second Planning Period 2022 SIP (51.308(g)(1))

40 CFR 51.308(g)(1), of the RHR requires "a description of the status of implementation of all measures included in the implementation plan for achieving reasonable progress goals for mandatory Class I Federal areas both within and outside the State." As required by 40 CFR 51.308(g)(1), this section provides the status of implementation of the emission reduction measures that were included in the PP2 SIP.

2.1 Federal Measures

Several ongoing federal programs are expected to achieve reductions in nitrogen oxides (NOx), sulfur dioxide (SO_2), and particulate matter (PM) emissions.

2.1.1 Federal Mobile Source Measures

The EPA finalized the Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control requirements in 2000 (65 FR 6698, February 10, 2000). The Tier 2 standard covers passenger vehicles with a gross vehicle weight rating of more than 8,500 pounds (such as larger pickups and sport utility vehicles), which were not covered by the Tier 1 regulations. The Tier 2 standard was phased in between 2004 and 2009. The tailpipe emissions standards of Tier 2 require manufacturers to achieve an average NOx tailpipe standard of 0.07 grams per mile (gpm), a 75% reduction from the 0.30 gpm previous standard. In addition, under the gasoline sulfur standard, most refiners will have to produce gasoline that averages no more than 30 parts per billion (ppm) of sulfur. Sulfur can interfere with operations of catalytic converters in vehicles and thus cause higher NOx emissions. Benefits from the reduction of highway diesel fuel sulfur content will ensure continued maintenance of the air quality standard and are expected to further reduce NOx emissions by 2030.

Future year VOC and NOx reductions will also be realized from EPA's Tier 3 Motor Vehicle Emissions and Fuel Standards, finalized in 2014 (79 FR 23414, April 28, 2014). Under the Tier 3 standard, the tailpipe standard establishes a fleet average non-methane organic gas and nitrogen oxides (NMOG+NOx) limit. This standard is to be phased in starting in 2017 and phasing in through 2026 with the final NMOG+NOx limit set at 30 mg/ml. The gasoline sulfur standard of Tier 3 also requires federal gasoline to meet an annual average standard of 10 ppm of sulfur by 2017. The Tier 3 tailpipe standards for light-duty vehicles will reduce the fleet average standards for the sum of non-methane organic gases (NMOG) and NOx, NMOG+NOx, by approximately 80%. The Tier 3 program for heavy-duty vehicles will reduce the fleet average standards for NMOG+NOx and PM by approximately 60%. Benefits from the Tier 3 standards will ensure continued maintenance of the air quality standard.

In 2011, the EPA and the National Highway Traffic Safety Administration (NHTSA) promulgated joint rules to reduce GHG emissions and improve fuel efficiency of combination tractors (semi-

trucks), heavy-duty pickup trucks and vans, and vocational vehicles beginning with model year 2014 and applying to all model years by 2018 (76 FR 57106, September 15, 2011). The standards for combination tractors will reduce carbon dioxide (CO_2) emissions and fuel consumption by 9 to 23% compared to the 2010 baselines. The standards for heavy-duty pickup trucks and vans will reduce CO_2 emissions by 17% for diesel vehicles and 12% for gasoline vehicles, on average per vehicle compared to 2010 baselines, and will reduce fuel consumption by 15% for diesel vehicles and 10% for gasoline vehicles, on average per vehicle compared to a common baseline. The standards for vocational vehicles will reduce CO_2 emissions and fuel consumption by 6% to 9% compared to 2010 baselines. The decreased fuel consumption due to the Heavy-Duty National Program will result in decreased NOx emissions from vehicles as the fleet turns over.

2.1.2 Federal Stationary Source Measures

The Mercury and Air Toxic Standards (MATS) regulates the emissions of mercury, acid gases, and mercury metallic toxic pollutants from new and existing coal and oil-fired electricity generating units (EGUs) (77 FR 9304, February 16, 2012). The MATS standard was fully implemented in 2016 and although not targeted at NOx emissions, the MATS rule is expected to result in additional NOx reductions nationwide from coal-fired EGUs.

The National Emission Standards for Hazardous Air Pollutants (NESHAP) for industrial, commercial, and institutional boilers (40 CFR Part 63 Subpart DDDDD) reduces VOC emissions. The compliance deadline for existing boilers was January 31, 2016. This NESHAP applies to boilers and process heaters located at major sources of hazardous air pollutants (HAPs) that burn natural gas, fuel oil, coal, biomass, refinery gas, or other gas by including work practice standards, such as boiler tune-ups and a one-time energy assessment, emission limitations for filterable PM, hydrochloric acid (HCl), mercury, and CO.

Three EPA engine-related rules also contribute to lower ozone concentrations. The NESHAP for reciprocating internal combustion engines (40 CFR Part 63 Subpart ZZZZ) limit VOC emissions. The Stationary Compression Ignition Internal Combustion Engines New Source Performance Standards (NSPS) (40 CFR Part 60 Subpart IIII) limit emissions of NOx, PM, SO2, CO, and hydrocarbons from stationary diesel internal combustion engines. The NSPS Spark Ignition Internal Combustion Engines rule (40 CFR Part 60 Subpart JJJJ) established emission requirements depending on the engine maximum power, fuel, application, and other factors that control emissions of NOx, CO, and VOCs.

On March 15, 2021, the EPA finalized the Revised Cross-State Air Pollution Rule that became effective on June 29, 2021, and requires emissions reductions of nitrogen oxides (NOx) from electrical generating units.

On June 22, 2010 (75 FR 35520), EPA finalized a new primary NAAQS for SO_2 that strengthened the NAAQS by lowering and changing the form of several long-time retained 1971 standards to 75 parts per billion (ppb) on a one-hour basis averaged over three years. EPA determined that anthropogenic SO_2 emissions originate mainly from point sources, with fossil fuel combustion at electric utilities accounting for more than 50% of total anthropogenic SO_2 emissions and fossil fuel combustion at other industrial facilities accounting for another 30%.

On December 10, 2024 (89 FR 105692), the EPA finalized a revised secondary annual SO_2 NAAQS, strengthening it from the current 0.5 parts ppm as a 3-hour average to an annual standard with a level of 10 ppb, averaged over 3 years. This action should result in some additional SO_2 emissions reductions.

2.2 Arkansas long-term Strategy Measures

40 CFR § 51.308(f)(2)(iv)(A) requires states to consider emission reductions due to ongoing air pollution control programs in their long-term strategies. The emission reductions achieved by these programs are factored into 2028 emissions projections used to develop the reasonable progress goals (RPGs) for Arkansas federal Class I areas.

2.2.1 Mitigation of Construction Activities

In developing the long-term strategy, 40 CFR § 51.308(f)(2)(iv)(B) requires states to consider measures to mitigate the impact of construction-related activities. As discussed in the PP2 SIP, DEQ is responsible for all air pollution control programs in Arkansas; however, Arkansas Water and Pollution Control Act §8-4-305 limits DEQ's authority with respect to certain construction activities, such as land clearing operations, land grading, and road construction. As noted in Arkansas's 2008 PP1 SIP, current and future federal programs result in some mitigation through incentive offerings for voluntary emission reduction measures and through tier standards for nonroad equipment.

2.2.2 New Source Review (NSR) Program

The New Source Review (NSR) program is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants. In areas not meeting health-based NAAQS, the program is referred to as the Prevention of Significant Deterioration (PSD) program. Arkansas Pollution Control and Ecology Commission Rule - Nonattainment New Source Review Requirements at Title 8 Code of Arkansas Rules Part 43, Effective Date: May 28, 2006, was approved by EPA on April 12, 2007 (72 FR 18394) and effective May 14, 2007.

Title 8 Code of Arkansas Rules Part 40 Subpart 5 includes a ban of certain open burning for additional control of NOx emissions and other pollutants. Arkansas Pollution Control and Ecology Commission Rule – Emissions from Open Burning, Effective Date: December 25, 2021.

2.2.3 Energy Efficiency Programs

In the PP2 SIP, DEQ and the Arkansas Public Service Commission (APSC) provided an analysis of energy efficiency (EE) programs implemented by electric utilities with operations in Arkansas to determine the projected emissions reductions of haze-forming pollutants resulting from the EE programs that will help states with federal Class I areas meet the visibility goals set forth in the RHR. Because the energy savings from APSC-approved EE program portfolios are not required under federal air pollution control rules, federal EE rules, or Arkansas air pollution control rules, the emission reductions resulting from these programs are wholly surplus benefits. Inclusion of Arkansas's EE Resource Standard as part of Arkansas's long-term strategy has other benefits including grid resiliency, reduced need for additional generation assets, and reduced costs when

compared to traditional environmental control strategies. The projected 2028 emissions reductions reported in DEQ's PP2 SIP are presented in Table 1.

Table 1: Estimated Projected 2028 Emission Reductions from Arkansas EE Measures during the Second Implementation Period of the Regional Haze Program

Year	SO_2 (tons)	NOx (tons)	$PM_{2.5}$ (tons)
2028	1450.60	1478.18	149.71

Utility-reported energy savings from 2019 to 2022 (most recent reports available during preparation of this progress report) resulting from EE Programs are presented in Table 2[7]. This data illustrates that energy savings continue to be realized since development of the PP2 SIP.

Table 2: Utility-reported Annual Net Energy Savings (Megawatt hours) from 2019 – 2022

Year	Oklahoma Gas & Electric Company	The Empire District Electric Company	Arkansas Oklahoma Gas Corporation	Black Hills Energy Arkansas, Inc.	Summit Utilities Arkansas, Inc./CEA	South-western Electric Power Company	Entergy Arkansas, LLC
2019	26,071	175,630	492,071	36,992	112,270	36,735	267,395
2020	28,050	175,461	459,387	41,458	117,872	35,952	320,609
2021	28,540	164,927	458,151	44,165	120,860	35,785	319,928
2022	25,301	169,635	491,429	44,254	109,176	37,339	302,315

2.2.4 Source Retirement and Permit Replacement

DEQ's PP2 SIP reported total Title V initial permits and Title V permits voided without issuance of a revised Title V permit for the period of 2002 to 2019. DEQ's air permits for stationary sources are categorized as registration-only, minor source, or Title V. In DEQ's RHR SIP for PP2, and for 2002 through 2019, DEQ reported the issuance of 108 initial Title V permits and 110 Title V permits were voided without being replaced by a revised permit. As an update, and for 2020 through 2023, DEQ issued 12 initial Title V permits and 14 Title V permits were voided without being replaced by a revised permit. Figure 2 illustrates the number of initial Title V permits issued each year and Figure 3 illustrates the number of Title V permits voided for which there was no subsequent permit revision or renewal.

[7] https://apsc.arkansas.gov/programs-initiatives-activities/energy-efficiency/energy-efficiency-annual-reports/

Figure 2: Initial Title V Permit Issuance per Year (2020 – 2023)

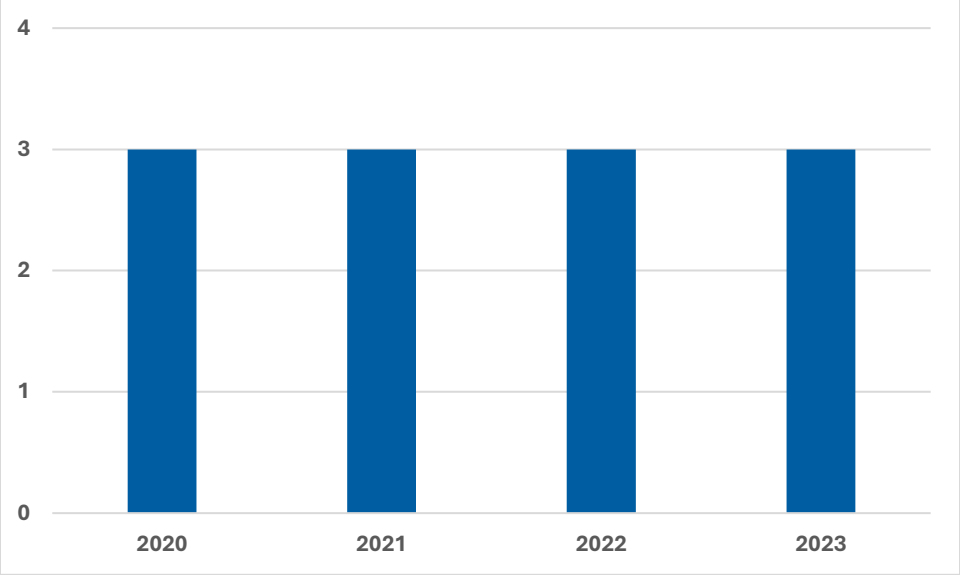
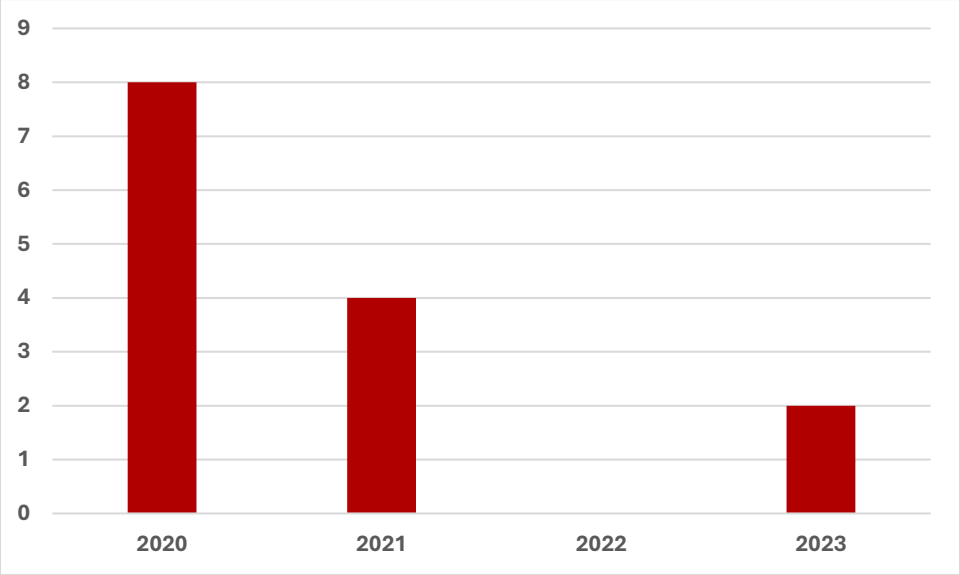


Figure 3: Title V Permits Voided without Replacement of Revised Title V Permit per Year (2020 – 2023)



2.2.5 Additional Measures Discussed in DEQ's Planning Period 2 SIP

DEQ also provides funding opportunities for voluntary emission reduction projects for onroad vehicles and nonroad equipment used for construction through its Go RED! (Reduce Emissions from Diesels) program. These funds, originating from EPA's Diesel Emissions Reduction Act, are to be used to help reduce emissions from diesel engines in Arkansas. Public and private entities and nonprofit organizations in Arkansas are eligible to receive funding. Projects that are selected for awards must reduce verifiable diesel emissions in Arkansas. Diesel emissions may be reduced

by employing exhaust controls, engine upgrades, idling reduction technologies, engine replacements, or vehicle/equipment replacements.

