Arkansas Regional Haze Planning Period II

State Implementation Plan

CHAPTER VI: LONG-TERM STRATEGY FOR PLANNING PERIOD II

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VI. Long-Term Strategy for Planning Period II

A. Emission Reductions Due to Ongoing Air Pollution Control Programs

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. These programs include new source performance standards, national emissions standards for hazardous air pollutants, national on-road and nonroad emissions standards, the cross-state air pollution rule, and other national rules that limit the emissions of pollutants that may contribute to visibility impairment. These emission reductions achieved by these programs are factored into 2028 emissions projections used to develop the RPGs for Arkansas federal Class I areas.[1]

B. Measures to Mitigate the Impacts 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. Appendix A of EPA's 2017 Construction General Permit guidelines defines construction activities. [2]

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 Regional Haze 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.[3] In addition, DEQ also provides funding opportunities for voluntary emission reduction projects for nonroad equipment used for construction through its Go RED! program.

C. Emission Reductions Anticipated from the Arkansas Energy Efficiency Resource Program

DEQ and the Arkansas Public Service Commission (APSC) performed an analysis of energy

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[1]See EPA (2019). "Technical Support Document (TSD) Preparation of Emissions Inventories for the Version 7.2 2016 North American Emissions Modeling Platform." pgs 14 – 17. https://www.epa.gov/sites/production/files/2019-09/documents/2016v7.2_regionalhaze_emismod_tsd_508.pdf

[2]Construction activities means "earth-disturbing activities, such as the clearing, grading, and excavation of land, and other construction-related activities (e.g., stockpiling of fill material; placement of raw materials at the site) that could lead to the generation of pollutants. Some of the types of pollutants that are typically found at construction sites are: sediment; nutrients; heavy metals; pesticides and herbicides; oil and grease;•bacteria and viruses; trash, debris, and solids; treatment polymers; and any other toxic chemicals." https://www.epa.gov/sites/production/files/2019-05/documents/final_2017_cgp_appendix_a_-_definitions.pdf. Find the full guideline at https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents.

[3] State of Arkansas Regional Haze Rule State Implementation Plan, 2008. http://www.adeq.state.ar.us/air/planning/sip/pdfs/regional-haze/arkansas-regional-haze-sip.pdf page 73

efficiency (EE) programs implemented by electric utilities with operations in Arkansas to determine the projected emissions reductions resulting from the EE programs. The analysis was performed in order to assess emissions reductions of haze-forming pollutants that will help states with federal Class I areas meet the visibility goals set forth in the RHR. Anticipated emissions reductions were calculated using EPA's AVoided Emissions and geneRation Tool (AVERT) tool. The AVERT outputs were based on anticipated avoided generation resulting from the Arkansas investor-owned utility energy efficiency programs during Planning Period II. Annual emission reductions were quantified for the AVERT Southeast Region and the AVERT Lower Midwest Region. The detailed analysis is included in Appendix K. The remainder of this Chapter summarizes the emission reductions projected for each AVERT region as a result of Arkansas's EE resource standard.

Tables VI-1 and VI-2 list the projected annual emission reductions resulting from EE programs administered by Arkansas's investor-owned utilities during Regional Haze Planning Period II estimated by DEQ using AVERT. Figures VI-1–VI-3 show where AVERT predicts the 2028 emission reductions listed in Table VI-1 will occur in the Southeast Region and Figures VI-4–VI-6 show where AVERT predicts the 2028 emission reductions listed in Table VI-2 will occur in the Lower Midwest Region.

Table VI-1: Estimated Annual Emission Reductions for the AVERT Southeast Region Resulting From Arkansas EE Measures During the Second Implementation Period of the Regional Haze Program

Year	**SO_2 (tons)**	**NOx (tons)**	**$PM_{2.5}$ (tons)**
2018	538.42	584.60	64.99
2019	585.09	630.61	70.82
2020	663.92	713.88	79.92
2021	724.62	779.28	87.25
2022	780.78	839.69	94.28
2023	820.05	890.76	99.85
2024	863.71	937.91	105.14
2025	875.16	959.21	107.70
2026	906.99	994.12	111.63
2027	915.69	1019.06	115.20
2028	952.03	1042.43	117.85

Table VI-2: Estimated Annual Emission Reductions for the AVERT Lower Midwest Region Resulting From Arkansas EE Measures During the Second Implementation Period of the Regional Haze Program

Year	**SO_2 (tons)**	**NOx (tons)**	**$PM_{2.5}$ (tons)**
2018	237.20	201.43	15.52
2019	263.09	227.08	17.11
2020	300.48	259.25	19.54
2021	331.48	286.81	21.24
2022	362.69	313.93	23.24
2023	391.21	338.70	25.08
2024	417.07	361.14	26.74
2025	440.23	381.23	28.22
2026	460.71	398.95	29.54
2027	483.42	422.50	30.89
2028	498.57	435.75	31.86

Figure VI-1: Projected 2028 SO_2 Reductions from Arkansas EE Programs for the AVERT Southeast Region*

* The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.

