Comments From the South Dakota Public Utilities Commission on EPA's Proposed Carbon Pollution Emission Guidelines for Existing Stationary Sources (Docket ID No. EPA-HQ-OAR-2013-0602)

I. INTRODUCTION

The South Dakota Public Utilities Commission (SD PUC) respectfully submits the comments below in response to the United States Environmental Protection Agency's (EPA's) proposed Clean Power Plan (proposed rules). These comments should be considered supplemental to comments filed by Governor Dennis Daugaard on November 25, 2014, with which the SD PUC are in agreement. In addition, the SD PUC agrees with South Dakota Attorney General Marty Jackley's legal position against the proposed rules, and we refrain, to an extent, from commenting on EPA's lack of legal standing in this matter.

The SD PUC focuses its comments on: 1) educating EPA about South Dakota's electric industry, 2) identifying issues with EPA's short compliance timeline, 3) identifying technical issues with EPA's building blocks, and 4) providing economic impacts forecasted for South Dakota. As explained in detail within these comments, the proposed rules include specific goals for South Dakota that are not technically feasible or achievable. Moreover, the SD PUC believes implementing the rules as proposed will result in a substantial increase of electric rates in South Dakota.

II. SOUTH DAKOTA'S ELECTRIC UTILITY INDUSTRY

The utility industry in South Dakota is unique. EPA's building block approach, which largely ignores the diverse array of state regulatory models that have evolved over the last century, is especially problematic in our state. Additionally, certain assumptions made for South Dakota in the proposed rules call into question EPA's ability to finalize an equitable rule in the timeline proposed. This section is meant to provide a basic understanding of the electric utility industry in South Dakota so EPA can recognize where and how the proposal falls short.

South Dakotans receive retail electric service from a variety of different utilities operating under many different utility models. Most of the larger cities and towns are served by investor-owned utilities (IOUs)

or municipalities, and most of the rural areas and some smaller towns are served by cooperatives. Currently, six IOUs, 28 cooperatives, and 34 municipalities are operating in the state. All of the IOUs and organizations supplying generation to the cooperatives and municipalities operate in multiple states.

The cooperatives and municipalities in South Dakota receive hydroelectric generation allocations from the Western Area Power Administration (WAPA) and then receive supplemental power from other suppliers.[1] Basin Electric Power Cooperative (BEPC) provides supplemental power to the cooperatives, and Missouri River Energy Services (MRES) and Heartland Consumers Power District (HPCD) provide supplemental power to the municipalities. The IOUs are vertically integrated and generate electricity for their customers from a variety of sources, most of which are in neighboring states.

Mainly as a result of geography, much of the electricity produced here is exported, while much of the electricity consumed here is imported. A large portion of the state's hydroelectric and wind generation is exported, while most IOUs and supplemental providers rely on coal plants in Wyoming, North Dakota, Minnesota, Iowa and Nebraska to serve their loads. Therefore, while generation in the state may commonly consist of 50 percent hydropower and 25 percent wind, SD PUC estimates consumption to be almost 70 percent coal. Of course, the generation mix for each utility varies widely, but this analysis shows how irrelevant state boundaries are in determining that mix.

While state boundaries have little to no bearing on utility boundaries, interconnection and regional transmission organization (RTO) boundaries do. Those boundaries exist in South Dakota, breaking it into the three parts shown in Figure 1 below. In western South Dakota, the line between the eastern and western interconnections falls on the eastern edge of the Black Hills, essentially separating Black Hills Power (BHP) and portions of a few cooperatives from the rest of the state. In eastern South Dakota, four IOUs are members of the Midcontinent Independent System Operator (MISO), and the rest of the system, which includes one IOU and most of the municipalities and cooperatives, will soon be joining the Southwest Power Pool (SPP). Unlike state boundaries, these boundaries do act as barriers to dispatch and transmission development.

[1] In some limited cases, IOUs also receive hydroelectric generation from WAPA

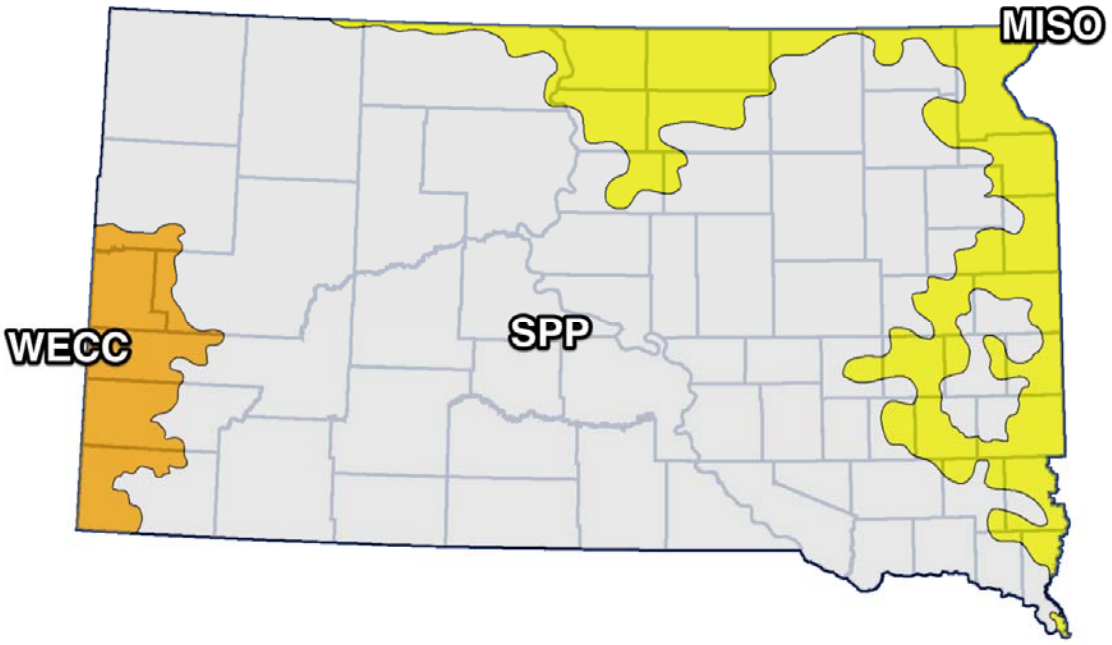


Figure 1. Map of South Dakota Dispatch Regions

III. CALCULATION OF SOUTH DAKOTA'S GOAL

Within the Clean Power Plan, EPA establishes a goal for South Dakota from "building blocks" that were based on national and regional averages. However, each state faces unique challenges for reducing or offsetting CO_2 emissions at affected electric generating units (EGUs) within its borders. Each state's unique challenges are derived from a number of factors including, but not limited to: jurisdictional authority granted to regulatory agencies in the state; the regulatory structure of the electric industry in the state; the number of affected EGUs within the state; the RTOs/ISOs operating within the state; the size of the electric market load serving entities (LSEs) serve within the state; the existing generation portfolio within the state; the amount of power imported/exported to and from the state; the entity that has ownership of RECs generated within the state; policies currently in place for promoting demand side management and energy conservation within the state; and policies currently in place for enhancing distributed generation within the state. This section explores the goal that EPA believes is achievable for South Dakota, with a focus on South Dakota's unique challenges for meeting that goal. First, issues with EPA's "outside the fence" approach are discussed. Second, compliance timeline issues of the Clean Power Plan are addressed in detail. Finally, specific challenges unique to South Dakota that arise as a result of EPA's Building Block approach are identified.

III.A. OUTSIDE THE FENCE APPROACH IS UNWORKABLE AND INEQUITABLE

EPA's proposal sets state goals using four building blocks. Building Blocks 2-4 go "outside the fence" by attempting to reduce or replace generation at affected EGUs. Building Block 2 seeks to replace coal generation with natural gas combined cycle (NGCC) generation, Building Block 3 seeks to replace coal and NGCC generation with renewable generation, and Building Block 4 seeks to reduce the need for coal and NGCC generation through energy conservation. If the electric utility industry in South Dakota operated as a single utility, freely dispatching energy across the entire state, this approach may be tenable. However, as discussed in Section II above, the electric utility industry is made up of dozens of entities, operating across state lines and bounded by dispatch regions. ***The "outside the fence" approach, as a result, is inequitable and unworkable, and it should be abandoned.***

Setting state goals that require utilities and ratepayers, separate from those responsible for carbon-emitting EGUs, to take certain actions is inequitable. As will be discussed later in these comments, there are multiple examples in South Dakota where the owners of affected EGUs are independent of the LSEs expected to make investments in NGCC, renewables, and energy efficiency. Thus, South Dakota ratepayers are penalized for merely living in the same state as affected EGUs while their actions are not connected with, and thus have no effect on, affected EGU emissions in the state. EPA may argue that the rule does not require the use of the four building blocks for implementation, but it would be nonsensical to set the state's goal based on measures it cannot technically or feasibly achieve.

Equally senseless is using policies a state doesn't currently have the authority to implement in setting the state's goals. In South Dakota, no government entity has the authority to require utilities to dispatch certain generators over others, build certain generation over others, or invest in uneconomic energy efficiency. Legislation would be required in order to implement Building Blocks 2-4, and given the partisan nature of EPA's proposal, such legislation would be difficult to pass. States need to have the authority to implement the broad carbon emission goal-setting policies, and EPA must have the same authority in the event it must order a federal implementation plan. EPA clearly does not have such authority based on the legal arguments made by numerous states' Attorneys General.[2] As a result, EPA's outside the fence approach is technically and legally unworkable and should be abandoned.

[2] See *Comment from the Attorneys General of the States of Oklahoma*, *West Virginia*, *Nebraska*, *Alabama*, *Florida*, *Georgia*, *Indiana*, *Kansas*, *Louisiana*, *Michigan*, *Montana*, *North Dakota*, *Ohio*, *South Carolina*, *South Dakota*,

III.B. ISSUES WITH EPA'S TIMELINE

On June 18, 2014, EPA's proposed rule for regulating greenhouse gases from existing sources was published in the Federal Register. In order to provide comment, EPA identified a due date of October 16, 2014, later revising the due date to December 1, 2014. While it is acknowledged EPA did attempt to provide stakeholders with more time to provide comment, the complexity of the Clean Power Plan and the potential for numerous compliance pathways requires more time to thoroughly understand the impacts to utilities, electric system reliability, and ratepayers. This section discusses a number of issues with the timeline EPA has set forth for comment, final rule issuance, state plan development, and compliance.

III.B.1. EPA's Compliance Timeline Does Not Align with Resource Planning and Build Cycle Timelines

Within the Clean Power Plan, EPA begins the glide path in 2020 with an interim goal and establishes a final goal by 2030. Based on South Dakota's affected units (one coal fired plant, Big Stone Power Plant or BSP, and one NGCC Plant, Deer Creek Station or DCS), the key building block that EPA identifies will meet the target emissions rate in 2020 is Building Block 2. This building block is the redispatch of energy generated from affected coal units to affected existing natural gas units. While at first blush the redispatch of energy may seem relatively easy to accomplish, the actual complexity of doing such requires appropriate time to adequately plan for redispatch to gas, plan for additional generating facilities, and build additional generating facilities or transmission lines.

Redispatching DCS to a 70 percent capacity factor would require BSP to operate at a 23 percent capacity factor. The owners of BSP identified that operating the plant at such a low capacity factor may cause the unit to become uneconomical to run and, ultimately, force the plant to shutdown.[3] Should BSP be forced to shut down, additional generating resources or transmission upgrades would need to be determined through a resource planning process and then constructed in order to make up the capacity and energy lost due to the closure of BSP. The utilities would then need to look at permitting and constructing the optimal plan in order to ensure electricity supply adequately meets demand. The timeline for permitting and constructing projects varies depending upon the project, however it is SD PUC's experience that

Utah and Wyoming on Proposed EPA Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units filed electronically November 24, 2014

[3] See Otter Tail Power Company's Comments to EPA dated November 25, 2014.

planning, permitting, and constructing NGCC plants may take as long as five years,[4] with transmission projects taking even longer.[5] Given this, EPA's assumption that redispatch of generating resources can occur by 2020 is flawed. EPA's final rule must be flexible enough to allow for adequate resource planning, permitting, and construction. ***The SD PUC recommends that EPA allow states to retain flexibility for, and the establishment of, their own target emission reductions timelines (i.e. a compliance target glide-path) in order to meet each state's unique resource planning processes that also take into account actual permitting and construction timelines for the optimal solution.***

III.B.2. EPA's Compliance Timeline Does Not Allow for Adequate Assessment of Reliability Impacts

As the state regulatory agency in charge of maintaining reliable electric service to South Dakota consumers, the SD PUC is concerned the timeline EPA set forth for compliance does not allow for adequate review of electric system reliability. To support this concern, the SD PUC incorporates by reference the following sources:

1) NERC's report titled "Potential Reliability Impacts of EPA's Proposed Clean Power Plan;"
2) Southwest Power Pool's Comments to EPA dated October 9, 2014;
3) Western Electricity Coordinating Council Comments dated November 25, 2014;
4) MISO's Comments to EPA dated November 25, 2014; and
5) Montana Public Service Commissioner Travis Kavulla's Testimony before the House Energy and Power Subcommittee on September 9, 2014.

