



STATE OF SOUTH DAKOTA  
DENNIS DAUGAARD, GOVERNOR

November 25, 2014

Attention: Docket ID No. EPA-HQ-OAR-2013-0602  
U.S. Environmental Protection Agency  
EPA Docket Center (EPA/DC)  
Mail Code: 28221T  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

Re: South Dakota's comments on "*Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units.*" (Docket ID No. EPA-HQ-OAR-2013-0602)

Thank you for the opportunity to comment on the proposed "*Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,*" published in the Federal Register on June 18, 2014. This proposed emission guideline was developed by EPA to guide states in developing 111(d) plans to reduce greenhouse gas emissions from existing fossil fuel-fired electric generating units.

EPA is proposing state specific carbon dioxide goals using a one size fits all approach, which did not consider South Dakota's unique situation. South Dakota is indeed unique:

- Approximately 74 percent of South Dakota's electric production in the 2012 base year was renewable energy (i.e., 50 percent hydropower and 24 percent wind power). The remaining 26 percent was produced from fossil fuels.
- South Dakota is a national leader in low carbon emissions; only three states emitted less carbon than South Dakota in 2012.
- South Dakota has only one coal-fired power plant and one natural gas combined cycle plant, with each plant serving different Regional Transmission Organization electric grids.

Due to the limited number of fossil fuel power plants in the state, EPA's proposal affects South Dakota disproportionately compared to other states and leaves South Dakota with scant and inadequate options to use to meet the goal set by EPA.

South Dakota's current carbon dioxide emission rate is 1,135 pounds of carbon dioxide per megawatt-hour. EPA's 2020-29 interim target for South Dakota is 800 pounds of carbon dioxide per megawatt-hour with a final target of 741 pounds of carbon dioxide per megawatt-hour.

The only feasible way to achieve EPA's goal of 741 pounds of carbon dioxide per megawatt-hour for South Dakota is to shut down the sole coal-fired power plant in the state, the Big Stone Plant, which is owned by Montana-Dakota Utilities Company, NorthWestern Energy, and Otter Tail Power Company. The resulting shutdown would impact customers in South Dakota and surrounding states by making the Midcontinent Independent System Operator's grid less reliable. It would strand the \$384 million upgrade in air pollution controls currently under construction that was undertaken to meet EPA's Regional Haze rule. Forcing the abandonment of both the plant and the \$384 million upgrade in air pollution controls would be an irrational economic mistake for South Dakota. Moreover, the power plant owners and their customers would suffer an inequity if they were forced to abandon the power plant, particularly, when they have made a significant investment of capital to meet other stringent Clean Air Act rules and achieve 80 percent or greater reductions in nitrogen oxide (NOx) and sulfur dioxide (SO<sub>2</sub>) emissions.

South Dakota Attorney General Marty Jackley has joined with the Attorneys General for the states of Nebraska, Oklahoma, and West Virginia in a lengthy legal analysis of the proposed standards that will be submitted to EPA. This analysis finds the following issues with EPA's legal interpretation:

1. Section 111(d) specifically prohibits EPA from regulating power plants under Section 111(d) because the EPA has chosen to regulate those plants under Section 112;
2. The proposed Section 111(d) rule is illegal because EPA has not finalized any lawful rule for equivalent new sources;
3. Section 111(d) cannot be used to override state authority to manage power resources;
4. Section 111(d) limits EPA's role to procedure and not substance;
5. Section 111(d) is limited to source level, inside the fence line, unit by unit, emission reduction measures; and

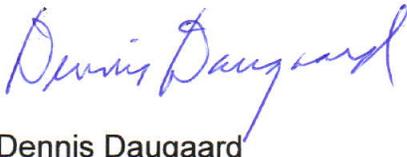
6. Recent Supreme Court authority confirms that Section 111(d) does not authorize EPA's proposal.

South Dakota recommends EPA withdraw this proposed rule and draft a rule that identifies and supports a best system of emission reductions for: coal-fired; integrated gasification combined-cycles; and natural gas fired combined cycle power plants; and that it does so for each category separately.

If EPA disregards this recommendation and proceeds with this regulation, South Dakota provides the attached comments (Attachment A). These comments should not be construed as South Dakota agreeing that EPA has the authority to regulate greenhouse gases under section 111(d) as proposed.

Thank you again for the opportunity to comment on the proposed rules.

Sincerely,



Dennis Daugaard

DD:nn

cc: Gina McCarthy, EPA Administrator  
Shaun McGrath, EPA Region 8 Administrator  
Attorney General Marty Jackley  
South Dakota Public Utilities Commission  
Senator John Thune  
Senator Tim Johnson  
Representative Kristi Noem  
Senator Elect Mike Rounds

Attachment (18 pages)

**Attachment A**  
**South Dakota's Comments on EPA's**  
**Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility**  
**Generating Units; Proposed Rule**

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**EPA's Goal Setting Methodology Disproportionately Affects South Dakota**

South Dakota's electrical production, historically, is primarily from renewable energy. In 2012, renewable energy represented 74 percent of South Dakota's total production. EPA's 2030 goal for South Dakota based on calendar year 2012 results in one of the most onerous emission targets in the nation at 741 pounds of carbon dioxide per megawatt-hour.

EPA developed South Dakota's goal of 741 pounds of carbon dioxide (CO<sub>2</sub>) per megawatt-hour (MW-hr) by using the following general equation based on EPA's four building blocks, assumptions, and data for calendar year 2012 (see Equation A-1).

***Equation A-1: EPA's goal calculation***

$$\text{Goal } \frac{\text{pounds CO}_2}{\text{MW} - \text{hr}} = \frac{\text{pounds CO}_2 (\text{coal}) + \text{pounds CO}_2 (\text{natural gas combined cycle (NGCC)})}{(\text{Building Block 1} + \text{Building Block 2} + \text{Building Block 3} + \text{Building Block 4}) \text{ MW-hr}}$$

or

$$741 \frac{\text{pounds CO}_2}{\text{MW} - \text{hr}} = \frac{2,040,637,980 \text{ pounds CO}_2 (\text{coal}) + 2,253,190,641 \text{ pounds CO}_2 (\text{NGCC})}{958,046 \text{ MW-hr} + 1,992,211 \text{ MW-hr} + 1,818,850 \text{ MW-hr} + 1,029,169 \text{ MW-hr}}$$

EPA's use of 2012 data, in its proposal, as the criteria for establishing state goals fails to recognize carbon dioxide reductions achieved before 2012 and results in disparities of impact from one state to another. South Dakota is especially negatively affected for several reasons. First, South Dakota's total energy production in 2012 was one of the highest on record (see Figure A-1). Therefore, the mandate to increase renewable energy generation and decrease usage through energy efficiency mechanisms (goals that are tied to the state's total generation in 2012) is more onerous than the mandate would be using a multiyear approach or if EPA had used another year as the baseline.

Second, South Dakota's one natural gas combined cycle plant was under construction in 2012. Despite the fact that it operated at less than a 1 percent capacity factor for the year; EPA considers it an existing unit under its proposal. Using data from an earlier year would reduce this plant's impact on South Dakota's state goal or eliminate it from being considered as an operational unit depending on the year selected.

Third, wind generation in South Dakota drastically increased between 2008 and 2012. By using 2012 data to create the criteria for the state goal, South Dakota receives no credit for the dramatic increase of renewable energy added to the state's generation portfolio prior to 2012.

