



2302 Great N. Drive  
Fargo, North Dakota 58102  
(701) 241-8632  
dave.sederquist@xcelenergy.com

**PUBLIC DOCUMENT  
NOT PUBLIC DATA HAS BEEN EXCISED**

May 18, 2018

**VIA EMAIL AND FEDERAL EXPRESS**

Mr. Darrell Nitschke, Executive Secretary  
ND Public Service Commission, Dept. 408  
600 E. Boulevard  
Bismarck, ND 58504-0480

RE: SUPPLEMENT  
ADVANCE DETERMINATION OF PRUDENCE - 1,550 MW WIND GENERATION  
Case No. PU-17-120

Dear Mr. Nitschke:

Northern States Power Company, doing business as Xcel Energy, submits this Supplement regarding our Advance Determination of Prudence application for a 1,550 MW portfolio of wind generation in the above-referenced case.

This Supplement contains trade secret information consistent with the information described in the Company's March 29, 2017 Application for Trade Secret Protection, and approved in the North Dakota Public Service Commission's ORDER GRANTING TRADE SECRET PROTECTION dated August 2, 2017. In accordance with Section 69-02-09-02 of the North Dakota Administrative Code, a single copy of the trade secret version of the Supplement in a sealed envelope marked **PROTECTED INFORMATION – PRIVATE**.

If you have any questions about this matter, please do not hesitate to contact me.

Sincerely,

David H. Sederquist  
Sr. Consultant, Regulation & Finance

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF NORTH DAKOTA**

NORTHERN STATES POWER COMPANY  
ADVANCE PRUDENCE – 1,550 MW WIND  
PORTFOLIO

CASE NO. PU-17-120

**SUPPLEMENT**

**OVERVIEW**

Northern States Power Company, doing business as Xcel Energy (NSP, Xcel Energy, or the Company), submits to the North Dakota Public Service Commission (Commission) this supplement to our March 29, 2017 Application for an Advance Determination of Prudence (ADP) (Application) for a 1,550 MW portfolio of wind generation to be added to the integrated NSP System (Wind Portfolio).

On March 19, 2018, the Company and Advocacy Staff jointly requested that the Commission postpone this Case and withdrew the parties' First Revised Settlement Agreement so that the Application could be updated to reflect the impacts of the 2017 Tax Cuts and Jobs Act (TCJA) and other significant modifications to our 1,550 MW Wind Portfolio. The Commission approved the joint request on April 11, 2018. This filing provides updated economic data and modeling reflecting the impacts of the TCJA and other changes to the portfolio. As described later in this filing, all of these projects remain cost-effective and will result in significant customer benefits. We therefore believe the Commission's approval of the ADP Application for these projects remains aligned with the best interest of our customers.

As we have explained in other cases this year, while the TCJA results in a net decrease to our cost of service and annual revenue requirement for both electric and natural gas service, that net decrease reflects various ups and downs resulting from the complex tax law changes effected by the TCJA. One of those upward pressures is an increase to the revenue requirements of certain tax-advantaged investments such as wind projects.

Since the TCJA was enacted, we have undertaken a number of efforts to mitigate its adverse effects on the economics of the Wind Portfolio. These efforts have included renegotiation of certain existing vendor contracts, the negotiation of additional vendor contracts that result in customer savings, and the reconfiguration of specific wind farms in order to maximize customer benefits associated with the projects. As a result of these efforts, we have been able to reduce both the initial and ongoing costs for the Wind Portfolio as well as increase the expected annual energy production

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

(AEP) for the projects. This has offset nearly half of the TCJA impacts on these projects.

The net impact of the these changes is a portfolio of projects that have Levelized Costs of Energy (LCOEs) over a 25 year period that range between **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**.

These updated costs result in a base present value of revenue requirement (PVRR) savings of \$1.4 billion system-wide, and about \$75 million for North Dakota customers. This compares to system-wide PVRR savings of \$1.6 billion and savings to North Dakota customer of \$85 million as presented in our initial petition. Thus, all of the projects remain highly cost-effective and will result in substantial and lasting benefits for our customers and the state.

