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**Via Email to: [airmail@adem.alabama.gov](mailto:airmail@adem.alabama.gov)**

Mr. Ronald W. Gore  
Chief, Air Division  
Alabama Department of Environmental Management  
P.O. Box 301463  
Montgomery, Alabama 36130-1463

**Re: Draft Renewal Title V Major Source Operating Permit for the Alabama Power Company Barry Steam Electric Generating Plant, Facility Number 503-1001**

Dear Mr. Gore:

The Southern Environmental Law Center (SELC)<sup>1</sup> respectfully submits the following comments on the draft Major Source Operating Permit (“Draft Permit”) for Alabama Power Company’s Barry Steam Electric Generating Station. SELC submits these comments on behalf of Energy Alabama<sup>2</sup> and Mobile Baykeeper.<sup>3</sup> The Draft Permit has been placed on public notice for Clean Air Act (“CAA” or “Act”) Title V permit renewal by the Alabama Department of Environmental Management (ADEM). We appreciate the opportunity to submit these comments and respectfully request that ADEM amend the Draft Permit to address our concerns.

## **I. Background**

Alabama Power Company (“Alabama Power”) owns and operates the Barry Steam Electric Generating Station (“Barry” or “Plant”), a natural gas and coal-fired electricity generating plant in Bucks, Mobile County, Alabama. The Plant, located roughly 25 miles north of Mobile, Alabama in the Mobile-Tensaw Delta, has been in operation since 1952. The Plant currently consists of two tangentially-fired units that burn natural gas (Barry Units 1 and 2), two tangentially-fired units that burn coal with natural gas start-up fuel (Barry Units 4 and 5), and two natural gas-fired combined cycle units (Barry Units 6 and 7). Barry Units 1 and 2 have a normal full load of approximately 85 megawatts (MW), Barry Unit 4 has a normal full load of

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<sup>1</sup> The Southern Environmental Law Center is a non-profit, regional environmental organization dedicated to protecting natural resources, preserving special places, and promoting vibrant communities throughout the Southeast. *See* <http://www.southernenvironment.org>.

<sup>2</sup> Energy Alabama is an Alabama nonprofit association seeking to accelerate the state’s transition to sustainable energy. Energy Alabama works with governmental entities, utilities and the general public to grow the awareness and use of sustainable energy. *See* <https://alcse.org>.

<sup>3</sup> Mobile Baykeeper is a twenty-three-year-old environmental nonprofit organization with a mission of providing citizens a means to protect the beauty, health and heritage of the Mobile Bay Watershed and our coastal communities. Mobile Baykeeper submits these comments on behalf of its board, officers, staff and more than 4,500 members. *See* <https://www.mobilebaykeeper.org/>.

approximately 376 MW, Barry Unit 5 has a normal full load of approximately 785 MW, and Barry Units 6 and 7 each generate approximately 500 MW.<sup>4</sup>

Historically, Units 1 and 2 burned coal, but they were converted to burn natural gas to comply with the Mercury and Air Toxics Standards (MATS). Units 1 and 2 are equipped with selective non-catalytic reduction (SNCR) for NO<sub>x</sub> control, but the SNCR “is only operated as necessary, to comply with the requirements of 40 CFR 76.”<sup>5</sup> Unit 4 is a coal-fired unit, but it utilizes natural gas as a startup fuel. It is equipped with an electrostatic precipitator (ESP) for PM control and a SNCR for NO<sub>x</sub> control “that is only operated as necessary, to comply with the requirements of 40 CFR 76.”<sup>6</sup> It is also equipped with a dry sorbent injection system for acid gas control and a powdered activated carbon system for mercury control.<sup>7</sup> Unit 5 has an ESP for PM control, a selective catalytic reduction (SCR) system for NO<sub>x</sub> control, and a flue gas desulfurization (FGD) system (also known as a scrubber) for SO<sub>2</sub>, mercury and additional PM control. In addition, Unit 5 is equipped with a calcium bromide fuel additive application system for mercury control.<sup>8</sup>

Alabama Power’s current Title V permit was issued in late 2010, with an effective date of January 1, 2011, and has been expired since December 31, 2015. Alabama Power timely submitted its Title V permit renewal application for Barry (“Renewal Application”) on June 25, 2015. It has since submitted an updated application on February 16, 2016, and submitted additional information on multiple occasions in 2019 and 2020.<sup>9</sup> On June 30, 2020, ADEM issued the Draft Permit and an accompanying Statement of Basis for the Plant. We appreciate ADEM granting requests for a public hearing, which was held on October 15, 2020, and an extension of the comment period, setting October 22, 2020 as the comment deadline.

## **II. Regulatory Framework**

All major stationary sources of air pollution are required to apply for operating permits under Title V of the CAA. These permits must include emission limitations and other conditions as necessary to assure continuous compliance with all applicable requirements of the Act, including the requirements of the applicable State Implementation Plan (SIP).<sup>10</sup> The Title V operating permit program does not generally impose new substantive air quality control requirements, but it does require that the permit contain monitoring, recordkeeping, reporting, and other requirements to assure continuous compliance by sources with all existing applicable emission control requirements.<sup>11</sup> One purpose of the Title V program is to “enable the source,

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<sup>4</sup> Ala. Dep’t of Env’tl. Mgmt., Facility No. 503-1001, Statement of Basis, Draft Barry Steam Electric Generating Plant Major Source Operating Permit, at 2, 9, 29 (2020) [hereinafter Statement of Basis]; Ala. Power Co., Title V Operating Permit Application, Barry Steam Electric Generating Plant, at PDF p. 39 [hereinafter Renewal Application].

<sup>5</sup> Statement of Basis at 2.

<sup>6</sup> *Id.* at 5.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at 9-10.

<sup>9</sup> *Id.* at 1.

<sup>10</sup> See 42 U.S.C. §§ 7661a(a), 7661c(a).

<sup>11</sup> Operating Permit Program, 57 Fed. Reg. 32,250, 32,251 (July 21, 1992) (EPA final action promulgating Part 70 rule).

states, EPA, and the public to better understand the requirements to which the source is subject, and whether the source is meeting those requirements.”<sup>12</sup> Thus, the Title V program is a vehicle to ensure appropriate application of and compliance with existing CAA requirements.

The regulations require each Title V permit to include “emissions limitations and standards and operational requirements and limitations necessary to assure compliance with *all applicable requirements* at the time of permit issuance.”<sup>13</sup> Permits must also include “[a]ll emissions monitoring and analysis procedures or test methods required,” and “periodic monitoring sufficient to yield reliable data from the relevant time period that is representative of the source’s compliance with the permit.”<sup>14</sup> Monitoring requirements must “assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement.”<sup>15</sup>

A Title V permit is issued for a term of no more than five years,<sup>16</sup> and the applicant must submit an application for renewal of the permit “at least 6 months prior to the date of permit expiration, or such other longer time as may be approved by the Administrator that ensures that the term of the permit will not expire before the permit is renewed.”<sup>17</sup> Permit renewals are subject to the same procedural requirements, including those for public participation and EPA review, which apply to initial permit issuance.<sup>18</sup> As the federal regulations make clear, permitting authorities should analyze timely-filed renewal applications and issue renewed permits *prior to expiration* of the existing Title V permit.<sup>19</sup>

In this case, Alabama Power’s current Title V permit for Barry was issued in December 2010 and expired five years later, in December 2015. Alabama Power submitted a timely renewal application on June 25, 2015. ADEM, however, did not issue a Draft Permit until June 30, 2020, roughly 4.5 years after the permit’s expiration date. As a result of this delay, the Barry Plant has now operated under the same Title V permit for almost two full five-year terms, and it is crucial that the Draft Permit incorporate and assure compliance with all new applicable requirements that have come into existence in the interim.