From 2020 through 2023, the amount of total electricity generated in Arkansas by solar energy continued to increase (Table 3), and solar power accounted for about one-fifth of the state's renewable electricity[8]. Around the United States, market forces on coal EGUs have shifted these units from baseload operations to load following operations with increasing usage of renewable energy sources for electricity production.

Table 3: Solar Energy Annual Generation in Arkansas for 2020 – 2023 (Megawatt hours)

2020	2021	2022	2023
272,148	462,281	736,481	797,523

2.2.6 Reasonable Progress Measures Included in DEQ's Planning Period 2 SIP

Entergy White Bluff Power Plant

In DEQ's PP2 SIP submittal and further consideration during preparation of this progress report, it was determined that existing control measures at Entergy White Bluff are sufficient for reasonable progress. Entergy White Bluff has an enforceable Administrative Order that requires the cessation of coal-fired operations by December 31, 2028[9]. If Entergy chooses to continue operations of the White Bluff units after December 31, 2028, they must apply for a permit revision to burn a different fuel. Such a permit revision would be subject to new source review requirements. If the change would result in a significant increase in emissions, prevention of significant deterioration and best available control technology requirements would be triggered. A most likely fuel switch would be to natural gas, which inherently emits much less SO_2 and NOx relative to coal.

Entergy Independence Power Plant

After consideration of the statutory factors and visibility considerations, DEQ determined in the PP2 SIP submittal and in further consideration during preparation of this progress report that no additional controls are necessary at Entergy Independence to make reasonable progress. Entergy Independence has an enforceable Administrative Order that requires the cessation of coal-fired operations by December 31, 2030.[10] Given the planned cessation of coal-fired operations by December 31, 2030, if Entergy chooses to continue operations of the Independence units after this date a permit revision with new source review would be required for the new fuel. Like White Bluff, a most likely fuel switch would be to natural gas, which inherently emits much less SO_2 and NOx relative to coal.

[8] https://www.eia.gov/state/?sid=AR

[9] https://www.adeq.state.ar.us/air/planning/sip/pdfs/regional-haze/entergy-ao-executed-8-7-2018.pdf

[10] https://www.adeq.state.ar.us/air/planning/sip/pdfs/regional-haze/entergy-ao-executed-8-7-2018.pdf

FutureFuel Chemical Co.

In DEQ's PP2 SIP, after considering the statutory factors and visibility considerations, it was determined that an emission limit for FutureFuel's coal-fired boilers based on fuel switching to 1.5% sulfur content coal would be reasonable to ensure continued progress toward natural visibility conditions at Class I areas. As such, DEQ executed an Administrative Order with FutureFuel, enforceable as a matter of state law, that would render the 1.5% sulfur coal content and resulting emission limit enforceable by DEQ and by EPA as part of the PP2 SIP, if approved by EPA.

In Arkansas' PP2 SIP, the Administrative Order executed by DEQ and FutureFuel requires that "no later than three (3) years after the effective date of EPA approval of this AO, FutureFuel shall comply with an emissions rate of 2.93 pounds of sulfur dioxide per million British thermal for SN:6M01-01 boilers"…"based on a rolling thirty-operating-day average"[11]. The 2.93lb SO2/MMBtu is equivalent to a 1.5% sulfur content coal fuel.

At the time of the writing of this progress report, EPA had not acted on Arkansas' PP2 SIP that was submitted to EPA on August 8, 2022. A July 12, 2024 U.S. District Court for the District of Columbia Consent Decree[12] between Sierra Club, et al. and EPA provided a schedule "Final Action Date" of August 31, 2025, for Arkansas, whereby EPA will sign a notice of final rulemaking for Arkansas' PP2 SIP.

Domtar Ashdown Mill

All control strategies evaluated for the Domtar Ashdown Mill exceeded DEQ's cost threshold for industrial boilers. After consideration of the statutory factors and visibility considerations, as well as in further consideration during preparation of this progress report, DEQ determined that no additional controls are necessary for Ashdown Mill to make reasonable progress during PP2.

Flint Creek Power Plant

Flint Creek is already well controlled for NOx and SO_2. The cost of the additional potential controls considered for Flint Creek exceed DEQ's cost threshold for EGU boilers. After consideration of the statutory factors and visibility considerations, as well as in further consideration during preparation of this progress report, DEQ determined that no additional controls are necessary for Flint Creek during PP2.

Other State Requests

During DEQ's PP2 SIP development, no specific controls were requested from any other state, including those that requested that DEQ perform four-factor analyses, or agreed to as part of consultation.

[11] https://www.adeq.state.ar.us/air/planning/sip/pdfs/regional-haze/FutureFuel_AO.pdf

[12] *Sierra Club v. EPA*, Docket No. 1:23-cv-01744-JDB (July 12, 2024)

3. Emissions Reductions from RH SIP Strategies (51.308(g)(2))

40 CFR 51.308(g)(2) of the RHR requires "[a] summary of the emission reductions achieved throughout the State through implementation of the measures" described in 40 CFR 51.308(g)(1). As required by 40 CFR 51.308(g)(2), this section provides emissions reductions that have already or are expected to help meet the reasonable progress goals adopted in the PP2 SIP.

In the PP1 SIP, as revised, the long-term strategy included source-specific control measures, participation in the CSAPR Ozone Season NOx Trading Program, ongoing state and federal air pollution control programs (e.g., vehicle emission standards), and voluntary programs (e.g., DEQ's Go RED! funding assistance program and the voluntary Arkansas Smoke Management Plan).

3.1 CSAPR Ozone Season NOx Trading Program

In the PP1 Progress Report, DEQ reported a 24% decrease in the statewide ozone-season NOx budget from 2017 to 2018 and beyond. Table 4 lists the units required to participate in the CSAPR Ozone Season NOx Trading Rule, their allocations as reported in the PP1 Progress Report Update, as well as an update as of 2023 that remained the same as 2018 and added notes indicating voided permits.

Table 4: CSAPR Ozone Season NOx Trading Rule Allocations (2017, 2018 and Beyond)

Plant Name	State	ORIS ID	Boiler ID	NOx OS Allocation 2017 (tons)	NOx OS Allocation 2018 and Beyond (tons)	NOx OS Allocation 2023 Update (tons)
Carl Bailey	Arkansas	202	1	36	26	26
Cecil Lynch	Arkansas	167	2			Voided Permit
Cecil Lynch	Arkansas	167	3	118	86	
City Water & Light - City of Jonesboro	Arkansas	56505	SN04	20	14	14
City Water & Light - City of Jonesboro	Arkansas	56505	SN06	24	17	17
City Water & Light - City of Jonesboro	Arkansas	56505	SN07	19	15	15
Dell Power Plant	Arkansas	55340	1	17	17	17
Dell Power Plant	Arkansas	55340	2	18	18	18
Flint Creek Power Plant	Arkansas	6138	1	1,332	965	965
Fulton	Arkansas	7825	CT1	14	14	14
Hamilton Moses	Arkansas	168	1			Voided Permit
Hamilton Moses	Arkansas	168	2			
Harry D. Mattison Power Plant	Arkansas	56328	1	21	21	21
Harry D. Mattison Power Plant	Arkansas	56328	2	19	18	18
Harry D. Mattison Power Plant	Arkansas	56328	3	12	12	12
Harry D. Mattison Power Plant	Arkansas	56328	4	9	9	9

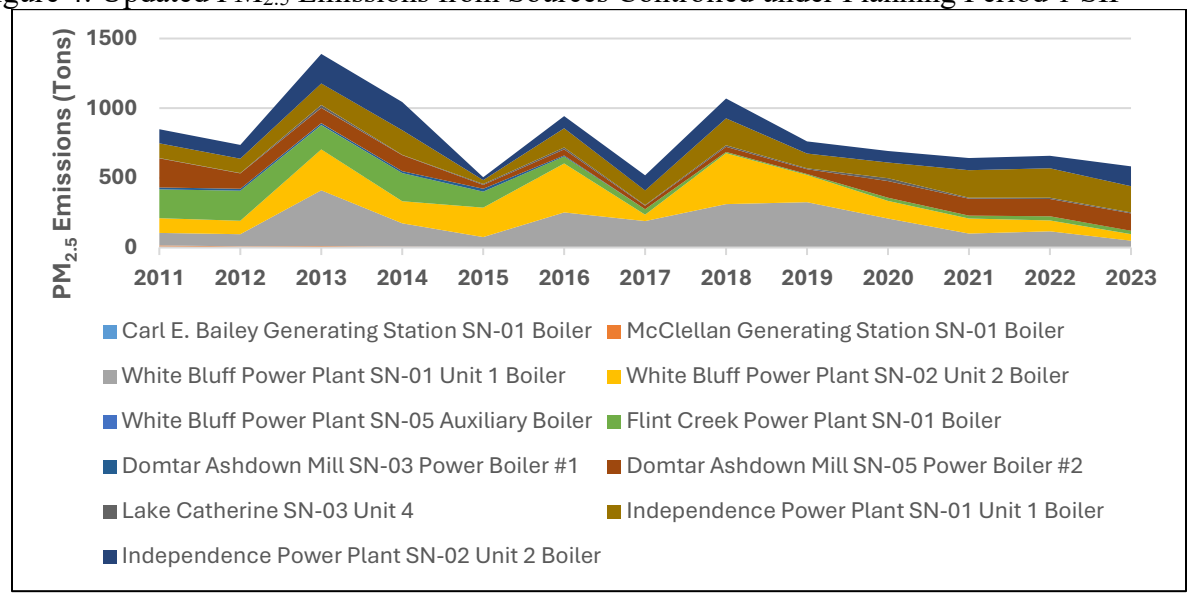
Harvey Couch	Arkansas	169	1			Voided Permit
Harvey Couch	Arkansas	169	2	17	12	
Hot Spring Energy Facility	Arkansas	55418	CT-1	28	28	28
Hot Spring Energy Facility	Arkansas	55418	CT-2	21	21	21
Hot Spring Power Co., LLC	Arkansas	55714	SN-01	37	37	37
Hot Spring Power Co., LLC	Arkansas	55714	SN-02	38	38	38
Independence	Arkansas	6641	1	1,840	1,333	1,333
Independence	Arkansas	6641	2	2,017	1,461	1,461
John W. Turk Jr. Power Plant	Arkansas	56564	SN-01	322	322	322
Lake Catherine	Arkansas	170	1	0	0	0
Lake Catherine	Arkansas	170	2	0	0	0
Lake Catherine	Arkansas	170	3	1	1	0
Lake Catherine	Arkansas	170	4	256	186	186
McClellan	Arkansas	203	1	108	78	78
Oswald Generating Station	Arkansas	55221	G1	26	22	22
Oswald Generating Station	Arkansas	55221	G2	19	19	19
Oswald Generating Station	Arkansas	55221	G3	24	21	21
Oswald Generating Station	Arkansas	55221	G4	14	14	14
Oswald Generating Station	Arkansas	55221	G5	19	17	17
Oswald Generating Station	Arkansas	55221	G6	18	16	16
Oswald Generating Station	Arkansas	55221	G7	18	18	18
Pine Bluff Energy Center	Arkansas	55075	CT-1	108	108	108
Plum Point Energy Station	Arkansas	56456	1	690	690	690
Robert E Ritchie	Arkansas	173	2			Voided Permit
Thomas Fitzhugh	Arkansas	201	2	53	45	45
Union Power Station	Arkansas	55380	CTG-1	27	27	27
Union Power Station	Arkansas	55380	CTG-2	26	26	26
Union Power Station	Arkansas	55380	CTG-3	32	32	32
Union Power Station	Arkansas	55380	CTG-4	30	30	30
Union Power Station	Arkansas	55380	CTG-5	27	27	27
Union Power Station	Arkansas	55380	CTG-6	26	26	26
Union Power Station	Arkansas	55380	CTG-7	32	32	32
Union Power Station	Arkansas	55380	CTG-8	29	29	29
White Bluff	Arkansas	6009	1	2,116	1,533	1,533

White Bluff	Arkansas	6009	2	2,130	1,544	1,544

3.2 Update on Continued Emissions Reductions from Planning Period 1

DEQ's PP1 Progress Report provided changes in $PM_{2.5}$, NOx, and SO_2 emissions from 2011 through 2019 for each emission unit subject to source-specific emission limitations in the Arkansas PP1 SIP. Since the 2018 end of PP1, this update adds 2020 through 2023 data[13] (Figures 4 – 6). From 2011 to 2023, annual $PM_{2.5}$ emissions from the included sources decreased by 32%, annual NOx emissions decreased by 69%, and SO_2 emissions decreased by 68%. See Appendix B for a data table for Figures 4 – 6.