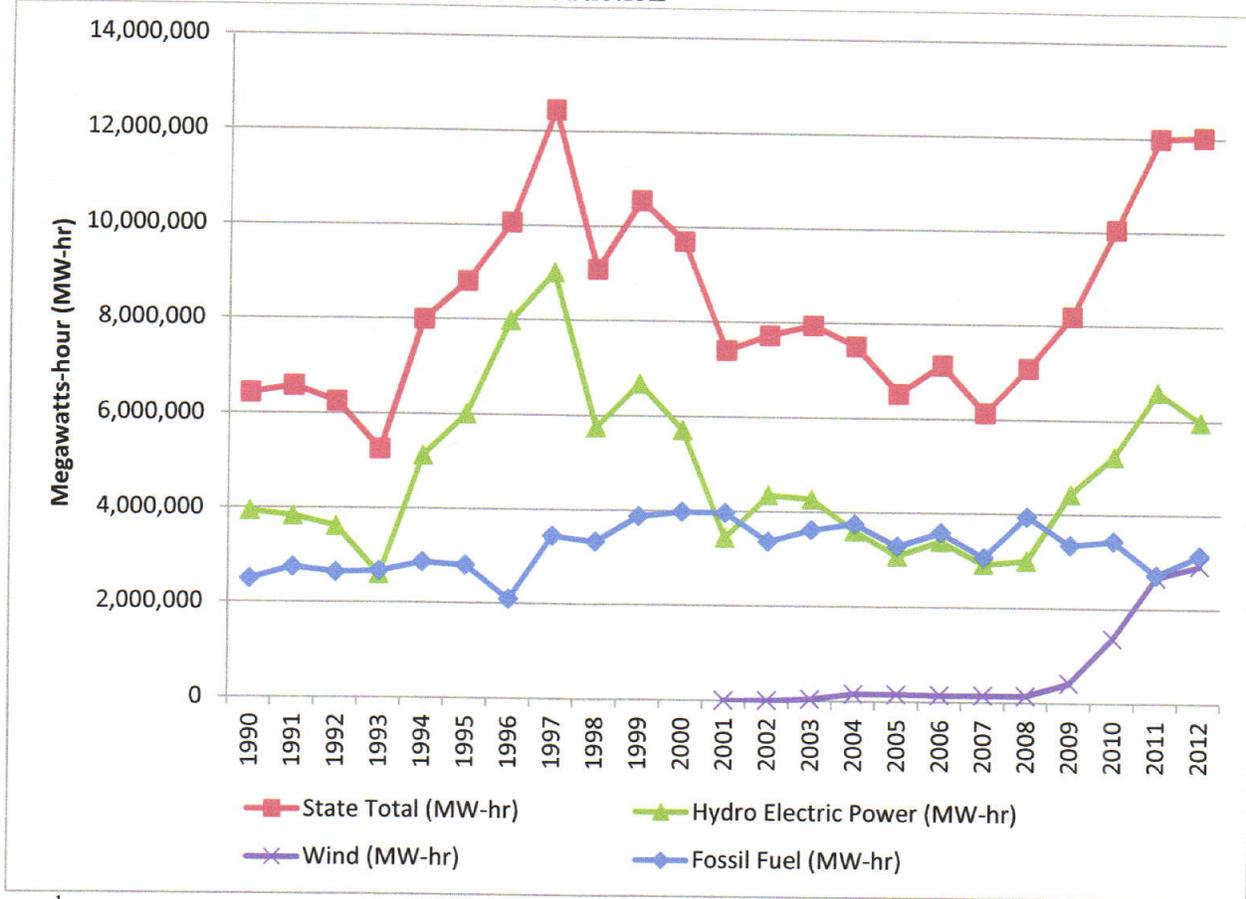
If EPA had used 2010 data to calculate state goals, the goal for South Dakota would be approximately 1,148 pounds of carbon dioxide per megawatt-hour as noted in Equation A-2. Building block 2 would continue to be a factor in the equation because EPA includes natural gas combined cycle plants that were already planned. This plant was already planned, as evidenced by

Basin Electric Power Cooperative's submission of an air quality permit application for the plant in 2009.

**Equation A-2: Goal Calculation Based on 2010 Baseline**

$$1,148 \frac{\text{pounds CO}_2}{\text{MW-hr}} = \frac{6,223,204,986 \text{ pounds CO}_2 (\text{coal}) + 2,253,190,867 \text{ pounds CO}_2 (\text{NGCC})}{2,875,655 \text{ MW-hr} + 1,992,211 \text{ MW-hr} + 1,518,902 \text{ MW-hr} + 996,010 \text{ MW-hr}}$$

**Figure A-1: South Dakota's Electric Production <sup>1</sup>**



<sup>1</sup> – U.S. Energy Information Administration - <http://www.eia.gov/electricity/data/state/>

If EPA had used 2005 data to calculate state goals, the goal for South Dakota would be approximately 1,627 pounds of carbon dioxide per megawatt-hour as noted in Equation A-3, which is consistent with EPA's goals for many other states. Additionally, there would be continuity between the data used to calculate state goals and EPA's goal of reducing carbon emissions by 2030 from carbon emissions levels recorded in 2005. In this case, building block 2 is eliminated because the natural gas combined cycle plant was not planned in 2005.

**Equation A-3: Goal Calculation Based on 2005 Baseline**

$$1,627 \frac{\text{pounds CO}_2}{\text{MW-hr}} = \frac{6,832,828,148 \text{ pounds CO}_2 (\text{coal}) + 0 \text{ pounds CO}_2 (\text{NGCC})}{3,001,685 \text{ MW-hr} + 0 \text{ MW-hr} + 336,464 \text{ MW-hr} + 860,492 \text{ MW-hr}}$$

For these reasons, South Dakota recommends EPA recalculate state goals based on calendar year 2005 electrical production and sales data instead of 2012.

### **EPA's Proposed Rule Takes Away State's Authority**

On page 34835 of the preamble, EPA solicits comments on the proposed best system of emission reduction methodology for computing state goals and state specific data used in the computations. EPA goes on to state that once the final goals have been promulgated, a state would no longer have an opportunity to request EPA adjust its state goal. EPA is exceeding its authority under Section 111(d) of the Clean Air Act by basing state goals on re-dispatching, renewable energy, and energy efficiency and by not establishing a best system of emission reduction for a typical affected electric generating unit (i.e., coal-fired power plant). If EPA continues this course, EPA must give a state the flexibility to establish its own standard of performance based on, among other things, the remaining useful life of the existing source to which the standard applies as required in Section 111(d) of the Clean Air Act. EPA cannot make the state goals rigid prior to a state completing its evaluation and drafting its 111(d) plan.

EPA's proposed guidance will require coal-fired power plants, currently installing hundreds of millions of dollars of air pollution control equipment (to comply with the federal Regional Haze Program and Mercury and Air Toxics standard) to shutdown early and strand invested assets. This will result in higher electrical costs than EPA anticipated in the proposed rule. Utility companies will be forced to recover the cost of abandoned air pollution control devices while at the same time recovering replacement generation costs from customers. To keep electrical costs affordable, South Dakota strongly recommends EPA abandon state goals and allows states to base the best system of emission reduction on the affected electric generating units (i.e., coal-fired power plants, integrated gasification combined-cycle plants, and natural gas combined cycle plants) within their jurisdiction.