### **III. Emission Standards**

#### **A. Heat Inputs**

In its Statement of Basis, ADEM states that it “considers the heat input rating and normal full load as a *descriptive moniker* only.”<sup>20</sup> It then goes on to state the full load heat inputs and normal full load for the various units. According to the Statement of Basis, for Units 1 and 2, the

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<sup>12</sup> *Id.*

<sup>13</sup> Ala. Admin. Code r. 335-3-16-.05(a) (emphasis added); *see* 40 C.F.R. § 70.6(a)(1).

<sup>14</sup> Ala. Admin. Code r. 335-3-16-.05(c)(1).

<sup>15</sup> *Id.*; *see* 40 C.F.R. § 70.6(c)(1) (requiring “compliance certification, testing, monitoring, reporting and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit”).

<sup>16</sup> 40 C.F.R. § 70.6(a),

<sup>17</sup> *Id.* § 70.5(a)(1)(iii).

<sup>18</sup> *Id.* § 70.7(c)(1)(i).

<sup>19</sup> *See id.* § 70.5(a).

<sup>20</sup> Statement of Basis at 2 (emphasis added).

full load heat input is 950 MMBtu/hour and the normal full load is approximately 85 MW.<sup>21</sup> For Unit 4, the full load heat input is 3571 MMBtu/hour<sup>22</sup> and ADEM, presumably by mistake, did not include the normal full load in the Statement of Basis.<sup>23</sup> However, the CAM Plan for Unit 4, attached to the Statement of Basis, states that it has a normal full load of approximately 376 MW.<sup>24</sup> Unit 5's full load heat input is 7,585 MMBtu/hour and the normal full load is approximately 785 MW.<sup>25</sup> ADEM does not provide the heat input rating or the normal full load for the two combined cycle units at the plant, although the Renewal Application states that they can generate approximately 1,000 MW, with each combined cycle generating 500 MW.<sup>26</sup>

While the Statement of Basis describes the heat inputs and normal full load (for some units), the permit does not identify the hourly heat input capacities for the units in a permit condition. These capacities are important in defining the emission units that are being regulated by the permit. Further, the heat input capacities form the basis for determining the maximum emissions of pollutants from these units.<sup>27</sup> The maximum allowable emissions in turn form the basis for air quality planning, i.e., assessment of air quality impacts from this source, and the emissions limitations necessary to achieve and maintain compliance with air quality standards. Further, the heat input capacities are typically relied on in evaluating whether modifications to a unit trigger the need for a minor or major modification permit.

As EPA has stated in its 1990 New Source Review Workshop Manual, identification of technical specifications of the units covered by a permit is a key element of an effective permit. The technical specifications should include "a brief description of the source or type of equipment, size or capacity, model number or serial number, and the source's identification of the unit."<sup>28</sup> EPA also states that "identifying each emissions unit is important so that (1) inspectors can easily identify the unit in the field and (2) the permit leaves no question as to which unit the various permit limitations and conditions apply."<sup>29</sup> While we recognize that this is a Title V permit and not a New Source Review permit, the Title V permit is supposed to incorporate all applicable requirements so that the source, the state, and the public are informed as to all of the requirements that apply to the source, and it is just as important to apply these principles of effective permit writing to a Title V permit.

Despite their importance, heat input capacities for the units in the Draft Permit are not identified as enforceable conditions of the permit.<sup>30</sup> Rather, these numbers improperly appear to be only descriptive. Heat input is expressed as MMBtu per hour (MMBtu/hr), and pollutant

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<sup>21</sup> *Id.*

<sup>22</sup> *Id.* at 5.

<sup>23</sup> ADEM should correct the Statement of Basis to include information on Barry Unit 4's normal full load.

<sup>24</sup> Statement of Basis at 29.

<sup>25</sup> *Id.* at 9.

<sup>26</sup> ADEM should correct the Statement of Basis to include the heat input rating and normal full load for Barry Units 6 and 7. *See* Renewal Application at PDF page 39 for approximate generation capacity.

<sup>27</sup> *See, e.g.,* Renewal Application at PDF pages 407-08 (potential emissions calculations for Barry Unit 4).

<sup>28</sup> U.S. EPA, New Source Review Workshop Manual, at H.5 (1990), <https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf> (last visited Oct. 22, 2020).

<sup>29</sup> *Id.*

<sup>30</sup> Statement of Basis at 1-2; *see* Ala. Dep't of Env'tl. Mgmt., Facility No. 503-1001, Draft Barry Steam Electric Generating Plant Major Source Operating Permit, at 24-25 (2020) (Using Units 1 and 2 as an example, refer to the "Description" section in table & "Emissions Standards") [hereinafter Draft Permit].

emission rates or limits are expressed as pounds per MMBtu (lb/MMBtu), as Alabama Power has itself done in its Title V permit application emission calculations. Thus, if actual heat inputs are higher than those listed in the Statement of Basis and Title V Renewal Application, total emissions will be higher than those represented to the public in these documents.<sup>31</sup> Without enforceable heat input limits, a unit can be operated above the rated heat input shown in the permit (as appears to be the situation in this case), and will, as a result, not be constrained by its maximum emissions limitation. A higher heat input may require the pollutant lb/MMBtu emissions limitations to be adjusted downward, in order to assure compliance with air quality standards such as the National Ambient Air Quality Standards (NAAQS) for NO<sub>x</sub> and SO<sub>2</sub>.

Making the heat input values enforceable limits is even more important in this case because available evidence calls into question their very basis and origin. The record shows that the descriptive heat input values in the Draft Permit and Renewal Application have been routinely exceeded. For example, EPA's Clean Air Markets Database (CAMD) shows maximum heat input data significantly higher figures that exceed the values described in the Statement of Basis and Draft Permit.<sup>32</sup> APC data reported to EPA and as available in the CAMD database show, for example that the maximum hourly heat input in 2019 for Unit 5 was 7,781.9 MMBtu/hour, Unit 4 was 3,720.6 MMBtu/hour, Unit 2 was 1,130.5 MMBtu/hour and Unit 1 was 1,044.9 MMBtu/hour. Even higher maximum hourly values have been reported in previous years, such as 8,163.3 MMBtu/hour for Unit 5 in 2018.

Without these heat inputs identified as enforceable limits, the public and affected states have no opportunity to review and comment on units with a higher heat input, and thus a plant with effectively higher emissions limitations, than what is identified in the permit. Where, as here, routine operating data demonstrate that the units can and do clearly operate at much higher heat input rates for substantial time periods than those reported in the Title V permit, the public is misled about the actual amount of pollutants that can be emitted by this plant. The rated heat inputs relied upon by ADEM in issuing any permits for this facility are applicable requirements (as are all data and assertions in the application) for the plant and must be accurately stated and included as enforceable permit conditions that are subject to monitoring, record-keeping and reporting requirements adequate to demonstrate compliance.

## **B. Opacity and Particulate Matter**

### **1. The Draft Permit's opacity limit for Unit 4 is too high.**

For Unit 4, the Draft Permit refers to current Ala. Admin. Code r. 335-3-4-.01(3)-(5) as the federally enforceable rule governing opacity, or visible emissions.<sup>33</sup> The cited rule incorporates revisions to Alabama's prior SIP-approved rule governing visible emissions which considerably weakened the protections afforded by the prior rule. The prior SIP governing visible emissions, Ala. Admin. Code r. 335-3-4-.01(1), imposes an overall opacity limit of 20%

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<sup>31</sup> It also raises issues as to the condition of the boilers, which Alabama Power may be operating above their rated heat input limits—with the potential for injury to the boiler and an associated increase in emissions.

<sup>32</sup> See EPA, Clean Air Markets Database, <http://ampd.epa.gov/ampd/> (last visited Oct. 22, 2020) (data furnished upon request).