Figure 4: Updated $PM_{2.5}$ Emissions from Sources Controlled under Planning Period 1 SIP



[13] https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway

Figure 5: Updated NOx Emissions from Sources Controlled under Planning Period 1 SIP

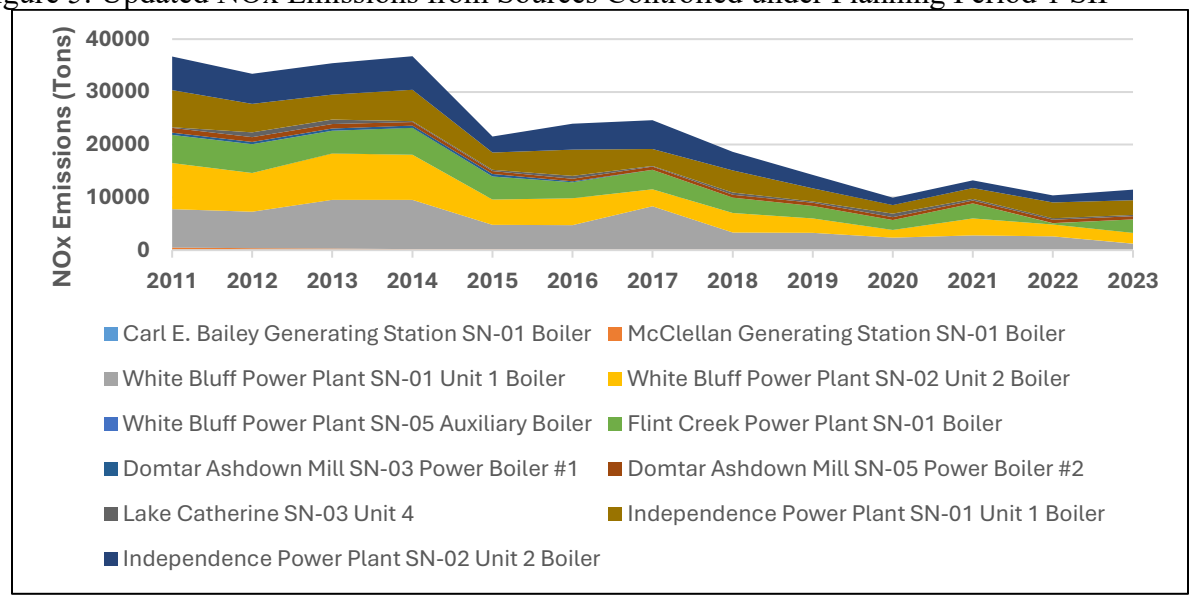
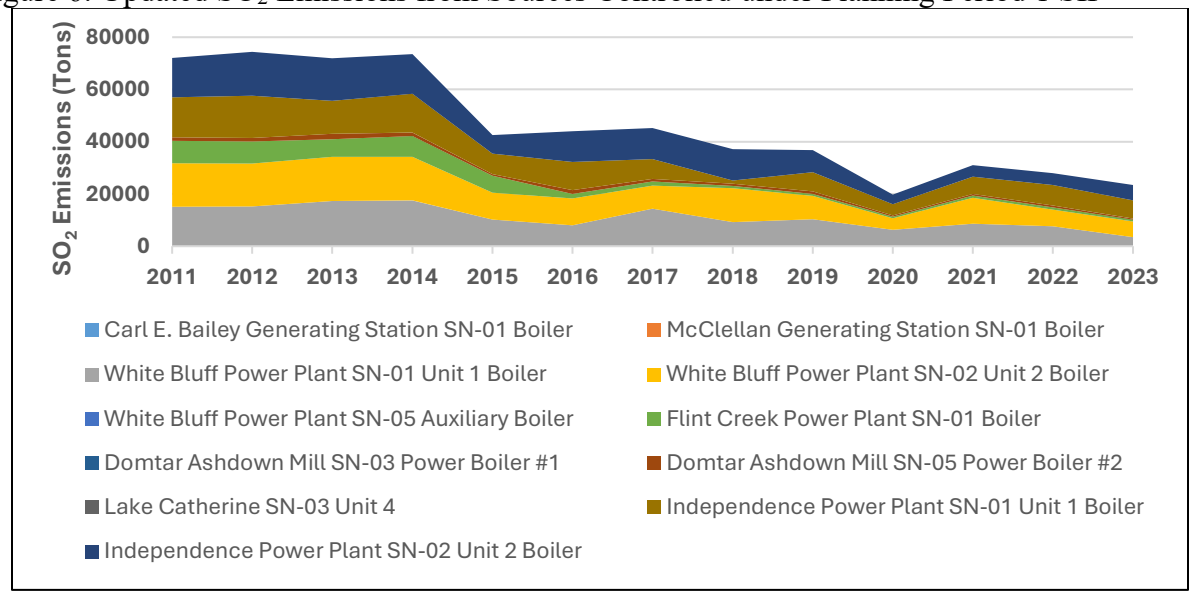


Figure 6: Updated SO_2 Emissions from Sources Controlled under Planning Period 1 SIP



4. Visibility Progress (51.308(g)(3))

40 CFR 51.308(g)(3) of the RHR requires that "[f]or each Class I area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of five-year averages of these annual values: (i) The current visibility conditions for the most impaired and least impaired days; (ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions; [and] (iii) The change in visibility impairment for the most impaired and least impaired days over the past five years…"

As required by 40 CFR 51.308(g)(3), this section provides Interagency Monitoring of Protected Visual Environments (IMPROVE) visibility data[14] to provide the above assessments for Arkansas' two Class I areas.

Tables 5 – 6 provide the five-year average baseline condition (2000 – 2004), the five-year average current visibility conditions (2018 – 2022), and the difference between the current visibility and the baseline condition for the 20% most impaired days and the 20% clearest days. The data shows that both Caney Creek and Upper Buffalo have both experienced improvements in visibility on the 20% most impaired days and on the 20% clearest days. The current observed five-year average also indicate that both Class I areas are already below the 2028 goals for both the 20% Most Impaired Days and for the 20% Clearest Days: thus, no degradation in visibility has occurred since the baseline period.

Table 5: Current Observed Visibility, Change from Baseline, and Comparison to the 2028 Goal (20% Most Impaired Days [deciviews])

Class I Area	Baseline 2000-2004 Average	Most Recent Plan 2014-2018 Average	Current 2018-2022 Average	EPA-Modeled 2028 Goal	Change, Baseline Average – Current Average	Change, Most Recent Plan Average – Current Average	Difference, Current Average – Modeled Goal
Caney Creek	23.99	18.28	16.26	16.97	-7.73	-2.02	-0.71
Upper Buffalo	24.21	17.94	16.38	16.92	-7.83	-1.56	-0.54

Note, negative change/differences indicate improvement in visibility.

Table 6: Current Observed Visibility, Change from Baseline, and Comparison to the 2028 Goal (20% Clearest Days [deciviews])

Class I Area	Baseline 2000-2004 Average	Most Recent Plan 2014-2018 Average	Current 2018-2022 Average	EPA-Modeled 2028 Goal	Change, Baseline Average – Current Average	Change, Most Recent Plan Average – Current Average	Difference, Current Average – Modeled Goal
Caney Creek	11.24	8.02	7.48	7.84	-3.76	-0.54	-0.36
Upper Buffalo	11.71	8.20	7.98	8.01	-3.73	-0.22	-0.03

Note, negative change/differences indicate improvement in visibility.

[14] https://vista.cira.colostate.edu/Improve/improve-program/

Tables 7 – 8 provide the five most recent five-year averages for the 20% Most Impaired Days and 20% Clearest Days. Again, the data shows that Caney Creek and Upper Buffalo have experienced improvements in visibility from 2014 through 2022 on both the 20% Most Impaired Days and 20% Clearest Days.

Table 7: Observed Visibility for Five-Year Periods for 2018 – 2022 (20% Most Impaired Days [deciviews & parenthetic % change])

Class I Area	2014-2018	2015-2019	2016-2020	2017-2021	2018-2022
Caney Creek	18.28	17.65 (-3.44%)	17.02 (-3.62%)	16.78 (-1.41%)	16.26 (-3.10%)
Upper Buffalo	17.94	17.51 (-2.39%)	16.93 (-3.31%)	16.73 (-1.18%)	16.39 (-2.03%)

Note, negative % change indicates improvement in visibility.

Table 8: Observed Visibility for Five-Year Periods for 2018 – 2022 (20% Clearest Days [deciviews & parenthetic % change])

Class I Area	2014-2018	2015-2019	2016-2020	2017-2021	2018-2022
Caney Creek	8.02	7.79 (-2.86%)	7.78 (-0.1%)	7.52 (-3.34%)	7.48 (-0.53%)
Upper Buffalo	8.20	8.17 (-0.36%)	8.25 (0.97%)	7.88 (-4.48%)	7.98 (1.26%)

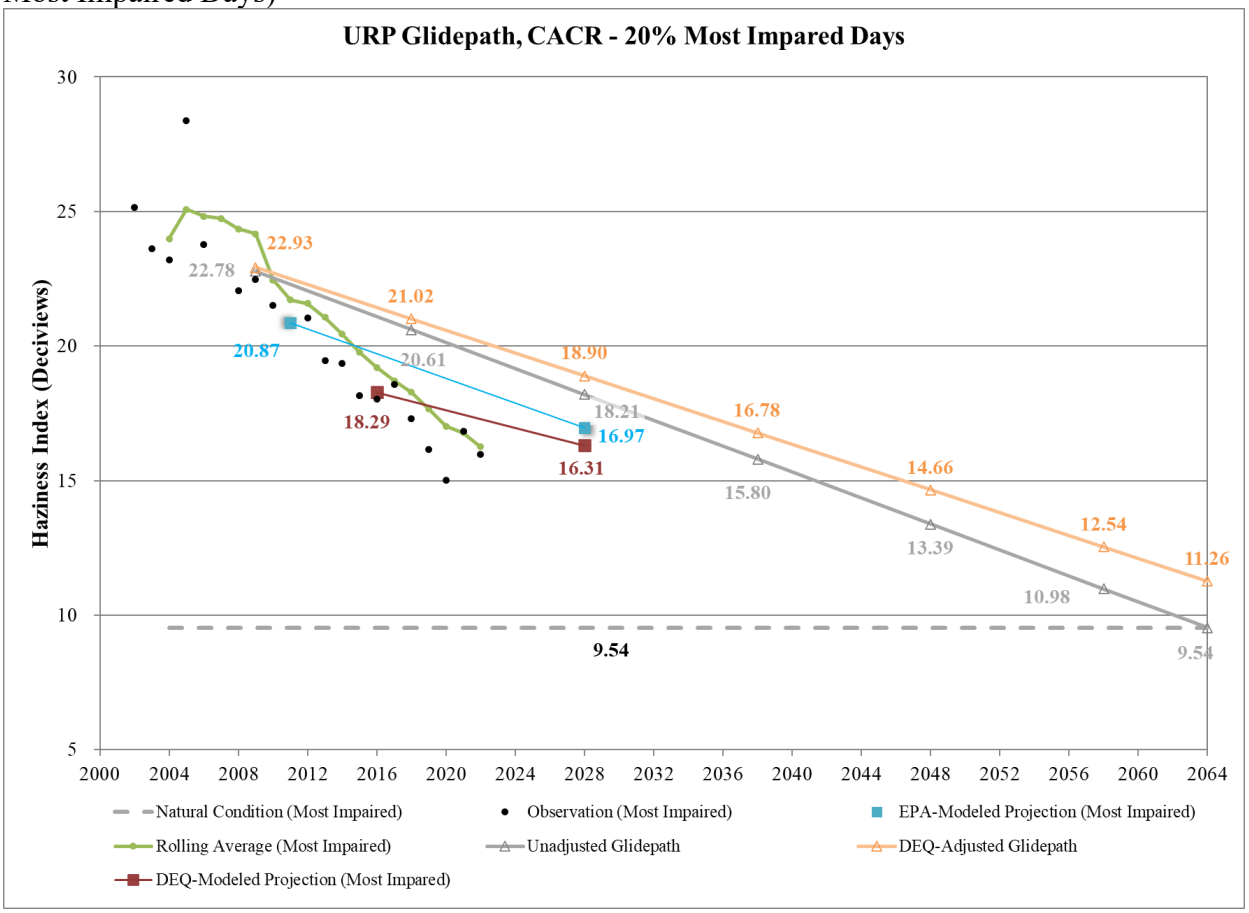
Note, negative % change indicates improvement in visibility.

To support DEQ's development of the PP2 SIP, DEQ conducted an emission inventory analyses and Comprehensive Air Quality Model with Extensions (CAMx) air quality photochemical modeling. DEQ used the CAMx modeling to establish reasonable progress goals for 2028 and to evaluate the effect of Arkansas's control strategy on Class I areas in other states that are reasonably anticipated to be impacted by sources in Arkansas. DEQ also used the CAMx modeling to adjust the Uniform Rate of Progress (URP) to account for international anthropogenic contributions in accordance with EPA guidance[15]. DEQ's modeling results and Technical Support Document were included in the 2022 SIP submittal to EPA as Appendix L. Figures 7 and 8 provide both the unadjusted Uniform Rate of Progress Glidepath and the DEQ-adjusted Uniform Rate of Progress Glidepath, as well as EPA 2011 Emissions Modeling Platform results and DEQ's 2016 Emissions Modeling Platform results.