In the balance of this filing, we provide some additional information regarding the TCJA and its effect on wind projects qualifying for federal tax credits. We then provide a specific update for each of our projects, including the TCJA impacts and the mitigation efforts we have undertaken for each project. Finally, we provide updated Strategist modeling outcomes that take all of these impacts into account.

**SUPPLEMENT**

**A. Tax Cuts and Jobs Act**

Throughout most of 2017, we could not anticipate whether the proposed tax reform would actually become law and—if so—how it would be implemented and impact our wind portfolio. We noted this as a risk associated with our wind projects but also determined that—given the uncertainty and the pending stepdown of the Production Tax Credits (PTCs)—we believed it was prudent to move forward with our projects to capture maximum PTC benefits for our customers.

On December 22, 2017, the President signed the TCJA, which enacted significant changes to the Internal Revenue Code. The implications of the TCJA are complex, and we have provided descriptions of the law and its anticipated impacts on our business as a whole in response to the Commission’s January 10, 2018 Order Initiating Investigation in Case No. PU-17-490. We note that while the TCJA increases the revenue requirements of certain tax-advantaged investments such as wind generation, the new tax law results in a net decrease to our overall cost of service and annual revenue requirements for both our electric and natural gas operations.

One category of impacted costs is Production Tax Credits (PTCs). Importantly, the TCJA does not actually change the value of PTCs applicable to the owned projects in

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

our 1,550 MW Wind Portfolio. They will continue to be applied at \$0.024/kWh, adjusted annually for inflation and year in service. However, in ratemaking, the PTCs are grossed-up at the applicable tax rate and credited to customers. As a result, the TCJA's lower corporate tax rate reduces the tax gross-up factor and this lowers the customer credit associated with PTCs on wind assets. Offsetting the lower credit from the PTC gross-up is a lower tax gross-up on the equity component of the cost of capital. Because the PTC is such a large part of the value of a project and it is all experienced in the first 10 years, it outweighs the reduction in revenue requirements due to the lower tax rate on equity returns and thus increases the net levelized cost of the project.

Additionally, the deferred tax liabilities associated with the portfolio of projects are likely to decrease due to the lower tax rate, which tends to increase the project-specific revenue requirement because a deferred tax liability is an offset to rate base. These effects are then partially offset by a decrease in total income tax expense for the project. Finally, while the Company will continue to return the PTCs to customers over the first ten years of the project consistent with our Application, the lower tax rate extends the timeframe for recovery of deferred tax assets. While we assumed a deferred tax asset carrying cost in our Application, we have extended the period over which it will be returned by three years.

Again, the increase in project-specific revenue requirements for our wind projects is just one of many impacts the TCJA has on our business, which collectively result in significant net customer benefits. And as discussed in the next section, we are providing updates to our cost estimates for the projects, all of which mitigate the impacts of the TCJA by bringing project costs down significantly. The net impact to our projects after accounting for these cost reductions is an average of an approximately **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** whereas the TCJA impacts—if considered in isolation—would have increased the LCOEs for the owned portion of our 1,550 MW portfolio by approximately **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**.

**B. Capital and O&M Reductions**

As discussed above, we are also updating our cost estimates for each project to reflect a number of cost reductions and efficiency improvements we have been able to achieve since initially filing our 1,550 MW Portfolio ADP Application and the passage of the TCJA. These updates—which impact both initial and ongoing costs as well as the expected annual energy production (AEP) for each project—serve to mitigate the adverse impacts of the TCJA on each project's cost benefit analysis. In this section, we provide a general discussion of cost reductions we have been able to achieve for

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

the portfolio as a whole. Importantly, due to the variations among our projects in terms of ownership structure, turbine design, geographic location, and size, the updates described in this section do not apply uniformly across our portfolio. Rather, we have implemented different solutions and achieved savings in different ways depending on the particular details and opportunities that were presented by each project. With that in mind, after discussing our general approach to achieving savings for the portfolio as a whole, we then turn to a project-by-project update.