The SD PUC reiterates here an underlying theme within all of these sources, which is the fact that thorough analysis of grid reliability and stability cannot be completed within EPA's proposed timeline. ***Should EPA not grant the appropriate timeline flexibility required for analyzing electric grid reliability and stability in its final rule, then the SD PUC recommends that, at a minimum, EPA provide some form of reliability safety valve.*** Any such reliability safety valve must ensure that the electric grid can maintain its reliability as the proposed rules force the transition from base load coal-fired generation to base load natural gas generation.

[4] See SD PUC Docket EL09-019 (Energy Conversion Facility Permit for Deer Creek Station NGCC)
[5] See SD PUC Docket EL13-028 (Siting Permit for a MISO MVP Transmission Line – Big Stone South to Ellendale)

III.B.3. EPA's Compliance Timeline Does Not Allow for Adequate Collaboration Among States

Within its proposed rule, EPA allows states to pursue a regional compliance approach through the development of multi-state plans. EPA acknowledged that the additional complexity of developing multi-state plans might require additional time to complete. As such, EPA set a due date of June 30, 2018, for submission of multi-state plans. The SD PUC believes that the two-year time frame for developing and submitting multi-state plans is inadequate.

The main reasoning for this is the large number of stakeholders involved and the complexity of issues to be resolved while forming state plans. Moreover, South Dakota will need to assess the possibility of participating in three different regional/multi-state plans. This is due to the fact that a portion of South Dakota is in the MISO market, a portion of South Dakota will be in the SPP market (assuming the successful integration of the Integrated System into SPP), and a portion of South Dakota is in the Western Interconnection. Negotiating and developing a single multi-state plan will be a daunting task and heavy time burden alone. Attempting to negotiate and develop three different multi-state plans will be even more onerous on South Dakota's resources. Given this, ***the SD PUC recommends EPA allow enough flexibility within the compliance timeline of its final rules to allow for robust discussion amongst states and thorough analysis of potential multi-state plans.***

III.B.4. EPA's Compliance Timeline Does Not Allow for Adequate Cost/Benefit Analyses

EPA has repeatedly stated that it is up to the individual state to determine what compliance approach is the most cost effective for its electric customers. This suggests that that EPA expects states to complete cost/benefit analyses of its potential compliance options, then develop a plan that is the most cost effective for the state. As EPA is likely aware based on its own past cost/benefit analyses of various environmental regulations, conducting a thorough and detailed cost/benefit analysis is time consuming. Further, given that there are numerous compliance options available within the framing of the proposed rules, numerous cost/benefit analyses will need to be completed.

In order to complete its cost/benefit analyses, South Dakota will need to assess compliance options for a single-state implementation plan while at the same time assessing compliance options for multi-state plans. Data collection from numerous stakeholders will be required for a detailed analysis. This includes

collecting data from IOUs, generation and transmission cooperatives, distribution cooperatives, municipal electric providers, independent system operators, and other states. After data collection, a detailed model will need to be built to forecast the cost/benefit of potential compliance options in order to provide the state with foundation for its decision making. Under EPA's existing timeline, data collection and analysis will need to be completed within a few months in order to allow for the state to start developing its single-state or multi-state implementation plan. Given this, the SD PUC believes that EPA's proposed timeline for plan development and submission is unrealistic. ***The SD PUC recommends EPA provide enough flexibility in the compliance timelines within the final rules to allow for detailed cost/benefit analyses to be performed.***

III.B.5. EPA's Compliance Timeline Does Not Allow Enough Time for Development of Regional Trading Programs

One possible compliance option EPA identified is that states could enter into a multi-state plan that has a regional carbon trading program. EPA uses the Regional Greenhouse Gas Initiative (RGGI) as an example carbon trading program. Should a state decide to enter into a multi-state implementation plan with a regional trading program, that plan would be required to be submitted to EPA by June 30, 2018, under the proposed rules. Further, the first compliance year under the proposed rules is 2020. EPA's proposed rules thus leaves 18 months for the states that are party to the multi-state plan to develop a regional trading program. However, it took states operating under RGGI six years (from 2003 to 2009) to form the program, pass legislation, and start trading.[6] Based on this, EPA's timeline for compliance under a regional trading approach is unrealistic. ***The SD PUC recommends that EPA build additional flexibility in the compliance timeline embedded within the final rules in order to allow for states to establish a regional trading program should they determine that is the most cost effective compliance option.***

III.B.6. EPA's Compliance Timeline Does Not Allow States Enough Time to Pass Legislation

EPA acknowledged that potential compliance options within the proposed rules might require new legislation in some states. South Dakota is one of these states that would likely require new legislation in order to ensure enforceability of the state implementation plan, with one example being energy

[6] See RGGI History at: http://www.rggi.org/design/history

efficiency savings targets. EPA's proposed timeline requiring states to submit an implementation plan within one year of final rule publishing and, further, requiring all aspects of the plan be enforceable leaves little time for any legislative action to occur in South Dakota. This is due to the fact that South Dakota's legislative session runs from January through March annually.

As an example, if the final rule is published on June 30, 2015, this leaves South Dakota with just five months to discuss compliance options with stakeholders, discuss compliance options with other states, perform detailed cost/benefit analyses of compliance options, develop a final plan for compliance, identify needed legislation, and then pursue legislation in the 2016 session. This timeframe is unrealistic and will not result in good policy making. ***As such, the SD PUC recommends EPA leave enough flexibility within the final rule timeline to allow for sound policy making to occur at the state level rather than force policy making in a short period of time.***

III.C. FINALITY OF GOAL

According to EPA, "[a]s promulgated in the final rule following consideration of comments received, the interim and final goals will be binding emission guidelines for state plans."[7] The SD PUC takes issue with setting binding goals based on a comment period of only 154 days for the following reasons. First, the complexity of the electricity industry and possible compliance approaches make it difficult to determine the proper Best System of Emissions Reduction (BSER) and resulting achievable emission goals. Second, EPA bases its goal calculations on national or regional benchmarks. The goals must take into account state-specific data, and the short comment period did not allow for states to complete thorough analyses of all data. Third, EPA's goals are based on forecasts and assumptions that are likely to change in the future depending upon a number of factors such as: the wholesale price of electricity; commodity costs; energy demand growth rates; local, state, and national economic conditions; cost of new generation; cost of energy efficiency measures; ability to add natural gas infrastructure; ability to build new transmission infrastructure; ability to site new generation; and energy efficiency market penetration rates. ***Therefore, the final goals need to include the flexibility necessary to adjust for any deviations that may occur between forecasted assumptions and actual conditions.***

[7] 79 Fed. Reg. 34892 (June 18, 2014)

The SD PUC recommends EPA allow for interim and final goals to be adjusted as states work through developing a state implementation plan that the state determines to be the most cost effective for its citizens. Circumstances unique to an individual state that arise during state implementation plan development may require revisions to interim and final goals; therefore, setting binding interim and final goals in EPA's final rules is not reasonable.

III.D. GOAL MUST BE ACHIEVABLE AND BASED ON ACCURATE, STATE-SPECIFIC DATA

The emissions rate targets set by EPA for each state must be based on accurate, state-specific data. Each state has a unique set of affected EGUs and types of generation available within its borders. This section explores the state-specific issues of each building block used in EPA's proposed BSER for South Dakota. Information provided in this section shows that EPA should reconsider how it applied the four building blocks to determine South Dakota's interim and final emissions rate goals.

III.D.1. Building Block 1

Under Building Block 1, EPA makes the assumption that every affected coal-fired generating plant can achieve an average heat rate improvement of 6 percent. EPA further identifies that coal generating plants could achieve heat rate improvements through either best practices for operations and maintenance or equipment upgrades. According to EPA's analysis, affected coal-fired generating plants could achieve, on average, a 4 percent improvement in heat rate through best operating practices and a 2 percent heat rate improvement through equipment upgrades. It is the SD PUC's belief that the application of national averages for heat rate improvements to each individual affected coal-fired generating plant is flawed, with South Dakota being a prime example of this flaw (as set forth in the following paragraphs). As a result, EPA must use unit-specific data when applying Building Block 1.

South Dakota has one affected coal-fired generating plant, BSP, which would need to achieve the 6 percent heat rate improvement identified in Building Block 1. However, this heat rate improvement is not technically achievable at BSP as identified by its owners.[8] According to BSP's owners, "Big Stone [Plant] has a proud history of 'best operating practices' and efficiency upgrades." Further, the owners state "Big Stone Plant has already made or plans to make all applicable [heat rate improvements]

[8] Otter Tail Power Company's Comments to EPA dated November 25, 2014

identified by Sargent and Lundy." In addition, the owners are in the process of installing a state of the art air quality control system (AQCS) to comply with EPA's Regional Haze and MATs rules. The AQCS system will consume approximately 8 to 9 MWs of the energy produced by the plant, resulting in the degradation of the plant's heat rate by 1.7 percent.

Since EPA did not account for unit-specific circumstances when including the 6 percent heat rate improvement in South Dakota's goal computation, EPA's final goal calculation for South Dakota is in error. EPA's assumed heat rate improvement of 6 percent for South Dakota's coal-fired generation cannot be achieved at the one affected coal-fired plant, BSP. Three factors that make the 6 percent heat rate improvement unattainable at BSP include: 1) the owners already implement best operating practices at the plant, 2) the owners already completed, or are in the process of completing, all applicable equipment upgrades identified by Sargent and Lundy, and 3) parasitic load from BSP's new AQCS will decrease the plant's heat rate by 1.7 percent. ***Based on these site-specific circumstances for Big Stone Plant, which make heat rate improvements at the plant not technically feasible, the SD PUC recommends that EPA exclude Building Block 1 from South Dakota's final goal calculation.***

III.D.2. Building Block 2

Under Building Block 2, EPA expects existing NGCC plants to ramp generation up to a 70 percent capacity factor, with the additional generation offsetting an equal amount of coal generation within the same state. EPA's application of this block to South Dakota results in the largest reduction of emissions assumed possible by all four blocks. However, South Dakota is the perfect example of why this block is flawed.

As previously mentioned, EPA's one-size-fits-all building block approach ignores the unique, real-world operation of the bulk electric system in each state. In South Dakota, only two units will be affected by EPA's proposal: BSP and DCS. Starting commercial operations in 1975, BSP is a 475 MW coal-fired power plant owned by three IOUs. Starting commercial operations in 2012, DCS is a 324 MW NGCC power plant owned by Basic Electric Power Cooperative (Basin Electric). The two plants operate in separate dispatch areas – BSP in MISO, DCS in SPP.[9] They serve independent loads, where BSP serves IOU customers and

[9] DCS currently operates within WAPA's Integrated System, which is in the process of joining SPP.

DCS serves cooperatives. They also serve different purposes, where BSP provides base load power and DCS provides intermediate power.

Despite concluding "that increments of generation are ***to some extent*** interchangeable" (emphasis added) in the proposed rule,[10] EPA's Building Block 2 assumes that all increments of generation within a state are fully interchangeable and that security-constrained economic dispatch (SCED) is prevalent throughout the bulk electric system. This is not the case. In South Dakota, increments of generation between BSP and DCS are not interchangeable for the reasons stated above. The two plants operate in separate dispatch areas, serve independent loads and different purposes, and will operate in different electricity markets. In attempting to achieve EPA's proposed goal, increasing generation from DCS would not result in a decrease at BSP. ***Therefore, the application of Building Block 2 in South Dakota is not technically feasible, and EPA should not include it in determining the state's goal.***

If Building Block 2 is not removed from the state's goal, EPA must correct major flaws in the baseline assumptions for DCS NGCC, at a minimum. In the proposed rule, EPA assumes normal operation for DCS is at a 1 percent capacity factor because of the hours it operated in 2012. This conclusion was despite the fact that it was under construction[11] for more than half of that year.[12] DCS should be considered "under construction" with an assumed 55 percent capacity factor, similar to other new NGCC plants.[13] Additionally, DCS is assumed to have a maximum capacity of 324 MW by EPA. However, the plant is limited by an interconnection agreement of only 300 MW, consistent with the siting permit approved by the SD PUC.[14] These technical errors in EPA's proposal must be corrected in the final rule if Building Block 2 is used.

In short, Building Block 2 should not be applied to South Dakota's goal. Generation cannot be redispatched from the state's single coal-fired plant to the state's single NGCC plant. If EPA chooses to

[10] 79 Fed. Reg. 34862 (June 18, 2014)
[11] DCS came online August 1, 2012.
[12] A one percent capacity factor should have been a noticeable error prior to the publication of the proposed rule. The fact that this error was not caught seriously calls into question EPA's ability to properly review and understand all stakeholder concerns as a result of this one, short round of comments, prior to the finalization of the rule.
[13] The baseline assumptions used for NGCC plants are extremely important to the goal, yet unsupportable. DCS was built by its owners to serve its unique set of circumstances. Its annual output will vary greatly depending on load growth, weather, wind development, hydroelectric production, natural gas prices, etc., and any deviation from the baseline assumption will have a drastic impact on the state's ability to meet EPA's goal. This highlights how unreasonable Building Block 2 is in attempting to reduce emissions from BSP.
[14] July 21, 2009, Application for an Energy Conversion Facility Siting Permit for the Deer Creek Station in Docket EL09-015, pg. 1-1 (https://puc.sd.gov/commission/dockets/electric/2009/el09-015/ltrapplication.pdf)

ignore this fact, it must at least correct the technical errors mentioned above in the block's baseline assumptions for DCS.

