

August 8, 2022

Ms. Anna Aponte
Georgia EPD - Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Re: Georgia Power Response to Sierra Club/National Parks Conservation Association Comments on Georgia Regional Haze SIP Draft

Dear Ms. Aponte,

As requested by Georgia EPD, Georgia Power Company submits the following response to certain public comments from Sierra Club & the National Parks Conservation Association (NPCA) regarding the Georgia Regional Haze state implementation plan (SIP) draft published by Georgia EPD on June 24, 2022. Georgia Power appreciates the opportunity to respond to these comments and offers the information provided below for Georgia EPD's consideration in preparing the final SIP. As the additional explanations below demonstrate, no changes are needed to the Plant Bowen Four-Factor Analysis (FFA) nor Georgia Power's recommended "reasonable progress" measure, which is based on the Mercury and Air Toxics Standard (MATS) SO₂ limit of 0.20 lb/MMBtu for Plant Bowen Units 1-4.

Four-Factor Analysis of Coal Switching to PRB Coal

Sierra Club/NPCA Comment: It is also not clear why Georgia Power "did not take the cost of purchasing electricity due to a derate as an operational expens[e], based on the current cost of purchasing electricity." Instead, Georgia Power apparently considered "the future cost of purchasing electricity as essentially a capital expenditure for which it assumed a 6.04% rate of return." ... Note that Georgia Power cites to Technical Appendix A1.3-1 of its October 2021 four-factor submittal for calculations and supporting documentation for these calculations, "but that Appendix does not appear to be a part of the publicly available four-factor analysis. Since this was the bulk of the cost of this control option, GEPC must make the underlying calculations publicly available for review."¹

The Sierra Club/NPCA comments conflate two distinct issues – generation and capacity. In simplistic terms, Georgia Power must meet the needs of its customers in two ways: 1) the Company must provide the amount of electricity demanded by customers at any given time through electricity generation; and 2) the Company must provide assurance of reliability in meeting potential peak loads by having adequate excess capacity on our system, also known as the reserve margin.

In the Bowen FFA of the full switch to Powder River Basin (PRB) coal, the 27% derate was calculated based on the heat content of PRB coal (8,800 Btu/lb) in comparison to IB coal (12,002 Btu/lb). Therefore, PRB coal would provide 27% less total unit capacity than the same percentage of IB coal.

¹ Sierra Club/NPCA Comment Letter, pg. 28.

The capacity penalty costs in the Plant Bowen FFA represented the costs to replace the derated unit capacity to meet the reserve margin required in the Southern Company system. The capacity penalty costs associated with the projected derate for coal switching to PRB coal were correctly accounted for as indirect capital costs in the Plant Bowen FFA because these costs are not simply operating costs to purchase electricity. As explained on page 16 of the Plant Bowen FFA:

Plant Bowen Units 1-4 provide capacity value by supporting system reliability and by avoiding costs associated with replacement capacity that would be required to meet customer peak demands and reserve margin requirements in the absence of such Plant Bowen units. Without these units, Georgia Power would have to procure short-term and long-term replacement capacity in order to restore Georgia Power and the Southern Company system to a comparable level of reliability that the system currently holds. The cost of replacement capacity in any year is assumed to be at either a market rate or the cost of new construction depending on whether Georgia Power has a projected capacity need in such year without Plant Bowen Units 1-4.

Because the costs of replacement capacity and projected capacity needs in each year are based on trade secret information submitted to the Georgia Public Service Commission (GPSC) for the 2019 Georgia Power Integrated Resource Plan (IRP), this background information was appropriately submitted in the Plant Bowen FFA in the trade secret Technical Appendix B in documents B1.3-1a and B1.3.1b. Therefore, the information is protected from public disclosure as trade secret and confidential business information under applicable state and federal laws.

Sierra Club/NPCA Comment: Regarding Plant Bowen, EPD should consider the SO₂ control measure of switching from high sulfur Illinois Basin coal to Powder River Basin ("PRB") coal cost effective at \$6,424/ton of SO₂ removed. As mentioned below in these comments and in Victoria R. Stamper's report, the annual costs would likely be even lower "if Georgia Power had considered the addition of new coal pulverizers which would lower or eliminate the derate of the generating capacity that would occur with the change to" PRB coal.²...Georgia Power did not quantify or assess the capital costs associated with eliminate the derate with the switch to PRB, which are likely much lower than the net present value of \$709 million of the capacity penalty cost calculated by Georgia Power.³

Georgia Power did not quantify the capital costs associated with mitigating the projected derate on PRB coal because the installation of the additional pulverizers into the coal handling system has not been proven as technically feasible. As such, the Plant Bowen FFA considered that not only is the total cost of any efforts to reduce or avoid a derate highly uncertain, eliminating a derate may not be possible even with additional capital investment. Therefore, Georgia Power conservatively did not include these capital costs in addition to any capacity penalty costs. As explained in the Plant Bowen FFA on page 15:

Georgia Power also considered if the projected derate on PRB coal could be reduced by increasing coal throughput capacity via the installation of an additional pulverizer to each unit's coal handling system and any associated boiler work. These additional investments have not been implemented at Georgia Power facilities that have historically switched to PRB coal, and no applicable examples in practice were identified to substantiate the feasibility of these projects, including the quantification of the equipment needs or engineering and construction

² Sierra Club/NPCA Comment Letter, pg. 3.