After the TCJA became law, we initiated discussions with our partners to identify opportunities to achieve additional savings for each of our projects. For our two Build-Own-Transfer (BOT) projects (Crowned Ridge and Lake Benton), **[TRADE SECRET BEGINS**

**TRADE SECRET**

**ENDS]**.

For the company-build projects (Foxtail, Freeborn, Blazing Star I, and Blazing Star II), we were able to work directly with our turbine supplier and BOP contractor on a variety of solutions that reduce project costs and mitigate the impacts of the TCJA. We discuss each in turn below.

First, through negotiations with Vestas, **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**. This has further reduced the risk—and thus, cost—for the projects. **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**.

Second, although we initially intended to use a combination of **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** we now plan to use a combination of **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** at Foxtail and Blazing Star I, and a combination of **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** turbines at Freeborn. The **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** that is expected to achieve greater capacity factors at our projects, driving additional customer benefits. The increased capacity factor of these turbines will result in a higher annual energy production (AEP), which in turn reduces the LCOE for each of the projects and mitigates the impacts of the TCJA. For Blazing Star II, we now plan to use a

**PUBLIC DOCUMENT  
NOT PUBLIC DATA HAS BEEN EXCISED**

combination of safe-harbored **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**. The **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]** and the redesign of Blazing Star II is possible due to its later construction date and its location. By using the **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**.

Third, we have reached agreement with Vestas on **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**. We have included these lower costs in our LCOE calculations and modeling for the projects. **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**.

Fourth, we continue to have discussions with our Balance of Plant (BOP) contractors regarding additional savings that can be achieved in the construction of each of our projects. As a result of these discussions, which are ongoing, we believe that we can achieve additional savings relative to our initial capital estimates for BOP work at each of the projects. We have therefore updated our estimates for this work and now expect to achieve additional savings of **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]** for our Company-built projects relative to our initial estimate. Again, we commit to reflect these savings by adjusting the previously approved capital cap downward.

For our two Build-Own-Transfer (BOT) projects (Crowned Ridge and Lake Benton), we initiated discussions with the project developers in order to mitigate the impacts of the TCJA. As a result of those discussions, **[TRADE SECRET BEGINS**

**TRADE SECRET ENDS]**.

Finally, with respect to our Power Purchase Agreement (PPA) projects (Crowned Ridge and Clean Energy #1), we have so far been able to maintain the pricing

**PUBLIC DOCUMENT  
NOT PUBLIC DATA HAS BEEN EXCISED**

specified in the initial contract. **[TRADE SECRET BEGINS**

**TRADE SECRET**

**ENDS]**. We will provide updated information in connection with these projects as may be requested.

**C. Project-Specific Impacts & Updates**

In this section we provide project-specific information regarding the impact of the TCJA and the updates resulting from our efforts to mitigate the impacts of the TCJA. For each, we provide two updated LCOEs—one showing the impacts of the TCJA exclusively and another showing the combined impacts of the TCJA and our mitigation efforts.

*1. Foxtail*

The 150 MW Foxtail Wind Project is being developed by an affiliate of NextEra Energy Inc., and is located on an approximately 20,000 acre site located 20 miles west of Ellendale, North Dakota.

Total capital costs including AFUDC for the Foxtail Project were originally estimated to be approximately **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**, which included the anticipated transmission upgrades, interconnection, siting, and permitting costs. Before passage of the TCJA, the projected LCOE for the Foxtail Project was **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**.

The estimated impacts of the TCJA are to raise the LCOE for the Foxtail Project to **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**. As discussed above, however, we have been able to achieve a number of cost reductions for this project including lowering the capital cost estimate, including AFUDC, for the project to **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**, increasing the expected net capacity factor and annual energy for the project, and reducing ongoing O&M costs. After taking all of these impacts into account, the updated LCOE for Foxtail is **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**.