[15]https://www.epa.gov/sites/default/files/2018-12/documents/technical_guidance_tracking_visibility_progress.pdf

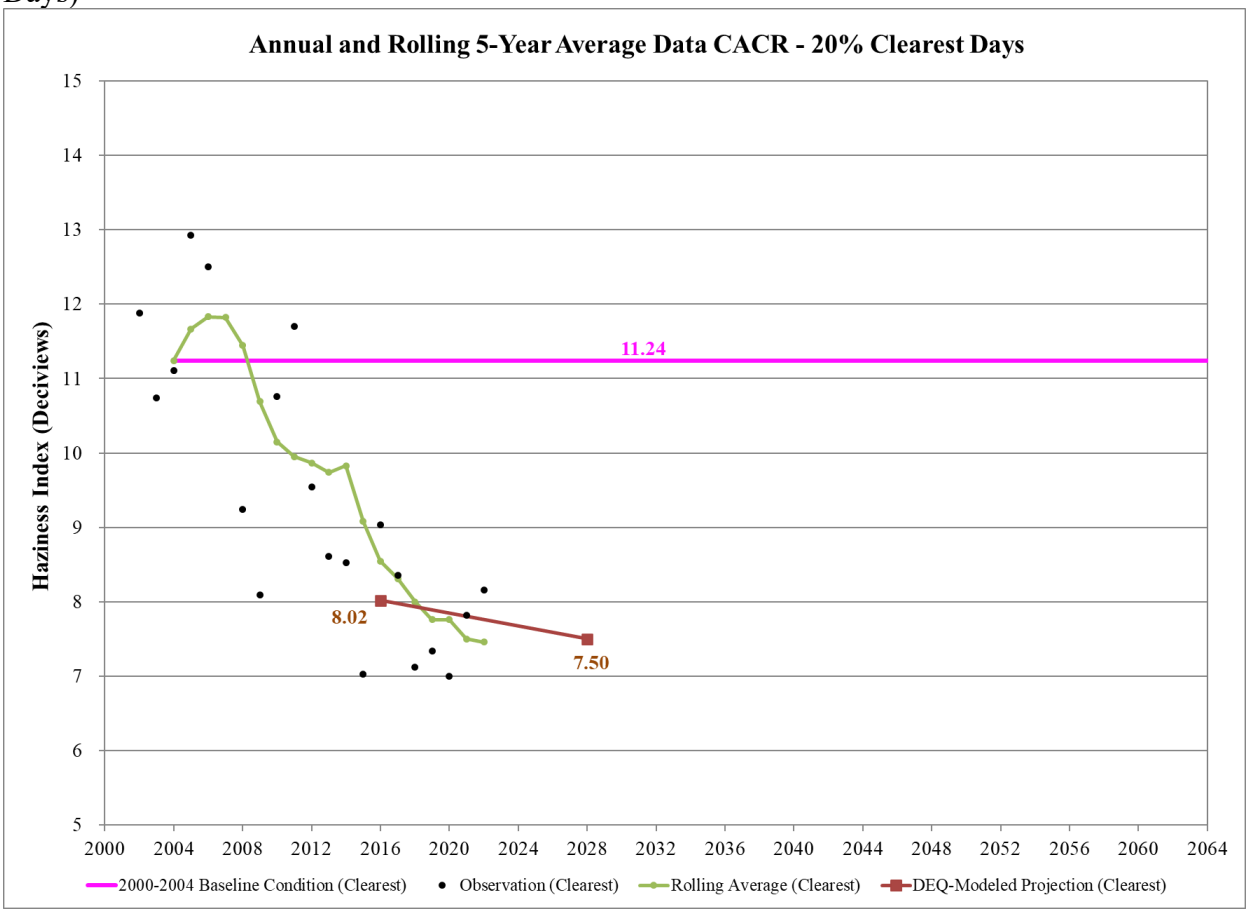
Figure 7 provides the URP towards natural background and monitor-observed visibility impairment for the 20% Most Impaired Days (MID) in Caney Creek, as well as the associated glide slope and the model-predicted impairment. Monitoring data from the IMPROVE network used in these figures are current as of December 2024.

Figure 7: Caney Creek Uniform Rate of Progress, monitor values, and visibility projection (20% Most Impaired Days)



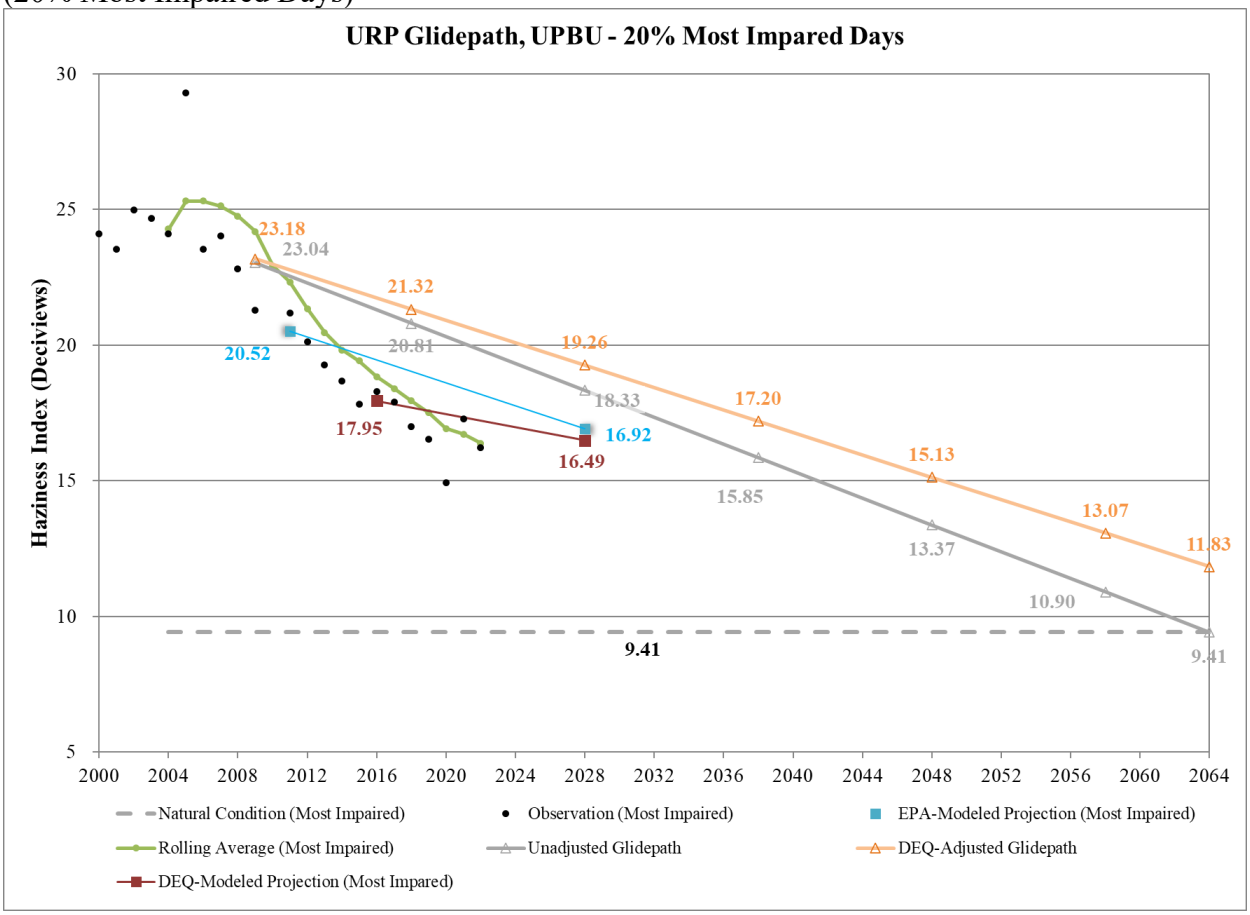
The observed five-year average impairment values for the 20% Clearest Days in Caney Creek are provided in Figure 8. The observed five-year average impairments for the 20% Clearest Days for 2022 are below the Baseline Condition.

Figure 8: Caney Creek Baseline Conditions, Annual and Rolling 5-year Average (20% Clearest Days)



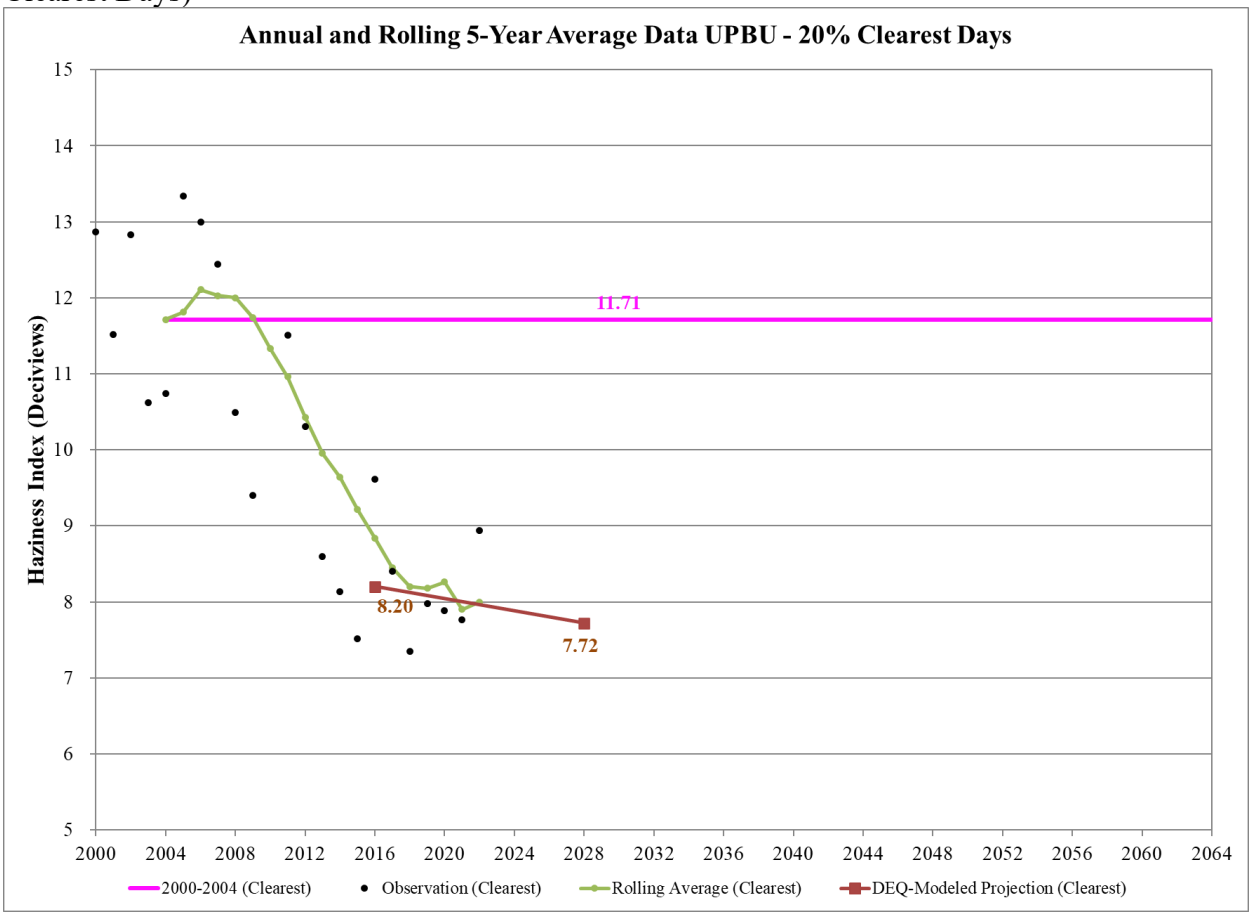
The URP towards natural background for the 20% Most Impaired Days and monitor-observed visibility impairment for the 20% Most Impaired Days in the Upper Buffalo, as well as the associated glide slope and the model-predicted impairment are provided in Figure 9. Monitoring data from the IMPROVE network used in these figures are current as of December 2024.

Figure 9: Upper Buffalo Uniform Rate of Progress, monitor values, and visibility projection (20% Most Impaired Days)



The observed five-year average impairment values for the 20% Clearest Days in the Upper Buffalo are provided in Figure 10. The observed five-year average impairments for the 20% Clearest Days for 2022 are below the Baseline Condition.

Figure 10: Upper Buffalo Baseline Conditions, Annual and Rolling 5-year Average (20% Clearest Days)



5. Emissions Progress (51.308(g)(4))

40 CFR 51.308(g)(4) of the RHR requires "[a]n analysis tracking the change over the period since the period addressed in the most recent plan required under 40 CFR 51.308(f)[16] in emissions of pollutants contributing to visibility impairment from all sources and activities within the State. Emissions changes should be identified by type of source or activity. With respect to all sources and activities, the analysis must extend at least through the most recent year for which the state has submitted emission inventory information to the Administrator in compliance with the triennial reporting requirements of subpart A[17] of 40 CFR part 51 as of a date 6 months preceding the required date of the progress report. With respect to sources that report directly to a centralized emissions data system operated by the Administrator, the analysis must extend through the most recent year for which the Administrator has provided a State-level summary of such reported data or an internet-based tool by which the State may obtain such a summary as of a date 6 months preceding the required date of the progress report. The State is not required to back-cast previously reported emissions to be consistent with more recent emissions estimation procedures and may draw attention to actual or possible inconsistencies created by changes in estimation procedures."

As required by 40 CFR 51.308(g)(4), this section provides an analysis tracking the change since 2019 in emissions of pollutants contributing to visibility impairment from all sources and activities within the state.

EPA's Air Emissions Reporting Requirements Rule[18] (AERR) requires state and local agencies to collect and submit a large universe of emissions data to EPA on a set triennial (…2014, 2017, 2020, 2023…), then also collect a more targeted set of emissions data on the intervening two years. The EPA maintains the Emissions Inventory System (EIS) database as a central repository of emissions inventory data for all states and tribes. Then EPA blends the triennial EIS data with other data sources to create a comprehensive and detailed final dataset, referred to as a National Emissions Inventory (NEI), that is used by EPA, states, tribes, industry and others for air quality modeling, tracking progress in meeting Clean Air Act requirements, and to support state implementation plans (SIPs), among other uses. EIS along with the blended other data are compiled into broader categories of man-made emission. This triennial analysis includes emissions from seven NEI source categories.

- Stationary point sources are larger industrial or commercial stationary facilities that emit greater than a specified tonnage per year. Electricity generating units are a subcategory of Stationary point sources.
- Nonpoint area sources are those stationary sources whose emissions are relatively small but due to the large number of these sources, the collective emissions can be important. Some examples of nonpoint area emission sources include residential heating, commercial

[16] eCFR :: 40 CFR 51.308 -- Regional haze program requirements; https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-P/section-51.308#p-51.308(f)
[17] eCFR :: 40 CFR Part 51 Subpart A -- Air Emissions Reporting Requirements; https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-A
[18] https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr#rule-summary

combustion, asphalt paving, as well as commercial and consumer solvent use.

- Onroad mobile sources include emissions from vehicles that travel on roads and use gasoline, diesel, and other fuels.
- Nonroad mobile sources are equipment that use gasoline, diesel, and other fuels and are mobile but do not use roadways. Nonroad mobile source examples include construction equipment, lawn and garden equipment, aircraft ground support equipment, locomotives, and commercial marine vessels.
- Wildfire emissions result from unplanned, unwanted fires burning in natural areas.
- Prescribed fire emissions result from using fire as a natural resource management tool, under controlled conditions, to accomplish natural resource management objectives. Secondarily, utilization of prescribed burning can reduce the frequency and extent of catastrophic wildfires.
- Agricultural stubble burning includes emissions from field burning associated with crop production.

To evaluate recent emissions changes and progress, DEQ used the 2014 NEI[19], the 2017 NEI[20], the 2020 NEI[21], and DEQ's point source emissions inventory data collected annually, then submitted to EPA's Emissions Inventory System (EIS)[22]. Note that at the writing of this report, the 2020 NEI is the most recent, publicly available NEI data and 2023 is the most recent year available for the EGU-specific Clean Air Markets Program Data (CAMPD)[23] dataset.