III.D.3. Building Block 3

Building Block 3 attempts to replace coal-fired and NGCC generation with non-carbon emitting generation. In South Dakota, that means assuming a 15 percent renewable portfolio standard (RPS) as a best practice in the BSER. Outside of the legal and equality issues mentioned before, this concept once again ignores the unique makeup of each state along with standard industry practices.

III.D.3.1. Hydropower

The proposed rule does not allow existing hydropower to count toward complying with a state's goal. Hydropower from dams along the Missouri River makes up approximately half of all the electricity produced in South Dakota. Annual production, however, is dependent on river management rather than demand for electricity. Therefore, a large portion of the state's generation is outside anyone's control. Yet because hydropower ***is*** used in calculating the required amount of renewables, the state is effectively penalized as a result of its carbon free source of power.

Not only does EPA expect 15 percent of total generation in the state to come from renewables, but it is also assumed a state plan must show those renewables will result in emission reductions at affected EGUs in-state. Since less than half of the state's generation comes from these affected EGUs, the 15 percent renewables results in more than a 30 percent reduction in output from affected EGUs. Thus, the inclusion of hydropower in EPA's calculation of total generation actually penalizes the state. ***If EPA chooses not to allow existing hydropower to count toward complying with a state's goal, EPA should also remove hydropower as a component of the state's total generation when calculating the required amount of renewables in Building Block 3.***

III.D.3.2. Renewable Energy Certificates

In calculating South Dakota's goal, EPA included all generation produced in the state. However, EPA has indicated that compliance may be based on ownership of the renewable energy certificates (RECs)

associated with that generation,[15] regardless of the state where it is physically located. The calculation of a state's baseline in determining its goal, then, should also be based on which states actually have a legal claim to the environmental benefits associated with that generation.

RECs were developed to facilitate the tracking of renewable energy, allowing purchasers of renewable energy to claim the attributes and benefits of that specific renewable resource. Each REC represents the claim to the environmental benefits associated with 1 MWh of renewable electricity. RECs have been tracked for more than a decade in this country for such purposes as complying with renewable portfolio standards and claiming the use of "green" energy in the production of goods. REC tracking systems have been established nationwide to verify and provide integrity to those claims, as many RECs are sold separately (or unbundled) from the electricity they represent. Most of these systems define a REC as including all environmental attributes (including the emissions reductions) associated with that generation. If EPA allows states to claim the emission reduction benefits of renewable electricity generated within their state, they are technically claiming the same benefits as those held by the owners of those RECs. This scenario would create confusion and uncertainty in the REC marketplace and in state RPS compliance programs as well. ***Thus, if EPA decides to base compliance on REC ownership, renewable baselines in Building Block 3 should be based on REC ownership location rather than generator location.***

In South Dakota, approximately 24 percent of generation produced in the state came from wind energy in 2012. However, a large majority of the RECs associated with that wind generation is contracted to out-of-state utilities for compliance within their own states. For instance, the Buffalo Ridge I and II projects in eastern South Dakota, which make up approximately 260 of the state's 784 MW of installed wind capacity, are contracted to a utility in northern Indiana.[16] As a result of internal studies, the SD PUC believes REC ownership makes up less than 10 percent of in-state generation. The result of the incorrect baseline (EPA-calculated 24 percent[17] versus the SD PUC-calculated less than 10 percent) will be a state goal that is even more onerous than EPA suggests in its proposed rule. Moreover, given the already high penetration of wind generation in the state, integrating additional intermittent wind resources will be more difficult than in states that have lower penetration. ***If Building Block 3 is applied with the proper***

[15] 79 Fed. Reg. 34922 (June 18, 2014)
[16] http://iberdrolarenewables.us/cs_buffalo-ridge-2.html
[17] 79 Fed. Reg. 34868 (June 18, 2014)

baseline, South Dakota's renewable target should be reduced in acknowledgement of the current export of RECs and the already high levels of wind penetration.

As mentioned previously, REC tracking systems have been developed nationwide. In South Dakota, this includes the development of two tracking systems, the Midwest Renewable Energy Tracking System (M-RETS) and the Western Renewable Energy Generation Information System (WREGIS). These two regional systems were built with volunteer hours from state and regulatory agencies, and funded by ratepayers across the West and Midwest. Both systems employ inclusive stakeholder processes for the accommodation of policy needs and changes, such as this proposal. ***The final rule should allow the use of established tracking system for compliance purposes.***

III.D.3.3. Emission Reductions Associated with Renewables

Finally, the goals set within Building Block 3 must be approvable in a state's compliance plan. The SD PUC's understanding is that an approvable state plan requires demonstrated emissions reductions. That is, the use of renewables to comply with the state's goal must prove to reduce emissions at affected EGUs within the state. However, if the state implements an RPS, as suggested by EPA as a "best practice" in the BSER, there is no guarantee emission reductions will take place at affected EGUs within the state. Therefore, if the calculation of a state's goal assumes the emission reductions happen within the state, state plans making the same assumption should be approvable. ***The final rules should assume emission reductions occur at affected EGUs in a state as a result of renewable generation in that state no matter whether or not energy production at affected EGUs is actually offset by renewable generation, and EPA should define simple methods for calculating those assumed reductions.***

III.D.4. Building Block 4

Within Building Block 4, EPA identifies that states can achieve an annual incremental energy efficiency savings target of 1.5 percent. To support this, EPA developed a "best practices" demand-side energy efficiency scenario. According to EPA, this scenario "represents a feasible policy scenario showing the reductions in fossil fuel-fired electricity generation resulting from accelerated use of energy efficiency policies in all states consistent with a level of performance that has already been achieved or required

by policies (e.g., energy efficiency resource standards) of the leading states." [18] Given this, EPA has created its own "feasible policy scenario" based on policies enacted by a few states that are leading in the energy efficiency space and then applied the "feasible policy scenario" to all states. However, the one major assumption that EPA makes, but does not address, is that all states will be able to enact energy efficiency policies that create energy efficiency savings similar to the feasible policy scenario. This is simply not true and is discussed in detail in the following paragraphs.

III.D.4.1. Energy Efficiency Policies Will Require New Legislation in South Dakota

South Dakota currently has a renewable, recycled, and conserved energy objective that provides a goal of 10 percent of all electricity sold at retail within the state be obtained from renewable, recycled, and conserved energy sources.[19] This law is purely voluntary, with no penalties or sanctions set forth for retail providers of electricity that fail to meet the object. Further, the law does not specify the amount of conserved energy required to meet the objective. In order for South Dakota to meet EPA's feasible policy scenario, new legislation would be required that establishes a target energy efficiency savings standard of 1.5 percent of retail electric sales and that further allows for enforceability of the standard. Enacting such legislation in South Dakota would be highly contentious, with little guarantee of any legislation being passed by state government. ***Therefore, EPA cannot reasonably assume that South Dakota has the ability to meet EPA's feasible policy scenario.***

III.D.4.1. Energy Efficiency Target of 1.5 Percent Is Not Reasonable

Even if the assumption is made that South Dakota can enact a law that sets an enforceable energy efficiency standard at 1.5 percent of retail electricity sales, there is no guarantee that utilities will be able to meet such a standard. In fact, data provided to SD PUC by a number of utilities indicates that achieving 1.5 percent annual energy efficiency savings is not economically feasible. With well-funded programs, the majority of the utilities believe the highest potential for energy efficiency savings is near 0.7 percent of retail electric sales. One utility stated that achieving energy savings of 1.5 percent annually would require its energy efficiency program budget to increase 20 times the current level and nearly half of its customers would have to participate every year to sustain the 1.5 percent annual

[18] 79 Fed. Reg. 34873
[19] SDCL 49-34A-101

energy savings. Another utility identified that attempting to reach a 1.5 percent annual energy efficiency target would cost five to six times its current spending levels.

In addition to spending levels, energy efficiency conservation is dependent upon the amount of consumer participation in the state's energy efficiency programs. Rural states that have a small, dispersed population of residents may have a difficult time meeting energy efficiency savings levels that more populated states can meet. Given this, the annual energy efficiency savings targets should be based on feasibility studies and benefit/cost tests specific to each state. Therefore, EPA's assumption that all states can meet 1.5 percent annual energy efficiency savings based on the fact that a few states are thought to be capable of meeting that energy savings level is flawed. States need flexibility in the final rule to establish energy efficiency programs based on economic feasibility studies and benefit/cost tests specific to that state.

Since each state has unique energy demand characteristics (such as population, population density, and types of industry), the SD PUC recommends that EPA establishes energy efficiency targets for each state based on the economically feasible potential for energy efficiency savings specific to each state and that those determined economically feasible target levels be used in the state's emissions rate goal calculation.

IV. ECONOMIC IMPACT ANALYSIS

As the economic regulator tasked with ensuring customers receive safe, reliable, and affordable electricity, the SD PUC is particularly interested in the cost burden EPA's Clean Power Plan may impose on South Dakota citizens. In order to determine the costs of compliance and rate impacts that could occur with EPA's building blocks, the SD PUC built a rudimentary economic model that attempted to capture future generation needs and costs associated with that generation. The model was run for each building block individually and EPA's scenario used to calculate South Dakota's goal. The model estimates the cost of future generation needed for Business As Usual (BAU) and EPA's building blocks. It further captures the avoided cost benefits of energy efficiency. In short, this means the model provides the incremental cost of generation above rates that are in effect today. Therefore, the rates do not reflect the total retail rate that will be in effect in future years. The rudimentary model is based on yearly forecasted energy demand, where capacity needs with reserve margins were not modeled.

Finally, it should be noted that all costs in the model were spread across South Dakota's total retail sales for computation of forecasted electric rate and bill impacts. As such, forecasted costs were not assigned to the specific LSE that may be responsible for cost occurrence.

As with any financial modeling, the SD PUC made a number of assumptions that it believes to be reasonable. A general inflation rate of 2.5 percent was used to grow fixed and variable Operations and Maintenance (O&M) costs of affected generating plants and a discount rate of 8 percent was applied to new generation costs for net present value analysis.

With regard to variable fuel costs, the following assumptions were made:

1) Coal: A 2012 delivered coal price of $2.40/mmbtu was used and escalated at a growth rate of 1 percent. Both of these numbers were derived from the EIA's Annual Energy Outlook 2014 data table titled "Coal Supply, Disposition, and Prices."[20]
2) Natural Gas: The Henry Hub spot price in 2012 at $2.75/mmbtu was used, as identified in the EIA's 2014 Annual Energy Outlook Report, and an escalator of 3.7 percent was applied for future years (also identified in the 2014 Annual Energy Outlook Report).[21]

For new NGCC generation, a levelized cost of $66.3/MWh was used, which was taken from EIA's total cost of new generation.[22] For new wind generation, a levelized cost of $55/MWh was used and this number is based on U.S. Department of Energy's 2013 Wind Technologies Market Report[23] (that identified levelized cost of new wind at $22/MWh in the interior region) and adding back in the expired production tax credit ($23/MWh). Further, wind integration costs were included at a levelized cost of $4/MWh, also taken from 2013 Wind Technologies Market Report.[24]

Assumptions made for energy efficiency include first year costs at the following amounts: $200/MWh for energy efficiency penetration of 0.0-0.5 percent, $350/MWh for energy efficiency penetration at 0.5-1.0 percent, and $525/MWh for energy efficiency penetration at 1.0-1.5 percent. These costs are

[20] EIA AEO 2014 Data Table Located at: http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=7-AEO2014&table=15-AEO2014&region=0-0&cases=ref2014-d102413a
[21] EIA AEO 2014 Data Table Located at: http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=8-AEO2014&table=1-AEO2014&region=0-0&cases=ref2014-d102413a
[22] EIA Report. *Levelized Cost and Levelized Avoided Cost of New Generation Resources in the Annual Energy Outlook 2014.* Located at: http://www.eia.gov/forecasts/aeo/pdf/electricity_generation.pdf
[23] U.S. Department of Energy. *2013 Wind Technologies Market Report*. Located at: http://emp.lbl.gov/sites/all/files/2013_Wind_Technologies_Market_Report_Final3.pdf
[24] *Id.*

thought to be reasonable by the SD PUC and were derived from comments made to the SD PUC by utilities. In addition, benefits associated with the avoided cost of energy due to energy efficiency were calculated based on SD PUC's forecast of annual average on-peak wholesale market prices.

Costs associated with BSP's AQCS system and potential stranded asset costs (should EPA's rules make the plant uneconomical to run) were obtained from the owners of the plant.

Two load growth assumptions were modeled. Low load growth was modeled using EPA's forecasted annual growth rate of 0.53 percent for South Dakota. High load growth was modeled using an independent load forecast calculated for South Dakota by Purdue University as part of a MISO study. Preliminary results from Purdue identify South Dakota's load growth forecast is 2.06 percent annually.