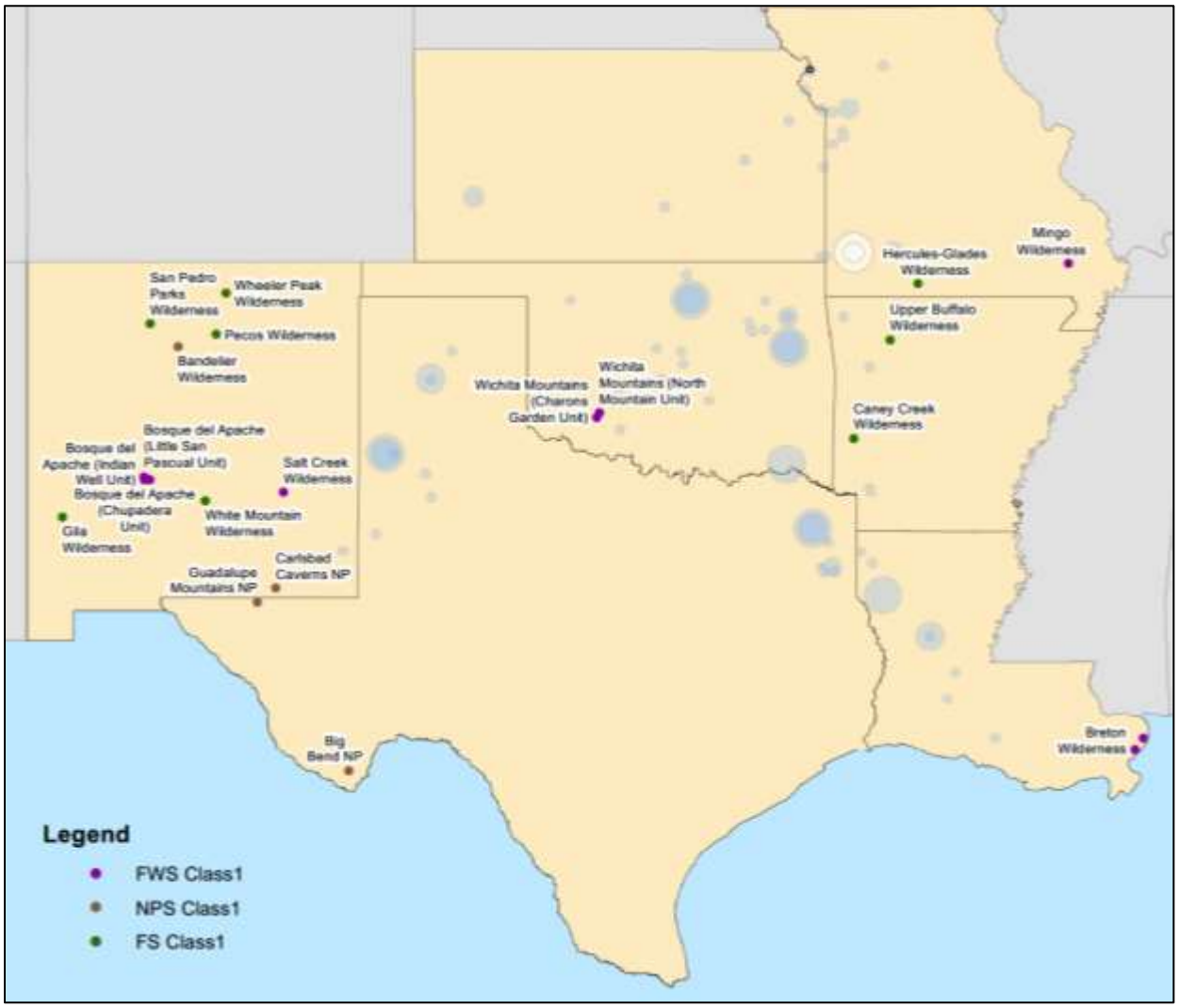
Figure VI-2: Projected 2028 NOx Reductions from Arkansas EE Programs for the AVERT Southeast Region*

* The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.

Figure VI-3: 2028 $PM_{2.5}$ Reductions from Arkansas EE Programs for the AVERT Southeast Region*