5.1 Fine (≤2.5 Microns in Diameter) Particulate Matter ($PM_{2.5}$)

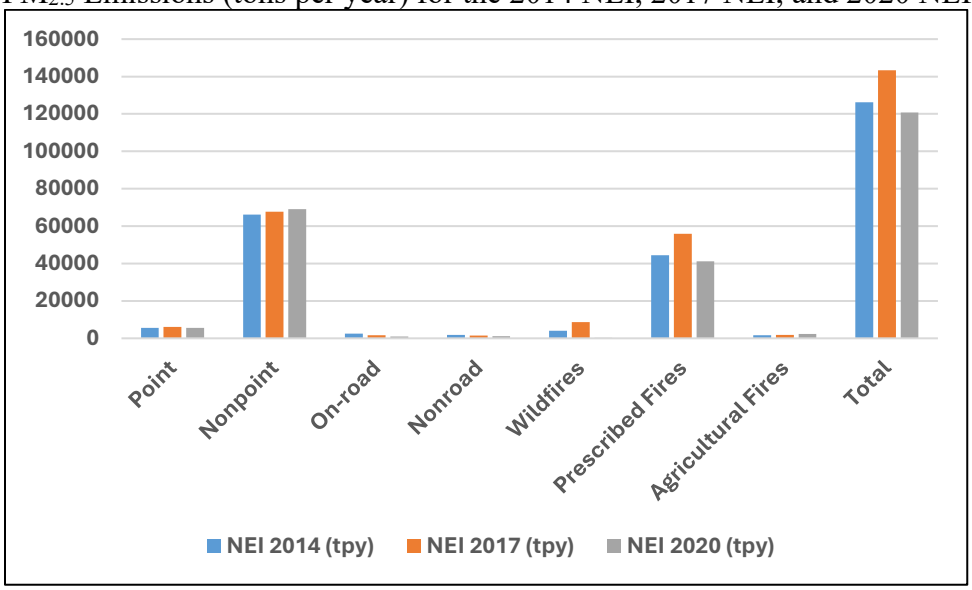
Table 9 and Figure 11 provide a fine particulate matter ($PM_{2.5}$) emissions trend by NEI source category. Total statewide $PM_{2.5}$ emissions decreased by 5% from 2014 to 2020.

Table 9: PM2.5 Emissions (in tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI

$PM_{2.5}$ Sector	2014 NEI (tpy)	2017 NEI (tpy)	2020 NEI (tpy)
Point	5630	6184	5536
Nonpoint	66,109	67,733	69,159
On-road	2436	1600	985
Nonroad	1836	1556	1209
Wildfires	4112	8662	341
Prescribed Fires	44,380	55,931	41,133
Agricultural Fires	1705	1761	2370
Total	126,210	143,428	120,733

[19] https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
[20] https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data
[21] https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data
[22] https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway
[23] https://campd.epa.gov/

Figure 11: $PM_{2.5}$ Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI



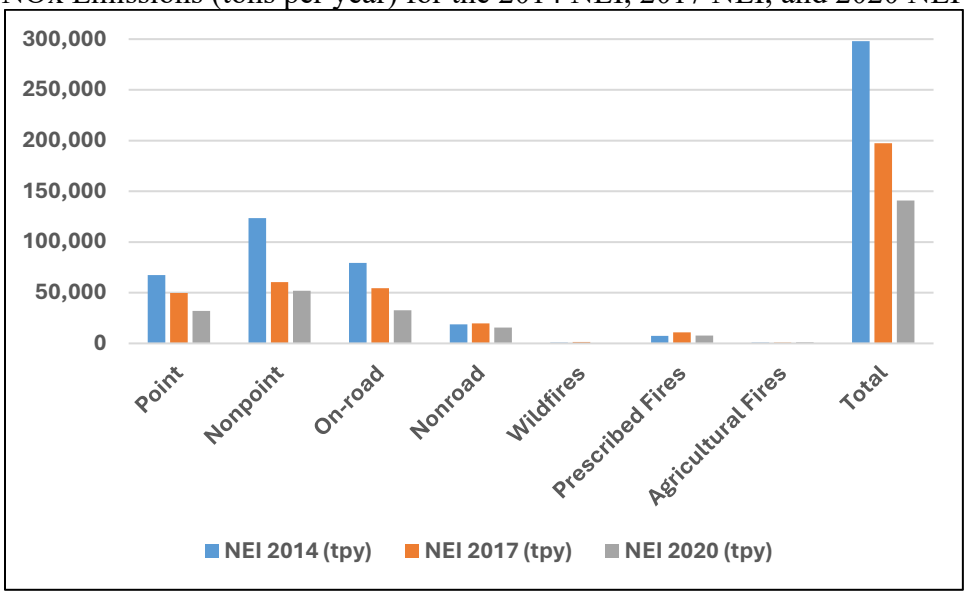
5.2 Nitrogen Oxides (NOx)

Table 10 and Figure 12 provide a nitrogen oxides (NOx) emissions trend by NEI source category. Total statewide NOx emissions decreased by 53% from 2014 to 2020. This trend is consistent with emission limitations included in the previous planning period SIPs, which primarily required emission reductions of NOx and SO_2.

Table 10: NOx Emissions (in tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI

NOx Sector	2014 NEI (tpy)	2017 NEI (tpy)	2020 NEI (tpy)
Point	67,416	49,813	32,094
Nonpoint	123,469	60,283	51,992
On-road	79,428	54,278	32,495
Nonroad	18,837	19,657	15,523
Wildfires	700	1503	63
Prescribed Fires	7,372	10,933	7,687
Agricultural Fires	671	866	1,039
Total	297,893	197,332	140,893

Figure 12: NOx Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI



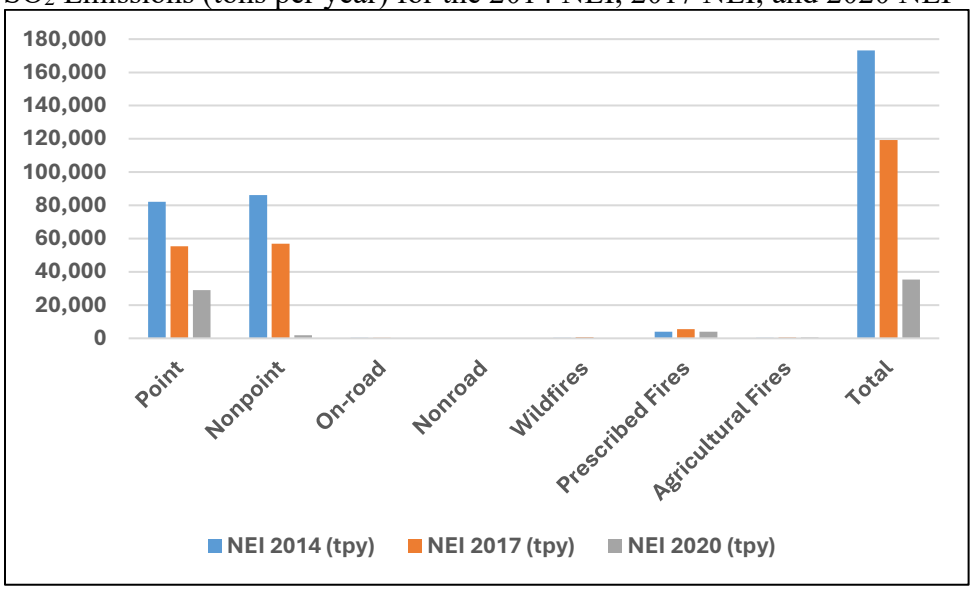
5.3 Sulfur Dioxide (SO_2)

Table 11 and Figure 13 provide a sulfur dioxide (SO_2) emissions trend by NEI source category. Total statewide SO_2 emissions decreased by 95% from 2014 to 2020. This trend is consistent with emission limitations included in the previous planning period SIPs, which primarily required emission reductions of SO_2 and NOx.

Table 11: SO_2 Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI

SO_2 Sector	**2014 NEI (tpy)**	**2017 NEI (tpy)**	**2020 NEI (tpy)**
Point	82,069	55,287	28,943
Nonpoint	86,158	56,957	1874
On-road	333	312	113
Nonroad	42	31	12
Wildfires	372	791	32
Prescribed Fires	3963	5442	3906
Agricultural Fires	289	417	489
Total	173,227	119,237	35,370

Figure 13: SO_2 Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI



5.4 Electrical generating Unit (EGU) Emissions

Table 12 and Figures 14–16 provide emissions trends for $PM_{2.5}$, NOx, and SO_2 from electrical generating units (EGUs). The data source for $PM_{2.5}$ is EPA's Emissions Inventory System (EIS)[24] where EPA, State, local and Tribal users with access to both annual and triennial NEI emissions inventory data. The data source for NOx, and SO_2 is EPA's Clean Air Markets Program Data (CAMPD)[25] where EPA collects comprehensive CO_2, NOx, SO_2, and mercury emissions data, and makes it publicly available, along with compliance and allowance data, and individual power plant details.

EGU $PM_{2.5}$ emissions from 2014 to 2023 have decreased by 50%, NOx emissions by 62%, and SO_2 emissions by 66%. Actual emissions reductions from the EGU sector have continued to decrease as a result of permanent changes at EGUs due to market-driven changes causing shifts from formerly baseload operation to presently load following operation, installation of control devices, unit shut-downs on some of the larger power generation sources, and a reduced utilization of coal with shifting to natural gas and renewable energy as discussed in Sections 2.2.3 (Energy Efficiency Programs) and 2.2.5 (Additional Measures, including solar generation).

Table 12: EGU $PM_{2.5}$, NOx, and SO_2 Emissions (tons per year) for 2014 – 2023

Pollutant	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
$PM_{2.5}$	916	458	893	492	1033	727	572	520	535	458
NOx	38,396	23,613	26,893	27,500	22,437	17,373	12,650	16,480	16,940	14,664
SO_2	75,898	45,544	46,573	47,769	51,773	39,345	22,230	33,947	31,000	25,935

[24] https://www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway
[25] https://campd.epa.gov/

Figure 14: EGU $PM_{2.5}$ Emissions (tons per year) for 2014 – 2023

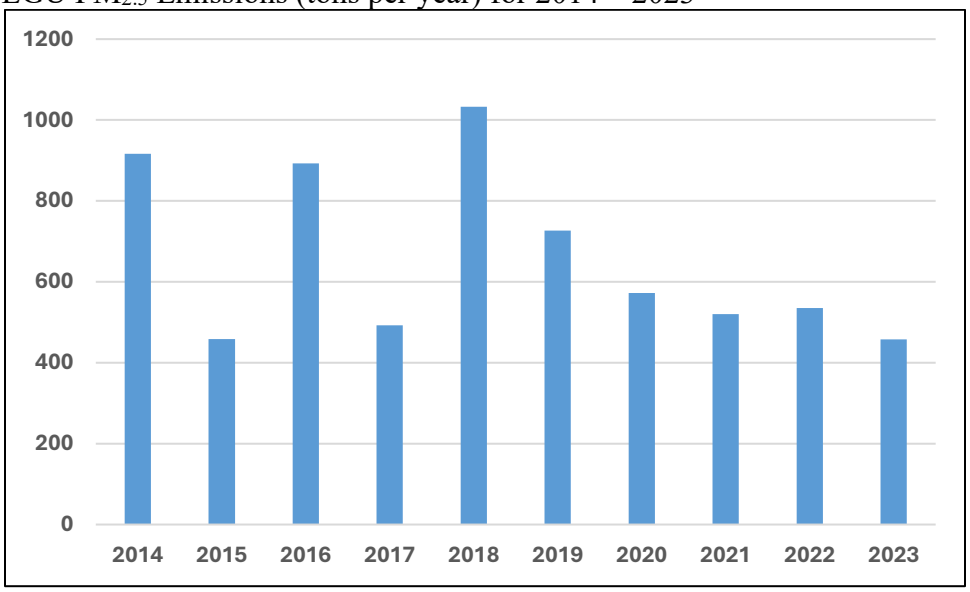


Figure 15: EGU NOx Emissions (tons per year) for 2014 – 2023

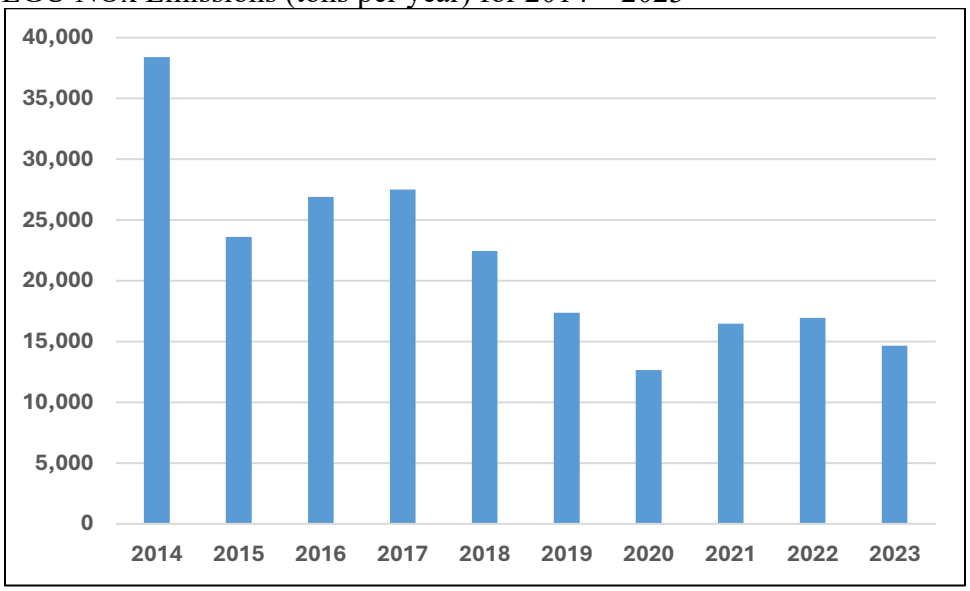
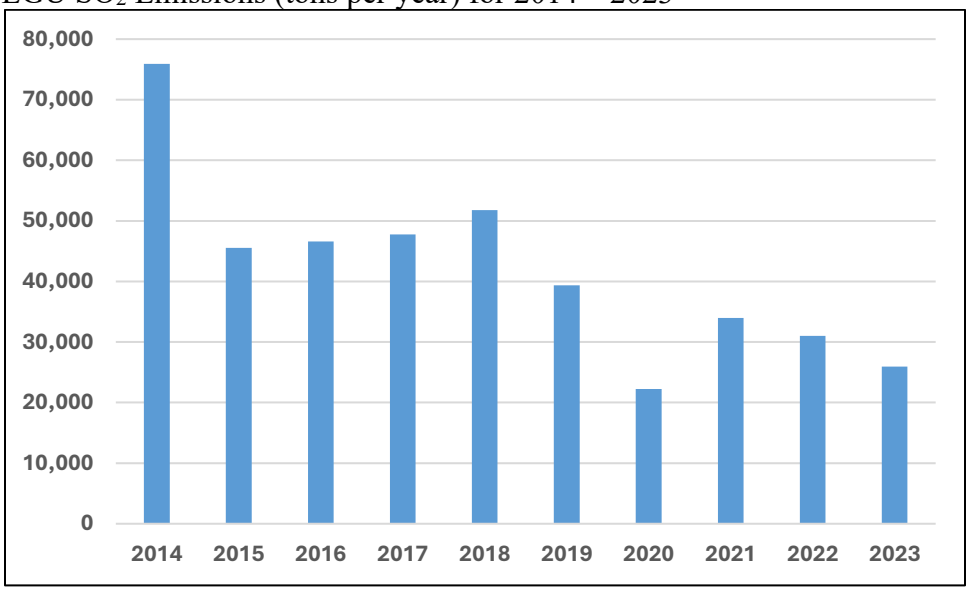


