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TRADE SECRET INFORMATION EXCISED
STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION**

IN THE MATTER OF THE APPLICATION
OF NORTHERN STATES POWER
COMPANY FOR AN ADVANCE
DETERMINATION OF PRUDENCE FOR
A 200 MW POWER PURCHASE
AGREEMENT WITH THE COURTENAY
WIND PROJECT

Case No. PU-13-_____

IN THE MATTER OF THE APPLICATION
OF NORTHERN STATES POWER
COMPANY FOR AN ADVANCE
DETERMINATION OF PRUDENCE FOR
A 200 MW POWER PURCHASE
AGREEMENT WITH THE ODELL WIND
PROJECT

Case No. PU-13-_____

IN THE MATTER OF THE APPLICATION
OF NORTHERN STATES POWER
COMPANY FOR AN ADVANCE
DETERMINATION OF PRUDENCE FOR
THE 200 MW PLEASANT VALLEY
WIND PROJECT

Case No. PU-13-_____

**APPLICATION FOR
ADVANCE DETERMINATION OF PRUDENCE**

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits to the North Dakota Public Service Commission this Application for an Advance Determination of Prudence pursuant to N.D.C.C. § 49-05-16, the Settlement Agreement in Case No. PU-07-776, and the Company's commitments in Case No. PU-12-59, for 600 MW of additional generation to be added to the Xcel System:

- A Power Purchase Agreement with Geronimo Energy for electric energy from the 200 MW Courtenay Wind Farm located in Stutsman County, north of

25 PU-13-708 Filed 10/31/2013 Pages: 23
Exhibit 1
Northern States Power Company

26 PU-13-742 Filed 10/31/2013 Pages: 23
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25 PU-13-706 Filed 10/31/2013 Pages: 23
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25 PU-13-743 Filed 10/31/2013 Pages: 23
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Jamestown, North Dakota, with the levelized cost of energy over the 20-year term of the agreement calculated to be [TRADE SECRET BEGINS
TRADE SECRET ENDS];

- A second PPA with Geronimo for electric energy from the 200 MW Odell Wind Farm located near Mountain Lake, Minnesota, with the levelized cost of energy over the 20-year term of the agreement calculated to be [TRADE SECRET BEGINS
TRADE SECRET ENDS]; and
- The 200 MW Pleasant Valley Wind Farm being developed by RES Americas near our Grand Meadow Wind Farm in southeastern Minnesota, which upon completion will be transferred to the Company to own and operate. The 25-year levelized cost of electricity is calculated to be [TRADE SECRET BEGINS
TRADE SECRET ENDS].

This 600 MW resource addition represents a prudent opportunity for the Company to continue to meet the needs of all the customers we serve within our five-state integrated system in the most cost-effective manner possible. We conservatively estimate that our customers will save approximately \$180 ~~\$180~~ \$176 million on a present value basis over the lives of the three projects.

As part of our resource planning for the integrated NSP System – which includes our customers in North Dakota, South Dakota, Minnesota, Wisconsin, and Michigan – we monitor the market for cost-effective opportunities to meet the energy needs of all our customers in our five-state service area. When the January 2013 federal legislation extended the Production Tax Credit, we believed there may be opportunities to secure additional wind resources at cost-effective prices, as the PTC can account for one-third to one-half of a wind project's total cost.

Therefore, we decided to issue an RFP in February 2013, and received proposals from 57 projects comprising approximately 6,300 MW of distinct wind resources. The pricing in the proposals exceeded our expectations, representing some of the lowest cost wind energy that the Company has acquired for some time.

In our RFP, we had proposed a target acquisition of 200 MW. However, because the pricing coming out of the RFP was so attractive, and our analysis showed that the addition of more of these low-cost resources will help keep customers' bills lower, we are pursuing the addition of 600 MW to take advantage of these attractive prices and deliver a greater level of cost savings to our customers.

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Our analysis and subsequent negotiations led us to the selection of the Courtenay, Odell, and Pleasant Valley Projects (collectively, the Projects) as the most cost-effective, geographically-diverse projects that would allow us to displace material amounts of higher cost energy. The Projects deliver significant cost savings to all of our customers, and cost-effectively secure the resources necessary to help us meet the renewable energy objectives of all the jurisdictions in which we provide service.

We continue to have discussions with RES Americas (the developer building and then transferring the Pleasant Valley project to the Company) regarding a second build and transfer project that would be located in North Dakota. This second project has the potential for very attractive pricing, and fits with our strategy of having a geographically-diverse balance of Company-owned and PPA wind resources. However, we have been unable thus far to resolve uncertainty regarding transmission costs that could significantly affect the project's viability. If additional analysis reveals that project costs will be low enough to benefit our customers, we may proceed with it and submit a corresponding Application for an Advance Determination of Prudence with the Commission.