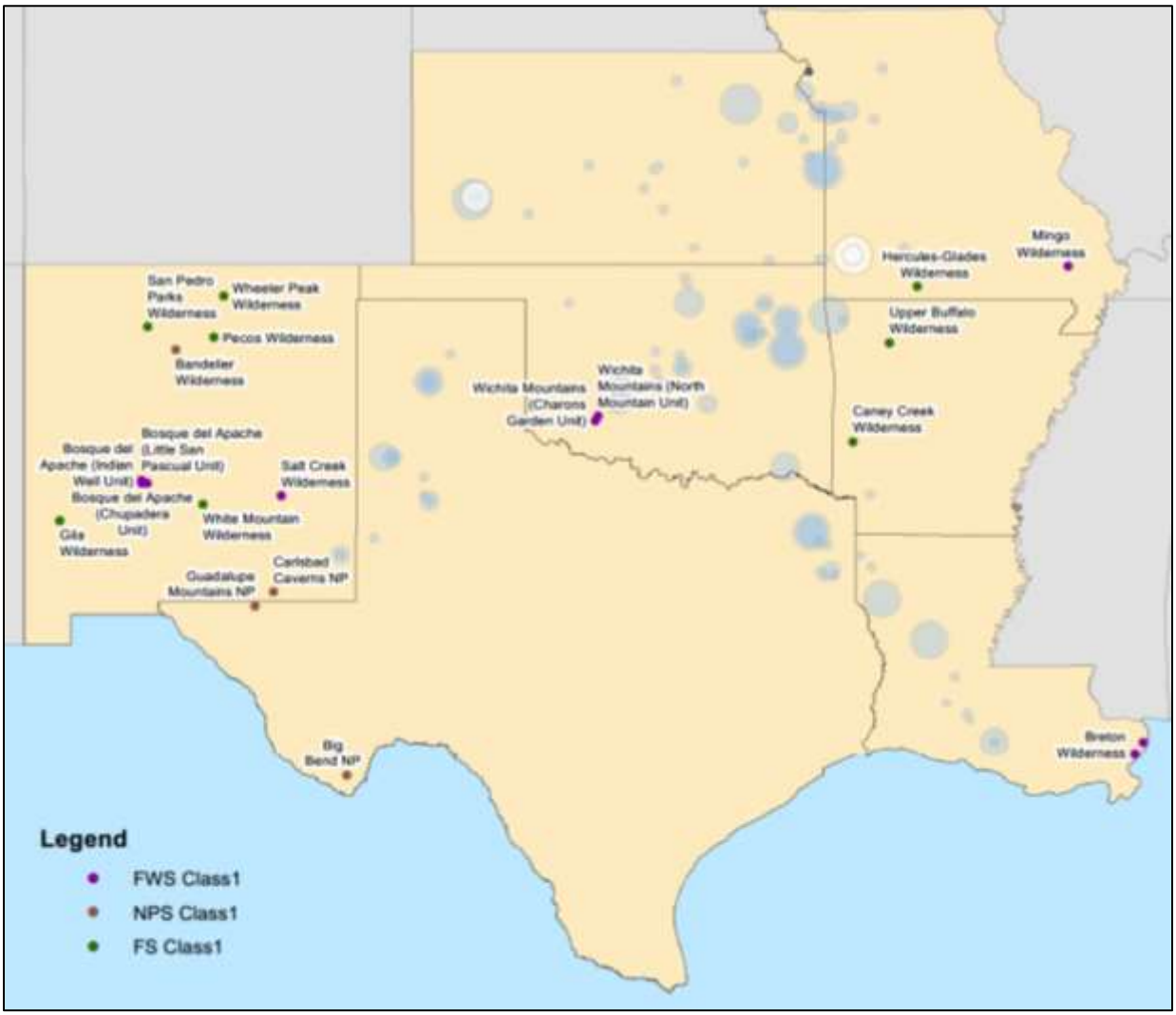
* The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.

Figure VI-4: Projected 2028 SO_2 Reductions from Arkansas EE Programs for the AVERT Lower Midwest Region*



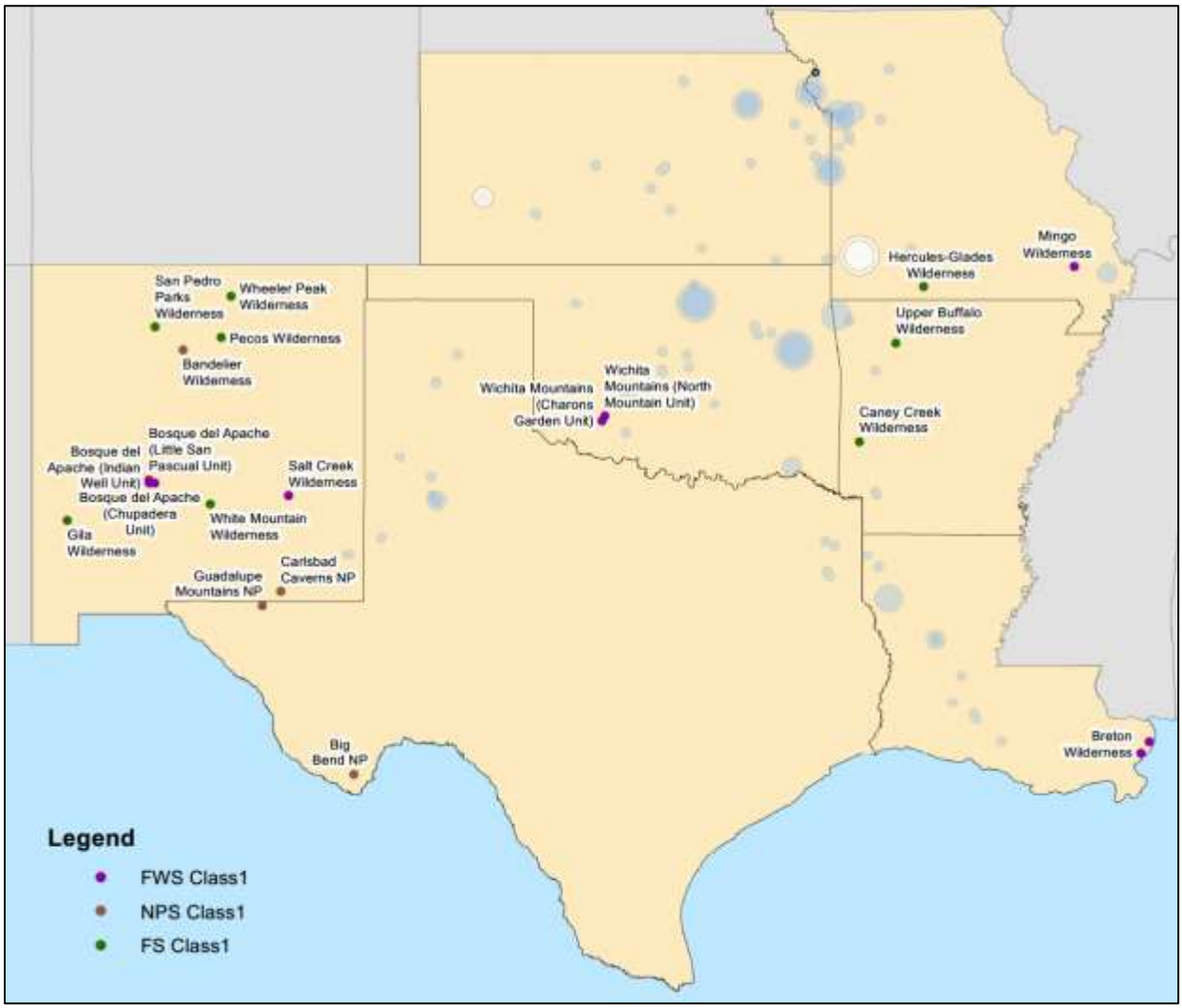
* The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.