Figure 16: EGU SO_2 Emissions (tons per year) for 2014 – 2023



5.5 Prescribed Fire $PM_{2.5}$, NOx, and SO_2 Emissions

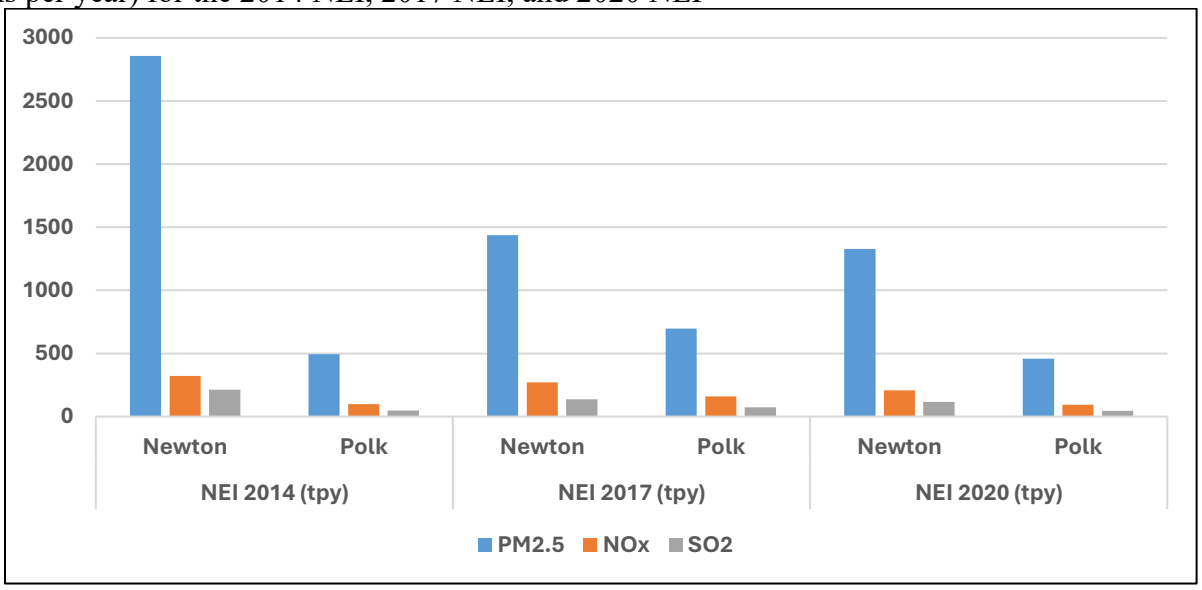
The Upper Buffalo is located within Newton County and Caney Creek is located within Polk County; therefore, Prescribed Fire data using the 2014 NEI, 2017 NEI, and 2020 NEI for these two counties is provided in Table 13 and Figure 17.

Newton County and Polk County prescribed fire $PM_{2.5}$ have decreased by 54% and 8%, respectively from 2014 to 2020. Likewise, Newton County and Polk County prescribed fire NOx emissions have decreased by 35% and 4%, respectively from 2014 to 2020. Newton County and Polk County prescribed fire SO_2 emissions follow the same pattern with 47% and 4% decreases from 2014 to 2020, respectively.

Table 13: Prescribed Fire in Newton County and Polk County $PM_{2.5}$, NOx, and SO_2 Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI

Pollutant	2014 NEI (tpy)		2017 NEI (tpy)		2020 NEI (tpy)	
	Newton Co.	Polk Co.	Newton Co.	Polk Co.	Newton Co.	Polk Co.
$PM_{2.5}$	2,856	494	1,437	697	1,329	459
NOx	321	97	271	159	209	93
SO_2	213	48	137	74	115	46

Figure 17: Prescribed Fire in Newton County and Polk County $PM_{2.5}$, NOx, and SO_2 Emissions (tons per year) for the 2014 NEI, 2017 NEI, and 2020 NEI



6. Assessment of Changes Impeding Visibility Progress (51.308(g)(5))

40 CFR 51.308(g)(5) of the RHR requires "[a]n assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred since the period addressed in the most recent plan required under 40 CFR 51.308(f) including whether or not these changes in anthropogenic emissions were anticipated in that most recent plan and whether they have limited or impeded progress in reducing pollutant emissions and improving visibility."

As required by 40 CFR 51.308(g)(5), this section provides a review of anthropogenic $PM_{2.5}$, NOx, and SO_2 emissions trends tracking the continued change since 2019 based on data from the 2014 NEI, 2017 NEI, and 2020 NEI, which is provided in Section 5.

The Arkansas-specific emissions data presented in Section 5 showed a decline in $PM_{2.5}$, SO_2, and NOx during the period of 2014 through 2020, and through 2023 for EGUs. Likewise, a majority of the emissions data show a decline for the Central States Air Resource Agencies (CenSARA) Regional Planning Organization (RPO) states as a whole (see Table 14 and Figures 18–20). For CenSARA from 2014 through 2020, $PM_{2.5}$ increased by 7%, NOx decreased by 35%, and SO_2 decreased by 50%. The February 2024 Annual $PM_{2.5}$ revision[26] from 12.0 µg/m^3 to 9.0 µg/m^3 is expected to further decrease future $PM_{2.5}$ emissions and monitor-observed values.

[26] https://www.epa.gov/particle-pollution-designations/particle-pollution-designations-2024-revised-annual-pm-naaqs-where#:~:text=On%20February%207%2C%202024%2C%20the,the%20existing%2024%2Dhour%20PM2.

Based on the emissions data, along with the recent visibility data, presented in Section 4, there does not appear to be any significant change in anthropogenic emissions within or outside Arkansas that has impeded reasonable progress goals at the Class I areas.

Table 14: Annual Anthropogenic $PM_{2.5}$, NOx, and SO_2 Emissions (in tons per year) Trends by CenSARA States for the 2014 NEI, 2017 NEI, and 2020 NEI

RPO/State	2014 NEI			2017 NEI			2020 NEI		
	$PM_{2.5}$	NOx	SO_2	$PM_{2.5}$	NOx	SO_2	$PM_{2.5}$	NOx	SO_2
CenSARA	1,135,386	3,149,220	1,207,445	1,315,443	2,486,189	943,641	1,216,644	2,060,014	608,866
Arkansas	109,361	213,865	90,768	136,853	167,093	63,327	120,392	115,230	35,338
Iowa	71,054	191,547	92,452	77,933	158,052	69,666	75,442	118,419	25,468
Kansas	152,571	279,972	45,493	174,426	224,647	20,134	146,065	161,843	14,813
Missouri	186,571	362,070	172,650	234,262	271,081	125,724	206,709	212,614	109,456
Louisiana	108,837	360,816	178,725	113,794	310,944	145,557	102,203	271,646	97,925
Nebraska	75,600	155,678	65,416	82,367	136,593	57,416	74,274	108,783	43,814
Oklahoma	137,035	328,631	108,572	170,650	263,227	78,833	136,656	212,867	34,368
Texas	294,357	1,256,641	453,369	325,158	954,552	382,984	354,903	858,612	247,684

Figure 18: Annual Anthropogenic $PM_{2.5}$ Emissions (tons per year) Trends by CenSARA States Using NEI Data for 2014, 2017, and 2020

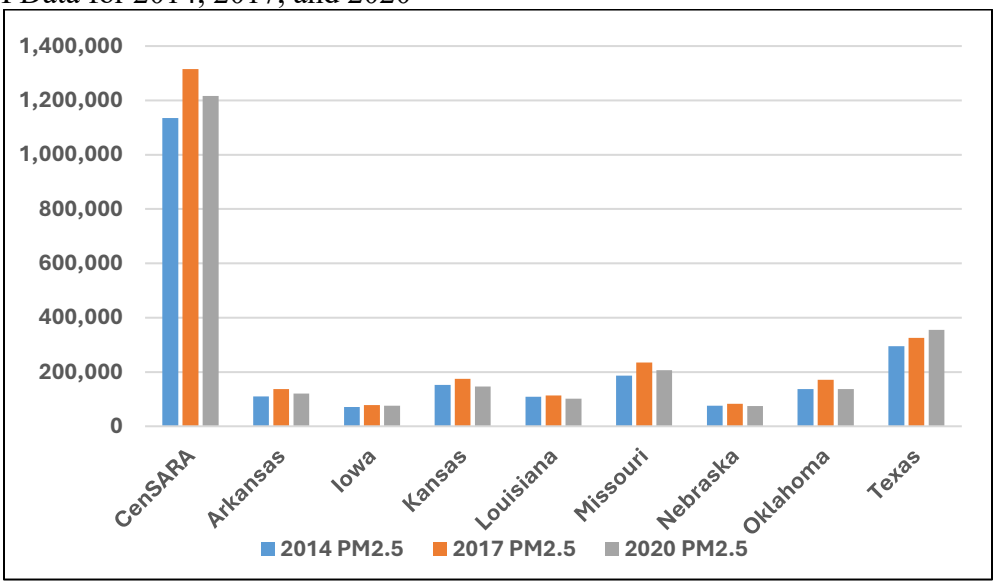


Figure 19: Annual Anthropogenic NOx Emissions (tons per year) Trends by CenSARA States Using NEI Data for 2014, 2017, and 2020

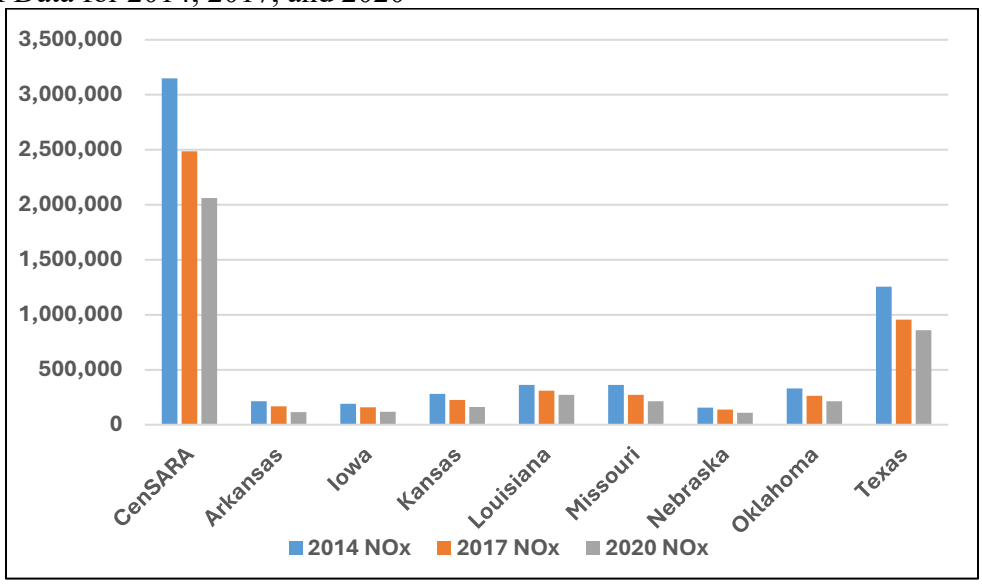
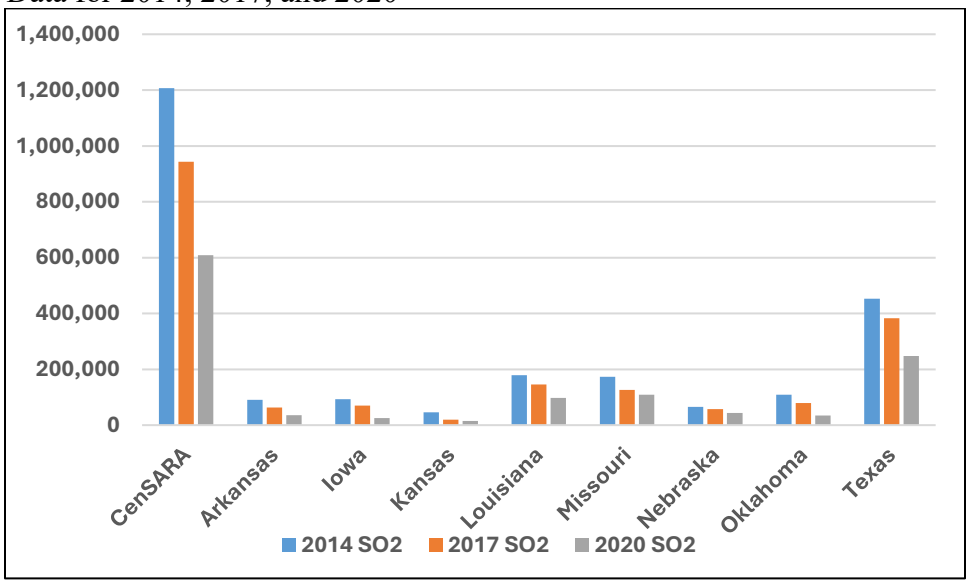


Figure 20: Annual Anthropogenic SO_2 Emissions (tons per year) Trends by CenSARA States Using NEI Data for 2014, 2017, and 2020



7. Assessment of Current Strategy (51.308(g)(6))

40 CFR 51.308(g)(6) of the RHR requires an "assessment of whether the current implementation plan elements and strategies are sufficient to enable the State, or other States with mandatory Class I federal areas affected by emissions from the State, to meet all established reasonable progress goals for the period covered by the most recent plan required under paragraph 40 CFR 51.308(f)."