We expect our primary construction activities on the Foxtail Project will occur in 2018 and 2019. Under the current schedule, we anticipate that commercial operations

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

will commence in the third quarter of 2019.

*2. Blazing Star I*

*a. Project Description*

The 200 MW Blazing Star I Wind Project is being developed by Geronimo Energy and is located on approximately 37,200 acres in Hansonville, Hendricks, and Marble Townships in southwestern Minnesota.

Total capital costs including AFUDC for the Blazing Star I Wind Project were originally estimated to be approximately **[TRADE SECRET BEGINS TRADE SECRET ENDS]**, which included the anticipated transmission upgrades, interconnection, siting, and permitting costs. Before passage of the TCJA, the projected LCOE for the Blazing Star I Project was **[TRADE SECRET BEGINS TRADE SECRET ENDS]**.

The estimated impacts of the TCJA are to raise the LCOE for the Blazing Star I Project to **[TRADE SECRET BEGINS TRADE SECRET ENDS]**. As discussed above, however, we have been able to achieve a number of cost reductions for this project, reducing our initial capital cost estimate, including AFUDC, for the project to **[TRADE SECRET BEGINS TRADE SECRET ENDS]**, increasing the expected net capacity factor and annual energy for the project, and reducing ongoing costs. After taking all of these impacts into account, the updated LCOE for Blazing Star I is **[TRADE SECRET BEGINS TRADE SECRET ENDS]**.

We expect our primary construction activities on the Blazing Star I Wind Project will occur in 2019. Under the current schedule, we anticipate that commercial operations will commence in December 2019.

*3. Blazing Star II*

The 200 MW Blazing Star II Wind Project is also being developed by Geronimo Energy. It extends the Blazing Star I Project footprint east and south – and is located on approximately 30,000 acres of predominantly active crop land.

Total capital costs including AFUDC for the Blazing Star II Project were originally estimated to be approximately **[TRADE SECRET BEGINS TRADE SECRET ENDS]**, which included the anticipated transmission upgrades, interconnection, siting, and permitting costs. Before passage of the TCJA, the

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

projected LCOE for the Blazing Star II Project was **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**.

The estimated impacts of the TCJA are to raise the LCOE for the project to **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**. As discussed above, however, we have been able to achieve a number of cost reductions for this project, reducing our initial capital cost estimate, including AFUDC, for the project to **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**, increasing the expected net capacity factor and annual energy for the project, and reducing ongoing O&M costs. After taking all of these impacts into account, the updated LCOE for Blazing Star II is **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**.

We expect our primary construction activities on the Blazing Star II Wind Project will occur in 2019 and early 2020. Under the current estimated schedule, we anticipate that commercial operations will commence in the third quarter of 2020.

*4. Freeborn*

The 200 MW Freeborn Wind Project is being developed by an affiliate of Invenergy Wind Development LLC, and is located on an approximately 40,000 acre site near Glenville, Minnesota. Land acquisition is nearly complete and planned to be completed later this spring. We currently expect that approximately 50-75 MW of this project—including the collection substation and its point of interconnection to be located in Minnesota’s Freeborn County and that the remaining 125-150 MW will be located in Iowa’s Worth and Mitchell Counties.

Total capital costs including AFUDC for the Freeborn Project were originally estimated to be approximately **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**, which included the anticipated transmission upgrades, interconnection, siting, and permitting costs. The projected LCOE for the Freeborn Project was **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**.

The impacts of the TCJA would raise the LCOE for the Freeborn Project to **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**. As discussed above, however, we have been able to achieve a number of cost reductions for this project, reducing our initial capital cost estimate for the project to **[TRADE SECRET BEGINS  
TRADE SECRET ENDS]**, increasing the expected net capacity factor and annual energy for the project, and reducing ongoing O&M costs. After taking all of these impacts into account, the updated LCOE for

**PUBLIC DOCUMENT  
NOT PUBLIC DATA HAS BEEN EXCISED**

Freeborn is [TRADE SECRET BEGINS TRADE SECRET ENDS].