Figure VI-5: Projected 2028 NO_X Reductions from Arkansas EE Programs for the AVERT Lower Midwest Region*



*** The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.**

Figure VI-6: Projected 2028 $PM_{2.5}$ Reductions from Arkansas EE Programs for the AVERT Lower Midwest Region*



*** The diameter of each circle indicates the magnitude of a unit's change in generation/emissions. Circles are semi-transparent: darker areas occur in regions with overlapping units. Negative changes (emissions decreases) are indicated with blue circles; positive changes (emissions increases) are indicated with black-bordered white circles.**

Implementation of Arkansas's EE Resource Standard is expected to reduce emissions of visibility-impairing pollutants over a wide geographic area, and thus contribute to visibility progress at federal Class I areas throughout the Southeast and Lower Midwest. Because the energy savings from APSC-approved EE 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. EE program investments are recoverable through rate adjustments, but ratepayers themselves receive real-world energy bill savings from the EE programs that their utility payments subsidize.

DEQ has confidence in the emission reductions predicted using AVERT because of the robust framework established by APSC to incentivize and verify energy savings from Arkansas investor-owned utilities' EE portfolios. DEQ plans to compare the results of this analysis to actual energy savings reported by utilities and the emission reductions modeled based on those actual savings in Arkansas's 2025 Regional Haze Progress Report.

D. Source Retirement and Replacement Schedules

DEQ's 2015 Regional Haze Progress report provided information about potential emissions and actual emissions from new sources subject to PSD new source review between 2002 and 2012 and retirement of "PSD sources." This SIP narrative reports total Title V initial permits and Title V permits voided without issuance of a revised Title V permit. DEQ is presenting the tracking of source retirement and replacement differently in this SIP revision because DEQ no longer tags facilities in its permit database system as Title V. Instead, air permits for stationary sources are categorized as Reg. 18.315, minor source, or Title V.

Between 2002 and 2019, DEQ issued 108 initial Title V permits and 110 Title V permits were voided without being replaced by a revised permit. Figure VI-7 illustrates the number of initial Title V permits issued each year. Figure VI-8 illustrates the number of Title V permits voided for which there was no subsequent permit revision or renewal. These figures demonstrate the retirement and replacement of large stationary sources since the beginning of the Regional Haze Program.[4]

[4] Stationary sources for which an initial Title V permit is issued may have had a minor source permit prior to triggering requirements to be permitted under Regulation No. 26. Stationary sources for which a Title V permit was voided and no subsequent revision issued may have been reclassified as a minor source and permitted solely under Regulation No. 18 and/or Rule 19.