<sup>33</sup> Draft Permit at 31.

and is the cited emission standard for Units 1, 2, and 5.<sup>34</sup> That limit may not be exceeded for more than one 6-minute period per hour (i.e., 24 six-minute periods per day), and during such periods, the maximum allowable opacity is 40%.<sup>35</sup> In 2014, EPA determined that it erroneously approved the revisions, which weakened the opacity regulations.<sup>36</sup>

The erroneously approved revisions make two fundamental changes to the stronger, prior rule: (1) they allow for maximum visible emissions of up to 100% opacity during 24 six-minute periods per day; (2) they allow opacity of up to 100% for up to 2.4 consecutive hours—in other words, the 24 six-minute exceptions to the general 20% limit may be “bundled” together.<sup>37</sup> Hence, whereas under the prior SIP rule, Unit 4 could emit opacity no greater than 40% for no more than six minutes per hour, under the revised rule the units, may emit up to 100% opacity for up to two hours and twenty minutes per day.<sup>38</sup>

As EPA notes in its proposed disapproval of the SIP visible emissions rule in 2014, historically “visible emissions have been an important tool for implementation of the PM NAAQS and, in particular, for the implementation and enforcement of PM limits on sources to help attain the NAAQS.”<sup>39</sup> Visible emissions indicate the overall operation and maintenance of a facility and its emission control devices.<sup>40</sup> Greater than normal visible emissions indicate incomplete combustion or other changes to the process or the control device such as the electrostatic precipitator used to control opacity and particulate emissions.<sup>41</sup>

Well-maintained and well-operated sources and their controls can achieve visible emissions that comply with opacity limits. “Conversely, visible emissions at much higher percentages (such as those allowed by Alabama’s revised rule), particularly on a recurring basis, may indicate that a source is emitting more PM and may be in violation of applicable SIP or permit PM mass limits as well.”<sup>42</sup>

In October 2008, EPA approved the opacity rule revisions that ADEM has incorporated into the Draft Permit for Barry.<sup>43</sup> EPA has made it clear that approval was in error. In February 2014, EPA proposed to determine that its 2008 approval of Alabama’s revisions to its opacity rule was in error, and as directed by the Eleventh Circuit,<sup>44</sup> EPA has provided its specific error determination and the basis for each.<sup>45</sup> EPA now concludes, appropriately, that a SIP revision which relaxes an existing SIP requirement “would interfere” with NAAQS attainment and maintenance in the absence of contrary evidence.<sup>46</sup>

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<sup>34</sup> See *id.* at 15 (Proviso 29), 25, 39.

<sup>35</sup> *Id.*

<sup>36</sup> See generally Error Correction and Disapproval of Revisions to the Visible Emissions Rule, 79 Fed. Reg. 8645 (Feb. 13, 2014).

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> 79 Fed. Reg. at 8648.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> See Approval of Revisions to the Visible Emissions Rule, 73 Fed. Reg. 60,957 (Oct. 15, 2008).

<sup>44</sup> See *Ala. Envtl. Council v. EPA*, 711 F.3d 1277 (11th Cir. 2013).

<sup>45</sup> 79 Fed. Reg. at 8645.

<sup>46</sup> *Id.* at 8650.

In addition, EPA's proposed disapproval concluded that information available in 2008 was sufficient to find that Alabama's SIP revisions would allow longer periods of elevated opacity, which would in turn allow increased PM emissions and thereby interfere with NAAQS attainment and maintenance.<sup>47</sup> EPA found that there is a relationship between opacity and PM emissions such that Alabama's SIP revisions would, more likely than not, authorize increased PM emissions that would interfere with attainment and maintenance of the PM<sub>2.5</sub> NAAQS.<sup>48</sup>

EPA has also found that by authorizing up to 24 six-minute averages of 100% opacity per day, the revisions functionally equate to an exemption from the otherwise applicable SIP emission limitation (i.e., 20%) in violation of CAA § 302(k) (defining the terms "emission limitation" and "emission standard").<sup>49</sup> Alabama's requested revisions "contravene section 302(k)'s unambiguous requirement that an emission limitation restrict emissions 'on a continuous basis.'"<sup>50</sup> Although SIP measures need not require compliance with the same numerical emission limitation at all times, an allowance of 100% opacity for up to 24 six-minute averages per day does not constitute a numerical emission limitation at all. Instead it equates to an end-run around the emission limitation for those periods.<sup>51</sup>

Finally, EPA found that the revisions are inconsistent with CAA § 193, which provides that no control requirement in effect before November 15, 1990, in any area which is nonattainment for any air pollutant, may be modified thereafter unless the modification ensures equivalent or greater emission reductions of such air pollutant.<sup>52</sup> At the time of the 2008 approval, the Birmingham area was designated nonattainment for the 1997 PM<sub>2.5</sub> NAAQS, and EPA was in the process of designating the same area as nonattainment for the 2006 24-hour PM<sub>2.5</sub> NAAQS.<sup>53</sup>

In sum, EPA moved to correct its previous erroneous approval of the opacity rule revisions, and has done so in the manner directed by the Eleventh Circuit. EPA accepted public comment on the proposed disapproval in 2014, but EPA has yet to finalize its 2014 proposed disapproval. Once EPA finalizes its disapproval, Alabama's SIP rule governing visible emissions will revert to the prior rule. The prior rule is more protective of public health, and is critical to preserving Alabama's hard-fought gains toward attaining and maintaining ambient air quality standards for PM<sub>2.5</sub>, a pollutant that has historically posed particular compliance problems for Alabama.

Accordingly, the Draft Permit should be revised to retain the more protective standard for Unit 4.<sup>54</sup> In addition, ADEM should set a more stringent standard when the units are burning natural gas, since opacity emissions are expected to be minimal.

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<sup>47</sup> *Id.* at 8651.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.* at 8652.

<sup>50</sup> *Id.* at 8653.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.* at 8753–54.

<sup>53</sup> *Id.* at 8649–50.

<sup>54</sup> Given the presence of an ESP on the unit, even the more protective opacity standard is higher than what the units should emit, and ADEM should consider implementing a more stringent opacity standard for Unit 4.

2. ADEM must not adopt broad exemptions from the 20% opacity limit for startup, shutdown, malfunction and load change for Unit 4.

For Unit 4, the Draft Permit includes exemptions from the stated opacity limit for startup, shutdown, maintenance and load change.<sup>55</sup> The Draft Permit purports to define “startup, shutdown, load change, and maintenance,” but the definitions are impermissibly vague and unenforceable, and extremely broad in scope. Such vaguely-worded exemptions from emissions limitations create compliance uncertainty, undermine enforceability, and can result in overly broad interpretations that erode emissions control requirements.

The Alabama opacity rule does not automatically provide for exemptions during startup, shutdown, load change or rate change.<sup>56</sup> The rule does give ADEM the discretion to allow such exemptions, but only for a source with an existing “air permit” issued under Alabama Administrative Code chapter 335-3-14.<sup>57</sup> ADEM cannot grant these exemptions through a Title V permit issued pursuant to chapter 335-3-16, but that is exactly what ADEM attempts to do in the Draft Permit. Thus, these exemptions have not been lawfully granted.

Further, under the air permit rules, ADEM cannot issue an air permit if the operation of such source will interfere with attaining or maintaining a NAAQS.<sup>58</sup> In addition, ADEM’s regulations provide that exemptions from emission limits will only be granted if such excess emissions cannot be reasonably avoided;<sup>59</sup> however, as discussed below in section III.F, EPA issued a finding that that the regulation was “substantially inadequate” and has called for a SIP revision to address the inadequacies.<sup>60</sup>

Granting unauthorized exemptions is particularly inappropriate given the recent operating history of Unit 4. Barry Unit 4 operates at capacity levels below 40% for much of the year. Assuming that the generating capacity of each unit is 362 MW (the summer/winter capacity),<sup>61</sup> a review of actual gross megawatt-hours generated at the units, as reported to the EPA,<sup>62</sup> and the corresponding capacity factor is provided below.

