January 8, 2020

Brian Bond
Vice President, External Affairs
Southwestern Electric Power Company (SWEPCO)

Sent Via Electronic Mail

RE: Regional Haze Four-Factor Analysis; Information Collection Request;

Dear Mr. Bond:

The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) hereby requests that SWEPCO submit the information described in Section II no later than 90 days from the date of this letter.

I. BACKGROUND

DEQ must develop a Regional Haze Program state implementation plan (SIP) that demonstrates reasonable progress toward achieving natural visibility conditions in Arkansas Class I areas during the period between 2018 and 2028, which is referred to as Planning Period II. The SIP must also address emissions from within the state that may impair visibility in Class I areas in other states. The Regional Haze Program uses an iterative planning process lead by the states with the ultimate goal of remedying existing and preventing future visibility impairment from anthropogenic sources of air pollution by 2064.

For the Planning Period II SIP, DEQ must develop a long-term strategy for reducing emissions of key pollutants and sources impacting visibility at Class I areas to make "reasonable" progress toward the goal of no anthropogenic visibility impairment by 2064. The Regional Haze Rule provides four factors by which a state must consider potential control measures for the long-term strategy. The factors are the cost of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of existing sources that contribute to visibility impairment.

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

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

Based on the results of the AOI study, DEQ has identified Flint Creek Power Plant as a source of visibility impacting pollutant emissions that DEQ should evaluate for potential emission reduction measures during Planning Period II. DEQ has identified the following existing controls on Flint Creek's main boiler (SN:01):

- Dry flue gas desulfurization (emission limit of 0.06 lb SO_2/MMBTU on a thirty-day rolling average)
- Low NOx burners with over-fire air (emission rate of 0.23 lb/MMBTU)

EPA's guidance instructs states that it is unlikely that an analysis of control measures would conclude that an even more stringent control is necessary to make reasonable progress for:

1) A coal-fired power plant already equipped with a scrubber and meeting an emission limit less than 0.3 lb SO_2/MMBTU; and
2) A combustion source equipped with SCR that operates on a year-round basis with an overall effectiveness of at least ninety percent.[3]

Because SN-01 is under a more stringent SO_2 limit than the limit specified in EPA's guidance, DEQ requires no additional information concerning possible SO_2 controls for planning period II. Therefore, this information request focuses solely on potential NOx emission control strategies.

[1] http://vista.cira.colostate.edu/Improve/improve-data/
[2] https://www.epa.gov/visibility/visibility-guidance-documents
[3] https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period

II. INFORMATION REQUESTED FOR POTENTIAL EMISSION REDUCTION STRATEGIES

DEQ requests that SWEPCO provide information about potential emission reduction strategies for NOx from the Flint Creek Power Plant. At a minimum, SWEPCO should include the following potential strategies for the emission unit that emits the majority of NOx from Flint Creek, identified by DEQ as SN-01 Boiler

- NOx (ranked from typical highest control efficiency to lowest) [4]
    - Selective Catalytic Reduction (Typical NOx control efficiency for utility coal-fired boilers ≈ 90%)
    - Selective Non-Catalytic Reduction (Typical NOx control efficiency for utility coal-fired boilers ≈ 35–50%)

The list above may not be comprehensive. SWEPCO may provide information about strategies in addition to those listed above. In addition, SWEPCO may include updates to information provided in previous assessments during Planning Period 1.

For each technically feasible emission reduction strategy, please provide the following information:

- Control effectiveness (Percentage NOx feasible to reduce reduced) estimates specific to the emission unit in terms of actual emissions
- Emission reductions that would be achieved by implementation of the strategy:
    - Baseline actual emission rate in lb/hr or lb/MMBTU (maximum monthly value in the period between June 1, 2018–December 31, 2019)[5]
    - Control rate in lb/hr or lb/MMBTU (units should match baseline actual emission rate)
    - Resulting annual emission reductions (tons/year)
- Time necessary to implement the strategy with an explanation justifying the time needed
- Remaining useful life
    - Remaining useful life of an emission unit should be based on an enforceable shutdown date. Otherwise, the remaining useful life should be the full period of the useful life for the control technology evaluated
    - The EPA Pollution Control Cost Manual[6] provides guidance on typical values for the useful life of various emission control systems
- Energy and non-air quality environmental impacts
    - Specify any energy and non-air environmental impacts such as the generation of wastes for disposal, impacts on other environmental media, etc.

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[4] From EPA Menu of Control Measures < https://www.epa.gov/sites/production/files/2016-02/menuofcontrolmeasures.xlsx>

[5] A shorter baseline period is warranted for Flint Creek because construction of low NOx burners with separated over fire air was completed on May 18, 2018, which reduced NOx emissions from SN-01.

[6] https://www.epa.gov/sites/production/files/2017-12/documents/epaccmcostestimationmethodchapter_7thedition_2017.pdf

- Factor any costs associated with energy and non-air environmental impacts into the cost of implementing the strategy, including without limitation:
  - Permitting costs if other regulatory requirements are triggered by the strategy
  - Costs associated with compliance with any other regulatory requirements triggered by the strategy
  - Cost of waste disposal for wastes generated by proposed control systems

- Cost of implementing the strategy
  - Use the EPA Pollution Control Cost Manual[7] overnight methodology to quantify the following cost metrics:
    - Capital costs
    - Annual operating and maintenance costs
    - Annualized costs
  - The amortization period should be based on the time between when the strategy could reasonably be in place and the remaining useful life of the emission unit or emission control system, whichever is less.[8]

III. CONCLUSION

Thank you for your timely response to this information request. This information is necessary for DEQ to prepare a technically and legally robust state implementation plan consistent with the Regional Haze Rule. Please respond with the requested information by April 7, 2020. If you have any questions, please contact Tricia Treece (treecep@adeq.state.ar.us) of my staff.

Sincerely,

William K. Montgomery
Interim Associate Director
Office of Air Quality
Division of Environmental Quality
Arkansas Department of Energy and Environment

[7] https://www.epa.gov/sites/production/files/2017-12/documents/epaccmcostestimationmethodchapter_7thedition_2017.pdf

[8] Amortization start date is equal to the time necessary for compliance for the strategy added to January 31, 2023 (Deadline for timely EPA action on a SIP submitted on July 31, 2021).