As noted earlier, the modeling completed by the SD PUC was somewhat simplistic in nature. More detailed production cost modeling will need to be completed in the future in order to further support any economic impacts forecasted for South Dakota. Given this, the cost and rate impact numbers provided herein might be subject to change if additional production cost modeling is completed to determine the least cost option of compliance with EPA's final rules. The SD PUC believes, however, the numbers provided in the following sections can be used as a bellwether for determining if cost burdens to consumers will occur.

IV.A. BUILDING BLOCK 1

A model was not run for costs associated with Building Block 1 due to the fact that the heat rate improvements are not technically feasible at Big Stone Plant.

IV.B. BUILDING BLOCK 2

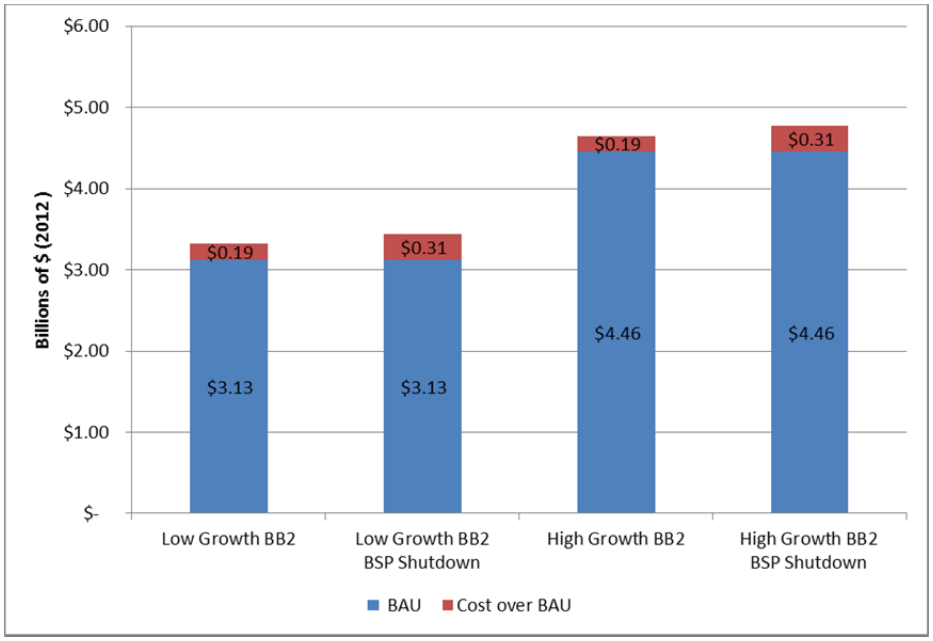
Four scenarios were modeled for Building Block 2, with two scenarios occurring in a low load growth environment and two scenarios in a high load growth environment. The first scenario consisted of redispatching DCS to a 70 percent capacity factor and BSP to a 23 percent capacity factor. The assumption made in this scenario is that BSP would be able to operate at a 23 percent capacity factor ongoing through 2030. The second scenario consisted of shutting BSP down in 2025, with the

assumption made that the plant will not be economical to run at a 23 percent capacity factor. Business as usual costs reflect the future natural gas generation needed to offset forecasted sales growth and those costs are based on the levelized cost of new gas generation.

IV.B.1. Net Present Value of Building Block 2 Options

Figure 2 provides the net present value for four scenarios with redispatching coal-fired generation to gas fired generation for compliance with Building Block 2 (BB 2). The first scenario, "Low Growth BB2," shows a net present value cost of $190 million over BAU to redispatch South Dakota's affected natural gas plant (DCS) at 70 percent capacity factor and reduce the one affected coal-fired plant (BSP) to a 23 percent capacity factor. The second scenario, "Low Growth BB2 - BSP Shutdown," shows a net present value cost of $310 million if redispatching to natural gas forces BSP to shutdown. The third scenario shows a net present value cost of $190 million to redispatch more energy to natural gas in a high growth environment. Finally, the fourth scenario shows a net present value of $310 million if BSP is shutdown in a high growth environment.

Figure 2. Net Present Value of Building Block 2 vs. BAU



IV.B.2. Rate Impact of Building Block 2 in Low Load Growth Environment

Figures 3 and 4 show the rate impacts and percent increase over BAU for the low load growth environment. Rates in the low load growth environment are forecasted to be approximately 40 percent to 55 percent higher than BAU by year 2030 as a result of Building Block 2.

Figure 3. Forecasted Rate Impacts of Building Block 2 (Low Load Growth) vs. BAU

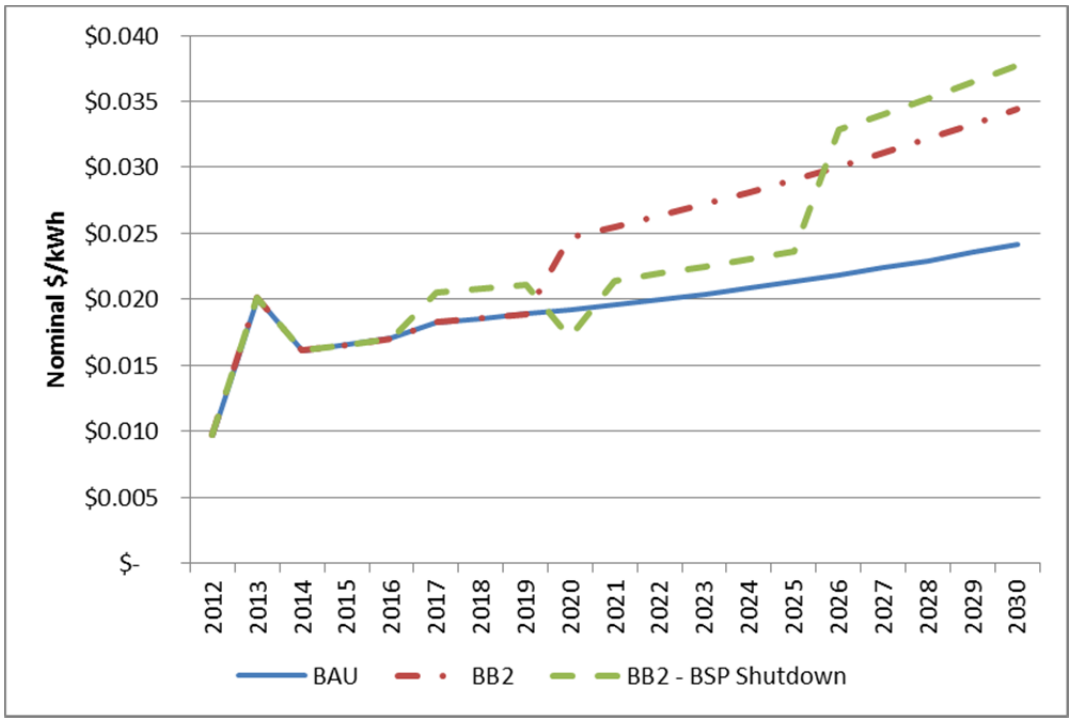
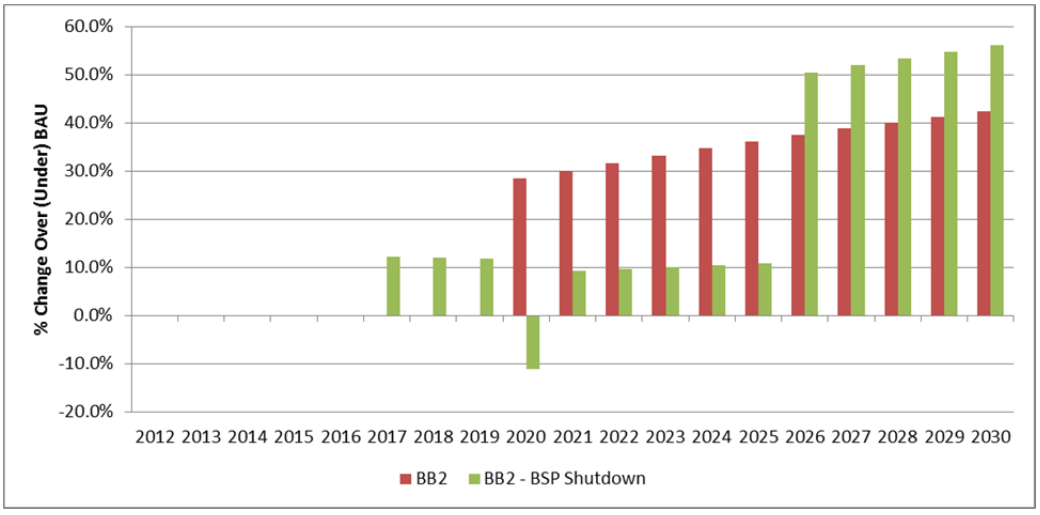


Figure 4. Forecasted Rate Impacts of Building Block 2 (Low Load Growth)



IV.B.3. Rate Impact of Building Block 2 in High Load Growth Environment

Figures 5 and 6 show the rate impacts and percent increase over BAU for the high load growth environment. Rates in the high load growth environment are forecasted to be approximately 17 percent to 23 percent higher than BAU by year 2030 as a result of Building Block 2. A larger rate increase is expected to occur in later years if BSP is forced to shut down due to the recovery of stranded asset costs and cost of new generation required to offset BSP generation.

Figure 5. Forecasted Rate Impacts of Building Block 2 (High Load Growth) vs. BAU

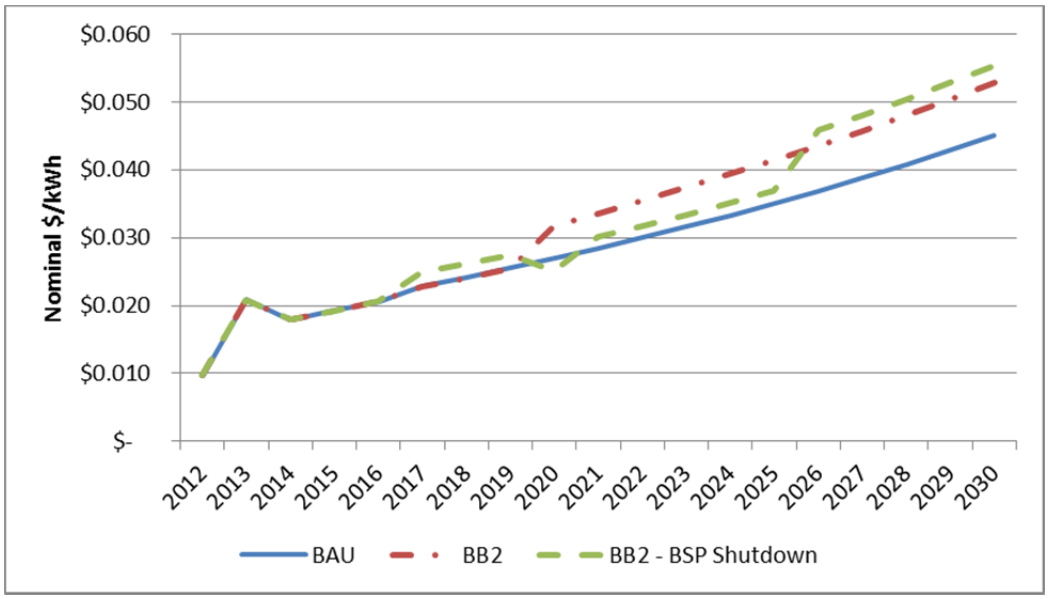
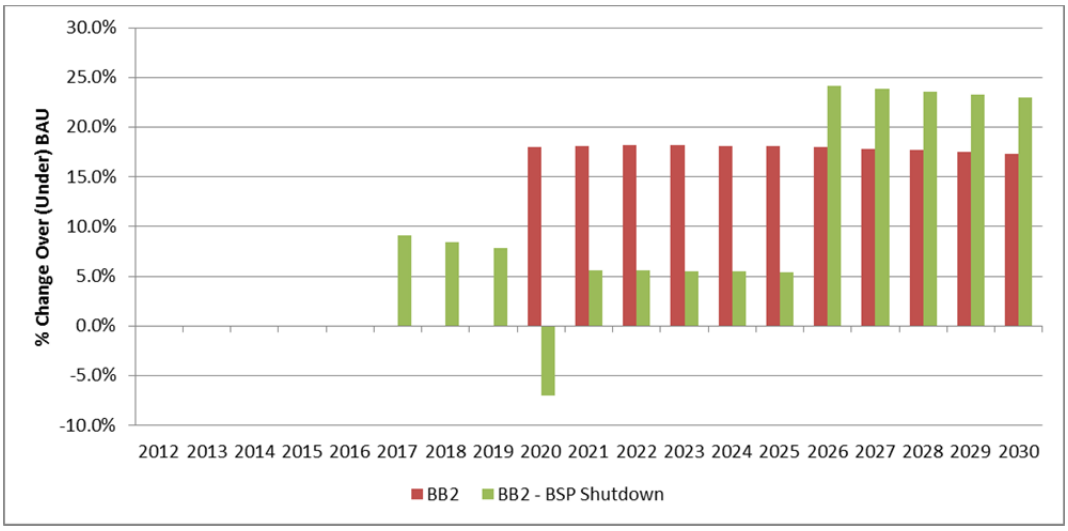