**Barry Unit 4 Monthly MWh Gross Generation and Capacity Factors, 2018 to 2019**

	MWh Generated	Capacity Factor	MWh Generated	Capacity Factor
Month	2018	2018	2019	2019
January	119,710.5	44.4%	28,322	10.5%
February	59,718	24.5%	50,401.75	20.7%

<sup>55</sup> Draft Permit at 31-32.

<sup>56</sup> Ala. Admin. Code r. 335-3-4-.01.

<sup>57</sup> *Id.* r. 335-3-4-.01(c).

<sup>58</sup> *See id.* r. 335-3-14-.03(1)(g).

<sup>59</sup> *See id.* r. 335-3-14-.03(1)(h).

<sup>60</sup> State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA’s SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown, and Malfunction, 80 Fed. Reg. 33,840, 33,962 (June 12, 2015).

<sup>61</sup> *See* U.S. Energy Information Association, Form EIA-860 (2019), *available at* <https://www.eia.gov/electricity/data/eia860/>.

<sup>62</sup> *See* EPA, Clean Air Markets Database, <http://ampd.epa.gov/ampd/> (last visited Oct. 22, 2020) (data furnished upon request).

March	76,937.5	28.6%	59,032.5	21.9%
April	125,820	48.3%	0	0%
May	97,183	36.1%	54,865	20.4%
June	100,790	38.7%	36,732	14.1%
July	84,785	31.5%	73,303	27.2%
August	112,264	41.7%	94,477.75	35.1%
September	112,728	43.3%	0	0%
October	44,525.25	16.5%	0	0%
November	0	0	74,289	28.5%
December	45,299	16.8%	69,918	26%

The wide range of capacity factors—from 0% to 48.3%—show that the unit likely is undergoing more startups, shutdowns, and load changes than in the past. The exemption from the opacity requirement during these periods will equate to periods of time when no opacity limit would apply to these units.

Although ADEM has included additional work practice provisions that apply during these startup/shutdown/load change periods, the work practice provisions are also vague and unenforceable. For example, Emission Standard 2(b)(ii) of the Unit 4 Power Boilers Provisos of the Draft Permit requires Alabama Power to “[t]ake all reasonable actions to minimize the magnitude and duration of elevated emission conditions during these periods.”<sup>63</sup> The term “reasonable actions” is not defined and invites subjective interpretations. Further, the work practice standards have not been shown to be protective of the PM NAAQS.

The Draft Permit’s definitions of startup, shutdown, load change, and maintenance are vague and open to varying and broad interpretations, such that the units would be considered exempt from the opacity limits at almost all times. For instance, the definitions of “startup” and “shutdown” in the Draft Permit define the startup end point and the shutdown start point relative to the “normal minimum load” for the unit and also relative to the “normal hot-side precipitator operating temperature.”<sup>64</sup> But these terms are not defined. “Maintenance” is defined to apply during periods when a unit is off-line, meaning that none of the generators are supplying power to their dispatch systems.<sup>65</sup> “Load change” is defined as “[a] rapid change in the electrical loading of a unit that is readily identifiable on the load chart recording.”<sup>66</sup> The use of the adjective “rapid” does not clarify the definition sufficient to limit the period during which the exemption applies, and what is “readily *identifiable*” on a load chart recording will be subjective to the view of the chart.”<sup>67</sup>

Similarly, Alabama’s regulations do not provide detailed definitions of the terms “startup,” “shutdown,” “load change,” or “maintenance.”<sup>68</sup> However, Alabama Power’s opacity rule makes clear that exemptions are limited to “short” and “intermittent” occurrences, and

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<sup>63</sup> Draft Permit at 31.

<sup>64</sup> *Id.* at 32.

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* (emphasis added).

<sup>68</sup> Ala. Admin. Code r. 335-3-1-.02.

should be subject to case-specific air permit terms approved by the Director.<sup>69</sup> Further, as noted previously, the rules only allow for exemptions in an air permit for exceedances of emission limits if such excess emissions cannot reasonably be avoided.<sup>70</sup> Alabama Power has more than enough technical capability at these units to ensure that excess opacity emissions are avoided during startup, shutdown, load changes and maintenance. As other units have demonstrated, well maintained and well run ESPs can operate at all times, including shutdown and startup, which are part of the normal operating mode of any coal-fired unit.

For the above reasons, the Title V permit for Barry Unit 4 must not incorporate any exemptions from the opacity limits during startup, shutdown, load change, or maintenance. Such exemptions may only be adopted through the issuance of air permit pursuant to Chapter 335-3-14 of the Alabama SIP, and such air permit must be issued with public notice and opportunity for comment. Moreover, there is no justification for broad exemptions because the ESP can be operated during periods of startup, shutdown, and especially during load changes.

### 3. The PM emission standards are too high.

The particulate matter emission standards for the Barry units are much higher than what the units actually emit. For Units 1 and 2, the PM emission standard is 0.12 lb/MMBtu.<sup>71</sup> However, the PM emissions from these units are expected to be minimal.<sup>72</sup> Using the nominal full load of 950 MMBtu/hr for each of these units, the PM limit translates into 114 lb/hr as compared to the expected value of 1.8 lb/hr,<sup>73</sup> which is less than 2% of the permitted value. To further put this in context, the coal-fired Units 4 and 5 have PM limits of 0.03 lb/MMBtu, which is one-fourth of the limits for PM for the gas-fired units.<sup>74</sup> Unit 4 had an actual PM emission rate of 0.015 lb/MMBtu and Unit 5 had an actual PM emission rate of 0.013 lb/MMBtu.<sup>75</sup> Also, for comparison, the natural gas fired combined cycle units 6A/6B and 7A/7B have PM limits of 0.011 lb/MMBtu, which is more than one-tenth lower than the 0.12 lb/MMBtu limit for Units 1 and 2.<sup>76</sup> Compliance testing for the combined cycle units showed PM emissions of 0.0079 lb/MMBtu.<sup>77</sup> The 0.12 lb/MMBtu limits for Units 1 and 2 are therefore, too high.

The PM limits for Units 4 and 5 also also too high. Both units' emission standards include two standards for PM, a more stringent 0.03 lb/MMBtu limit and a much more lenient 0.12 lb/MMBtu limit.<sup>78</sup> The permit requires the 0.03 lb/MMBtu limit only if Alabama Power limits PM emissions as a surrogate of the non-mercury hazardous air pollutant metals regulated under the MATS rule.<sup>79</sup> If Alabama Power chooses to comply with the MATS rule by instead

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<sup>69</sup> *Id.* r. 335-3-4-.01(c).

<sup>70</sup> *Id.* r. 335-3-14-.03(h).

<sup>71</sup> Statement of Basis at 2.

<sup>72</sup> *Id.* at 3.

<sup>73</sup> *Id.* at 3.

<sup>74</sup> *Id.* at 5, 10.

<sup>75</sup> *Id.* at 7, 12.

<sup>76</sup> *Id.* at 15.

<sup>77</sup> *Id.* at 16.

<sup>78</sup> *Id.* at 5, 10.

<sup>79</sup> *Id.*

complying with the HAP metal limits, then the 0.12 lb/MMBtu limit is applicable.<sup>80</sup> Alabama Power's own data shows that the expected PM emissions are 0.015 lb/MMBtu for Unit 4 and 0.013 lb/MMBtu for Unit 5—eight and nine times lower, respectively, than the 0.12 lb/MMBtu emission limit in the Draft Permit.<sup>81</sup> In addition, both units are equipped with an ESP (and Unit 5 also has a scrubber), and they clearly have no difficulty achieving very low PM limits. The Title V permit should not open the door to allowing significantly higher emissions; instead, ADEM should only include the 0.03 lb/MMBtu limit in the Permit. Requiring a lower limit of these PM emissions at Units 1, 2, 4 and 5 is more protective of human health and the environment.