### **Application of Just the First Two Building Blocks**

On page 34836 of the preamble, EPA solicits comments on the alternative of using only the first two building blocks as the basis for the best system of emission reduction. South Dakota believes this alternative approach is more realistic and defensible than using all four building blocks. However, neither EPA nor South Dakota have the authority to require one business to operate above its actual capacity and require another business to offset that dispatch by reducing its output, as required by building block 2. As explained below, EPA's building block 1 is also flawed. Therefore, South Dakota recommends that both building blocks be withdrawn and replaced with a proposal that allows states to conduct a case-by-case analysis for establishing the best system of emission reduction for each existing electric generating units.

### **Building Blocks within Indian Country**

On page 34854 and 34855 of the preamble, EPA solicits comments on setting goals in Indian Country which contain affected electric generating units. On page 4.5 of the Technical Support Document – GHG Abatement Measures, Energy Information Administration, EPA indicates state-level total generation was adjusted to remove utility-scale fossil generation located in Indian

Country. However, South Dakota is unable to determine if EPA excluded retail sales in Indian Country when determining South Dakota's energy efficiency goal. EPA does not address in any of the technical support documents how EPA proposes to handle renewable energy or energy efficiency in Indian Country, particularly with respect to Indian Country having no affected electric generating units. EPA should give the state the flexibility to use renewable energy or energy efficiency that occurs in Indian Country. If EPA will not, EPA should re-evaluate the state goals to eliminate calculating renewable energy and energy efficiency goals that include electricity produced and sold in Indian Country.

**Building Block 1 – Heat Rate Improvement at Existing Electrical Generating Units**

On page 34860 of the preamble, EPA asks if its proposed 6 percent heat rate improvement is achievable at existing coal-fired power plants. South Dakota has consulted with the operator of its one coal-fired power plant and identified three reasons it is not achievable.

Reason 1. South Dakota has one coal-fired power plant, the Big Stone Plant. The owner of the facility, Montana-Dakota Utilities Company, NorthWestern Energy, and Otter Tail Power Company, affirms that it has already implemented the majority of technology upgrades and best practices to achieve heat rate improvements identified in the Sargent and Lundy Study.

EPA estimates a 4 percent improvement, on average, is achievable due to operating and maintenance best practices such as turning off unneeded pumps at reduced loads, installing digital control systems, more frequent tuning of existing control systems, early like-kind replacement of worn components, etc. Because the Big Stone Plant has already completed these items that are applicable to the plant, the additional 4 percent improvement that EPA is proposing has already been achieved, and therefore it is not possible to gain additional heat rate improvements.

EPA estimates a 2 percent improvement, on average, is achievable due to various upgrades to the system such as economizer replacement, air preheater improvements, turbine overhaul, etc. But again, if power plants have already implemented these upgrades, some of which the Big Stone Plant attested it has completed, the additional 2 percent EPA is proposing is no longer achievable.

To verify whether heat rate improvements were realized by the Big Stone Plant, South Dakota obtained carbon dioxide and net generation data from EPA's eGRID data sets at <http://www.epa.gov/cleanenergy/energy-resources/egrid/>. South Dakota looked back 10 years to be consistent with the Prevention of Significant Deterioration program. EPA's data sets did not contain data for calendar years 2003, 2006, and 2008. Therefore, the heat rate improvements were compared to calendar year 2004 and are displayed in Table A-1. This comparison shows the Big Stone Plant has already achieved more than the 6 percent reduction assumed for the building block 1 goal and as stated above, has already achieved the improvements EPA desires to achieve through the proposed rule.

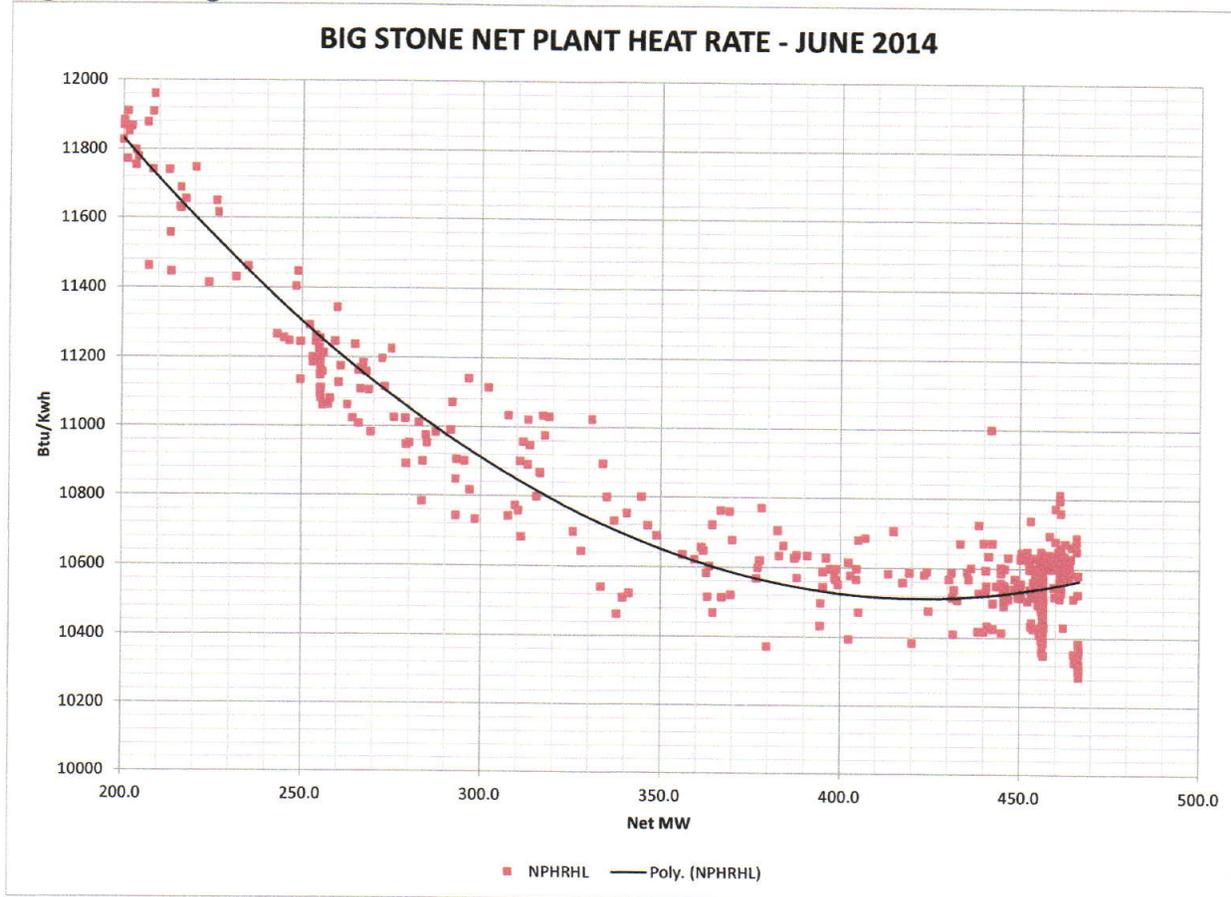
**Table A-1: Big Stone Plant's Historical Operations**

Year	CO2 Emissions	Net Electricity Generated	CO2 Emission Rate	Percent Improvement Compared to 2004
2004	4,232,300 tons	3,477,704 MW	2,434 pounds/MW	-

Year	CO2 Emissions	Net Electricity Generated	CO2 Emission Rate	Percent Improvement Compared to 2004
2005	3,393,364 tons	2,846,712 MW	2,384 pounds/MW	2.1
2007	2,947,753 tons	2,520,945 MW	2,339 pounds/MW	3.9
2009	3,476,706 tons	3,101,444 MW	2,241 pounds/MW	7.9
2010	3,674,382 tons	3,169,192 MW	2,318 pounds/MW	4.8
2012	3,169,636 tons	2,830,363 MW	2,240 pounds/MW	8.0