Figure VI-7: Initial Title V Permit Issuance per Year

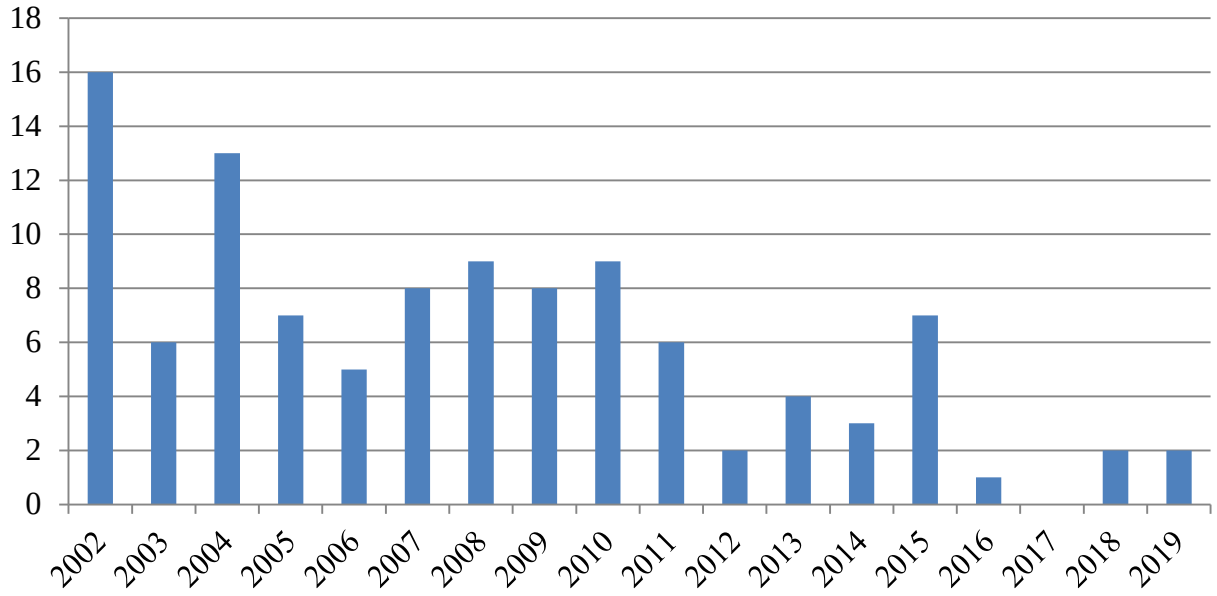
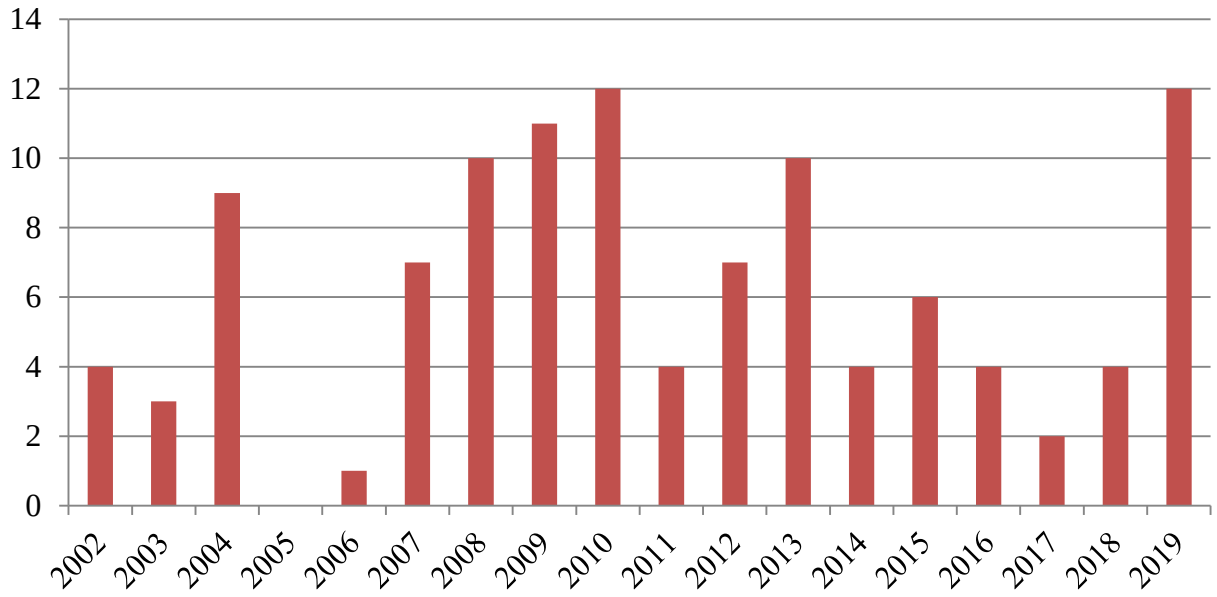


Figure VI-8: Title V Permits Voided without Replacement with Revised Title V Permit



The following stationary sources in Arkansas are anticipated to retire during Planning Period II:

- Entergy Lake Catherine (2025)[5] and
- Entergy White Bluff (2028).[6]

[5]Planned retirement year https://www.epa.gov/sites/production/files/2020-03/egrid2018_data_v2.xlsx

DEQ will manage new and modified sources in conformance with existing SIP requirements pertaining to PSD and minor new source review. DEQ will track source retirement and replacement through ongoing point source inventories and permitting actions.

In addition, the following stationary sources identified in DEQ's AOI screening analysis are also anticipated to retire during Planning Period II: Dolet Hills and Indiana Michigan Rockport.[78]

E. Smoke Management

As described in Chapter IV.A.1.d., Arkansas has adopted voluntary smoke management plans for both prescribed fire and agricultural burning. These plans are implemented by Arkansas foresters and farmers on a voluntary basis with the assistance of the Arkansas Department of Agriculture. The plans are available at https://www.agriculture.arkansas.gov/arkansas-voluntary-smoke-management-guidelines.