4. Coarse and fine particle pollution should be limited and monitored separately.

The Draft Permit includes limits of 0.12 lb/MMBtu for PM.<sup>82</sup> Since there is no further definition of PM, it is implied that the limit is for total suspended particulate matter, and only its filterable component (since the method of measurement is EPA Method 5 or Method 17).<sup>83</sup> This PM limit is simply inadequate. Currently, NAAQS exist for PM<sub>10</sub> as well as PM<sub>2.5</sub>. Neither size fraction is separately regulated via the proposed permit limit. If the only method used to regulate PM in the Draft Permit is EPA Method 5, the PM limit as described fails to provide a limit specific to PM<sub>2.5</sub>.<sup>84</sup> Both PM<sub>10</sub> and PM<sub>2.5</sub> should be clearly regulated in the Draft Permit. Both forms of PM have been linked to numerous deleterious health effects, including decreased lung function, aggravated asthma, development of chronic bronchitis, irregular heartbeat, heart attacks and premature death.

However, as EPA has concluded, PM<sub>10</sub> and PM<sub>2.5</sub> differ in three significant respects.<sup>85</sup> First, they are distinct air pollutants that do not share the same physical or behavioral characteristics.<sup>86</sup> Second, PM<sub>2.5</sub> and PM<sub>10</sub> pose different kinds and levels of risk to human health. Because of its extremely small size, PM<sub>2.5</sub> can penetrate deep into the lungs, enter the blood stream, and cross the blood-brain barrier. As a result, PM<sub>2.5</sub> pollution causes more frequent and severe adverse health effects than PM<sub>10</sub>.<sup>87</sup> EPA has recognized a significant correlation between elevated PM<sub>2.5</sub> levels and premature mortality.<sup>88</sup> Older adults, people with heart and lung disease, and children are particularly sensitive to PM<sub>2.5</sub> exposure.<sup>89</sup> Finally, and most importantly, because of their different physical and behavioral characteristics, PM<sub>10</sub> and PM<sub>2.5</sub> are not effectively treated with the same pollution controls. In fact, EPA has recognized that PM<sub>10</sub> controls do not necessarily provide for effective control of PM<sub>2.5</sub>: “In contrast to PM<sub>10</sub>, EPA anticipates that achieving the NAAQS for PM<sub>2.5</sub> will generally require States to evaluate

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<sup>80</sup> *Id.*

<sup>81</sup> *Id.* at 7, 12.

<sup>82</sup> Draft Permit at 25, 32, 39.

<sup>83</sup> *See infra* Part III.B.5 for further discussion.

<sup>84</sup> *See* 40 C.F.R. § 51, Appendix M (Recommended Test Methods for State Implementation Plans).

<sup>85</sup> *See* Clean Air Fine Particulate Implementation Rule, 72 Fed. Reg. 20,586 (Apr. 25, 2007).

<sup>86</sup> *See id.* at 20,599 (“PM<sub>2.5</sub> also differs from PM<sub>10</sub> in terms of atmospheric dispersion characteristics, chemical composition, and contribution from regional transport”).

<sup>87</sup> National Ambient Air Quality Standards for Particulate Matter, 62 Fed. Reg. 38,652, 38,665 (July 18, 1997).

<sup>88</sup> *See, e.g.,* EPA, Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM<sub>2.5</sub>), 73 Fed. Reg. 28,321, 28,324 (May 16, 2008).

<sup>89</sup> *Id.*

different sources for controls, to consider controls of one or more precursors in addition to direct PM emissions, and to adopt different control strategies.”<sup>90</sup>

EPA has confirmed that any technical impediments to the separate regulation of PM<sub>2.5</sub> have been resolved.<sup>91</sup> Moreover, EPA announced in the final PM<sub>2.5</sub> implementation rule that for Title V permits, “as of the promulgation of this final rule, the EPA will no longer accept the use of PM<sub>10</sub> emissions information as a surrogate for PM<sub>2.5</sub> emissions information given that both pollutants are regulated by a [NAAQS] and therefore are considered regulated air pollutants.”<sup>92</sup> Indeed, Alabama Power included both PM<sub>10</sub> and PM<sub>2.5</sub> emissions in its potential emissions calculations in its Renewal Application.<sup>93</sup> Thus, the Permit can and should include limits and monitoring for both PM<sub>10</sub> and PM<sub>2.5</sub>.

5. Only EPA Method 5 should be used as a compliance method for particulate matter.

Currently, the Draft Permit allows the use of either Method 5 or Method 17 to demonstrate compliance with the 0.12 lb/MMBtu PM limit.<sup>94</sup> However, Method 17 can only be used when certain conditions are met. Specifically, EPA states that “[Method 17] is applicable for the determination of PM emissions, where PM concentrations are known to be independent of temperature over the normal range of temperatures characteristic of emissions from a specific source category.”<sup>95</sup>

However, neither the Title V permit application nor any of the other documents provided by Alabama Power demonstrate that this condition of “independent of temperature” is met. Until such demonstration is provided, only Method 5 should be used as the test method.

### C. Sulfur Dioxide

Short-term exposure to SO<sub>2</sub>, ranging from five minutes to 24 hours, causes an array of health problems, including premature death, worsening of respiratory diseases such as emphysema and bronchitis, aggravation of asthma, exacerbation of heart disease, chest tightness, and decrements in lung function.<sup>96</sup>

The one-hour ambient air quality standard for sulfur dioxide is 75 parts per billion (ppb). EPA has determined that ambient concentrations above this level fail to protect public health

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<sup>90</sup> 72 Fed. Reg. at 20,589; *see also* 62 Fed. Reg. at 38,666.

<sup>91</sup> 73 Fed. Reg. at 28,340 (“With this final action [establishing NSR regulations for PM<sub>2.5</sub> and eliminating the PM<sub>10</sub> Surrogacy Policy] and technical developments in the interim, these difficulties have largely been resolved”).

<sup>92</sup> 72 Fed. Reg. at 20,660 (footnotes omitted).

<sup>93</sup> *See* Renewal Application at PDF pp. 403-16.

<sup>94</sup> Draft Permit at 26, 33, 40, 51, 57.

<sup>95</sup> EPA, Method 17- Determination of Particulate Matter Emissions from Stationary Sources, [https://www.epa.gov/sites/production/files/2017-08/documents/method\\_17.pdf](https://www.epa.gov/sites/production/files/2017-08/documents/method_17.pdf) (last visited Oct. 22, 2020).

<sup>96</sup> *See Sulfur Dioxide (SO<sub>2</sub>) Pollution*, U.S. EPA, <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics> (last visited Oct. 22, 2020); John M. Broder, *E.P.A. Tightens Sulfur Dioxide Limits*, NY Times (June 3, 2010), <https://www.nytimes.com/2010/06/04/science/earth/04sulfur.html>.

with an adequate margin of safety.<sup>97</sup> As compared to the previous SO<sub>2</sub> standard, EPA estimates that this standard will prevent an additional 2,300 to 5,900 premature deaths and 54,000 asthma attacks each year.<sup>98</sup>

1. The SO<sub>2</sub> emission limits for Units 1, 2, 4, 5, 6A, 6B, 7A and 7B are too high.

The Draft Permit's SO<sub>2</sub> limits of 1.8 lb/MMBtu for both the gas and coal units are too high.<sup>99</sup> The gas units are expected to emit only small amounts of SO<sub>2</sub>, given that natural gas has very little sulfur content. For Units 1 and 2, using the nominal full load of these units of 90 MMBtu/hr,<sup>100</sup> the hourly SO<sub>2</sub> rate at the proposed permit limit would be 1,710 lb/hr. Yet the actual SO<sub>2</sub> rate is 0.57 lb/hr each, which is 0.03% of the proposed permit limit. For the other gas units, combined cycle Units 6A/6B and 7A/7B, their SO<sub>2</sub> emissions are expected to be 0.0006 lb/MMBtu, or 3,000 times lower than the emission limit.