Reason 2. Building block 1 is unachievable because it is antithetical to EPA’s proposed building blocks 2, 3, and 4. In building block 2, EPA recommends re-dispatching energy production from coal-fired power plants to natural gas combined cycle plants. EPA’s proposed building block 3 increases renewable energy but reduces demand from coal-fired power plants. EPA’s proposed building block 4 recommends reducing energy production from the power sector by reducing the demand side use of energy. All three building blocks require reducing the use of South Dakota’s only coal-fired power plant, the Big Stone Plant. The Big Stone Plant was designed to operate at high capacity factors (i.e., 70 to 90 percent plus). The lower the load, the less efficiently the unit operates and the more air pollutants it will emit. There is approximately a 10 percent difference in the Big Stone Plant’s heat rate between operating at its designed operating capacity versus operating at its minimum operating capacity as shown in Figure A-2.

**Figure A-2: Big Stone Plant Heat Rate Curve <sup>1</sup>**



<sup>1</sup> – The heat rate curve was provided by Otter Tail Power Company for the Big Stone Plant, which is the ONLY coal-fired power plant in South Dakota.

EPA established the 6 percent potential increase in heat rate efficiency in building block 1 based on coal-fired power plants operating at high capacities. The EPA identified in the Greenhouse Gas Abatement Measures Technical Support Document that a coal plant operating at reduced capacity would adversely impact the plant's heat rate. Given this, if the other building blocks require coal-fired power plants to reduce production and decrease operational efficiency by 10 percent or more, the 6 percent heat rate improvement will not be technically achievable.

If EPA believes a coal-fired power plant can operate at full capacity, at the most efficient heat rates, for shorter durations in order to meet generation reductions in the coal fleet required by the other building blocks, EPA is mistaken. The only feasible scenario for this would be to operate coal-fired power plants to supply electricity for intermediate and peaking loads. Natural gas combined cycle plants were designed to ramp up quickly and operate for a few hours a day to meet intermediate and peaking loads. However, because they have longer startup times, coal-fired power plants do not have the ramping capability required to respond to real time changes in wind generation due to weather.

Giving consideration to the aforementioned concerns, the only possible option is to operate coal facilities at the most efficient load for shorter durations. This results in more startups and shutdowns of coal-fired power plants. Coal-fired power plants operate even less efficiently during startups and shutdowns, which the EPA itself affirmed in the Greenhouse Gas Abatement Measures Technical Support Document.<sup>1</sup> Further, more frequent startups and shutdowns could adversely impact the existing air quality control systems on coal-fired power plants because those systems were designed to be most efficient when a plant operates at higher capacities for longer durations. Depending upon on the coal-fired power plant in question; startups could result in a shorter useful life for air quality control system components as a result of damage due to more exposure of acid gas condensation. Other operational challenges may result for air quality control systems due to more frequent startups and shutdowns.

In South Dakota's case, all of this results in the Big Stone Plant not being able to run economically and forces the unit to be a stranded asset. If the Big Stone Plant becomes a stranded asset, it would cause additional costs to consumers and may create reliability concerns in the region. On page 34926 of the preamble, EPA states the establishment of the goals provides states with flexibility to design a plan to avoid stranded assets. However, the unique circumstances in South Dakota provide little flexibility to meet its state goal and without EPA making proper adjustment to South Dakota's target the Big Stone Plant could become a stranded asset for the reasons discussed above.

Reason 3. Building block 1 is unachievable because EPA did not consider the decrease in heat rate efficiency resulting from power plants complying with the federal Regional Haze Program. In July 1999, EPA promulgated the regulations for the Regional Haze Program. South Dakota submitted its Regional Haze Program in January 2011, and EPA approved South Dakota's

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<sup>1</sup> Greenhouse Gas Abatement Measures Technical Support Document, Pg.2-21: "*During Periods of startup and shutdown, EGUs are known to operate at higher heat rates.*"

program in April 2012. The Regional Haze Program required applicable sources to install the Best Available Retrofit Technology.

Big Stone Plant is regulated under the Regional Haze Program and was thus required to install Best Available Retrofit Technology. The Big Stone Plant is currently retrofitting the boiler with a selective catalytic reduction system and separated over-fire-air to control nitrogen oxide emissions. It is also installing a flue gas desulfurization system to control sulfur dioxide emissions, and replacing the existing fabric filter with a new fabric filter system to control particulate matter emissions. To power this \$384 million air pollution control project, the Big Stone Plant will add a significant amount of station service that will degrade heat rate by approximately 1 to 2 percent when pollution controls come online during the summer/fall of 2015. The Big Stone Power Plant will attempt to minimize this negative impact by performing efficiency upgrades in conjunction with the project; however, unless this issue is rectified by EPA, the Big Stone Plant will actually be required to improve its heat rate efficiency by up to 8 percent under the proposal, when in reality there may not be any improvements available.

South Dakota has discussed building block 1 with other states and it appears EPA's best practices have already been implemented by a majority of coal-fired power plants in EPA Region 8. This makes EPA's 6 percent heat rate improvement goal unrealistic, not only for South Dakota but for most states in Region 8.

The alternative to building block 1 is for each individual coal-fired power plant to be analyzed on a case-by-case basis to determine the heat rate improvement that is realistic for establishing a state goal. Each state can require coal-fired power plants to submit a heat rate improvement report to identify what they have already implemented and what may still be accomplished. This alternative will actually give states the flexibility to establish realistic heat rate improvement goals in each state based on the varying and unique circumstances of each generating unit. Further, any next generation technologies that are developed in the future to improve a plant's heat rate could be implemented by the coal-fired power plant and used to demonstrate compliance.

### **Building Block 2 – Re-dispatching Energy Production**

Beginning on page 34862 of the preamble, EPA discusses the extent to which generation at the most carbon-intensive power generation facilities can be replaced with generation from less carbon intensive power generation facilities. EPA indicated that the amount of electricity that may be re-dispatched is dependent on the natural gas combined cycle plant being categorized as an existing system or a new system. For a new or under construction system, EPA stated the amount of electricity available to be re-dispatched is 15 percent of its maximum operation rate. For an existing system, EPA stated the amount of electricity available to be re-dispatched is the difference between 70 percent and its actual 2012 operating capacity.

Building block 2 as proposed by EPA cannot work in South Dakota for two reasons. The first reason stems from EPA treating natural gas combined cycle plants that initially started operating in 2012 as existing electric generating units. Basin Electric Power Cooperative began construction of South Dakota's ONLY natural gas fired combined cycle plant, the Deer Creek Station, on July 27, 2010; Basin Electric Power Cooperative initially fired natural gas in the Deer Creek Station's

natural gas combined cycle plant on April 18, 2012. Under this timeline, EPA assumed Basin Electric Power Cooperative's Deer Creek Station was an existing natural gas combined cycle plant with an operating capacity of less than 1 percent for 2012. Consequently EPA calculated the amount of electricity that could be re-dispatched to Deer Creek Station as 69 percent of its maximum operating rate. This is neither realistic nor achievable.

Instead, EPA needs to classify the Deer Creek Station as under construction because it was in its initial startup phase in 2012. If EPA agrees with this request, South Dakota's state goal would increase from 741 to 1,036 pounds of carbon dioxide per megawatt-hour as noted in Equation A-4. This calculation will vary slightly depending on the carbon dioxide emission rate used for Deer Creek Station.