We believe that the extremely favorable pricing under current market conditions provides a unique opportunity to acquire significant amounts of economical generation that may not be available in the future. We also believe a mix of PPAs and Company-ownership will further diversify our supply portfolio, thereby balancing risk for the Company and our customers. The Projects would provide cost certainty from the fixed-price PPAs along with the ability to capture more long-term benefits from the Company-owned project.

For these reasons, we believe the Commission should grant an ADP for the Projects after notice and a hearing, if necessary, is held pursuant to N.D.C.C. § 49-05-16, and also authorize the transfer of Pleasant Valley from RES Americas to the Company as may be required under N.C.C.C. § 49-04-06. Because the extended eligibility for the federal renewable energy PTC requires that projects be underway before the end of 2013 to qualify, we have made every effort to expedite our wind acquisition process and make a complete filing for ADP review. We are hopeful these efforts will provide the Commission the necessary time and information to consider and act on our proposal so that the PTC benefits can be realized by our customers. We therefore respectfully request the Commission to set a procedural schedule that will facilitate Commission action on this ADP request sometime in October 2013, if at all possible.

The remainder of this Application will provide:

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- Description of the Applicant;
- Communications and Service;
- Standard of Review;
- Project Descriptions;
- Impact of Wind Projects on Pending Natural Gas Peaking Proposal
- Project Selection;
- Cost Effectiveness of Projects;
- Prudence of the Resource Acquisition;
- Reasonable Mitigation of Risks; and
- Conclusion

I. DESCRIPTION OF THE APPLICANT

Xcel Energy is a Minnesota corporation duly authorized to conduct business in the State of North Dakota as a foreign corporation. The Company conducts business in the State of North Dakota as a public utility subject to the jurisdiction and regulation of the Commission pursuant to Title 49 of the North Dakota Century Code. The name and address of Xcel Energy is:

Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Xcel Energy also operates in North Dakota from the following address:

Northern States Power Company
2302 Great Northern Drive
Fargo, North Dakota 58102

The Company's Certificate of Incorporation with amendments and Certificate of Authority were filed with the Commission on September 30, 2009 and October 12, 2009, respectively, in Case No. PU-09-664. Current Certificates of Good Standing issued by the North Dakota and Minnesota Secretaries of State were filed in the same docket on March 11, 2013, and are incorporated herein by reference.

Xcel Energy has service territory in five upper Midwest states including North Dakota. We presently serve approximately 90,000 retail electric customers in and around Fargo, Grand Forks, and Minot, North Dakota. We own just over 250 miles of transmission lines and 14 substations in North Dakota.

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II. COMMUNICATIONS AND SERVICE

We respectfully request that the following persons be placed on the Commission's official service list for all official communications in this case:

David H. Sederquist
Senior Consultant, Regulation and Finance
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Records Specialist
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414 Nicollet Mall
Minneapolis, MN 55401
regulatory.records@xcelenergy.com

III. STANDARD OF REVIEW

North Dakota Century Code Section 49-05-16 (1)(d) authorizes the Commission to issue an ADP if it "determines that the resource addition is prudent." Section 49-05-16 (7) further provides that "[t]here is a rebuttable presumption that a resource addition located in the state is prudent."

This standard is similar to the "honestly and prudently invested" standard that the Commission uses for ratemaking. *See* N.D.C.C. § 49-06-02. The general prudence standard calls for determining whether the utility action was reasonable at the time it was taken under all relevant circumstances. *See* Charles F. Philips, Jr., *The Regulation of Public Utilities – Theory and Practice* at 292 (Public Utility Reports 1988); *see also* David. J. Muchow, William A. Mogel, *Energy Law and Transactions* at § 4.02[3][b] (2009). Under N.D.C.C. § 49-05-16 (1), the Commission may issue an order approving the prudence of a proposed project if four conditions are met:

- a. The public utility files with its application a projection of costs to the date of the anticipated commercial operation of the resource addition;
- b. The public utility files with its application a fee in the amount of one hundred twenty-five thousand dollars;
- c. The commission provides notice and holds a hearing, if appropriate, in accordance with section 49-02-02; and
- d. The commission determines that the resource addition is prudent. For facilities located or to be located in this state the commission, in determining whether the resource addition is prudent, shall consider the benefits of having the resource addition located in this state.