As required by 40 CFR 51.308(g)(6), this section provides a review of ambient monitor data collected at Class I areas and emissions data analyses for Arkansas and regional sources, in consideration of the strategies in Arkansas' PP2 SIP.

7.1 Visibility

From Section 4 above (Table 5 and Table 6), specifically for Arkansas' Class I areas and for both the 20% Most Impaired Days and the 20% Clearest Days, the most recent five-year haze indexes for Caney Creek and Upper Buffalo are below their respective 2028 RPGs. Also, from Section 4 above (Figure 7 and Figure 9), and for both Caney Creek and Upper Buffalo, the rolling 5-year average values for the 20% Most Impaired Days are below the glidepath with a stepper decline than the glidepath. From Section 4 above (Table 7) for five most recent rolling 5-year average values (2014 – 2022) and the 20% Most Impaired Days, Caney Creek and Upper Buffalo have decreased by -2.03 dv and -1.57 dv, respectively. Likewise, from Section 4 above (Table 8), and for five most recent rolling 5-year average values (2014 – 2022) for the 20% Clearest Days, Caney Creek and Upper Buffalo have decreased by -0.54 dv and -0.20 dv, respectively.

In the PP2 SIP, DEQ identified the Class I areas in other states for which emissions from Arkansas sources may be reasonably anticipated to contribute to visibility impairment. For the 20% Most Impaired Days (Table 15) all neighboring state Class I areas already have current haze indexes below their model-predicted 2028 RPGs or are closely approaching their modeled-predicted 2028 RPGs.

Table 15: Reasonable Progress Goals and Current Conditions (2018 – 2022 Average) at Class I areas in other states potentially affected by Arkansas for the 20% Most Impaired Days (in deciviews)

Class I Area	State	Class I Area ID	2028 Reasonable Progress Goal	Current 2018 - 2022 Average	Difference
Hercules Glades	MO	HEGL	17.44	17.40	-0.04
Mammoth Cave	KY	MACA	19.50	19.13	-0.37
Mingo	MO	MING	18.88	18.95	0.07
Shining Rock	NC	SHRO	14.33	14.03	-0.30
Sipsey	AL	SIPS	18.00	17.11	-0.89
Wichita Mountains	OK	WIMO	16.93	16.90	-0.03

7.2 Emissions

The state-wide emissions data (see Section 5) showed a decline in $PM_{2.5}$, SO_2 and NOx during the period of 2014 through 2020 within Arkansas. Likewise, $PM_{2.5}$, SO_2 and NOx emissions specifically for EGUs declined in Arkansas from 2014 through 2023. Many of the decreases are double digit percentages and these downward trends are expected to continue. Likewise, regional $PM_{2.5}$, SO_2, and NOx emissions have continued to decrease with SO_2 and NOx decreases being double digit from 2014 through 2020.

7.3 Forward-looking Outlook

As a forward-looking component, DEQ predicts the above observed downward trends in visibility impairment and emissions to continue. In Section 3.2, the data illustrated a downward trend in $PM_{2.5}$, NOx, and SO_2 emissions from 2011 through 2023 (Figures 4 – 6) for each emission unit subject to source-specific emission limitations in the Arkansas PP1 SIP. In Section 4, downward trends in visibility impairment are seen at both Caney Creek and Upper Buffalo for 20% Most Impaired Days 2008 – 2022 (Figures 7 and 8) and 20% Clearest Days (Figures 9 and 10). In Section 5, data illustrated downward trends and double digit decrease from 2014 through 2020 in Arkansas NOx (Table 10) and SO_2 (Table 11) emissions. Single digit reduction in $PM_{2.5}$ from 2014 through 2020 (Table 9) in Arkansas for $PM_{2.5}$ have also been realized. Also in Section 5, Downward trend and double digit decrease in Arkansas EGUs $PM_{2.5}$, NOx, and SO_2 (Figures 14 -16) emissions have occurred from 2014 through 2023. Arkansas sees nothing in the future that will reverse these longer-term downward trends and decreases.

Additional expected emissions reductions are anticipated from several upcoming and recent actions. When EPA approves Arkansas' PP2 SIP, this will cause the implementation of additional SO_2 reductions. In February 2024 EPA lowered the annual $PM_{2.5}$ NAAQS which will cause reductions in this pollutant once states have fully implemented the associated revision. Likewise, in December 2024, EPA lowered the secondary SO_2 NAAQS, which will contribute to the continued downward trend of SO_2 emissions. Continued implementation over time by EPA of the mobile source CAFE standards will also cause realized pollutant reductions.

7.4 Overall Assessment

The current implementation plan elements and strategies, along with the currently observed pollutant and visibility trends discussed in this progress update and in Arkansas' PP2 SIP are sufficient to continue to enable Arkansas and other states with Class I areas potentially affected by emissions from Arkansas to meet all established RPGs. There have been verifiable improvements in visibility and reductions in emissions. As described in Sections 4–6 above, evaluated current emissions data demonstrate the reductions in various source sectors through implementation of controls and changes in operation resulting in continued Class I area monitor-observed visibility improvements and that Class I areas are on track to meet or exceed the 2028 visibility goals for the 20% Clearest Days and 20% Most Impaired Days. DEQ has concluded that the PP2 Regional Haze SIP elements and strategies are appropriate to enable Arkansas' and other state's Class I areas to meet or exceed the established reasonable progress goals required in 40 CFR 51.308(f).

8. Long-Term Strategy Containing a Smoke Management Program (51.308(g)(8))

40 CFR 51.308(g)(8) of the RHR states, "for a state with a long-term strategy that includes a smoke management program for prescribed fires on wildland that conducts a periodic program assessment, a summary of the most recent periodic assessment of the smoke management program including conclusions if any that were reached in the assessment as to whether the program is meeting its goals regarding improving ecosystem health and reducing the damaging effects of catastrophic wildfires."

Fire is a tool used to improve ecosystem health, manage agricultural land, and reduce the damaging effects of catastrophic wildfires. Arkansas' forest managers and farmers utilize voluntary smoke management plans to reduce smoke impacts from burning and Arkansas has continued to develop tools in the realm of smoke management. Revisiting the intersection of air quality and prescribed fire is a continuous endeavor.

The *Arkansas Voluntary Smoke Management Guidelines for Forest and Land Management*[27] were developed in 2012. The *Arkansas Voluntary Smoke Management Guidelines for Row Crop Burning*[28] were developed in 2017. Arkansas *FireSMART*[29] mobile application that automates and streamlines both sets of Arkansas' Smoke Management Guidelines pre-burn evaluations and reporting into one tool was developed 2022. Arkansas also held two Fire Policy Forum conferences in 2018 and 2022 where state and federal agencies, as well as other practitioners and interested parties gathered to have collective discussions on the topic of the intersection of air quality and prescribed fire.

Based on NEI data and from 2014, 2017, and 2020, state-wide prescribed fire activity had a reduction in 2017 and was at a similar level in 2014 and 2020. State-wide wildfire ambient emissions were at their lowest in 2020. State-wide prescribed fire and wildfire NEI emissions data were presented above in Section 5, Tables 9–11 and Table 13. DEQ also undertakes developing Exceptional Events Demonstrations[30] that account for uncontrollable wildfire impacts on monitor data.

9. Determination of Adequacy (51.308(h))

40 CFR 51.308(h) of the RHR states: "at the same time the State is required to submit any progress report to EPA in accordance with 40 CFR 51.308(g), the State must also take one of the following [four] actions based upon the information presented in the progress report:

(1) If the State determines that the existing implementation plan requires no further substantive revision at this time in order to achieve established goals for visibility

[27] https://www.agriculture.arkansas.gov/wp-content/uploads/2020/06/Smoke_Management_Guidelines.pdf
[28] https://www.agriculture.arkansas.gov/wp-content/uploads/2020/05/Voluntary_Smoke_Management_Guidelines_for_Row_Crop_Farmers_2018.pdf
[29] https://www.agriculture.arkansas.gov/wp-content/uploads/2022/10/FireSMART-Press-Release.pdf
[30] https://www.epa.gov/air-quality-analysis/treatment-air-quality-monitoring-data-influenced-exceptional-events

improvement and emissions reductions, the State must provide to the Administrator a declaration that revision of the existing implementation plan is not needed at this time.

(2) If the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) which participated in a regional planning process, the State must provide notification to the Administrator and to the other State(s) which participated in the regional planning process with the States. The State must also collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies.

(3) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another country, the State shall provide notification, along with available information, to the Administrator.

(4) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies within one year."

40 CFR 51.308(h) of the RHR requires states to make a determination of adequacy for the State's PP2 SIP revision. Pursuant to 40 CFR 51.308(h), Arkansas' Progress Report also includes a determination of the adequacy of the State's existing (PP1) implementation plan. The above analyses contained within this update show significant decreases in monitor-observed visibility impairing pollutant contributions at the Class I IMPROVE monitors and longer-term downward trending emissions from source sectors.

The downward ambient air and emissions trends started with the initial RHR implementation of the Regional Haze program, has continued into PP2, and are expected to continue. Based on these analyses and all information available, Arkansas declares that no further revision of DEQ's 2022 PP2 SIP is needed at this time in order to achieve the established goals for visibility improvement and emissions reductions.

10. Conclusion

As previously described, there are longer-term downward trends in $PM_{2.5}$, NOx, and SO_2 emissions when comparing the 2014, 2017 and 2020 NEI, and where data is currently available the trend is through 2023. Additionally, the most recent haze indexes for Arkansas' and other evaluated Class I areas are all on track to meet their reasonable progress goals projected for 2028. Based on these and other evaluations described above, in Section 9, Arkansas declared as its Determination of Adequacy that the existing PP2 SIP does not necessitate further revision. Lastly, Arkansas' DEQ continues to be involved in conversations for the Regional Haze PP3 evaluations and SIP revision.

Appendix A: Federal Land Manager Correspondence

On June 9, 2025, via email (Email 1), DEQ provided to the Federal Land Managers (i.e., National Park Service, U.S. Fish and Wildlife service, and U.S. Forest Service, collectively "FLMs,") a draft version of this Progress Report and offered an opportunity for an in-person or phone conference to discuss any potential revisions, if desired. On July 9, 2025, a U.S. Forest Service representative replied to DEQ via email that the U.S. Forest Service will not be providing comments. On August 7, 2025, a National Park Service representative replied to DEQ via email and provided input on DEQ's draft Progress Report (Email 2). After considering FLM input, DEQ revised the draft Progress Report and provided an update via email to FLMs on December 11, 2025, describing the changes made to the draft Progress Report (Email 3).

Email 1: Initial DEQ to Federal Land Managers, 60-Day Consultation

David Clark (adpce.ad)

From: David Clark (adpce.ad)
Sent: Monday, June 9, 2025 8:39 AM
To: kirsten_king@nps.gov; melanie_peters@nps.gov; don_shepherd@nps.gov; lisa_devore@nps.gov; mike_barna@nps.gov; Holly_Salazer@nps.gov; andrea_stacy@nps.gov; debra_miller@nps.gov; tim_allen@fws.gov; 'melanie.pitrolo@usda.gov'; ghazal.majidi-weese@usda.gov; jacob.deal@usda.gov; Jeffrey.Sorkin@usda.gov; Alexia.Prosperi@usda.gov; trent.wickman@usda.gov; Jeremy.ash@usda.gov
Cc: Demetria Kimbrough (adpce.ad); Erika Droke (adpce.ad); Tanisha Harper (adpce.ad)
Subject: Arkansas's Draft 5-year Regional Haze Progress Report for Planning Period 2
Attachments: DRAFT Progress Report_to ePortal_ed2.pdf

Greetings everyone,

The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) has prepared a Five-Year Regional Haze Progress Report (draft Report) for the second planning period. In accordance with 40 C.F.R. § 51.308(i), DEQ is to consult with the Federal Land Managers (FLMs) responsible for Class I areas where visibility may be impacted by Arkansas sources. The draft Report is attached for your review.

As part of the consultation process, FLMs have 60 days to review the draft Report (through August 8, 2025) prior to DEQ holding a public hearing to solicit public comments. Additionally, FLMs have the option to consult with DEQ in person or by phone conference during this process. The public comment period will be scheduled once the FLM consultation is concluded and any revisions resulting from that are incorporated into the draft Report.

If you have any questions or would like to schedule a meeting with DEQ staff to discuss the report, contact Office of Air Quality's Policy Manager Erika Droke, at 501-682-0542, or by email at Erika.Droke@arkansas.gov.

Please forward this notice to any additional staff with your agency who may be interested and below is the list of FLM staff who received this draft report. Feel free to provide us with any revisions to this list of appropriate FLM staff to help us maintain a current list of our FLM partners. Thank you for your time!

National Park Service
Kirsten King (kirsten_king@nps.gov)
Melanie Peters (melanie_peters@nps.gov)
Don Shepherd (don_shepherd@nps.gov)
Lisa Devore (lisa_devore@nps.gov)
Michael Barna (mike_barna@nps.gov)
Holly Salazer (Holly_Salazer@nps.gov)
Andrea Stacy (andrea_stacy@nps.gov)
Debra Miller (debra_miller@nps.gov)

U.S. Fish and Wildlife Service
Tim Allen (tim_allen@fws.gov)

U.S. Forest Service
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Jeremy Ash (Jeremy.ash@usda.gov)

David

David W. Clark | Technical Section Supervisor
Division of Environmental Quality | **Office of Air Quality**
Policy and Planning Branch
5301 Northshore Drive | North Little Rock, AR 72118
t: 501.682.0070 | e: David.Clark@arkansas.gov

Email 2: U.S. Forest Service to DEQ Consultation Reply

David Clark (adpce.ad)

From: Peters, Melanie <Melanie_Peters@nps.gov>
Sent: Thursday, August 7, 2025 11:21 AM
To: David Clark (adpce.ad)
Cc: Demetria Kimbrough (adpce.ad); Erika Droke (adpce.ad); Tanisha Harper (adpce.ad); Miller, Debra C; Salazer, Holly; Martin, Danny J; Feldman, Michael; Huser, Jennifer; Allen, Tim; Pitrolo, Melanie - FS, NC; Ash, Jeremy - FS, NC; Ghazal Majidi-Weese - FS, Asheville - FS, NC
Subject: NPS Arkansas Regional Haze Progress Report Consultation

Hello David,

Thank you for the opportunity for Federal Land Manager (FLM) regional haze consultation on the Arkansas draft Five-Year Regional Haze Progress Report for the second planning period. We appreciate your willingness to hold a virtual meeting and acknowledge that the NPS did not request a meeting for this consultation opportunity. This email documents National Park Service (NPS) conclusions and recommendations and serves as formal regional haze consultation on this draft progress report, as required by 40 CFR 51.308(i)(2).