***Equation A-4: Goal Calculation Based on Deer Creek Station as Under Construction***

$$1,036 \frac{\text{pounds CO}_2}{\text{MW} - \text{hr}} = \frac{5,374,746,150 \text{ pounds CO}_2 (\text{coal}) + 2,253,190,867 \text{ pounds CO}_2 (\text{NGCC})}{2,523,355 \text{ MW-hr} + 1,992,211 \text{ MW-hr} + 1,818,850 \text{ MW-hr} + 1,029,169 \text{ MW-hr}}$$

This will give South Dakota more flexibility to use building block 2 as a method of demonstrating compliance with its state goal instead of being penalized for the construction and installation of its sole natural gas combined cycle plant undergoing test firing in 2012.

The second reason building block 2 as proposed by EPA is flawed is that EPA used the maximum design operating rate of a natural gas combined cycle in calculating South Dakota's goal. EPA used 324 megawatts as the maximum capacity for Basin Electric Power Cooperative's Deer Creek Station. However, the output rating for a natural gas combined cycle plant is dependent upon ambient conditions which can vary widely in a Midwestern state like South Dakota. In the Prevention of Significant Deterioration pre-construction permit for the Deer Creek Station the maximum power output for the natural gas combined cycle plant is 309 megawatts based on an annual average temperature of 43 degrees Fahrenheit. The breakdown is 166 megawatts from the combustion turbine and 143 megawatts from the heat recovery steam generator. The 309 megawatts will decrease in the summer months and increase in the winter months depending on how hot or cold the temperatures are during those seasons. The Deer Creek Station will not be able to achieve 324 megawatts during the spring, summer, and fall months and may not be able to achieve them in the winter months depending on the temperature.

To make building block 2 more realistic, EPA needs to establish state goals based on what a natural gas combined cycle plant can reasonably achieve and not the maximum designed operating rate which is based on perfect weather conditions. This would lower the Deer Creek Station rating from 324 megawatts to a maximum of 309 megawatts as per its Prevention of Significant Deterioration air quality permit.

**Building Block 3 and 4 – Hydropower**

On page 34869 of the preamble, EPA seeks comment regarding whether to include 2012 hydropower generation from each state in the state's "best practices" renewable portfolio. EPA also seeks comments on whether and how the EPA should consider year-to-year variability in

hydropower generation if such generation is included in the renewable energy targets quantified as part of the best system of emission reduction.

EPA did consider hydropower in calculating South Dakota's goal of 741 pounds of carbon dioxide per megawatt-hour. The 15 percent goal for renewable energy in 2030 was based on South Dakota's total generation in 2012 of 12,034,206 megawatt-hours (see Figure A-1). The 12,034,206 megawatt-hours includes 5,980,965 megawatt-hours of hydropower, which is nearly half of our megawatt-hour generation in 2012. If EPA had excluded hydropower electric production in 2012 in its calculation, South Dakota's goal would increase from 741 to 877 pounds of carbon dioxide per megawatt-hour, as noted in Equation A-5.

**Equation A-5: Goal Calculation Based on Excluding Hydropower from Total Production**

$$877 \frac{\text{pounds CO}_2}{\text{MW} - \text{hr}} = \frac{2,040,637,980 \text{ pounds CO}_2 \text{ (coal)} + 2,253,190,867 \text{ pounds CO}_2 \text{ (NGCC)}}{958,046 \text{ MW-hr} + 1,992,211 \text{ MW-hr} + 914,887 \text{ MW-hr} + 1,029,169 \text{ MW-hr}}$$

In addition, the energy efficiency goal is based on retail sales. In South Dakota, the retail sales EPA used in calculating building block 4 also includes hydropower. It is estimated that 40 percent of South Dakota's hydropower is consumed in South Dakota. If EPA excluded hydropower, South Dakota's energy efficiency goal for building block 4 would be lowered from 1,029,169 to 617,502 megawatt-hours resulting in South Dakota's goal increasing from 741 to 917 pounds of carbon dioxide per megawatt-hour (see Equation A-6). If EPA elects to not include existing hydropower in demonstrating compliance with state goals, it should not include hydropower in its calculations that establish the state's goals.

**Equation A-6: Goal Calculation Based on Excluding Hydropower from Total Production/Sales**

$$917 \frac{\text{pounds CO}_2}{\text{MW} - \text{hr}} = \frac{2,040,637,980 \text{ pounds CO}_2 \text{ (coal)} + 2,253,190,867 \text{ pounds CO}_2 \text{ (NGCC)}}{958,046 \text{ MW-hr} + 1,992,211 \text{ MW-hr} + 914,887 \text{ MW-hr} + 617,502 \text{ MW-hr}}$$

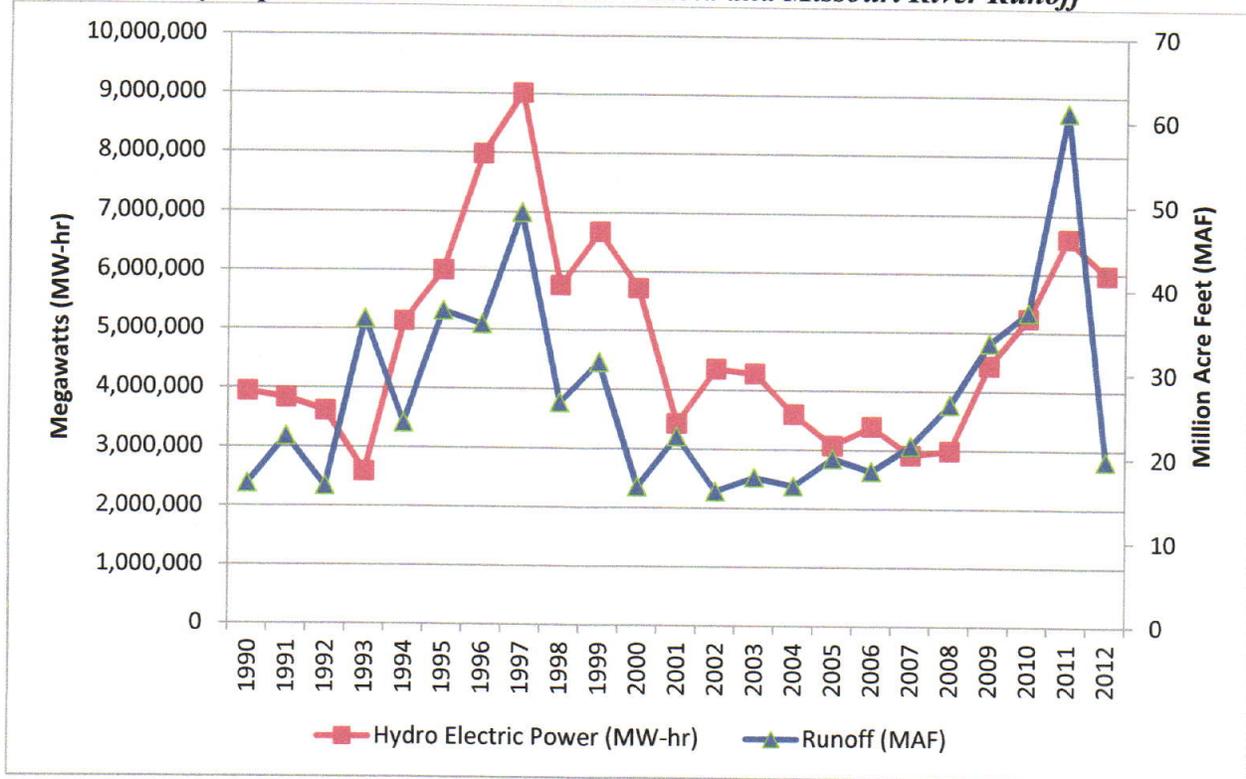
EPA based the 15 percent renewable energy requirement in building block 3 on the Renewable Portfolio Standards for five out of the nine states in the North Central Region. The hydropower generation in these five states is 2 percent or less of their total electrical generation. Including hydropower in determining state goals and yet disallowing use of existing hydropower to demonstrate compliance, when hydropower represents approximately 50 percent of South Dakota's production and 40 percent of its state sales, is not rational.