We expect our primary construction activities on the Freeborn Project will occur in 2020. Under the current estimated schedule, we anticipate that commercial operations will commence in December 2020.

*5. Crowned Ridge*

The Crowned Ridge Wind Project will be a 600 MW (300 MW PPA and 300 MW BOT) wind energy generation facility located in Codington, Deuel, and Grant Counties in South Dakota. The anticipated Commercial Operation Date is the fourth quarter of 2019. The project will be built by NextEra, which is the largest developer of wind energy in the United States with more than 12,400 MW of installed wind capacity in the U.S. and Canada.

The project was offered into the RFP in two parts: a BOT with Xcel Energy purchasing the project upon completion for [TRADE SECRET BEGINS TRADE SECRET ENDS] and a PPA with the purchase price of electric energy starting at [TRADE SECRET BEGINS TRADE SECRET ENDS]. The combined BOT and PPA bids equated to a pre-TCJA LCOE of [TRADE SECRET BEGINS TRADE SECRET ENDS]. The LCOE for the BOT only portion of the bid amounted to [TRADE SECRET BEGINS TRADE SECRET ENDS]. The LCOE for the PPA only portion of the bid amounted to [TRADE SECRET BEGINS TRADE SECRET ENDS].

The estimated impacts of the TCJA are to raise the LCOE for the project to [TRADE SECRET BEGINS TRADE SECRET ENDS]. As discussed above, however, we have negotiated a price reduction for the project, which reduces our initial capital cost estimate for the project to [TRADE SECRET BEGINS TRADE SECRET ENDS]. As a result of this price change and our lower forecast for O&M and ongoing capital costs as described above, the updated LCOE for the Crowned Ridge BOT is [TRADE SECRET BEGINS TRADE SECRET ENDS].

To date, we have been able to maintain the pricing specified in the PPA portion of Crowned Ridge. That said, NextEra has certain termination rights under the contract that may have been triggered by passage of the TCJA, and those termination rights do not expire until each project commences commercial operation. However, our

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

discussions with NextEra to date indicate that the project will go forward as anticipated in our contracts and initial filing with the Commission. We will provide updated information in connection with these projects as may be requested.

6. *Lake Benton*

a. Project Description

The Lake Benton BOT Wind Project will be a 100 MW wind energy generation facility located in Pipestone County southeast of Lake Benton, Minnesota. The Project is a repowering of the existing Lake Benton II wind facility that currently contracts its power through a PPA to NSP and has been in operation since May 2000. The anticipated COD is fourth quarter 2019. The Project will be built by NextEra, which is the largest developer of wind energy in the United States with more than 12,400 MW of installed wind capacity in the U.S. and Canada.

The Project was offered into the RFP as a BOT with Xcel Energy purchasing the project upon completion for [TRADE SECRET BEGINS  
TRADE SECRET ENDS] equating to a levelized cost of energy before passage of the TCJA of [TRADE SECRET BEGINS  
TRADE SECRET ENDS].

The estimated impacts of the TCJA are to raise the LCOE for the project to [TRADE SECRET BEGINS  
TRADE SECRET ENDS]. As discussed above, however, we have negotiated a price reduction for the project, which reduces our initial capital cost estimate for the project to [TRADE SECRET BEGINS  
TRADE SECRET ENDS]. As a result of this price change and our lower forecast for O&M and ongoing capital costs as described above, the updated LCOE for Lake Benton is [TRADE SECRET BEGINS  
TRADE SECRET ENDS].

7. *Clean Energy #1*

The Clean Energy #1 Wind Project will be a PPA. It is a 100 MW wind energy generation facility in west central North Dakota developed by ALLETE Clean Energy (ACE). The project will be named after and located northeast of Glen Ullin, North Dakota in Mercer and Morton Counties, about 40 miles west and 8 miles north of Bismarck, North Dakota. The project is adjacent to the Bison Wind Project that was developed by ACE affiliate, Minnesota Power.