Overall, the NPS commends the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) for developing a well written, clearly organized progress report. The draft progress report documents implementation of DEQ's second round State Implementation Plan (SIP) which was submitted to the Environmental Protection Agency (EPA) in August of 2022. The draft report describes implementation of the federal and state programs used for 2028 visibility projections as well as existing Arkansas controls and programs identified as necessary for reasonable progress.

In general, NPS review finds that the progress report would benefit from a focus on recent progress during the current planning period. As specified in 40 CFR 51.308(g) subparagraphs 3 through 5, the progress report should identify recent changes (since the last period addressed in the most recent plan). In several instances, the inclusion of visibility and emissions data from earlier years makes it difficult to evaluate progress that has occurred since the end of the most recent regional haze plan (2018).

Specifically, the NPS recommends improving the progress report by:

- Clarifying the statement on page 9: *"Additional control measures included in Arkansas's long-term strategy, beyond the source-specific controls determined as a result of the reasonable progress evaluation described above, are also anticipated to reduce Arkansas's contribution to visibility impairment at Class I areas in Arkansas and in other states."*
    - Is this sentence referring to the existing state and federal measures described in Section 2.1 and 2.2 or other control measures?
- Correcting several Section 4 table and text references by changing them from "visibility impairment" to "visibility condition" (e.g., tables 5 to 8).
    - Visibility impairment is the difference between visibility condition and estimated natural visibility. These tables show visibility conditions on most impaired days which reflect impairment plus estimated natural visibility.
- Double checking the five-year baseline and current deciview values on clearest days shown in Tables 6 and 8.
    - Data shown do not appear to match either the visibility condition or impairment values available through the IMPROVE database. It would be helpful to add a reference in this section to the source data sets used to create these tables.

The NPS appreciates the opportunity to consult on this draft progress report and looks forward to continuing to work with Arkansas DEQ to improve and protect air quality and visibility in NPS-managed Class I areas. If you have any questions or would like to talk through any regional haze topics, please feel free to reach out.

Best,

Melanie

–
Melanie V. Peters (she/her)
NPS, Air Resources Division

Office: 303-969-2315

Cell: 720-644-7632

Email 3: DEQ Responses to FLM Input Received During the Consultation Period

Outlook

Arkansas Regional Haze Progress Report Consultation, State's responses to NPS input

From Erika Droke (adpce.ad) <Erika.Droke@arkansas.gov>
Date Thu 12/11/2025 8:48 AM
To Peters, Melanie <Melanie_Peters@nps.gov>
Cc David Clark (adpce.ad) <David.Clark@arkansas.gov>; Demetria Kimbrough (adpce.ad) <Demetria.Kimbrough@arkansas.gov>; Tanisha Harper (adpce.ad) <Tanisha.N.Harper@arkansas.gov>; Miller, Debra C <Debra_Miller@nps.gov>; Salazer, Holly <Holly_Salazer@nps.gov>; Martin, Danny J <danny_martin@nps.gov>; Feldman, Michael <feldman.michael@epa.gov>; Huser, Jennifer <huser.jennifer@epa.gov>; Allen, Tim <tim_allen@fws.gov>; Pitrolo, Melanie - FS, NC <melanie.pitrolo@usda.gov>; Ash, Jeremy - FS, NC <jeremy.ash@usda.gov>; Ghazal Majidi-Weese - FS, Asheville - FS, NC <ghazal.majidi-weese@usda.gov>

Greetings from Arkansas!

Please see below for DEQ's responses to input provided by National Park Service during the federal land manager consultation period for the state's draft Regional Haze 5-year Progress Report for the second planning period. The information exchange has led to revisions in the draft, as noted in responses.

National Park Service (NPS) comments in black font and Arkansas Department of Energy and Environment Division of Environmental Quality (DEQ) responses in blue font:

NPS comment: Thank you for the opportunity for Federal Land Manager (FLM) regional haze consultation on the Arkansas draft Five-Year Regional Haze Progress Report for the second planning period. We appreciate your willingness to hold a virtual meeting and acknowledge that the NPS did not request a meeting for this consultation opportunity. This email documents National Park Service (NPS) conclusions and recommendations and serves as formal regional haze consultation on this draft progress report, as required by 40 CFR 51.308(i)(2).

DEQ response: DEQ appreciates the input from the NPS during the FLM consultation period for Arkansas' Regional Haze Planning Period 2 Progress Report.

NPS comment: In general, NPS review finds that the progress report would benefit from a focus on recent progress during the current planning period. As specified in 40 CFR 51.308(g) subparagraphs 3 through 5, the progress report should identify recent changes (since the last period addressed in the most recent plan). In several instances, the inclusion of visibility and emissions data from earlier years makes it difficult to evaluate progress that has occurred since the end of the most recent regional haze plan (2018).

DEQ response: In the FLM draft and for (g)(3), tables 5 and 6 initially provided baseline (2000-2004) monitored visibility data, current (2018-2022) monitored visibility data, and a monitored visibility data comparison to the 2028 goal. From the FLM input, DEQ added monitored visibility data and analyses for the period immediately preceding the most recent PP2 SIP submittal (2014-2018) to better allow for an evaluation of recent changes (i.e., a comparison of 2014-2018 to 2018-2022) in monitored visibility.

In the FLM draft and for (g)(4), tables 9 through 13 and figures 11 through 17 provided evaluations of anthropogenic emissions using National Emissions Inventory (NEI) data for 2014, 2017, and 2020 (the most recent NEI dataset available at the time of the drafting of the progress report), as well as the most recently available 2023 Clean Air Markets Program Data (CAMPD) for electrical generating units (EGUs). The inclusion of 2014-2020

data allows for a trend evaluation and 2017 precedes the most recent plan while 2020 occurs after the 2018 end of the most recent plan.

In the FLM draft and for (g)(5), also using NEI data for 2014, 2017, and 2020 (the most recent NEI dataset available at the time of the drafting of the progress report) DEQ added evaluations of potential changes in anthropogenic emissions for other states since the period addressed in the most recent plan.

NPS comment: Specifically, the NPS recommends improving the progress report by:

- Clarifying the statement on page 9: *"Additional control measures included in Arkansas's long-term strategy, beyond the source-specific controls determined as a result of the reasonable progress evaluation described above, are also anticipated to reduce Arkansas's contribution to visibility impairment at Class I areas in Arkansas and in other states."*
    - "Is this sentence referring to the existing state and federal measures described in Section 2.1 and 2.2 or other control measures?

DEQ response: DEQ has revised the document to remove the referenced statement as it does not relate to other state requests.

- Correcting several Section 4 table and text references by changing them from "visibility impairment" to "visibility condition" (e.g., tables 5 to 8).
    - Visibility impairment is the difference between visibility condition and estimated natural visibility. These tables show visibility conditions on most impaired days which reflect impairment plus estimated natural visibility.

DEQ response: DEQ agrees with the FLM's input on the use of "impairment" associated with tables 5-8 and DEQ has revised the document accordingly.

- Double checking the five-year baseline and current deciview values on clearest days shown in Tables 6 and 8.
    - Data shown do not appear to match either the visibility condition or impairment values available through the IMPROVE database. It would be helpful to add a reference in this section to the source data sets used to create these tables.

DEQ response: DEQ reviewed the data that were pulled from the IMPROVE database and were used to calculate the five-year averages in tables 6 and 8. DEQ had initially incorporated rounding of the raw data in the averaging calculations. DEQ has revised the values in tables 6 and 8. A footnote in the draft document does cite the IMPROVE database as the data source.

The revised draft report will be available for public comment beginning December 13, concluding with a public hearing on January 15. If you would like a copy of the revised draft report prior to its release on our website (www.adeq.state.ar.us/air/planning/sip/regional-haze.aspx), please let me know. Thank you!

Erika Droke
Associate Director
E&E | Environmental Quality | Air Quality
e: erika.droke@arkansas.gov
t: 501-682-0542

Appendix B: Planning Period 1 Sources Update
(Data for Figures 4 – 6)

Source	Unit	Pollutant	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Carl E. Bailey Generating Station	SN-01 Boiler	NOx	90.63	63.755	15.182	3.4547	32.3927	16.67	22.85	12.5	19.3	4.465	0	0	0
		SO2	36.6277	0.1822	10.5057	0.0126	1.996	0.054	2.2024	2.4348	4.952	18.105	0	0	0
		PM2.5 Pri	5.9059	1.5187	2.0757	0.1048	0.2389	0	0.2504	0.2798	0.955	1.802	0	0	0
McClellan Generating Station	SN-01 Boiler	NOx	410.21	326.889	285.96	170.084	127.4	92.2	97.7	91.33	40.2	52.7	32.7	82.3	80
		SO2	25	13.7342	20.8809	1.371	2.336	2.4	1.93	3.91	14.38	2.7	70.2	81.54	0.7
		PM2.5 Pri	9.1593	7.28	9.0449	5.5971	3.9694	3.9698	3.373	4.2591	3.752	1.925	3.671	0.246	0.082
White Bluff Power Plant	SN-01 Unit 1 Boiler	NOx	7269.3999	6890.79	9243.9	9341.28	4608.022	4619.41	8207.9	3228.56	3191.79	2297.35	2735.94	2523.72	1164.84
		SO2	15018.01	15231.9	17227.1	17503.5	10,149.38	7984.01	14356.1	9273.41	10326.9	6255.07	8488.91	7578.79	3480.76
		PM2.5 Pri	89.6474	87.946	399.848	167.928	70.6314	247.836	185.917	306.695	321.534	204.163	96.358	116.503	48.924
	SN-02 Unit 2 Boiler	NOx	8743.2998	7344.83	8802.9	8564.8	4851.2456	5099.95	3210.51	3683.39	2775.87	1488.8	3225.9	2237.56	2021.17
		SO2	16666.279	16455.3	16969.2	16719.1	10331.1	10352.1	8856.02	12981.5	8983.75	4456.04	10034.3	6379.9	6036.47
		PM2.5 Pri	105.5293	96.3332	293.842	158.977	212.5719	352.07	46.7988	365.961	195.038	126.649	108.222	77.297	46.952
	SN-05 Auxiliary Boiler	NOx	0.355	0.3851	0.0306	0.191	0.0982	0.936	0.312	0.888	2.04	1.62	0.828	3.502	2.062
		SO2	0.03	0.011	0.001	0.003	0.005	0.068	0.007	0.019	0.016	0.0846	0.00535	0.0205	0.121
		PM2.5 Pri	0.0184	0.0199	0	0.0099	0.0051	0.0484	0.02	0.057	0.1309	0.1168	0.05972	0.252	0.148
Flint Creek Power Plant	SN-01 Boiler	NOx	5325.73	5455.76	4277.58	5126.98	4318.2407	3055.82	3691.74	2927.17	2372.83	1866.06	2837.42	277.504	2574.73
		SO2	8620.2246	8409.4	6699.39	7968.11	6445.2529	1636.99	1594.55	854.824	736.051	536.088	852.788	819.06	642.99
		PM2.5 Pri	207.079	215.826	173.099	201.302	114.844	50.8675	37.7729	8.1478	4.986	21.844	19.771	30.251	24.091
Domtar Ashdown Mill	SN-03 Power Boiler	NOx	424.796	421.199	424.557	420.328	518.39	146.88	0	0	0	0	0	0	0
		SO2	0.0339	2.2039	2.17	2.17	0.995	0.034	0	0	0	0	0	0	0
		PM2.5 Pri	13.7253	13.5294	13.6374	13.5015	20.2629	5.7421	0	0	0	0	0	0	0
	SN-05 Power Boiler	NOx	892	905.3	881.1	656.327	540.05	528	581	581	607	531	597	637.4	620.568
		SO2	1317.4	1312.8	2114.2	1303.68	658.91	1456	928	777.8	892	558	580	679.4	447.4
		PM2.5 Pri	208.861	110.564	110.258	114.609	26.5321	43.1414	25.477	36.3831	35.229	121.048	121.451	123.547	124.819
Lake Catherine	SN-03 Unit 4	NOx	145.2	927.54	806.449	175.6	264.27	528.93	145.43	423.27	191.31	689.36	261.73	281.024	234.077
		SO2	0.449	2.204	1.708	0.3109	0.6	1.14	0.39	1.06	0.526	1.58	0.66	0.733	0.558
		PM2.5 Pri	2.1266	2.1266	21.1655	3.8607	7.4075	14.1178	4.7351	13.124	6.5	19.577	8.177	9.067	6.879
Independence Power Plant	SN-01 Unit 1 Boiler	NOx	7013.2998	5364.48	4737.5	5947.77	3274.835	4953.65	3187.61	4133.34	2523.72	1606.63	2097.35	2974.33	2760.86
		SO2	15307.86	16232.5	12581.2	14886.4	7884.8999	10793.2	7673.03	1252.32	7393.33	4242.83	6641.76	7894.97	6945.27
		PM2.5 Pri	105.1502	102.382	154.891	175.536	26.9997	138.142	105.183	193.286	107.186	112.096	196.297	210.954	189.009
	SN-02 Unit 2 Boiler	NOx	6397.3999	5702.29	5976.9	6353.49	2993.2305	4910.01	5505.98	3556.62	2538.36	1385.2	1434.61	1352.44	1991.96
		SO2	15090.06	16741.3	16273.1	15142.5	7108.75	11776.4	11813.6	11990.1	8465.15	3746.52	4400.06	4489.71	5902.66
		PM2.5 Pri	102.5582	98.728	211.56	202.915	21.4864	86.0733	108.345	141.11	86.5578	84.187	87.558	90.829	141.474