On a related note, the Statement of Basis states that Units 1 and 2 are allocated SO<sub>2</sub> allowances under both the Acid Rain Program and the Cross-State Air Pollution Rule.<sup>101</sup> Now that the units are firing natural gas, and thus emitting only small amounts of SO<sub>2</sub>, it is unclear why they are still being allocated SO<sub>2</sub> allowances for these programs. Alabama Power should not be receiving SO<sub>2</sub> allowances for these units that it can then use for other purposes.

The 1.8 lb/MMBtu SO<sub>2</sub> limits are also too high for the coal-fired units, Units 4 and 5. For Unit 4, as the Statement of Basis notes, actual SO<sub>2</sub> emission in 2019 were, on average, 1.0243 lb/MMBtu, which is substantially lower than the permit limit.<sup>102</sup> For Unit 5, similar to the PM emission standard for Unit 5, ADEM included two SO<sub>2</sub> standards in the Draft Permit. A much more stringent 0.20 lb/MMBtu limit applies to Unit 5 if Alabama Power chooses to limit and monitor SO<sub>2</sub> emissions as a surrogate for acid gases under the MATS rule.<sup>103</sup> However, if Alabama Power chooses to monitor acid gases directly instead of using SO<sub>2</sub> as a surrogate, then the SO<sub>2</sub> emission limit is the much higher 1.8 lb/MMBtu. Alabama Power's expected emissions, based on historical data, are less than 0.016 lb/MMBtu.<sup>104</sup> The exorbitant 1.8 lb/MMBtu limit is 100 times higher than the expected emissions. There is simply no reason for ADEM to include a limit this high in the permit.

2. Alabama Power is allowed to bypass the Unit 5 flue gas desulfurization control equipment, potentially resulting in very high SO<sub>2</sub> emissions.

The Draft Permit mentions operation of Unit 5, a coal-fired unit, with the FGD pollution control equipment (also called a scrubber) bypassed, first in its "Emission Monitoring"

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<sup>97</sup> See Primary National Ambient Air Quality Standard for Sulfur Dioxide, 75 Fed. Reg. 35,520 (June 22, 2010); 42 U.S.C. § 7409(b)(1).

<sup>98</sup> Press Release, EPA Sets Stronger National Air Quality Standard for Sulfur Dioxide (June 3, 2010), [https://archive.epa.gov/epapages/newsroom\\_archive/newsreleases/f137260029b9b4f385257737004e521b.html](https://archive.epa.gov/epapages/newsroom_archive/newsreleases/f137260029b9b4f385257737004e521b.html).

<sup>99</sup> See Statement of Basis at 2, 6, 9-10, 15.

<sup>100</sup> *Id.* at 3.

<sup>101</sup> *Id.* at 2-3.

<sup>102</sup> *Id.* at 7.

<sup>103</sup> *Id.* at 10-11.

<sup>104</sup> *Id.* at 12.

provisions, and then in the recordkeeping and reporting requirements for opacity during FGD bypass.<sup>105</sup> However, it provides no justification for allowing the bypass, nor does it include conditions on operating the Unit with the FGD bypassed. The FGD is an important piece of pollution control equipment for controlling SO<sub>2</sub> emissions. Allowing it to be bypassed could result in very high SO<sub>2</sub> emissions. Without strict, adequate conditions in the Permit that limit the unit's operation during a bypass, Unit 5 should not be operated without the FGD.

#### **D. Gas-fired Auxiliary Boiler Emission Standards**

In addition to Units 1-2 and 4-7 at the Plant, Alabama Power also operates a substantially-sized, 275 MMBtu/hr natural gas-fired auxiliary boiler, which assists with the startup of Unit 5.<sup>106</sup> For this boiler, the Draft Permit includes emission standards for PM (0.12 lb/MMBtu), opacity (20%), SO<sub>2</sub> (1.8 lb/MMBtu) and NO<sub>x</sub> (0.20 lb/MMBtu).<sup>107</sup> These emission standards are much higher than they need to be. As discussed above, and as is noted in the Statement of Basis, because it is a natural gas boiler, PM, opacity and SO<sub>2</sub> will be negligible.<sup>108</sup> For NO<sub>x</sub>, the expected emissions are shown as 0.066 lb/MMBtu for 2019, which is almost one-third of the permitted NO<sub>x</sub> limit.<sup>109</sup> The emissions standards should reflect the expected emissions levels for the boiler.

#### **E. Fugitive Dust Control for the Solid Fuel Handling Systems**

The Draft Permit's conditions for the solid fuel handling systems, which include the coal stockpiles, the unloading areas and the conveyor systems, do not comply with Alabama's SIP and are vague and unenforceable. The Statement of Basis wrongly states that "[t]here are no emissions standards associated with [the solid fuel handling] systems."<sup>110</sup> In addition, it wrongly states that "[s]ince there are no emission standards which would be applicable to this system, no period monitoring is required."<sup>111</sup> ADEM sets no emission limit and requires no periodic monitoring despite the fact that the solid fuel handling systems are expected to emit approximately 45.9 tons of PM emissions each year.<sup>112</sup> There is no mention of any pollution control measures to capture PM emissions, such as baghouses or dust collectors.

In fact, Alabama's SIP does include emission standards governing fugitive dust control.<sup>113</sup> The Draft Permit purports to incorporate these standards, which are applicable requirements within the meaning of Title V, in paragraph 18 of the "General Permit Provisos."<sup>114</sup> However, the Draft Permit fails to specify operational requirements and limitations necessary to assure compliance with the SIP rule, including requirements for monitoring, recordkeeping and

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<sup>105</sup> Draft Permit at 41, 44.

<sup>106</sup> Statement of Basis at 21.

<sup>107</sup> *Id.* at 22; Draft Permit at 61-62.

<sup>108</sup> Statement of Basis at 22.

<sup>109</sup> *Id.*

<sup>110</sup> *Id.* at 18.

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

<sup>113</sup> *See* Ala. Admin. Code r. 335-3-4-.02.

<sup>114</sup> Draft Permit at 11-12.

reporting. Therefore, the Draft Permit's provisions regarding fugitive emissions are inadequate and must be revised.

Given the amount of PM emissions expected from the solid fuel handling systems, ADEM should require Alabama Power to install pollution control devices, such as baghouses or dust collectors. In the alternative, the Draft Permit should include enforceable work practices to minimize fugitive PM emissions. For instance, the Draft Permit includes emissions standards, periodic monitoring and recordkeeping requirements for the limestone handling systems.<sup>115</sup> ADEM could easily require these requirements for the solid fuel handling systems as well.

#### **F. Startup, Shutdown, and Load Change Exemptions for Units 6 and 7**

In the provisions for the Combined Cycle Generating Units (Units 6A, 6B, 7A and 7B), Emission Standards Conditions 8 through 12 allow exemptions for startup, shutdown and load change.<sup>116</sup> The emission limits for which ADEM has proposed exemptions are imposed to meet the best available control technology (BACT) requirements.<sup>117</sup> A review of previously issued Title V permits makes clear that such exemptions for Units 6A, 6B, 7A and 7B did not exist in prior Title V permits for the Barry Plant.<sup>118</sup> However, the 1999 air construction Prevention of Significant Deterioration (PSD) permit issued for Units 6A, 6B, 7A and 7B does include an exemption from the BACT limits for startup, shutdown, and load change.<sup>119</sup>

This exemption from BACT emission limits was presumably included in the 1999 PSD permit pursuant to ADEM Administrative Code Rule 335-3-14-.03(1)(h)(1), which states that “[t]he Director may, in the Air Permit, exempt on a case by case basis any exceedances of emission limits cannot reasonably be avoided, such as during periods of start-up, shut-down, or load change.” However, in 2015, EPA issued a finding that that rule was “substantially inadequate to meet CAA requirements” and called on Alabama to submit a SIP revision addressing inadequacies in its regulations.<sup>120</sup> EPA determined that under the Clean Air Act, air emissions must be limited on a continuous basis.<sup>121</sup> Due to this outstanding SIP call by EPA, ADEM should revise the Draft Permit by removing the exemptions for startup, shutdown, and load change at Plant Barry Units 6A, 6B, 7A, and 7B.