³ Sierra Club/NPCA Comment Letter, pg. 28.

requirements, which would be highly site-specific. In addition to unknown capital investment costs needed, these projects would need to be evaluated for New Source Review (NSR) construction permitting, and the associated permitting costs of these significant equipment installations and modifications could also be incurred. Therefore, while additional capital investment could potentially reduce the capacity derate somewhat, those changes would likely be very costly or may not be feasible considering space and design constraints. Because the feasibility is unclear for Plant Bowen, this analysis focuses on the 27% derate scenario.

Not only did Georgia Power omit the capital costs associated with attempting to mitigate the derate that PRB coal would cause, Georgia Power also conservatively omitted other capital costs, such as safety equipment for fire and dust suppression that are unrelated to any derate. Georgia Power omitted those costs due to the high level of uncertainty in the specific estimates and the detailed engineering studies that would be required to fully estimate the costs associated with needed equipment installations. The evaluation and inclusion of these capital costs per boiler would only have increased the already high cost of switching to PRB coal.

Sierra Club/NPCA Comment: Georgia Power stated that “the level of unit capacity derate does not impact the annual SO₂ emissions reduction since the analysis assumes that the 2019 baseline annual heat input is achievable at this derated capacity.”...[It] does not make sense to assume that a switch to 100% PRB coal would incur electricity purchase costs of \$51 million per year while also assuming that the Plant Bowen units would increase operating time and electricity generation with a switch to PRB coal. By assuming the plant would burn the same heat input of coal with a switch to PRB coal by operating more hours but also assuming a 27% derating and the need to purchase electricity, there is a mismatch in the cost analysis.⁴ Victoria R Stamper Report: [T]he company assumed costs to purchase electricity as well as increased costs for PRB fuel purchases and operating costs (assuming same heat input of fuel purchased) but did not take into account the income from new sales of electricity due to the additional operating hours.⁵

Sierra Club/NPCA incorrectly states that the Georgia Power analysis assumed increased electricity generation with the switch to PRB coal. As such, the report by Victoria R. Stamper referenced by the Sierra Club/NPCA comments also incorrectly asserts that Georgia Power’s analysis should have accounted for revenue from additional sales of electricity. The Plant Bowen FFA did not assume increased electricity generation with the PRB coal switch analysis.

Georgia Power’s analysis assumed higher operating hours on PRB coal because increased fuel usage would be needed to achieve the baseline heat input due to the fact that PRB coal has lower heat content than Illinois Basin coal, meaning more PRB coal tons are required to achieve the same heat input. However, operating at the baseline heat input level on PRB coal would actually produce slightly less electricity than on Illinois Basin coal, because of the differences in typical moisture contents and boiler heat rates for each coal type.

⁴ Sierra Club/NPCA Comment Letter, pg. 28.

⁵ Exhibit 2, Victoria R. Stamper Report (“Stamper Report”), pg. 8.

MATS SO2 Limit

Sierra Club/NPCA Comment: EPD proposed to require a 0.20 lb/MMBtu, 30-day average SO2 limit for each Plant Bowen unit with exemptions for startup and shutdown. As Stamper's analysis shows, (1) a 0.15 lb/MMBtu SO2 limit of is justifiable, and (2) no exemption is needed for 30-day average SO2 limit for startup and shutdown. Plant Bowen's units "should not be subject to a limit any higher than 0.17 lb/MMBtu, as each unit has consistently been able to comply with such a limit"...According to NPS, [it] is not clear why GA EPD did not consider optimization of the existing wet scrubbers and instead evaluated replacement with dry scrubbers which typically have lower control efficiencies than wet scrubbers.⁶

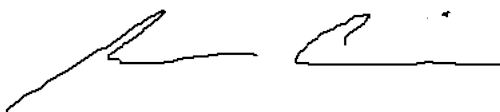
Sierra Club/NPCA's statement that the MATS SO2 limit of 0.20 lb/MMBtu includes an "exemption" for startup and shutdown is incorrect. Rather, as U.S. EPA made clear when adopting the startup and shutdown provisions into MATS, these time periods are continuously regulated by the work practice standards promulgated in 40 CFR 63.10021 and Table 3 of the MATS Rule. Together, both the numeric limitation and the work practices for startup and shutdown ensure continuous limitation of SO2 emissions consistent with the maximum achievable control technology standards adopted by EPA.

In June 2022, Georgia Power provided additional hourly SO2 emissions rate data to demonstrate how the variability of the data continues to support the need for a reasonable compliance margin. The compliance margin is also appropriate and reasonable because the existing wet FGD systems for Plant Bowen Units 1-4 must be optimized not only for SO2 removal but also to maintain compliance with MATS emissions control and wastewater treatment requirements for both mercury and selenium. Therefore, to maintain optimized conditions for the compliance requirements of the existing wet FGD systems and allow for necessary compliance margin to address natural variability, Georgia Power again confirms that the MATS alternative SO2 limit of 0.20 lb/MMBtu is the appropriate limit for Plant Bowen Units 1-4 in the Georgia Regional Haze SIP for the second implementation period.

Although the Sierra Club/NPCA comments claim that EPD should have reviewed optimizing the wet scrubbers as a potential control option, these controls are already optimized. Therefore, optimizing the wet scrubbers is not a control option that is available for consideration but rather the baseline for the analysis.

Thank you for the opportunity for Georgia Power to provide a response to these comments. Should you have any questions regarding these comments, please contact Rachel Greiner at (404) 851-4916.

Sincerely,



Rosa Chi
Air Manager

⁶ Sierra Club/NPCA Comment Letter, pg. 29.