Figure 6. Forecasted Rate Impacts of Building Block 2 (High Load Growth)



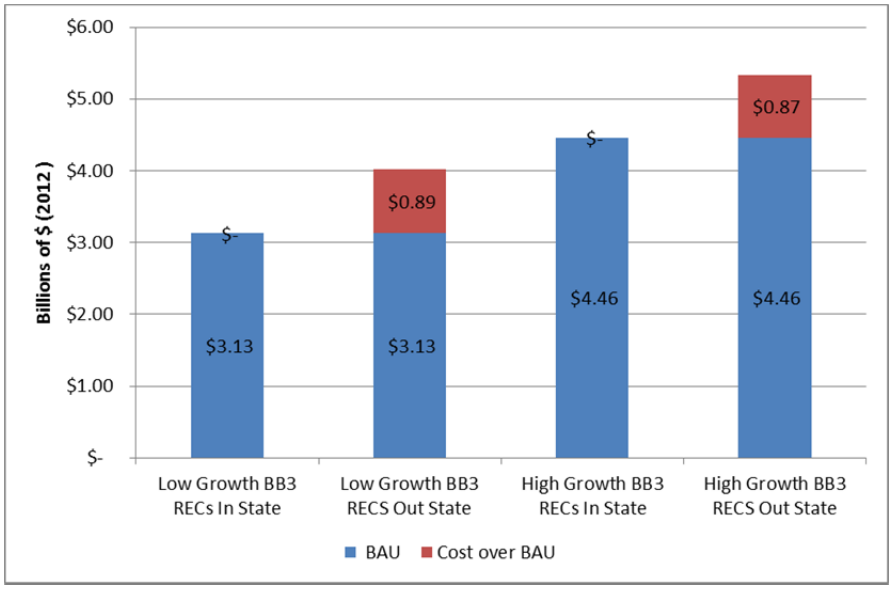
IV.C. BUILDING BLOCK 3

Four scenarios were modeled for Building Block 3. Two scenarios were modeled in both the low load growth environment and high load growth environment. The first scenario consisted of applying all RECs generated by South Dakota's wind turbines toward EPA's renewable energy target of 15 percent of the state's generation. The second scenario consisted of allocating RECs according to their contract paths, which resulted in the majority of RECs flowing out of the state. This, in turn, required additional wind generation to be built in order to meet EPA's 15 percent renewable energy target.

IV.C.1. Net Present Value of Building Block 3

Figure 7 shows the forecasted net present value of compliance with Building Block 3. Since South Dakota already meets EPA's renewable energy goal of 15 percent with currently installed wind capacity, there is no change in costs over the BAU case if all RECs stay in the state. However, should EPA's final rules set forth that RECs follow purchase contracts, then the majority of South Dakota generated RECs will flow out of the state. This will result in the need to build additional wind generation in order to meet the 15 percent goal and is estimated to cost South Dakota consumers $890 million in a low load growth environment and $870 million in a high load growth environment. It should also be clarified that the costs do include estimated wind integration costs, however it is thought those costs do not capture major transmission and intermediate generation investments that may be needed for adding large amounts of variable wind resources to the electric grid. Therefore, the cost estimates are thought to be materially understated.

Figure 7. Net Present Value of Building Block 3 vs. BAU



IV.C.2. Building Block 3 Rate Impacts in Low Load Growth Environment

Figures 8 and 9 provide the rate impacts and percent increase over BAU for the low load growth environment due to Building Block 3. If all RECs generated in a state are applied to that state's renewable energy target, then the rate impact to South Dakota consumers will be minimal (as shown by the "BAU" scenario and "BB3-RECs in State" scenario following the same curve in Figure 8). However, if RECs follow their contract paths, most of South Dakota's renewable energy generation will flow out of state and rates are forecasted to be approximately 80 percent higher than BAU in the low load growth environment by year 2030 as a result of Building Block 3.

Figure 8. Forecasted Rate Impacts of Building Block 3 (Low Load Growth) vs. BAU

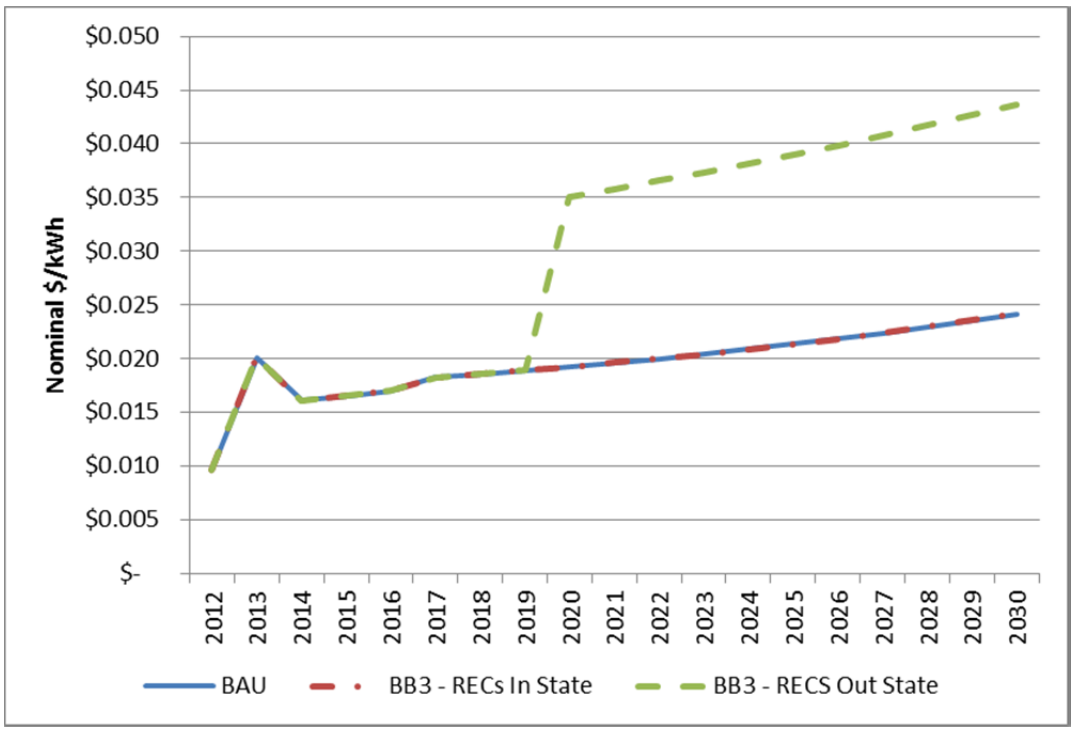
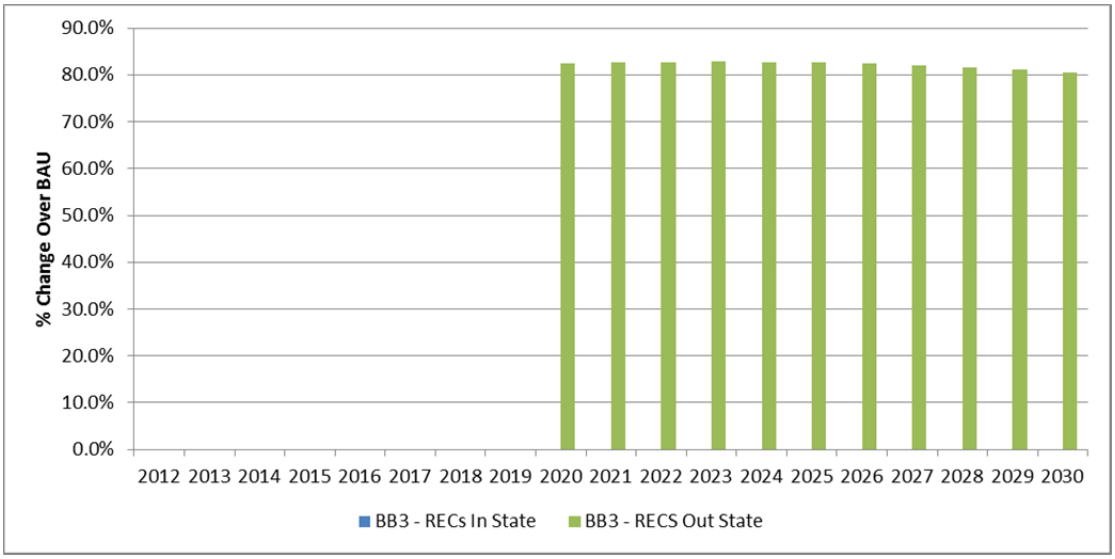


Figure 9. Forecasted Rate Impacts of Building Block 3 (Low Load Growth)



IV.C.3. Building Block 3 Rate Impacts in High Load Growth Environment

Figures 10 and 11 provide the rate impacts and percent increase over BAU for the high load growth environment due to Building Block 3. If all RECs generated in a state are applied to that state's

renewable energy target, the rate impact to South Dakota consumers will be minimal (as shown by the BAU scenario and BB3-RECs in State scenario following the same curve in Figure 10). If RECs follow their purchase contract paths, most of South Dakota's renewable energy generation will flow out of state and rates are forecasted to be 30 percent to 50 percent higher than BAU in the high load growth environment by year 2030 as a result of Building Block 3.

Figure 10. Forecasted Rate Impacts of Building Block 3 (High Load Growth) vs. BAU

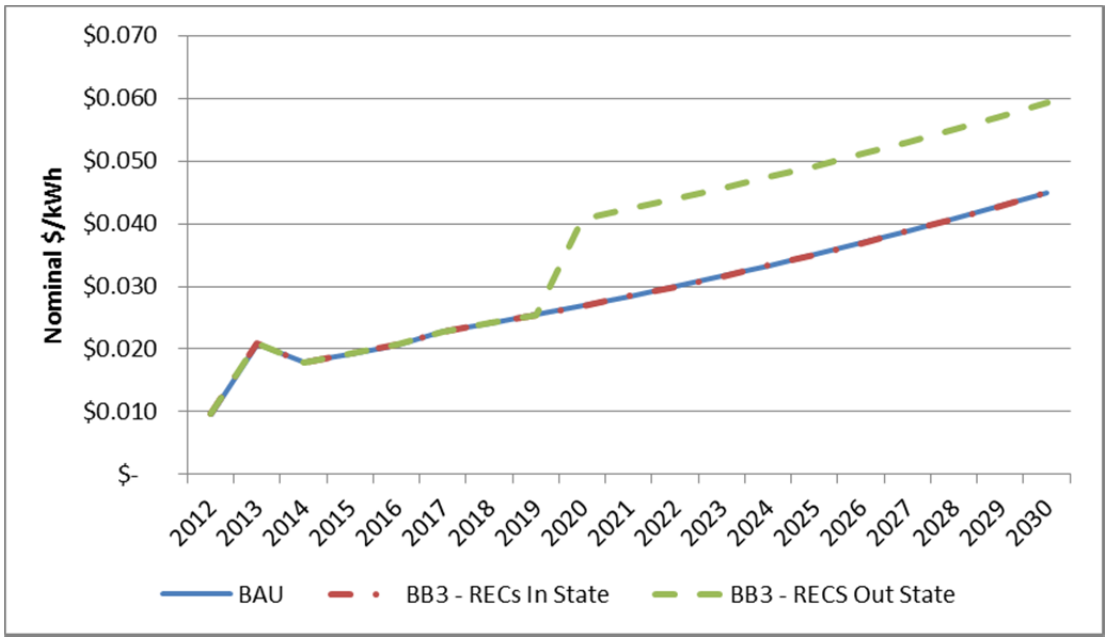
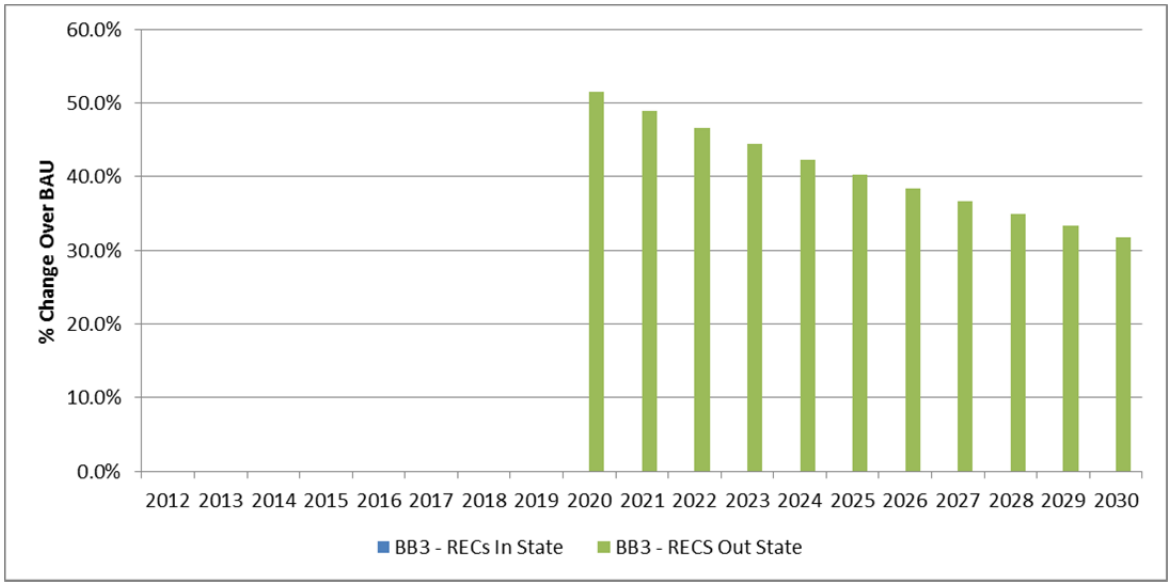