EPA provided an alternative to include existing hydropower in establishing state goals and demonstrating compliance, but EPA's alternative approach took South Dakota's percentage of hydropower production in 2012 (i.e., 50 percent) and added it to the 15 percent renewable goal. This established South Dakota's renewable goal at 65 percent. EPA's alternative goal assumes South Dakota's hydropower can produce 2012 levels every year. This is not consistently achievable as demonstrated in Figure A-3. Figure A-3 shows that annual hydropower production in South Dakota is dependent on the annual Missouri River runoff above Sioux City, Iowa. EPA's alternative approach in using hydropower to set a state's goal is not realistic or workable.

Because EPA accounted for hydropower production by including it in setting renewable energy and energy efficiency goals, EPA should not penalize states with hydropower by not allowing it to

be used for compliance. Instead, EPA should give states the flexibility to use existing hydropower to demonstrate compliance with the state goal. This can be accomplished by developing a baseline. South Dakota recommends EPA use an average to smooth the variability of hydropower production. In EPA's Prevention of Significant Deterioration program, baseline emissions are established by the owner using a 24-month average over the previous 5 or 10 years depending on the source type. South Dakota recommends EPA use this same method and look back 10 years to determine a baseline level of production for hydropower. The 24-month average hydropower production selected by South Dakota for the last 10 years occurs in 2007 and 2008 and results in a baseline of 2,995,195 megawatt-hours. Any hydropower electric production above the baseline should be eligible for demonstrating compliance with the state's goal.

**Figure A-3: Hydropower Production in South Dakota and Missouri River Runoff**



Because there can be lower hydropower production due to droughts, South Dakota recommends if hydropower production is below the baseline it should not count against a state; there would just be no credit for hydropower production during a drought year. South Dakota also recommends that EPA affirm in the final rule that increases in hydropower due to upgrades/improvements and new hydropower be approved for demonstrating compliance with the state's goal.

**Building Block 3 – Renewable Energy**

On page 34868 and 34869 of the preamble, EPA solicits comments on renewable energy generation targets. EPA compiled state-level effective renewable energy levels by organizing states into regions. EPA then summed the renewable energy portfolios in those regions and divided by the number of states which had state mandated renewable energy portfolios to

determine the renewable energy goal for all states in the region. South Dakota is part of the North Central Region in which five out of the nine states have state mandated Renewable Portfolio Standards.

EPA determined the renewable energy goal for all nine states with the maximum being approximately 15 percent. The assumptions EPA used in this case are not realistic for two reasons. First, EPA did not account for the fact that the five states in the North Central Region with Renewable Portfolios are unable to meet their respective Renewable Standards without using renewable energy that is produced in another state.

Second, EPA's proposal establishes each state's final renewable energy goal in 2030. For the states within the North Central Region, only one state with a Renewable Portfolio Standard (Minnesota) has to achieve 15 percent while three states (Iowa, North Dakota, and South Dakota) that are without a state mandated Renewable Portfolio Standard must also meet the 15 percent target. In contrast, the goal for the other four states with a Renewable Portfolio Standard ranges from 11 percent to a low of 3 percent. When South Dakota is already producing 74 percent of its power from renewable sources, it's puzzling that EPA would require South Dakota to meet the highest target, particularly when comparing South Dakota to other states in the North Central Region. Ultimately, EPA is not being realistic or fair by imposing the highest renewable burden on South Dakota and lesser burdens on other states in the region.

The following three alternative methods, all of which are as equally valid as EPA's, show just how unrealistic EPA's renewable goal is for South Dakota. The first method would be for EPA to sum the renewable energy portfolios in the North Central Region and divide by the total number of states within the region. Using this method, the average renewable generation target would be approximately 8.4 percent for each state.

The second method is to average the actual renewable energy production of the five states with renewable portfolios based on their actual renewable energy production in 2012. The average percentage of renewable energy production for the five states is 5.1 percent; a third of what EPA proposed for all of the states within the region.

The third method would be to average the renewable energy production in 2012 for all of the states within the North Central Region. This results in an average state goal of approximately 7.1 percent.

All three alternative methods produce a renewable goal for South Dakota that is far less than 15 percent and therefore allow for a greater likelihood of successful implementation. Therefore, South Dakota suggests that EPA's calculation for renewable energy for South Dakota is seriously flawed and should be withdrawn. If EPA decides not to withdraw their renewable energy goal, South Dakota recommends EPA use one of the above three methods for calculating renewable energy goals.

### **Building Block 4 – Energy Efficiency**

On page 34873 and 34875 of the preamble, EPA is taking comments on alternative approaches for setting state goals concerning demand-side energy efficiency. South Dakota disagrees with the use of building block 4 because neither EPA nor the states have the authority to make it enforceable. However, if EPA decides to implement building block 4, the 1.5 percent goal needs to be lowered because existing programs in South Dakota have shown that even 0.7 percent over a period of years is overly optimistic.

### **Carbon Capture and Sequestration as a Component of Best System of Emission Reduction**

On page 34876 of the preamble, EPA solicits comments on all aspects of applying carbon capture and sequestration to existing fossil fuel-fired electric generating units in either full or partial configurations. South Dakota references its comments on EPA's proposed 111(b) rules submitted in a letter dated May 8, 2014, in which South Dakota disagreed that carbon capture and sequestration is a proven technology. Consequently, carbon capture should not be applied as a component of best system of emission reduction for either new or existing fossil fuel-fired electric generating units.

### **Applicability of 111(b) and 111(d)**

On page 34877 of the preamble, EPA invites comments on whether EPA should consider construction and use of new natural gas combined cycle capacity as part of the basis for supporting the best system of emission reduction and ways to define appropriate state-level goals based on new natural gas combined cycle plant capacity. On page 34904, EPA invited comments on its determination that once an affected electric generating unit is applicable to 111(d) it is always applicable to 111(d); essentially EPA's once in, always in, philosophy.

South Dakota is addressing its comments on these two together. Typically under Section 111 of the Clean Air Act, a new unit is capable of being designed to meet more stringent emission limits than an existing unit. Likewise, an existing unit when modified can be designed to meet a more stringent limit than the existing unit, but not as stringent as a new unit. These are the reasons Congress lumped new and modified units under 111(b) and existing units under 111(d).

EPA proposes to keep existing units that modify in the 111(d) plan because 111(b) requirements may be less stringent. For example, South Dakota's one coal-fired power plant estimates under EPA's 111(d) proposal that it will only be able to operate at 23 percent of its design capacity annually. If it modified its operations and fell under 111(b), it could potentially operate as normal because EPA proposed the 111(b) carbon dioxide limit at 2 percent less than the electric generating unit's best annual heat rate.