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

The Clean Energy #1 Project was offered into the RFP as a PPA, with Xcel Energy purchasing the power from the Project at a price of [TRADE SECRET BEGINS

[TRADE SECRET BEGINS **TRADE SECRET ENDS**]. The LCOE for this project is  
[TRADE SECRET BEGINS **TRADE SECRET ENDS**].

To date, we have been able to maintain the pricing specified in the PPA. That said, ACE has certain termination rights under the contract that may have been triggered by passage of the TCJA, and those termination rights do not expire until each project commences commercial operation. However, our discussions with ACE to date indicate that the project will go forward as anticipated in our contracts and initial filing with the Commission. We will provide updated information in connection with these projects as may be requested.

**A. Updated Economic Modeling**

We updated the inputs to the Strategist resource planning model to reflect the TCJA impacts and cost reductions discussed above. In addition, we updated three other assumptions impacted by the TCJA, including the weighted average cost of capital, the tax impact on the revenue requirements of new generic resource investments, and the capacity credit.<sup>1</sup> All other assumptions are the same as those discussed in our original Application.

As discussed in our Application, the Strategist planning model simulates the operation of the NSP System and estimates the costs to serve load through the life of the project. We use the model to test results under a range of input assumptions. To assess their impact on customer costs, we simulated the operation of the NSP System through 2053, with and without the addition of each project and the portfolio as a whole. The results of the updated Strategist analysis continue to show that these new wind resources will create net savings for our customers under all sensitivity tests conducted.

Table 1, below, shows the present value of revenue requirement (PVRR) savings as presented in our initial petition. Table 2 shows the updated PVRR savings. The PVRR savings do not include CO<sub>2</sub> costs or other externality costs as required by North Dakota law and do not include Surplus Capacity Credit.

---

<sup>1</sup> The capacity credit corresponds to the cost of a generic CT.

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

**Table 1: Incremental PVRR Savings from Reference Case (\$M) – Initial Filing**

	PVRR				
	Mkts On	Mkts Off	Mkts Off	Mkts On	Mkts Off
	Base	Dump Energy Credit	No Dump Energy Credit	Low Gas	Preferred Plan Renewables
Reference Case	0	0	0	0	0
BOT Crown Ridge	(372)	(342)	(317)	(271)	(291)
PPA Crown Ridge	(361)	(331)	(306)	(260)	(280)
Lake Benton	(77)	(92)	(90)	(39)	(96)
Clean Energy	(38)	(42)	(36)	(8)	(64)
Blazing Star 1	(279)	(233)	(216)	(216)	(191)
Blazing Star 2	(197)	(188)	(174)	(122)	(184)
Foxtail	(161)	(149)	(138)	(106)	(154)
Freeborn	(192)	(184)	(173)	(120)	(181)
All	(1,599)	(1,541)	(1,319)	(1,053)	(1,411)

**Table 2: Updated Incremental PVRR Savings from Reference Case (\$M)**

	PVRR				
	Mkts On	Mkts Off	Mkts Off	Mkts On	Mkts Off
	Base	Dump Energy Credit	No Dump Energy Credit	Low Gas	Preferred Plan Renewables
Reference Case	0	0	0	0	0
BOT Crown Ridge	(245)	(231)	(206)	(137)	(209)
PPA Crown Ridge	(317)	(302)	(278)	(209)	(280)
Lake Benton	(50)	(65)	(63)	(12)	(69)
Clean Energy	(38)	(43)	(37)	(9)	(64)
Blazing Star 1	(159)	(178)	(160)	(72)	(179)
Blazing Star 2	(144)	(163)	(148)	(57)	(182)
Foxtail	(109)	(128)	(117)	(44)	(137)
Freeborn	(131)	(154)	(142)	(50)	(156)
All	(1,408)	(1,342)	(1,115)	(856)	(1,198)

As shown above, the wind projects continue to provide significant benefits in all scenarios. The \$1.408 billion PVRR savings in the Base Case shown above compares to previously projected PVRR savings of \$1.599 billion. As part of our initial filing, we conducted numerous sensitivities to test the cost-effectiveness of the proposed wind projects. The projects continue to be cost-effective under all sensitivities.