F. Additional Measures to Ensure Reasonable Progress and Address Interstate Transport of Visibility-Impairing Emissions

Based on DEQ's reasonable progress analysis in Chapter V. of this narrative, DEQ determined that the following measures are necessary to ensure reasonable progress for Arkansas federal Class I areas and to address interstate transport of visibility-impairing emissions:

1. FutureFuel

DEQ has determined that an emission limit for FutureFuel's coal-fired boilers based on fuel switching to two percent sulfur content coal is necessary for reasonable progress during Planning Period II. To establish such an emission rate, DEQ requested baseline emission data from FutureFuel for SO_2 emissions and heat input from burning coal and SO_2 emissions and heat input when burning other wastes in the three coal-fired boilers.

FutureFuel provided data based on fuel use records for coal and wastes burned in the boilers between 2017 and 2019. The SO_2 emissions are estimated from these fuel use records based on feed stream analysis that assumes all sulfur entering the boilers, either through sludge, liquid fuel, or coal, is emitted as SO_2. This data is available in Appendix G. The average emission rate for coal burned was 5.1 lb SO_2/MMBtu (2092 tons) and the average emission rate for all fuels burned during the baseline was 4.6 lb SO_2/MMBtu (2171 tons). FutureFuel also provided 30-day

[6] Under an enforceable order (LIS-18-073) with DEQ to cease coal-fired operations of all units by December 31, 2028: http://www.adeq.state.ar.us/air/planning/sip/pdfs/regional-haze/entergy-ao-executed-8-7-2018.pdf

[7] http://edms.deq.louisiana.gov/app/doc/view.aspx?doc=12235418&ob=yes&child=yes and Energy Information Administration Form 860

[8] SWEPCO has also announced the closure of Welsh and Pirkey in Texas, which have a large impact on visibility at Caney Creek, but as these planned retirements are not enforceable by Texas or EPA as part of the Texas SIP, DEQ has assumed in its modeling that these units continue to operate.

rolling average emission rates for the same period and estimated what these emissions would be if FutureFuel were to use two percent sulfur coal in place of the coal that was used over the baseline period. Based on these data, FutureFuel estimates that it could achieve continuous compliance with an emission limit of 3.9 lb SO_2/MMBtu on a 30-day rolling average based on fuel switching to two percent sulfur content coal.

DEQ proposes to enter into an administrative order with FutureFuel to adopt the proposed emission limit and the associated compliance schedule, monitoring, recordkeeping, and reporting requirements. As noted in Chapter V, a draft version of the proposed administrative order has been included in Appendix G for public review. Prior to finalization of this SIP revision and submission to EPA, a final administrative order that incorporates any changes in response to public comments must be signed by DEQ and FutureFuel to render the requirements enforceable as a matter of state law. The proposed requirements are summarized below.

No later than one year after the effective date of EPA approval, FutureFuel shall not exceed an emission rate of 3.9 lb SO_2/MMBtu. This limit is based on the control strategy determination for a 30-operating-day average for each operating scenario.[9] Compliance will be demonstrated based on fuel usage records and feed stream analysis. It is assumed that all sulfur entering the boilers, either through sludge, liquid fuel, or coal is emitted as sulfur dioxide. FutureFuel will sample and analyze each shipment of fuel and each batch of waste for use in the three coal-fired boilers (SN:6M01-01) to determine the sulfur content and heat content of fuel by weight.

2. Independence

Although DEQ has determined that no additional control measures are reasonable for Independence for Planning Period II, DEQ proposes to enter into an administrative order with Entergy that would render their planned cessation of coal-fired operations at Unit 1 and Unit 2 by December 31, 2030 enforceable as part of the SIP. Their planned cessation of coal-fired operations is already enforceable in court under a consent decree entered as part of a settlement between Sierra Club and Entergy. However, inclusion in the SIP renders the planned cessation enforceable by both DEQ and EPA. As noted in Chapter V, a draft version of the proposed administrative order has been included in Appendix F for public review. Prior to finalization of this SIP revision and submission to EPA, a final administrative order that incorporates any changes in response to public comment must be signed by DEQ and Entergy to render the requirements enforceable as a matter of state law.

[9] "30-operating-day average" is defined as the arithmetic average of 30 consecutive daily values in which there is any hour of operation, and where the daily value is generated by summing the pounds of sulfur dioxide emitted for that day divided by the sum of heat content from fuels burned (in million British thermal units) for that day.

G. Enforceability of Emissions Limitations and Control Measures included in this SIP

DEQ proposes to render the control strategy for FutureFuel and the cessation of coal combustion at Independence enforceable through administrative orders (AO). The orders will be submitted to EPA for incorporation by reference into the SIP. Proposed drafts of the administrative orders are included with this SIP revision proposal in Appendices F and G.

Inclusion of permanently enforceable emissions limitations and compliance schedules in the included AOs is consistent with and allowable under federal programs.

Sampling, monitoring, and reporting requirements that are generally applicable to stationary sources, including sources for which emissions limitations are established in this SIP, are contained in SIP-approved Arkansas Pollution Control and Ecology Commission (APC&EC) Rule No. 19 Chapter 7. No revisions to existing requirements in Rule No. 19 Chapter 7 were necessary for this SIP revision.