In section 111 of the Clean Air Act, the term new source means, "*...any stationary source, the construction or modification of which commenced after the publication of regulations...*" (in this case January 8, 2014). The term modification means, "*...any physical change in, or change in the method of operation of, a stationary source which increases the amount of any pollutant emitted by*

*such source or which results in the emission of any air pollutant not previously emitted.*” The term existing source means, “...any stationary source other than a new source.”

Consequently, Section 111(b) is applicable to new sources and existing sources that have modified and 111(d) is applicable to existing sources. The Clean Air Act is clear in its interpretation which does not allow EPA to redefine what is applicable to 111(b) or 111(d). Therefore, EPA cannot continue to regulate electric generating units under 111(d) if the electric generating unit is modified and subject to 111(b) nor can it require a state to include new electric generating units subject to 111(b) in complying with state goals under 111(d).

### **Best System of Emission Reduction “Beyond the Fence Line”**

On page 34888 of the preamble, EPA notes that some stakeholders argue that 111(a) does not authorize EPA to identify redispatch, low- or zero-emitting generation, or demand-side energy efficiency measures as components of best system of emission reductions. EPA requested comments on this issue. For the record, South Dakota agrees with these stakeholders.

EPA proposes a best system of emission reduction for South Dakota that is so restrictive, it provides South Dakota with no flexibility in designing a 111(d) plan that is achievable for its one coal-fired power plant (Big Stone Plant) and one natural gas combined cycle plant (the Deer Creek Station). EPA’s emission rate of 741 pounds of carbon dioxide per mega-watt hour is more stringent than the 111(b) standard for both new coal-fired power plants (1,100 pounds of carbon dioxide per mega-watt hour) and for natural gas combined cycle plants (1,000 pounds of carbon dioxide per mega-watt hour). In fact, the proposed goal for South Dakota is more stringent than EPA’s proposed standard for modified units.

“Beyond the fence line” regulation is outside the authorization given to EPA by the Clean Air Act and likely unenforceable by either the state or the EPA. Consequently, the final rule should not seek to force states to engage in regulation that is not within the bounds of cooperative federalism authorized under Section 111 of the Clean Air Act.

### **Complying with State Goal by Additional Reductions in Other Building Blocks**

On page 34893 of the preamble, EPA indicates a state goal will not be changed unless a state can demonstrate one building block cannot be achieved plus demonstrate the other building blocks cannot make up the difference. Section 111(d) of the Clean Air Act requires EPA to determine best system of emission reductions based on the best available data. Best available data does not include correcting errors in one building block by making up the difference using other building blocks. If a state can adequately demonstrate a building block used to establish the state’s goal is in error, there is no authority in the Clean Air Act for EPA to require the states to demonstrate it can or cannot be made up by the other building blocks. EPA should recalculate the state’s goal if the state or others can demonstrate the data or assumptions made by EPA are in error.

### **Credit for Emission Reductions Prior to 2020**

On page 34918 and 34919 of the preamble, EPA solicits comments on the option to recognize emission reductions achieved starting at a specified date which will allow a gradual emission improvement trajectory during the interim performance period of 2020 through 2029. EPA rationalizes this option because higher carbon dioxide emissions during the interim period would be offset by lower emissions prior to 2020.

South Dakota's electric cooperatives out of necessity have been promoting and rewarding energy efficiency and conservation for decades. Examples consist of end user incentive programs for energy efficient heat pumps, lighting, and water heaters along with promoting energy efficient appliances, windows, and whole house efficiency upgrades. Because these programs are currently reducing carbon dioxide emissions and will do so in the future, EPA should give the states the flexibility to account for these existing energy efficiency programs.

South Dakota recommends EPA allow for "banking" carbon dioxide emission reductions beginning in the baseline year through 2019 to allow states to take credit for what has already been accomplished and create an incentive for states to reduce more carbon dioxide prior to 2020. This incentive will not only give states the flexibility they need to plan for the future and reduce carbon dioxide emissions early, but also help reduce the impacts of this federal rule on energy reliability and affordability.

Specifically, EPA should allow high-renewable states like South Dakota to bank excess renewable generation (above a national threshold) and use the banked megawatt-hours for post-2020 goal compliance. This would both reward these states' leadership in renewable energy investment prior to EPA's base year, and strengthen the incentive to continue renewable energy investments prior to 2020.

### **Credit for Electric Production and Avoid Double Counting**

On page 34922 of the preamble, EPA solicits comments on how to avoid double counting emission reductions using the four building blocks. One option EPA proposed is allowing a state to take into account only those carbon dioxide emission reductions occurring within its borders. If EPA persists on the path of setting state goals based on the four building blocks, EPA's only option to avoid double counting is to give the state in which renewable and energy efficiency occurs the ability to determine how they are allocated. This is consistent with state goals based on production and sales within each state.

This issue is particularly relevant to South Dakota. South Dakota produces more electricity than it uses. Seventy-four percent of its electricity in 2012 was generated by hydropower and wind power. South Dakota is also unique in that it is a rural state with only one coal-fired power plant and one natural gas combined cycle plant. If EPA allows other states to take credit for our wealth of renewable energy, those states should also be required to take credit for the power and carbon emissions produced by South Dakota's one coal-fired power plant and one natural gas combined cycle turbine. Allowing other states to take credit for our renewable energy production without

also taking credit for the carbon emissions only makes our inability to develop a plan to meet EPA's carbon goal that much more certain.

### **Eliminating Remaining Useful Life**

On page 34926 of the preamble, EPA solicits comments on its position that states may not include the remaining useful life of affected electric generating units, and other facility-specific factors identified in the existing implementing regulations, as a basis for adjusting a state emission performance goal or for relieving a state of its obligation to develop and submit an approvable plan that achieves the goal on time. Section 111(d)(1)(B) of the Clean Air Act explicitly states, *"Regulations of the Administrator under this paragraph shall permit the State in applying a standard of performance to any particular source under a plan submitted under this paragraph to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies."* Therefore, EPA has no choice but to give the states flexibility in considering the remaining useful life of the existing affected electric generating unit when developing 111(d) plans.

As EPA acknowledges in the preamble, the remaining useful life and other factors are facility-specific in nature and potentially relevant in determining the requirements each state may apply to an affected electric generating unit. The goals set by EPA may need to be changed after each state has had an opportunity to conduct a facility-specific analysis on the remaining useful life and other factors. Therefore, EPA must follow the Clean Air Act and be flexible and abandon the idea of making each state's goal permanent in the final rulemaking as stated on page 34893 of the preamble.

### **Provide States with Flexibility**

EPA repeatedly states in the preamble that EPA will allow states to use different tools to demonstrate compliance. In some cases, EPA solicits comments on whether it should restrict that flexibility and write guidance that limits states. For example, on page 34921, EPA solicits comments on whether EPA should allow a broad range of renewable energy and demand-side energy efficiency measures and programs in demonstrating compliance or write guidance to limit it to certain well-established programs. Because South Dakota is already on a path of increasing renewable energy without EPA mandates we strongly suggest that EPA give states flexibility and not write guidance which restricts flexibility.

On page 34897 of the preamble, EPA requests comments on whether carbon dioxide emission reductions associated with other measures not currently included in any of the four proposed building blocks be included in the state goals. South Dakota recommends EPA broaden its scope of sequestering carbon dioxide. For example, EPA should allow states to use distributed generation, which is power generated at the point of consumption and reduces power demand from electric utilities and cooperatives, and certain farming practices along with wetland, grassland, and forest preservation practices in meeting the state's goal. Although the farming practices are not directly related to the production of electricity, these practices reduce carbon dioxide, which is the goal of EPA's proposal.