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

As provided in our initial petition, to understand how the costs (savings) change over time, Figure 1 below visually portrays the updated annual impacts of the 1,550 MW Wind Portfolio as compared to the Reference Case for the PVRR Base assumptions.

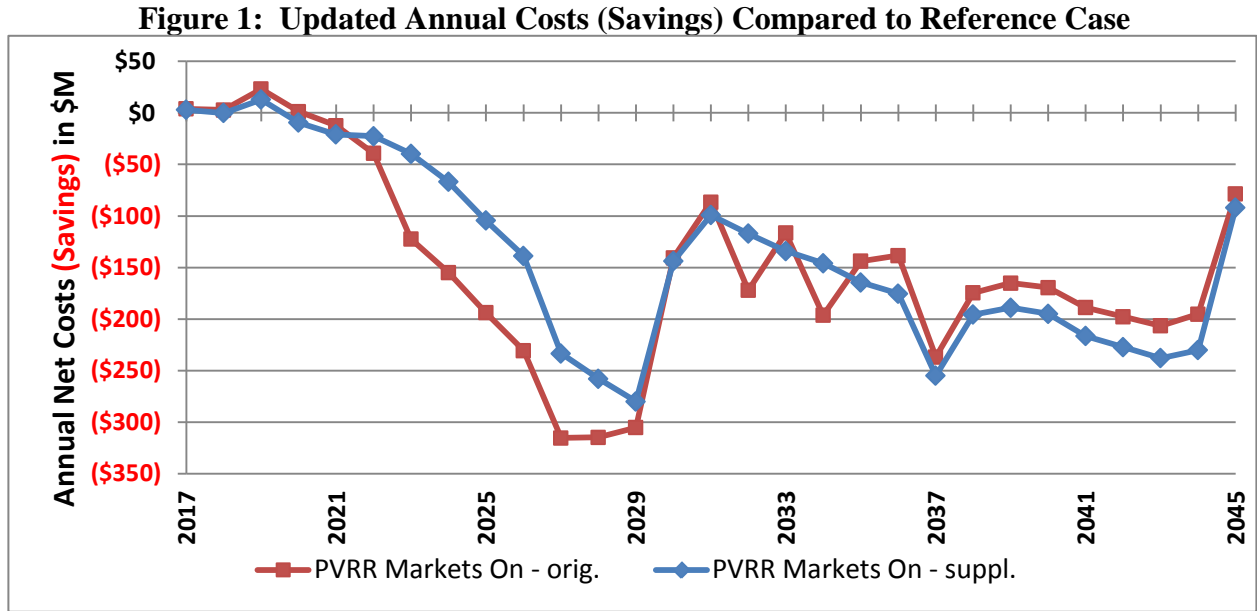


Table 3, below, shows the forecast of the annual revenue requirement impact of the wind additions through 2022 as presented in our initial petition. Table 4 provided the updated annual revenue requirement impacts. As discussed above, we updated the inputs to the Strategist resource planning model to reflect the TCJA impacts and other improvements and cost reductions discussed above. In addition, we updated other assumptions impacted by the TCJA, including the weighted average cost of capital and the tax impact on the revenue requirements of new generic resource investments. All other assumptions are the same as those discussed in our Application. The updated incremental impacts shown below rely on the markets-on Strategist modeling scenario. We believe this scenario most closely reflects the impacts to customer bills.