H. Anticipated Visibility Conditions in 2028 that will Result from Implementation of the Long-Term Strategy

DEQ performed CAMx modeling using a 2016 platform to project visibility conditions in 2028 based on DEQ's long-term strategy. Details on model assumptions, performance, results, and methodology are described in Appendix L. Table VI-3 compares current visibility conditions to projected visibility conditions in 2028 as a result of DEQ's long-term strategy.

Table VI-3: Visibility Progress due to SIP Control Strategy Anticipated Impact 2028 Projected Visibility Impairment[10]

	Modeled Visibility Conditions on the Most Impaired Days (deciviews)		Modeled Visibility Conditions on the Clearest Days (deciviews)	
Class I Area	2016	2028 SIP Control Strategy	2016	2028 SIP Control Strategy
Caney Creek	18.29	16.31	8.02	7.50
Upper Buffalo	17.95	16.49	8.20	7.72
Hercules Glades	18.72	17.30	9.71	9.07
Mingo	20.13	18.83	11.08	10.47
Mammoth Cave	21.02	19.37	11.31	10.47
Sipsey	19.03	17.41	10.76	10.04
Wichita Mountains	18.12	16.81	8.47	8.17
Shining Rock	15.49	13.83	4.40	4.00

[10] 2019 data was not available for Mingo, therefore, the current visibility conditions for this Class I area in the table are based on 2014–2018 data.

DEQ notes that its modeling does not take into account emission reductions that other states have determined necessary as a result of their reasonable progress analysis. Any emission reduction measures that other states may determine necessary to ensure reasonable progress would be anticipated to further improve visibility conditions in 2028.

I. Adoption of Reasonable Progress Goals

Table VI-4 lists DEQ's RPG determinations for Planning Period II. DEQ did not request any particular control strategy be applied to sources in other states that impact Arkansas's Class I areas. Therefore, DEQ's RPG values do not include any emission reductions that may occur as a result of adoption of Regional Haze Planning Period II control strategies by other states, except in those instances where there is an enforceable retirement.

Table VI-4: 2028 Reasonable Progress Goals for Arkansas Federal Class I Areas on the Most Impaired Days

Federal Class I Areas	2028 Reasonable Progress Goal (deciviews)
Caney Creek	16.31
Upper Buffalo	16.49

DEQ's goal for the clearest days in 2028 is no degradation from the 2000–2004 baseline.

J. Progress, Degradation, and URP Glidepath Checks

After consideration of the four reasonable progress factors and visibility impacts, DEQ made control determinations that would result in greater visibility progress than the URP DEQ established for each federal Class I area in Arkansas. DEQ's modeling results summarized in Table VI-3 demonstrate that the long term strategy will result in improvement on the most impaired days. Table VI-5 compares the 2028 model results for Arkansas federal Class I areas based on DEQ's long-term strategy to the 2028 point on the URP for the most impaired days and to 2000–2004 conditions for the clearest days. As noted in Chapter II, DEQ adjusted its URP in accordance with EPA guidance. The data summarized in Table VI-5 demonstrates that there will be no degradation on the twenty percent clearest days in 2028 and that implementation of the long-term strategy will result in faster progress than under DEQ's adjusted URP glidepath for each Arkansas federal Class I area.

Table VI-5: 2028 Visibility Conditions Progress Check for Arkansas Federal Class I Areas

	Most Impaired Days (deciviews)		Clearest Days (deciviews)	
Class I Area	2028 URP	Modeled 2028 SIP Control Strategy	2000–2004 baseline	Modeled 2028 SIP Control Strategy

Caney Creek	18.90	16.31	11.24	7.50
Upper Buffalo	19.26	16.49	11.71	7.72

Table VI-6 compares the 2028 model results based on DEQ's long-term strategy to the 2028 point on the URP for the most impaired days at federal Class I areas that may be affected by emissions from Arkansas. DEQ consulted with neighbor states to confirm whether or not each state expects to adjust the glidepath for the federal Class I areas listed in Table VI-6, which is allowed by EPA guidance, but is not required.[11] Table VI-6 does not account for visibility improvement that would be achieved from adoption of control measures in Planning Period II by other states.

Table VI-6: 2028 Visibility Conditions Progress Check for Federal Class I Areas that may be Affected by Emissions from Arkansas

Class I Area	Most Impaired Days (deciviews)		Clearest Days (deciviews)	
	2028 URP	Modeled 2028 SIP Control Strategy	2000–2004 baseline	Modeled 2028 SIP Control Strategy
Hercules Glades	18.82	17.3	12.84	9.07
Mingo	19.48	18.83	14.29	10.47
Mammoth Cave*	21.82	19.37	16.51	10.47
Sipsey	20.44	17.41	15.57	10.04
Wichita Mountains*	17.36	16.81	9.78	8.17
Shining Rock*	20.98	13.83	7.7	4.0

*Adjusted value: State indicated in consultation that the 2028 URP, based on the updated natural conditions value for most impaired days from the 2020 EPA memo[12] would be used in Planning Period II projections

As discussed in Chapter V, no specific controls were requested from any other state, including the states that requested that DEQ perform a four-factor analysis, or agreed to as part of consultation. The 2028 SIP-controlled model results for the most impaired days demonstrate that all federal Class I areas for which sources in Arkansas may reasonably be anticipated to impact visibility conditions are below the respective state's URP glidepath before consideration of

[11] See email correspondence between states, dated September 29, 2021 through September 30, 2021, included in Appendix D.