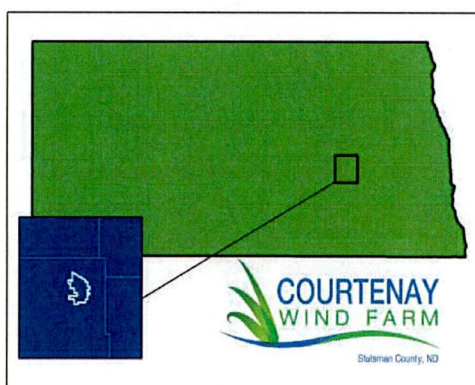
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IV. PROJECT DESCRIPTIONS

We have successfully negotiated two PPAs and a Purchase and Sale Agreement (PSA). The project schedules are designed such that The Projects will qualify for the federal PTC, which offsets their cost of construction and delivers cost savings benefits to our customers. We describe the projects that result from these agreements below:

A. PPA Project – Courtenay

The Courtenay wind project is a 200 MW wind energy generation facility located along the edge of the Missouri Coteau in east-central North Dakota – northeast of Jamestown. The project covers 24,900 acres of land in northeastern Stutsman County, and will be developed, owned and operated by Geronimo Energy.



Source: Geronimo

The Company will purchase all of the electric energy produced at Courtenay in accordance with the 20-year PPA, which we provide as a schedule to the Direct Testimony of Company witness Mr. Steven Wishart. The purchase price of electric energy starts at **[TRADE SECRET BEGINS**

TRADE SECRET ENDS]. We calculate the levelized cost of energy over the term of the agreement to be **[TRADE SECRET BEGINS TRADE SECRET ENDS]**. We expect Courtenay to begin operating prior to September 2015.

The project will consist of up to 124 wind turbine generators and associated infrastructure.¹ It will interconnect to the Otter Tail Power 345/115kV substation located north of Jamestown, North Dakota, and is in the February 2013 Definitive Planning Phase of the MISO Generator Interconnection Process.

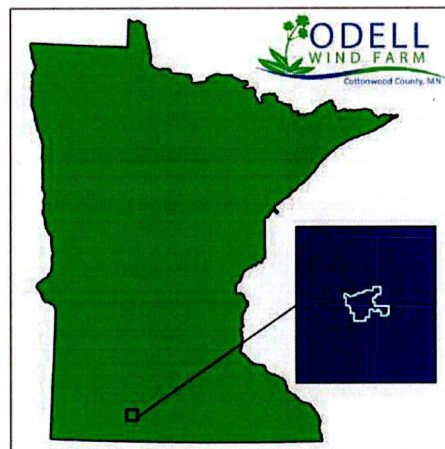
¹ Associated infrastructure includes access roads, electrical collection system, meteorological monitoring stations, a project collector substation, a transmission line, and an operations and maintenance facility.

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The bulk of construction of the Courtenay project is expected to begin in the spring of 2014. However, engineering, procurement and some construction will occur in 2013. Under terms of the Agreement, commercial operation shall occur no sooner than November 30, 2014 and no later than September 30, 2015.

B. PPA Project – Odell

The Odell wind project is a 200 MW wind energy generation facility located in a rural, agricultural area near Mountain Lake, Minnesota. The project footprint spans approximately 22,000 acres across parts of Cottonwood, Jackson, Martin, and Watonwan Counties, and will be developed, owned and operated by Geronimo Energy.



Source: Geronimo

The Company will purchase all of the electric energy produced in accordance with the 20-year PPA, which we provide as a schedule to the testimony of Company witness Mr. Steven Wishart. The purchase price of electric energy starts at **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**. We calculate the levelized cost of energy over the term of the agreement to be **[TRADE SECRET BEGINS** **TRADE SECRET ENDS]**. We expect Odell to begin operating in late 2015.