Figure 11. Forecasted Rate Impacts of Building Block 3 (High Load Growth)



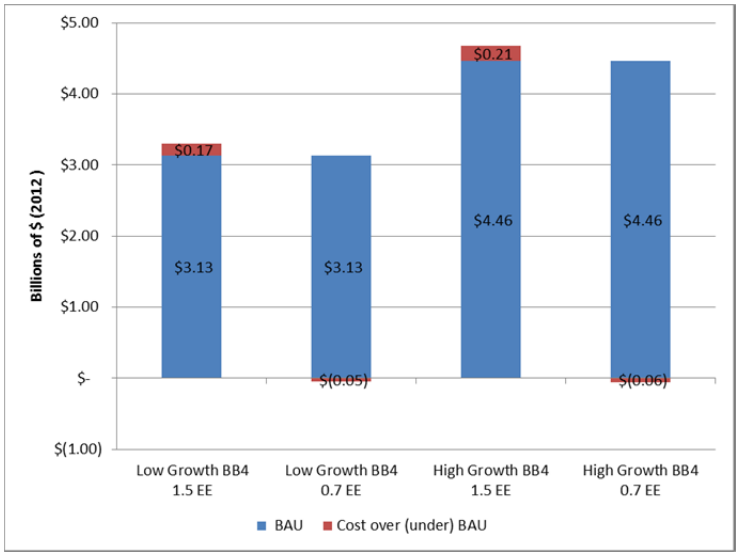
IV.D. BUILDING BLOCK 4

Four scenarios were modeled for EPA's Building Block 4 approach. Two annual energy efficiency target rates (i.e. EPA's proposed 1.5 percent and South Dakota's potentially feasible rate of 0.7 percent) were modeled for both the low load growth environment and high load growth environment. As noted in Section III.G, South Dakota finds that a first year target energy efficiency rate of 0.7 percent may be more economically feasible than EPA's proposed target. The data included within this section further supports that finding.

IV.D.1. Net Present Value of Building Block 4

Figure 12 shows the net present value of energy efficiency for the four scenarios modeled. It is forecasted that energy efficiency savings at EPA's target rate of 1.5 percent annual savings will cost South Dakota consumers $170 million in a low load growth environment and $210 million in a high load growth environment. On the other hand, energy efficiency at a target of 0.7 percent annual energy savings was found to have a net present below the BAU scenarios in both the low load growth and high load growth environments. Annual energy efficiency savings at 0.7 percent are forecasted to save South Dakota consumers $50 million in a low load growth environment and $60 million in a high load growth environment.

Figure 12. Net Present Value of Building Block 4 vs. BAU



IV.D.2. Building Block 4 Rate Impacts in Low Load Growth Environment

Figures 13 and 14 provide the rate impacts due to Building Block 4 in a low load growth environment. At a 1.5 percent annual energy efficiency savings target, rates are forecasted to be around 15 percent higher than BAU in the earlier years and around 20 percent lower in later years. The higher costs in earlier years reflect the additional cost required to achieve 1.5 percent annual energy efficiency savings. At a 0.7 percent annual energy efficiency target, costs are forecasted to be approximately 2 percent higher than BAU in earlier years and approximately 15 percent lower than BAU in later years. The lower costs in later years for both scenarios are likely attributed to benefits derived from cumulative energy savings and the avoided cost of energy as a result of those energy savings. Finally, it should be noted that rates were lower than BAU for both scenarios by 2030 due to Building Block 4 impacts.

Figure 13. Forecasted Rate Impacts of Building Block 4 (Low Load Growth) vs. BAU

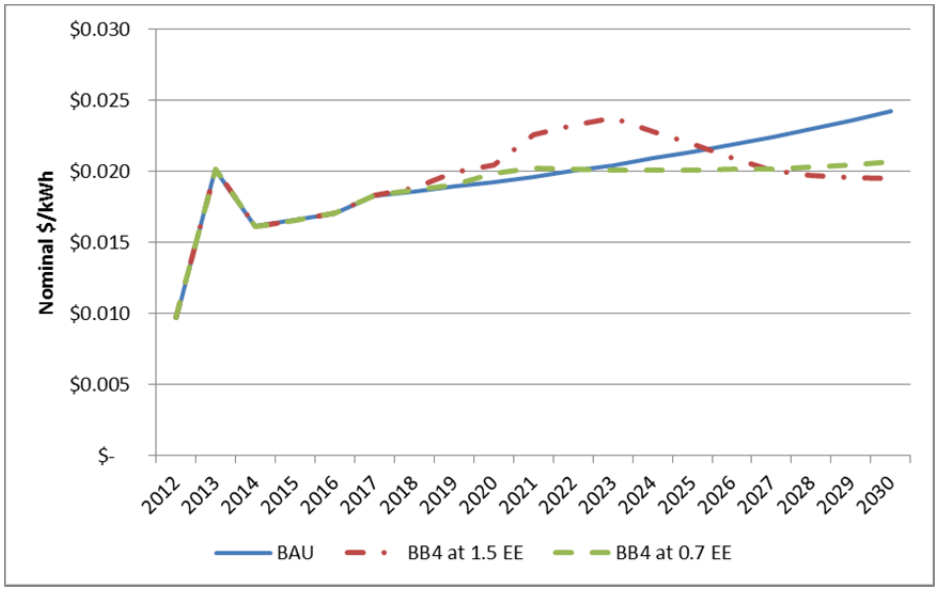
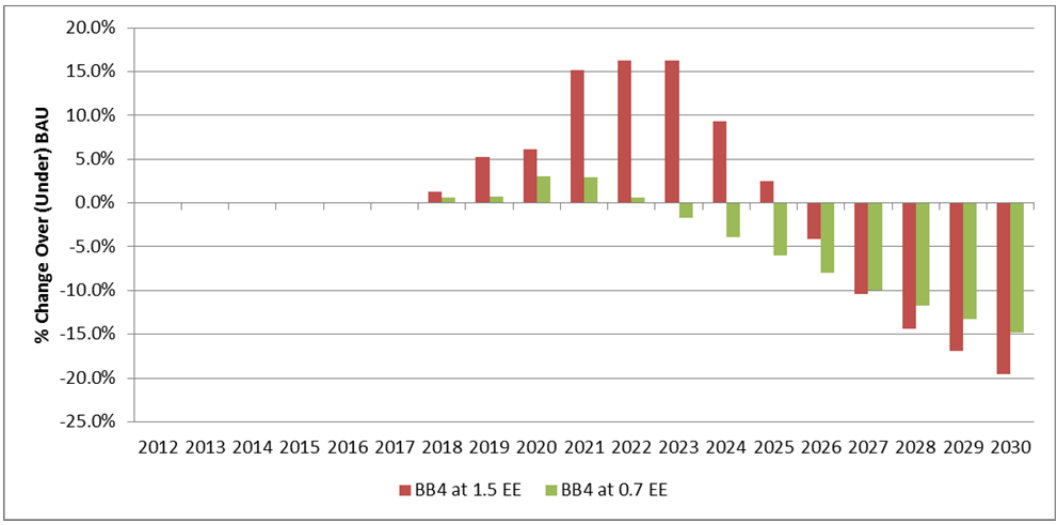


Figure 14. Forecasted Rate Impacts of Building Block 4 (Low Load Growth)



IV.D.3. Building Block 4 Rate Impacts in High Load Growth Environment

Figures 15 and 16 provide the rate impacts due to Building Block 4 in a high load growth environment. At a 1.5 percent annual energy efficiency savings target, rates are forecasted to be around 13 percent higher than BAU in the earlier years and around 7 percent lower than BAU in later years. The higher costs in earlier years reflect the additional costs required to achieve 1.5 percent annual energy efficiency savings. At a 0.7 percent annual energy efficiency target, costs are forecasted to be approximately 3

percent higher than BAU in earlier years and approximately 6 percent lower than BAU in later years. The lower costs in later years for both scenarios are likely attributed to benefits derived from cumulative energy savings and the avoided cost of energy as a result of those energy savings. Finally, it should be noted that rates were slightly lower than BAU for both scenarios by 2030 due to Building Block 4 impacts.

Figure 15. Forecasted Rate Impacts of Building Block 4 (High Load Growth) vs. BAU

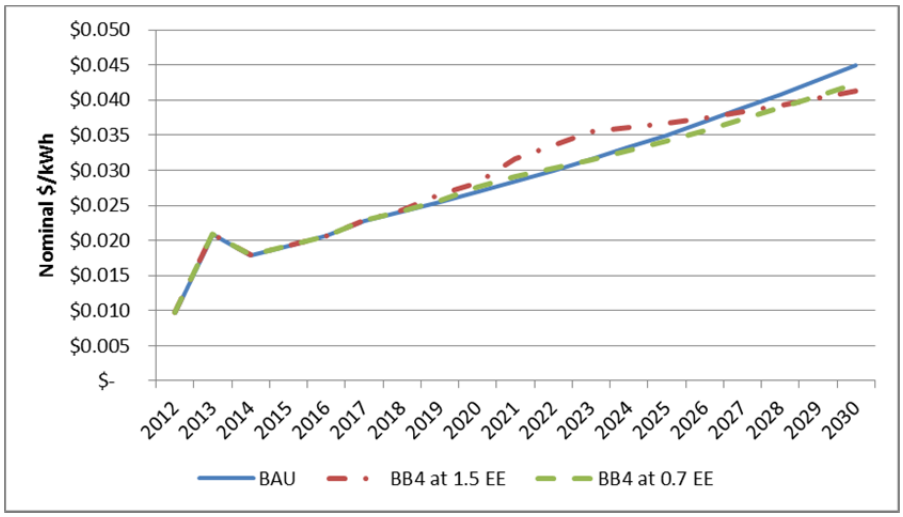
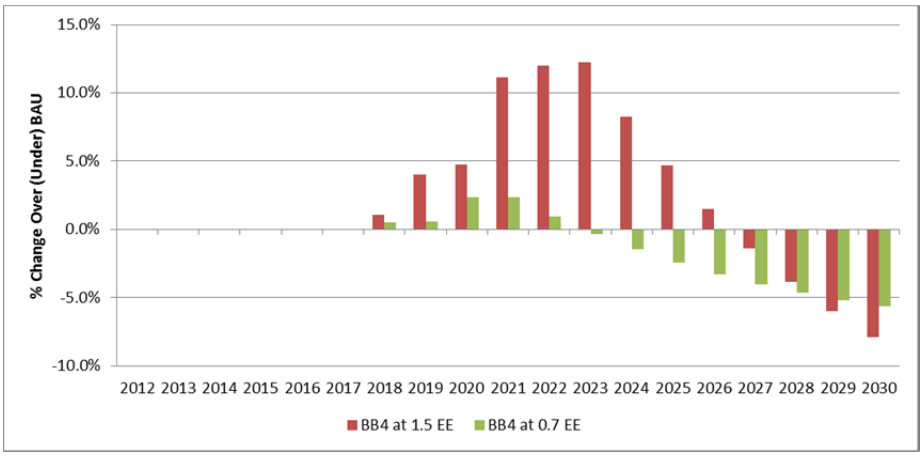


Figure 16. Forecasted Rate Impacts of Building Block 4 (High Load Growth)



IV.E. EPA SCENARIO FOR SOUTH DAKOTA GOAL CALCULATION (EXCLUDING BUILDING BLOCK 1)

Within the Clean Power Plan, EPA calculated South Dakota's goal after applying all four building blocks at levels EPA thought was reasonable and identified that as the BSER. The SD PUC modeled EPA's BSER