Not only are the startup, shutdown, and load change exemptions from BACT emission limits inconsistent with Clean Air Act requirements, but the provisions that ADEM has proposed lack clarity and enforceability. The definitions of “startup” and “shutdown” are vague, being

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<sup>115</sup> *Id.* at 57.

<sup>116</sup> *Id.* at 49-50.

<sup>117</sup> ADEM cites to “Rule 335-3-14-.04(9)(b) BACT” for Emission Standard Conditions 8-12.

<sup>118</sup> *See* Ala. Dep’t of Env’tl. Mgmt., Ala. Power Co. Plant Barry Title V Permit, at 50-51 (Dec. 20, 2010); Ala. Dep’t of Env’tl. Mgmt., Ala. Power Co. Plant Barry Title V Permit, at 40-42 (Dec. 29, 2003).

<sup>119</sup> Ala. Dep’t of Env’tl. Mgmt., Permit No. 503-1001-X006, Ala. Power Co. – Plant Barry, at 3 (Condition 22) (Aug. 19, 1999) [hereinafter 1999 PSD Permit].

<sup>120</sup> *See* 80 Fed. Reg. at 33,962.

<sup>121</sup> *See* State Implementation Plans: Response to Petition for Rulemaking; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown, and Malfunction, 78 Fed. Reg. 12,460, 12,501 (Feb. 22, 2013); *see also* CAA §§110(a)(2)(A); 302(k).

tioned to when the unit reaches “dry Low NO<sub>x</sub> (DLN) mode of combustion.”<sup>122</sup> The dry low NO<sub>x</sub> combustors are an inherent part of the combustion turbines that operate whenever the unit is combusting fuel. Thus, it is not clear what point in time ADEM is referring to for defining startup and shutdown in terms of the DLN mode of combustion. ADEM has provided no indication of the length of startup or shutdown; thus, as written, it appears that ADEM is simply to define startup as ending when the unit can meet its NO<sub>x</sub> BACT emission limits. “Load change” is also a vague and potentially very open-ended term (being defined in the draft permit as “a change in heat input that creates a transient operating condition that is readily identifiable on the load chart recording”).<sup>123</sup> Indeed, the compliance plan submitted by Alabama Power Company for Units 6A, 6B, 7A, and 7B does not even indicate an exemption for startup, shutdown, or load change for any emission limit except for the 10% opacity limit applicable to these units, and the application does not include or justify any definitions of startup, shutdown, or load change for these units.<sup>124</sup> With these vague and unenforceable definitions, the exemptions for startup, shutdown, and load change appear to be exemptions available for any purpose whenever a BACT emission limit is violated. Clearly, these broad and open-ended exemptions as written do not reflect BACT for the Units 6A, 6B, 7A, and 7B combined cycle units.

For all of the reasons provided above, ADEM should not include exemptions for startup, shutdown, or load change from the BACT emission limits that apply to Plant Barry Units 6A, 6B, 7A, and 7B.

#### **IV. Monitoring**

EPA’s and Alabama’s Title V monitoring rules (40 C.F.R. §§ 70.6(a)(3)(i)(A)-(B), (c)(1); Ala. Admin. Code r. 335-3-16-.07(a) and (c)) are designed to satisfy the statutory requirements in CAA § 504(c) that “[e]ach permit issued under [title V] shall set forth . . . monitoring . . . requirements to assure compliance with the permit terms and conditions.”<sup>125</sup> Permitting authorities must take three steps to satisfy the monitoring requirements in the Part 70 regulations. First, under 40 C.F.R. § 70.6(a)(3)(i)(A), permitting authorities must ensure that Title V permits contain all applicable monitoring requirements. Second, if an applicable CAA requirement contains no periodic monitoring, permitting authorities must add “periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit.”<sup>126</sup> Third, if there is some periodic monitoring in the applicable requirement, but that monitoring is not sufficient to assure compliance with permit terms and conditions, permitting authorities must supplement monitoring to assure such compliance.<sup>127</sup> In all cases, the rationale for the selected monitoring requirements must be clear and documented in the permit record.<sup>128</sup>

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<sup>122</sup> Draft Permit at 50 (Emission Standard 14).

<sup>123</sup> *Id.*

<sup>124</sup> See Renewal Application at PDF pp. 49-50 (Barry Compliance Plan at page 10).

<sup>125</sup> 42 U.S.C. § 7661c(c).

<sup>126</sup> *Id.* § 70.6(a)(3)(i)(B).

<sup>127</sup> *Id.* § 70.6(c)(1).

<sup>128</sup> *Id.* § 70.7(a)(5); see Ala. Admin. Code r. 335-3-16-.05(c) (incorporating federal requirements).

## A. COMS Requirement for Unit 5

Unit 5 is subject to an opacity emission standard that requires Alabama Power to not discharge an opacity greater than 20%, as determined by a six-minute average.<sup>129</sup> However, although previously required to operate a continuous opacity monitoring system (COMS), the Draft Permit now proposes to allow Alabama Power to discontinue use of the COMS.<sup>130</sup> ADEM justifies the discontinuance of COMS because the operation of the FGD control “has created stack conditions that preclude the use of COMS in the Unit 5 stack.”<sup>131</sup> However, there is a COMS in the ductwork upstream of the scrubber;<sup>132</sup> ADEM should continue to require the use of this COMS to establish compliance with the opacity limit. While it is upstream of the scrubber, it is still an appropriate point of compliance, unless and until Alabama Power designs a suitable COMS for placement downstream of the scrubber.

## B. Compliance Assurance Monitoring Plans

EPA has developed regulations to ensure that Title V permits include appropriate compliance assurance monitoring (CAM) plans at 40 C.F.R. Part 64. Alabama Power submitted a CAM Plan for Units 4 and 5 for electrostatic precipitators for PM control.<sup>133</sup> These CAM Plans lack sufficient data to justify reliance on ESP power level as the CAM parameter for PM.

The CAM Plans for PM shows that Alabama Power tested the ESP testing at two power levels for Unit 4 and Unit 5. For instance, for Unit 4, Alabama Power tested the PM control at a baseline power level around 224-232 kW, and also tested at a detuned, lower power “Condition 1” around 40-42 kW. From this a curve was generated as shown in Figure 1.<sup>134</sup> While the curve may show a good fit, it is clear that the full range of ESP power (and its impact on PM emissions) was not characterized.<sup>135</sup> At least some data should be collected in the mid-power range, around 150-180 kW for there to be confidence in the curve and the resulting conclusion that the minimum power level needed is 110 kW to avoid exceeding the limit of 0.12 lb/MMBtu; this limit is too high, as described earlier in this letter. The fact that PM emissions depend on many more variables than just the ESP power is plainly seen in the baseline results (Table 2), which show that PM levels can range from 0.021 lb/MMBtu (at 205 kW) to 0.026 lb/MMBtu (at 224 kW—a 23% difference in PM emissions with only a 3% difference in ESP power. Also, one would expect lower PM emissions at higher power, which is not seen. For example, during baseline testing, the PM level is 0.021 lb/MMBtu at 230 kW, but increases to 0.031 lb/MMBtu (i.e., an almost 50% increase) when the ESP power *increases*.

Similar results are seen for Unit 5. To provide another example, for Unit, Alabama Power’s baseline conditions were tested between 210-211 kW while the ESP detuned conditions were tested between 39-46 kW.<sup>136</sup> As with the deficient CAM Plan for Unit 4, mid-level power

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<sup>129</sup> Statement of Basis at 10.