### **Interim Goals Provide Insufficient Flexibility to States**

Many states face a dramatic drop from their 2012 emission rate to their interim goal. In South Dakota's case, this drop is from 1,135 pounds per megawatt-hour in 2012 to an interim goal of 800 pounds per megawatt-hour or 85 percent of the overall reduction South Dakota is expected to achieve by 2030. This occurs because for South Dakota, EPA's first three building blocks are assumed achievable immediately, or are fully ramped up, by 2020.

States' 111(d) plans will be approved by EPA in 2017 to 2019. Such a short transition from an approved plan to the first binding goal year is entirely inconsistent with utility investment planning. In effect, states like South Dakota must achieve an emissions rate close to their 2030 target by 2020, and because doing so via the building block measures is not likely to be feasible in South Dakota for the reasons described above, the only option to achieve the 2020 goal is likely to be premature retirement of the state's only coal-fired power plant. This will lead to high costs, stranded assets, and reliability issues. Instead, EPA should:

1. Defer to states to set their own "glide path" to the 2030 goal. States can use existing resource planning processes to identify the most practical and cost-effective ways to reach the 2030 goal; and
2. If state plans show a credible trajectory to the 2030 goal with reporting milestones and verifiable measures, EPA should not set binding interim goals.

### **Proper Reporting Timeline**

In the preamble and rule, EPA is requiring annual reports starting July 1, 2021. EPA has yet to announce how it plans to provide additional funding to state air programs required to implement the 111(d) planning. South Dakota is concerned with the administrative burden of not only 111(d) plans, but also with reporting on an annual basis beginning in 2021. South Dakota recommends EPA consider a longer reporting period (i.e., 3 years, 5 years, or even 10 years) dependent on how close a state is to its state goal. In addition, instead of using a 3-year rolling average for compliance, South Dakota recommends EPA use a 10-year average to help smooth variability due to hot summers, cold winters, droughts, or other factors that might require the regional transmission organizations or independent system operators and utility companies to deviate from the plan to ensure reliable and affordable electricity to its customers. A three year rolling average is not adequate as most weather cycles in our area are closer to 10-year cycles.

### **Additional Time to Submit 111(d) Plan**

EPA has proposed a timeline of finalizing this rulemaking on June 1, 2015, and for states to submit their 111(d) plan by June 30, 2016. This tight deadline was established by the Presidential Memorandum – Power Sector Carbon Pollution Standards signed by President Obama on June 25, 2013. Requiring states to meet such an aggressive deadline is not realistic. It is even less realistic in South Dakota's case where EPA has proposed one of the most stringent carbon goals in the nation. South Dakota recommends EPA provide individual states with more than a one or two year extension on a case-by-case basis. This will help to ensure EPA will not have to embark on writing federal plans for a multitude of states.

## Adherence to Executive Order 13132

On page 34947 of the preamble, EPA claims it provided states with meaningful and timely input on the development of the proposed rule as specified in Executive Order 13132. South Dakota agrees EPA did have stakeholder calls and meetings prior to the proposed rule; however, during those meetings EPA did not identify its intent to propose a radical change in the way it regulates affected units under Section 111(d) of the Clean Air Act. Without knowing that EPA was going “beyond the fence line” in regulating electric generating units, South Dakota did not have meaningful or timely input into the development of the proposed rule.

It appears that EPA believes it satisfies Executive Order 13132 by holding its stakeholder calls and meetings. However, Executive Order 13132 also identifies fundamental federalism principles and federalism policymaking criteria. EPA has not adhered to these principles and criteria in the following ways:

1. Section 2(f) of the order states, *“In the search for enlightened public policy, individual States and communities are free to experiment with a variety of approaches to public issues. One-size-fits-all approaches to public policy problems can inhibit the creation of effective solutions to those problems.”* EPA’s criteria for establishing state goals utilize a one-size-fits-all approach. There exists significant variation in conditions among the
2. 50 states and EPA’s one-size-fits-all approach that will inhibit states from developing effective solutions creatively.
3. Section 2(g) of the order states, *“Acts of the national government...that exceed the enumerated powers of that government under the Constitution violate the principle of federalism established by the Framers.”* South Dakota contends EPA’s proposed rule violates the principle of federalism established by the Framers by going “beyond the fence line” in controlling carbon dioxide from fossil fueled fired power plants.
4. Section 2(i) of the order requires EPA to be deferential to states when taking action that affects the policymaking discretion of the states and act with the greatest caution where state and local governments have identified uncertainties regarding the constitutional or statutory authority of the national government. EPA is affecting the policymaking discretion of the states and not acting with the greatest caution by proposing a rule that impacts state agencies, small businesses, electric coops, and private citizens that have not before been regulated under the Clean Air Act. It also forces states to change their energy policies and move away from reliable and affordable coal-fired power plants to unreliable and unaffordable power sources.
5. Section 3(b) of the order states, *“National action limiting the policymaking discretion of the States shall be taken only where there is constitutional and statutory authority for the action ....”* EPA is not adhering to this section because Section 111(d) of the Clean Air Act limits EPA’s role to procedure and not the substance. By defining the state’s standard (goal) that a state may not revise, EPA is exceeding its constitutional and statutory authority.
6. Section 3(c) of the order states, *“With respect to Federal statutes and regulations administered by the States, the national government shall grant the States maximum administrative discretion possible. Intrusive oversight of State administration is neither*

*necessary nor desirable.*” EPA has the authority to approve or disapprove a 111(d) plan. If EPA approves of that plan, the requirements of the plan are federally enforceable and allow EPA oversight. One of the building blocks involves the demand side use of electricity, which if included by a state, allows EPA oversight and enforcement authority over individuals and small business. The U.S. Supreme Court has just ruled this is beyond EPA’s authority under the Clean Air Act. Section 111(d) was not designed to regulate individuals and small business. EPA’s claimed authority to regulate individuals under Section 111(d) is intrusive Federal Oversight created by EPA’s coercion of State goal calculations.

7. Section 3(d)(2) of the order states, *“When undertaking to formulate and implement policies that have federalism implications, agencies shall...where possible, defer to States to establish standards...”* By informing states that once this rule is finalized, state goals can no longer be adjusted; EPA is not adhering to this section of the Executive Order. EPA may state this proposed rule gives states the flexibility to demonstrate compliance, but the only flexibility it gives is to follow EPA’s goal to shutdown coal-fired power plants.
8. Section 6(b) of the order states, *“...no agency shall promulgate any regulation that has federalism implications, that imposes substantial direct compliance costs on State and local governments, and that is not required by statute, unless: 1) funds necessary to pay the direct costs incurred by the State and local governments in complying with the regulation are provided by the Federal Government; or 2) the agency, prior to formal promulgation of the regulation, (A) consulted with State and local officials...”* EPA states in the preamble that this proposed regulation will require states to expend resources on the development and implementation of the program without any funds from the Federal Government. This is an unfunded mandate upon the States.

EPA’s proposed regulation significantly impacts how electricity is generated and consumed and how much each individual and industry will pay for electricity. The proposal also impacts other regulatory agencies that previously have not had to develop and implement requirements under the Clean Air Act. The proposal’s broad scope raises complex economic and legal issues. For all of these reasons, EPA has not complied with Executive Order 13132.