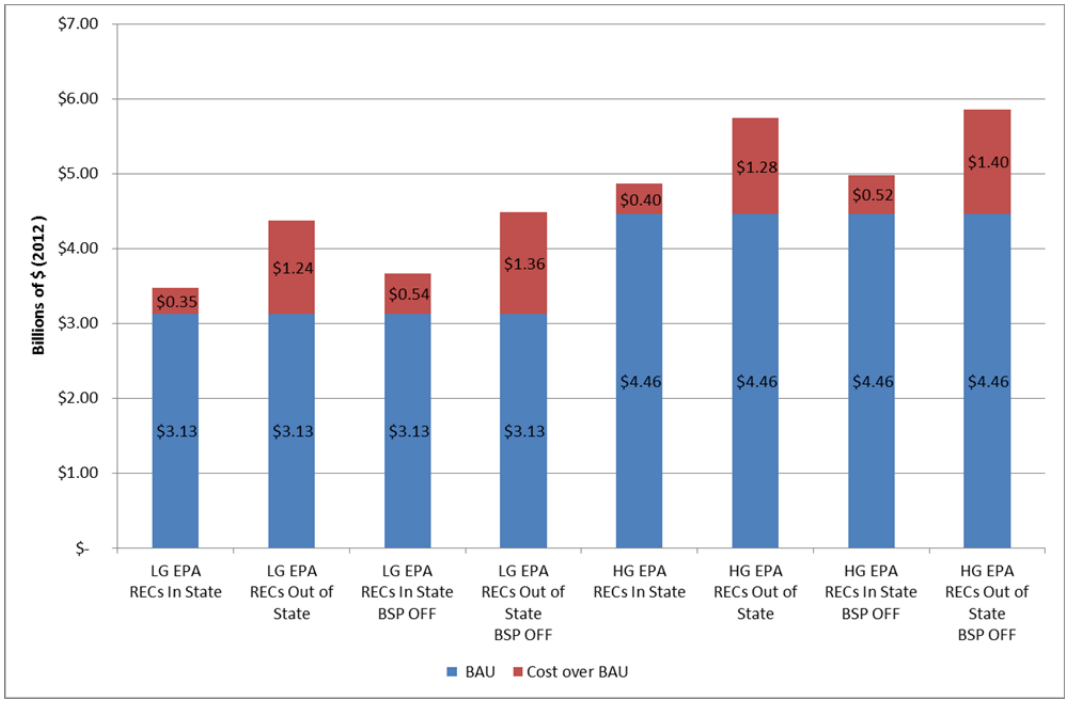
for South Dakota in order to determine if the BSER identified by EPA will have any impacts on South Dakota electric rates. Building Block 1 was excluded from the model due to the fact that achieving heat rate improvements at BSP is not technically feasible based on today's technology. Four scenarios were modeled in both a low load growth environment and a high load growth environment. EPA's BSER assumptions were included in all models, however the SD PUC modeled the following four scenarios:

1) All RECs stay in the state,
2) RECs follow contract paths and flow out of the state,
3) RECs stay in the state and BSP is forced to shut down, and
4) RECs follow contract paths (flow out of state) and BSP is forced to shut down.

IV.E.1. Net Present Value of EPA's Proposed BSER

Figure 17 below shows the net present value of all scenarios ran for EPA's proposed BSER for South Dakota. All BSER scenarios have a forecasted net present value cost greater than BAU. The largest cost over BAU results from EPA's proposed BSER modeled with RECs following contract paths and not being counted towards South Dakota's renewable energy target of 15 percent, as set by EPA. The least expensive scenario is forecasted to cost South Dakota consumers $350 million. This least cost scenario represents the BSER used by EPA when determining South Dakota's emissions goal and includes the following assumptions: 1) all RECs generated in state stay within the state, 2) it is technically feasible to redispatch natural gas (DCS) to a 70 percent capacity factor and coal (BSP) to a 23 percent capacity factor, 3) BSP will not be forced to shut down due to economics, and 4) the state can achieve an annual energy efficiency savings level of 1.5 percent of retail sales. Overall, the SD PUC forecasts that EPA's proposed rules will add a cost burden to South Dakota consumers regardless of the scenario modeled.

Figure 17. Net Present Value of EPA's Proposed BSER



IV.E.2. EPA's Proposed BSER Rate Impacts in Low Load Growth Environment

Figure 18 shows the nominal rate impact forecasted for EPA's proposed BSER and the four scenarios modeled in a low load growth environment. In all scenarios, rates are forecasted to be higher than BAU rates. The lowest rate increase results from the BSER scenario EPA used for determining South Dakota's target emissions rate. However, the SD PUC believes the cost burden to South Dakota consumers will be more in line with the scenarios that reflect South Dakota generated RECs being credited to other states. This is due to the fact that utilities purchase South Dakota generated RECs for meeting RPSs in other states and the RECs must follow those contracted paths. Therefore, SD PUC is forecasting that its electric rates will be more than 100 percent higher than BAU rates in a low load growth environment (as shown in Figure 19).

Figure 18. Forecasted Rate Impact of EPA's Proposed BSER (Low Load Growth) vs. BAU

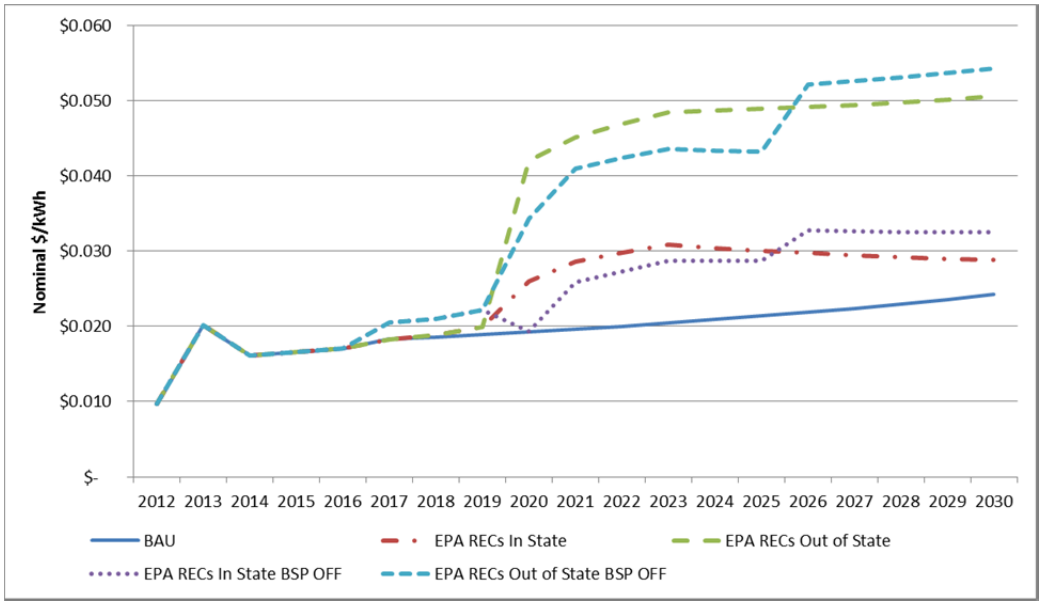
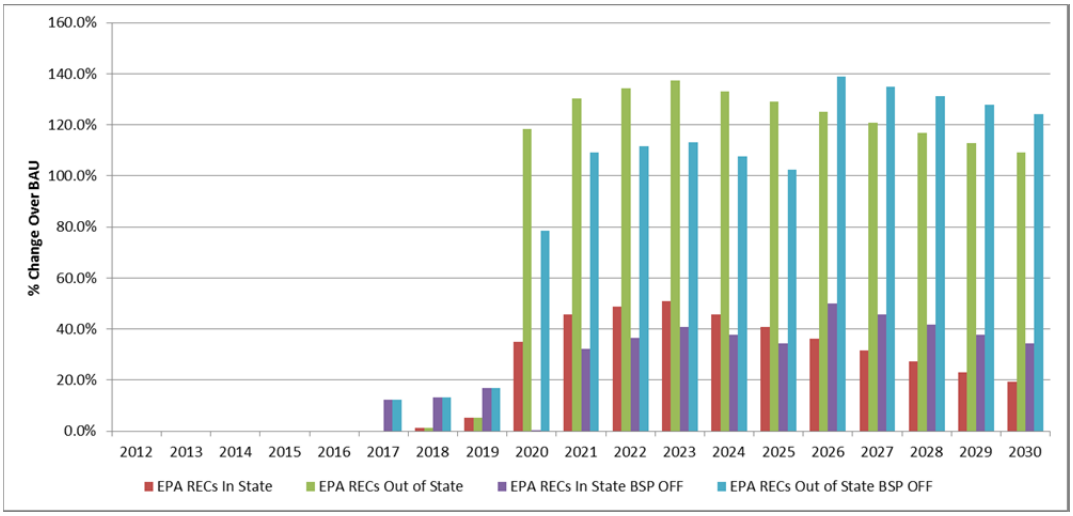


Figure 19. Forecasted Rate Impact of EPA's Proposed BSER (Low Load Growth)



IV.E.3. EPA's Proposed BSER Rate Impacts in High Load Growth Environment

Figure 20 shows the nominal rate impact forecasted for EPA's proposed BSER and the four scenarios modeled in a high load growth environment. In all scenarios, rates are forecasted to be higher than BAU rates. The lowest rate increase results from the BSER scenario EPA used for determining South Dakota's target emissions rate. However, the SD PUC believes the cost burden to South Dakota consumers will be more in line with the scenarios that reflect South Dakota generated RECs being credited to other states.

This is due to the fact that utilities purchase South Dakota generated RECs for meeting RPSs in other states and the RECs must follow those contracted paths. Therefore, SD PUC is forecasting that its electric rates will be more than 50 percent to 80 percent higher than BAU rates in a high load growth environment (as shown in Figure 21).

Figure 20. Forecasted Rate Impact of EPA's Proposed BSER (High Load Growth) vs. BAU

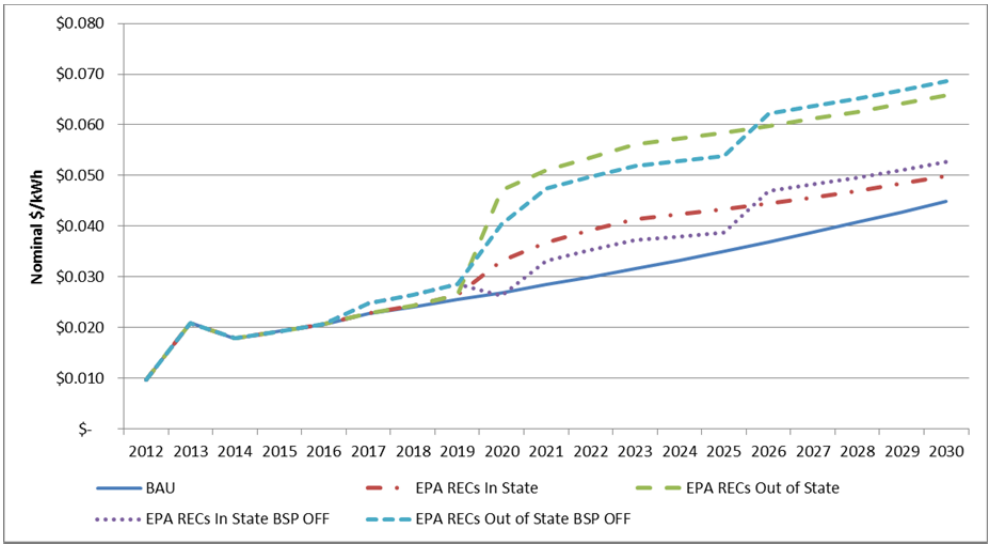
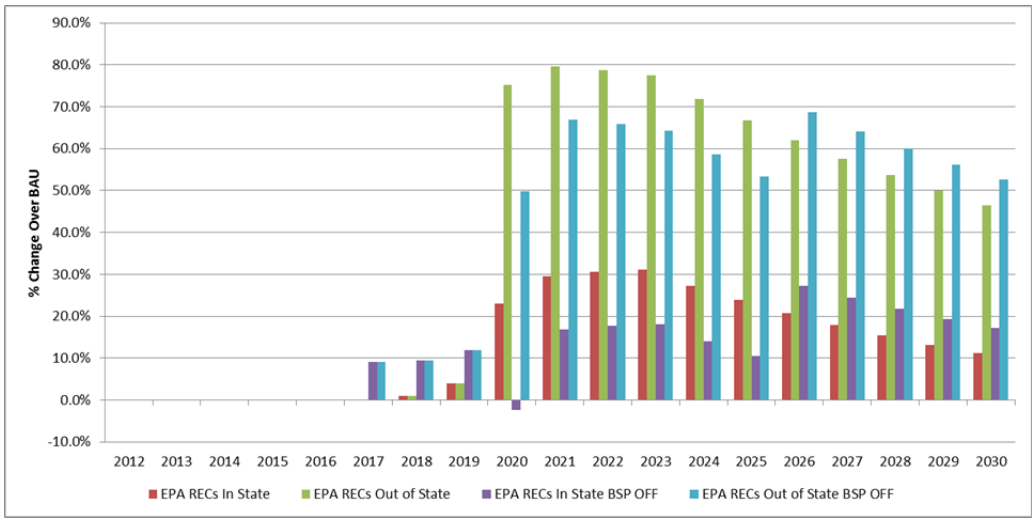


Figure 21. Forecasted Rate Impact of EPA's Proposed BSER (High Load Growth)



IV.E.4. EPA's Proposed BSER and Forecasted Bill Impacts

While educating the general public on its Clean Power Plan, EPA has made the statement that the proposed rules may result in rate increases, however, consumers will use less energy as a result of required energy efficiency savings leading to lower overall electric bills for consumers. South Dakota's economic model disagrees. Even with EPA's high energy efficiency savings target levels of 1.5 percent energy efficiency savings annually, the SD PUC forecasts that annual electric bills will increase for the state's consumers.