<sup>130</sup> *Id.* at 12-13.

<sup>131</sup> *Id.* at 12.

<sup>132</sup> *Id.* at 13.

<sup>133</sup> See Attachments to Statement of Basis.

<sup>134</sup> *Id.*, Barry Unit 4 CAM Plan at 5 (Table 2).

<sup>135</sup> *Id.*, Barry Unit 4 CAM Plan at 6.

<sup>136</sup> *Id.*, Barry Unit 5 CAM Plan at 5 (Table 2).

conditions (i.e., around 100-180 kW) should also have been tested to better characterize the power versus PM relationship for the ESP. The power versus PM relationship is backwards in the expected detuned condition: PM was 0.037 lb/MMBtu at 39 kW and *increased* to 0.039 lb/MMBtu when the power was increased to 46 kW. The sparse data used in the CAM plans for both Unit 4 and Unit 5 demonstrates the weakness in only relying on ESP power as the CAM parameter for PM for these units, and suggests that more data should be gathered to determine the appropriate minimum ESP power level to assure compliance with the PM emission limits.

### **C. Corrective Actions**

For Units 4 and 5, the Draft Permit states that deficiencies in ESP performance should be cured by verifying all power supplies are in service and working properly; verifying that discharge and collecting rappers are working properly; and confirming that ash removal equipment is working properly.<sup>137</sup> These sections of the CAM Plans lack key details to ensure proper maintenance and functioning of the ESPs. For example, there are no details outlining the measures that should be taken to ensure particles of dust emissions are limited to acceptable levels during each of the corrective action measures.

### **D. Testing and Monitoring Requirements to Assure Compliance with the BACT Limits Applicable to Units 6 and 7**

Alabama Administrative Code rule 335-3-16-.07(a) requires that the Title V permit including testing, monitoring, reporting and recordkeeping requirements “sufficient to ensure compliance with the terms and conditions of the permit.” The Draft Permit indicates that the compliance method for the BACT limits are stack tests.<sup>138</sup> However, the Provisos for the Units 6A, 6B, 7A, and 7B Combined Cycle units do not require any specific frequency for testing to show compliance with BACT emission limits. Based on the Compliance Certification requirement of the General Permit Provisos of the Draft Permit, it appears that the permit simply requires one stack test per year.<sup>139</sup> This level of stack testing is not sufficient to ensure continuous compliance with BACT emission limits.

The Draft Permit does require installation of continuous emissions monitoring systems (CEMS) for NO<sub>x</sub>, but does not require that the NO<sub>x</sub> CEMS be used for compliance with the NO<sub>x</sub> BACT (or the NO<sub>x</sub> NSPS) emission limits.<sup>140</sup> Yet, the Draft Permit has a compliance assistance monitoring (CAM) plan for NO<sub>x</sub> emissions control at Units 6A, 6B, 7A, and 7B that relies on the NO<sub>x</sub> CEMS that is required to be installed at these units.<sup>141</sup> The CAM plan references the 1999 PSD permit for Units 6A, 6B, 7A, and 7B in stating that the NO<sub>x</sub> limit applies on a 3-hour average basis to be measured by CEMs.<sup>142</sup> Indeed, a review of the PSD permit for Units 6A, 6B, 7A, and 7B shows that Condition 17 of the 1999 PSD permit states both

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<sup>137</sup> *Id.*, Barry Unit 5 CAM Plan at 3.

<sup>138</sup> *Id.* at 50-51 (Compliance and Performance Test Method and Procedures conditions 1 and 3-7).

<sup>139</sup> *Id.* at 8-9 (Compliance Certification).

<sup>140</sup> *Id.* at 51 (Emissions Monitoring), 50 (Compliance and Performance Test Methods and Procedures for Units 6A, 6B, 7A, and 7B, Conditions 1-2).

<sup>141</sup> *Id.*, Barry Units 6A, 6B, 7A & 7B CAM Plan, Title V Renewal Permit for Plant Barry, Compliance Assurance Monitoring (CAM) Units 6A, 6B, 7A, & 7B, at PDF pp. 90-91.

<sup>142</sup> *Id.*

that testing for compliance with NOx limits will be determined by EPA Method 20 and that “[t]he nitrogen oxide emission rate shall be monitored using a rolling three-hour average computed by the continuous emission monitor system.”<sup>143</sup> As such, the Draft Permit should make clear that the NOx CEMS is to be used to determine compliance with the NOx BACT limit in Emission Standard 8. Moreover, Emission Standard 8 for these units should make clear that the NOx emission limits apply on a 3-hour average basis.

The Draft Permit has no CAM plan or other monitoring requirements to assure continuous compliance with the CO, VOC, or PM BACT limits for the combined cycle units. The permit should be revised to either include CAM requirements or additional testing for these BACT emission limits.

## **V. Reporting**

### **A. Immediate Reporting of Violations**

The Draft Permit requires a report of excursions or exceedances, but it does not require immediate reporting.<sup>144</sup> In fact, for certain excursions or exceedances, reporting may only take place quarterly or semi-annually.<sup>145</sup> The Draft Permit should require notification of excursions or exceedances immediately.

### **B. Annual Unannounced Inspections**

Annual unannounced inspection reports should be thorough and easily available to the public. A review of some recent unannounced annual inspection reports for the Plant show that the inspector does not monitor for heat input for the coal-fired units, does not do more than a cursory assessment of fugitive emissions, and does not address Hazardous Air Pollutant (HAP) emissions. If units are not operating during the inspection, it does not appear that ADEM conducts a follow-up inspection to ensure those units are operating correctly.<sup>146</sup>

## **VI. Compliance Issues**

40 C.F.R. § 70.6(a)(1) requires that Title V permits contain “[e]mission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of the permit issuance.” Part 70 of the CAA requires permitted facilities to certify compliance with all permit conditions under the CAA and relevant SIP, not only those provisions required for monitoring.<sup>147</sup> Finally, permits must include compliance schedules to remedy any past and current violations.<sup>148</sup>

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<sup>143</sup> 1999 PSD Permit at 3 (Condition 17).

<sup>144</sup> Draft Permit at 13.

<sup>145</sup> See, e.g., *id.*, Barry Unit 5 CAM Plan at 1 (“Any excursions that meet these criteria will be reported on the quarterly or semi-annual compliance report as a CAM excursion.”).

<sup>146</sup> See Ala. Dep’t of Env’tl. Mgmt., Annual Inspection of Alabama Power Company - Barry Steam Plant (Mar. 4, 2019); Ala. Dep’t of Env’tl. Mgmt., Annual Inspection of Alabama Power Company - Barry Steam Plant (Sept. 21, 2018).

<sup>147</sup> 40 C.F.R. § 70.6(c)(6).

<sup>148</sup> *Id.* § 70.6(c)(3); Ala. Admin. Code r. 335-3-1-.06.

The compliance certification provision in the Draft Permit must require compliance with all permit conditions required under the CAA and state SIP.<sup>149</sup> Furthermore, federal regulations require that the compliance certification identify and take into account each deviation from compliance with permit terms, and identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance, as defined in 40 C.F.R. § 75, occurred.<sup>150</sup> The compliance certification in the Draft Permit does not require Alabama Power to include each deviation or possible exceptions and must be amended to include these certifications.<sup>151</sup>

Thank you for the opportunity to submit these comments. We urge ADEM to revise the Draft Permit to address our concerns and look forward to receiving ADEM's response to our comments.

Respectfully submitted,



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*On behalf of Energy Alabama and  
Mobile Baykeeper*

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<sup>149</sup> Draft Permit at 8-9.

<sup>150</sup> 40 C.F.R. § 70.6(c)(5)(iii)(C); Ala. Admin. Code r. 335-3-16-.07(e).

<sup>151</sup> Draft Permit at 8-9.