[12] "Recommendation for the Use of Patched and Substituted Data and Clarification of Data Completeness for Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program" https://www.epa.gov/sites/default/files/2020-06/documents/memo_data_for_regional_haze_0.pdf

control measures determined necessary to ensure reasonable progress in SIPs from other states.

K. Consideration of Factors in Exercise of Powers

Pursuant to Ark. Code Ann. § 8-4-312, the APC&EC and DEQ must consider the factors listed in Ark. Code Ann. § 8-4-312, when exercising their powers and responsibilities. Table VI-9 provides DEQ's assessment of the statutory factors as applied to this SIP.

Table VI-7: Consideration of Ark. Code Ann. § 8-4-312 factors

Ark. Code Ann. § 8-4-312 Factors	Consideration of the Factors
(1) The quantity and characteristics of air contaminants and the duration of their presence in the atmosphere that may cause air pollution in a particular area of the state	DEQ's consideration of this factor is addressed in Chapter II
(2) Existing physical conditions and topography	Modeling in support of this SIP utilizes these factors as inputs.
(3) Prevailing wind directions and velocities	The AOI analysis developed by Ramboll for the CenSARA states incorporates prevailing wind directions and velocities into its assessment of the probability of sources in a geographic area impacting visibility for each federal Class I area. DEQ relied on this analysis to determine which sources to examine for potential control measures. Modeling in support of this SIP also utilizes these factors as inputs.
(4) Temperatures and temperature-inversion periods, humidity, and other atmospheric conditions	Atmospheric conditions are a factor in estimating the amount of visibility impairment created by particulate species captured by monitoring equipment.[13]
(5) Possible chemical reactions between air contaminants or between such air	Two of the primary anthropogenic species contributing to visibility at many federal Class

[13] The IMPROVE website provides the formula for calculating light extinction for the purposes of the Regional Haze Program: http://vista.cira.colostate.edu/Improve/the-improve-algorithm/

contaminants and air gases, moisture, or sunlight	I areas, including those in Arkansas and those that are impacted by sources in Arkansas are ammonium sulfate and ammonium nitrate. Both of these species are formed by chemical reactions in the air. Ammonium sulfate is formed in a photochemical reaction between sulfur dioxide and ammonia. Ammonium nitrate is formed in a photochemical reaction between nitrogen oxides and ammonia.
(6) The predominant character of development of the area of the state such as residential, highly developed industrial, commercial, or other characteristics	The predominant character of development of the federal Class I areas is wilderness. The federal Class I areas support recreational activities and wildlife management. Sources affected by the control strategy in this SIP include sources near federal Class I areas and sources with large emissions of nitrogen oxides and sulfur dioxide. These emissions react with ammonia to form fine particulate matter that is capable of traveling long distances.
(7) Availability of air-cleaning devices	DEQ's consideration of this factor is described in Chapter V.
(8) Economic feasibility of air-cleaning devices	DEQ's consideration of this factor is described in Chapter V.
(9) Effect on normal human health of particular air contaminants	Although the Regional Haze Program does not focus on the human health effects, the particulate species that impact visibility in federal Class I areas also impact human health. Numerous scientific studies have linked particle pollution to a number of adverse health effects.[14] These effects include: premature

[14] EPA prepares an integrated science assessment each time the agency reviews the national ambient air quality standards for particulate matter. The integrated science assessment provides EPA's assessment of the extent scientific literature on the potential human health and welfare effects associated with ambient exposure to particulate matter. EPA's integrated science assessment reports can be accessed here: https://www.epa.gov/naaqs/particulate-

	death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of airways, coughing, and difficulty breathing.
(10) Effect on efficiency of industrial operation resulting from use of air-cleaning devices	DEQ's consideration of this factor is described in Chapter V.
(11) The extent of danger to property in the area reasonably to be expected from any particular air contaminant	This factor is not applicable to the Regional Haze Program, which focuses on improving visibility at federal Class I areas.
(12) Interference with reasonable enjoyment of life by persons in the area and conduct of established enterprises that can reasonably be expected from air contaminants	DEQ's consideration of this factor is described in Chapter I.
(13) The volume of air contaminants emitted from a particular class of air contamination sources	DEQ's consideration of this factor is described in Chapters II, III, and V.
(14) The economic and industrial development of the state and the social and economic value of the air contamination sources	DEQ's consideration of the potential economic impacts of this SIP on sources of air contaminant emissions is discussed in Chapter V.
(15) The maintenance of public enjoyment of the state's natural resources	Visibility improvements are expected to occur at Arkansas federal Class I areas in the State as a result of the emissions limitations included in this SIP. Visitors to Caney Creek and Upper Buffalo are expected to enjoy these improvements. Persons that conduct tourism enterprises may also benefit as a result of the measures included this SIP.
(16) Other factors that the Division or the	DEQ has not identified any other factors that

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commission may find applicable	are applicable that are not already discussed in this SIP.