Figure 22 provides the forecasted average bill impact over BAU for residential consumers in a low load growth environment. In this case, residential customers' electric bills are expected to be approximately $50 per year to $200 per year higher than BAU, on average, from 2017 through 2030 and are dependent upon the scenario modeled. Figure 23 provides the forecasted average bill impact over BAU for residential consumers in a high load growth environment. In this case, residential customers' electric bills are expected to be approximately $45 per year to $200 per year higher than BAU, on average, from 2017 through 2030 and are dependent upon the scenario modeled.

Figure 22. Forecasted Residential Customer Annual Bill Impact of EPA's Proposed BSER (Amount Over BAU, Low Load Growth)

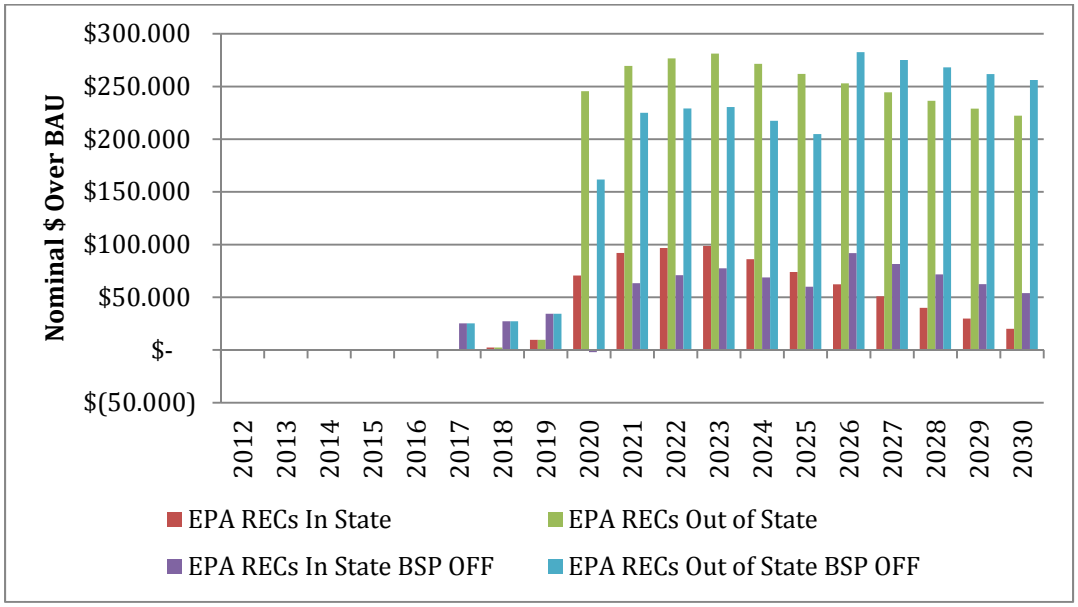
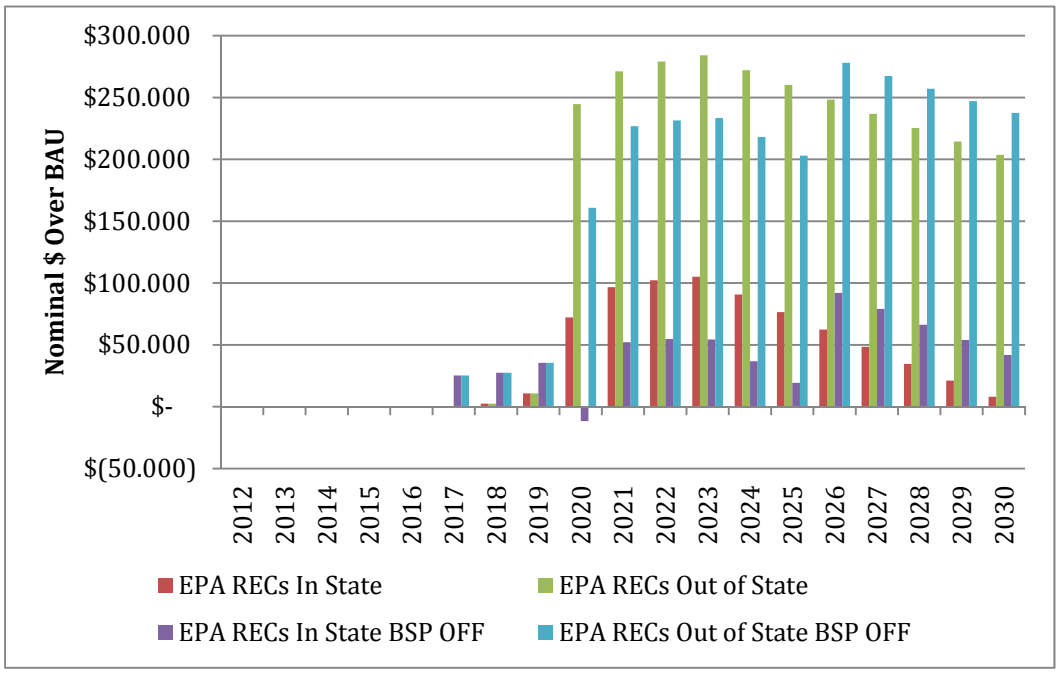


Figure 23. Forecasted Residential Customer Annual Bill Impact of EPA's Proposed BSER (Amount Over BAU, High Load Growth)



According to South Dakota's economic modeling, it is apparent that EPA has misstated the fact that annual electric bills will be reduced for consumers as a result of the Clean Power Plan. EPA's assumption that all customers within a state will take advantage of energy efficiency measures (and reduce their total electric bill) is not reasonable. The SD PUC believes that some consumers may take advantage of energy efficiency programs and help reduce their total energy consumption, however not all consumers will do so based on certain energy efficiency market barriers (e.g. more efficient technologies are too costly or replacement of existing technology is not yet needed). Therefore, the bill impacts will be even greater for those consumers that are unable to invest in energy efficient technology. In addition, if transformative technologies enter the marketplace (such as plug-in electric hybrid vehicles), impacts will be even greater. The potential increase in electricity consumption due to transformative technologies coupled with higher electric rates due to EPA's Clean Power Plan could be catastrophic for consumers.

IV.F. Discussion of PUC Economic Modeling Results

Results provided by the SD PUC's rudimentary economic model appear to be reasonable. The model results seem to align with what one can expect to occur due to the application of each building block in

South Dakota. For example, if RECs follow contract paths and flow out of state, South Dakota would need to build additional wind generation in order to meet EPA's targets. Given this, one would predict the costs of the scenarios with RECs flowing out of state to be greater than the costs of the scenarios reflecting all RECs remain in state. The model's results agree. Another example of how the model appears to be reasonable is captured in Building Block 4's results. One would predict that energy efficiency costs would occur in earlier years and those costs would be offset in later years due to avoided cost of energy benefits associated with cumulative energy savings. Once again, the model's results agree.

SD PUC's modeling identifies there will be adverse rate impacts in the state as a result of the Clean Power Plan. It is forecasted that rates will increase drastically and, further, annual electric bills for customers will rise as a result. If EPA's assumptions of future electricity load growth and energy efficiency savings levels in South Dakota are not realized, then electric bill impacts could be even more detrimental for consumers. The SD PUC acknowledges that altering assumptions used in the model could change the size of each scenario's cost impact forecasted by the model. Therefore, the SD PUC provides its economic modeling results within these comments in order to demonstrate to EPA that South Dakota expects there to be additional cost burdens for the state's electric consumers due to EPA's proposed rules. However, the extent of the cost burden will be dependent upon the environmental factors that actually occur in the future.

V. ADDITIONAL ISSUES

V.A. CONFLICT OF BUILDING BLOCKS

Building Blocks 1 and 2 are in direct conflict of each other. Building Block 1 expects utilities to improve coal-fired EGUs' heat rates by 6 percent. On the other hand, Building Block 2 expects coal-fired EGUs to reduce their capacity factors through the redispatch of coal-fired energy to natural gas. Heat rate factors are highly dependent on the load at which the plant operates. Coal-fired EGUs operate at their most efficient heat rates when operated at higher loads.[25] Should EPA's rules require coal-fired EGUs to reduce capacity factors under Building Block 2, then EPA cannot reasonably expect coal-fired EGUs to

[25] See Governor Daugaards's Comments to EPA dated November 25, 2014, and Otter Tail Power Company's Comments to EPA dated November 25, 2014

improve heat rates by 6 percent. This is particularly relevant in South Dakota due to the fact that BSP would need to reduce its capacity factor to 23 percent as a result of Building Block 2, which would adversely impact BSP's heat rate.

Building Blocks 2 and 3 are also in direct conflict of each other. Building Block 2 requires an increase in natural gas fired EGUs to a 70 percent capacity factor and Building Block 3 requires increased renewable energy generation (from variable generating resources such as wind, solar, and hydro). The conflict arises from the fact that existing natural gas EGUs are currently used for the integration variable renewable energy generators. Should both building blocks be required by the EPA, existing natural gas EGUs would become base load generation, and new natural gas units would need to be built in order to continue the integration of variable renewable energy generators. Given this, twice the amount of natural gas generation would need to be added to the bulk electric system for EPA's proposed BSER. This would add more costs to South Dakota's consumers beyond those modeled above.

V.B. STRINGENCY OF GOALS

In the proposed rule, EPA suggests that "[a] state may demonstrate during the comment period that application of one of the building blocks to that state would not be expected to produce the level of emission reduction quantified by EPA because implementation of the building block at the levels envisioned by EPA was technically infeasible, or because the costs of doing so were significantly higher than projected by EPA."[26] EPA then declares it "expects that, for any particular state, even if the application of the measures in one building block to that state would not produce the level of emission reductions reflected in EPA's quantification for that state, the state will be able to reasonably implement measures in other of the building blocks more stringently, so that the state would still be able to achieve the proposed goal."[27] This position lacks reason and only points to EPA's misguided attempt to base the BSER on achievement of a total reduction in emissions rather than an accurate technical analysis. Perhaps this position does not apply to South Dakota because we argue in these comments that *all* of the building blocks proposed for South Dakota are either technically infeasible or forecasted to be a higher cost than EPA projects, however, ***state goals as determined by BSER in the final rules should be based on sound technical analysis, not a sliding scale in order to reach a political target.***

[26] 79 Fed. Reg. 34893 (June 18, 2014)
[27] *Id.*

V.C. STRANDED COSTS

The Clean Air Act requires EPA to "permit the State in applying a standard of performance...to take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies."[28] Within the proposed rule, EPA states, "because of the way state-specific goals have been developed in these proposed guidelines, remaining useful life and other facility-specific considerations should not affect the determination of a state's rate-based or mass-based emission performance goal."[29] EPA Administrator Gina McCarthy, in her testimony before the U.S. Senate Committee on Environment and Public Works, said the rules would allow states to "avoid stranded costs."[30] Despite this statement, the proposed goal for South Dakota will likely result in the retirement of the state's single coal plant. ***If the state goal is not set at feasible level, the result will be stranded assets in South Dakota, despite Administrator McCarthy's statement.***

VI. CONCLUSION

EPA's proposed rules are poorly written and will result in higher costs to South Dakota consumers. The proposed rules rely on flawed assumptions and an illegal, inequitable, and unworkable "outside the fence" approach in setting South Dakota's emissions goal. The final rule should set the state's goal using only emission reductions technically achievable through heat rate improvements at existing coal-fired and NGCC plants (Building Block 1), while considering cost impacts.

If EPA decides to set state goals using the "outside the fence" approach, the SD PUC recommends the following:

- States should retain flexibility for, and the establishment of, their own emission reductions timelines in order to:
    - allow for robust discussion among states and thorough analysis of potential multi-state plans;
    - allow for detailed reliability and cost/benefit analyses to be performed;

[28] CAA 111(d)(1)(B)
[29] 79 Fed. Reg. 34926 (June 18, 2014)
[30] July 23, 2014, testimony before the U.S. Senate Committee on Environment & Public Works (http://www.epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=bd377f44-1052-4610-ae14-a19162d8541e)

    - allow for states to establish a regional trading program should they determine that is the most cost effective compliance option; and
    - allow for sound policy making to occur at the state level.
- In the absence of more flexible timelines, a reliability safety valve should be included.
- Interim and final goals need to include the flexibility necessary to adjust for any deviations that may occur between forecasted assumptions and actual conditions.
- Building Block 2 should not be included in South Dakota's goal because it is not technically feasible.
- If Building Block 2 is included in South Dakota's goal, DCS should be considered "under construction" and its total capacity should be reduced to 300 MW.
- If hydropower is not allowed to count toward complying with a state's goal, hydropower should not be included as a component of the state's total generation when calculating the required amount of renewables in Building Block 3.
- If compliance is based on REC ownership:
    - renewable baselines in Building Block 3 should also be based on REC ownership;
    - South Dakota's renewable target should be reduced in acknowledgement of the current export of RECs and the already high levels of wind penetration; and
    - established tracking systems should be used for compliance purposes.
- Emission reductions should be assumed to occur at affected EGUs as a result of renewable generation and EPA should define simple methods for calculating those reductions.
- Energy efficiency targets should be established based on the economically feasible potential for energy efficiency savings specific to each state.

The SD PUC appreciates the opportunity to comment on the proposed rules and is available to clarify any points included herein.