**PUBLIC DOCUMENT**  
**NOT PUBLIC DATA HAS BEEN EXCISED**

**Table 3: Incremental Revenue Requirement Impact of  
Proposed Portfolio in North Dakota, \$M – Initial Petition**

	2017	2018	2019	2020	2021	2022
New Ownership Wind, 1150MW	0.2	0.2	1.7	4.1	5.2	4.0
New PPA Wind, 400MW	0.0	0.0	0.1	1.3	1.3	1.4
Production Cost Savings	0.0	0.0	(0.3)	(2.3)	(3.2)	(3.5)
MISO Purchases	0.0	0.0	(0.1)	(1.4)	(1.4)	(1.2)
MISO Sales	0.0	0.0	(0.2)	(3.0)	(4.3)	(4.6)
Wind Congestion Costs*	0.0	0.0	0.1	0.8	1.1	1.1
Wind Integration Costs	0.0	0.0	0.0	0.1	0.2	0.2
Wind Coal Cycling Costs	0.0	0.0	0.0	0.4	0.5	0.5
<b>Net Costs</b>	<b>0.2</b>	<b>0.2</b>	<b>1.3</b>	<b>0.1</b>	<b>(0.7)</b>	<b>(2.1)</b>

**Table 4: Updated Incremental North Dakota Revenue Requirement  
Impact of Portfolio, \$M**

	2017	2018	2019	2020	2021	2022
New Ownership Wind, 1150MW	0.2	(0.0)	1.1	3.5	4.8	5.0
New PPA Wind, 400MW	0.0	0.0	0.1	1.3	1.3	1.3
Production Cost Savings	0.0	0.0	(0.3)	(2.3)	(3.2)	(3.6)
MISO Purchases	0.0	0.0	(0.1)	(1.4)	(1.4)	(1.2)
MISO Sales	0.0	0.0	(0.2)	(3.0)	(4.4)	(4.7)
Wind Congestion Costs*	0.0	0.0	0.1	0.8	1.1	1.1
Wind Integration Costs	0.0	0.0	0.0	0.1	0.2	0.2
Wind Coal Cycling Costs	0.0	0.0	0.0	0.4	0.5	0.5
<b>Net Costs</b>	<b>0.2</b>	<b>(0.0)</b>	<b>0.7</b>	<b>(0.5)</b>	<b>(1.1)</b>	<b>(1.2)</b>

\* Congestion Costs reflected as cost adder to wind generation rather than lower generator LMP.

Table 5, below, shows the updated forecasted incremental impact on average monthly bills in North Dakota. The increases in 2019 reflect the fact that projects go into service at the end of the year and thus the most of the benefits (such as production cost savings and market sales) accrue beginning the following year. It is important to note that the recovery mechanism used to recover the costs of the wind additions will impact the actual timing of the recovery and the actual class allocations. We have provided an updated estimate below.

**PUBLIC DOCUMENT  
NOT PUBLIC DATA HAS BEEN EXCISED**

**Table 5: Updated Forecasted Incremental Impact on North Dakota Month Bills**

	2017	2018	2019	2020	2021	2022
Residential	\$0.06	(\$0.00)	\$0.25	(\$0.18)	(\$0.40)	(\$0.43)
Commercial Non Demand	\$0.09	(\$0.00)	\$0.37	(\$0.25)	(\$0.56)	(\$0.61)
C&I Demand	\$2.01	(\$0.02)	\$8.56	(\$5.92)	(\$13.18)	(\$14.25)
Lighting	\$0.04	(\$0.00)	\$0.17	(\$0.17)	(\$0.34)	(\$4.12)

**CONCLUSION**

The Company appreciates the opportunity to provide this Supplement to inform parties on the impact of the TCJA on our previously approved 1,550 MW Wind Portfolio and our efforts to mitigate those impacts. We look forward to reconvening these proceedings and working with Advocacy Staff to present the updated information and analysis to the Commission.

While the TCJA reduces the level of revenue requirement savings created by the Wind Portfolio, the Portfolio still significantly decreases our overall costs of service and thus annual revenue requirements. In other words, even after incorporating the impacts of the TCJA, all of the 1,550 MW Wind Portfolio projects remain highly cost effective and will result in substantial customer benefits. We therefore respectfully request the Commission make an advance determination of the prudence of the Company's additions of the Blazing Star I, Blazing Star II, Foxtail, Freeborn, Crowned Ridge, Lake Benton, and Clean Energy #1 wind generation projects to its system.

Dated: May 18, 2018

Northern States Power Company