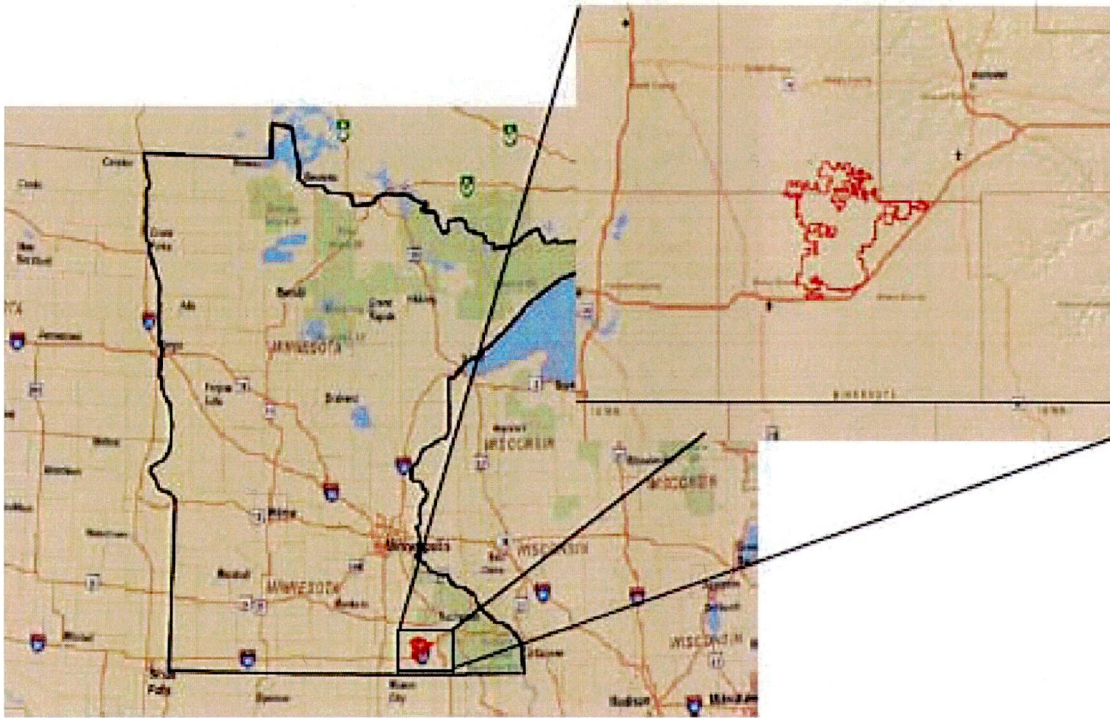
The Odell project will consist of up to 124 wind turbine generators and associated infrastructure. It will interconnect at a new 345/115kV substation on the Lakefield Generation – Fieldon segment of the Company’s Lakefield Junction – Wilmarth 345kV transmission line. Odell is part of the August 2012 Definitive Planning Phase of the MISO Generator Interconnection Process.

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The bulk of construction of the Odell project is expected to begin in the spring of 2014. However, engineering, procurement and some construction will occur in 2013. Under terms of the Agreement, commercial operation shall occur no sooner than November 30, 2014 and no later than December 31, 2015.

C. Pleasant Valley

The Pleasant Valley project is a 200 MW wind energy generation facility that will be located near Austin, Minnesota on 52,000 acres of land in Mower and Dodge Counties – in close proximity to our existing Grand Meadows wind farm.



Source: RES Americas

The Pleasant Valley project will be developed and constructed by RES Americas, and once construction is complete, RES Americas will transfer the Limited Liability Company that owns the project assets to the Company, which will then dissolve the LCC and own the project.² We provide the PSA as a schedule to the testimony of Company witness Mr. Steven Wishart.

² After the closing of the purchase, the Company will merge the LLC into Northern States Power Company – Minnesota and reflect the project assets on its books as if it were any other Company-owned generating facility.

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We estimate the capital cost of Pleasant Valley will be approximately [TRADE SECRET BEGINS TRADE SECRET ENDS], including Xcel Energy's anticipated development oversight and ownership transfer closing costs. We calculate the 25-year, levelized cost of electricity to be [TRADE SECRET BEGINS TRADE SECRET ENDS].

The Pleasant Valley project will consist of [TRADE SECRET BEGINS TRADE SECRET ENDS] wind turbine generators and associated infrastructure. The project will interconnect to Great River Energy's 345/161 kV Pleasant Valley substation, and has applied and will participate in the MISO August 2013 Generator Interconnection Study cycle, which will identify all required transmission upgrades required for the project to interconnect to the transmission grid.

We have agreed to structure the transaction as a purchase of an LLC to allow RES Americas some flexibility in development of the project, to create efficiencies in the mechanics of the project transfer by taking advantage of certain legal merger constructs, and to provide certain tax benefits during development. This structure requires RES Americas to assume construction risk throughout the development and construction phase of the project, as they are responsible for the physical construction of the project. While the Company has not engaged in any transactions structured in this way in the past, our affiliate, Public Service Company of Colorado, has recently and successfully consummated such a transaction.

We note that N.D.C.C. § 49-04-06 requires the Company to obtain the approval of the Commission before acquiring the business of a limited liability company that is incorporated for, organized for, or engaged in "the same or a similar business" as the Company. The Commission has set forth the public interest standard for approval of applications pursuant to Section 49-04-06.³ The Commission application of the public interest standard in the merger context looks to whether the transaction will be "injurious to the rights of the public or adversely affect other utilities."⁴ Because the proposed transaction will provide benefits to our customers and does not adversely affect other utilities, the public interest standard has been met. Consequently, to the extent the transaction described above comes within the scope of Section 49-04-06, the Company asks that the Commission grant its approval of the transaction along with its advance determination of the prudence of the Project.

³ *Re Minot Telephone Company*, FINDING OF FACT, CONCLUSIONS OF LAW AND ORDER at Finding 13, Case No. PU-156-94-11 (March 23, 1994).

⁴ *Id.*

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The transaction is contingent on the several regulatory approvals that are required due to its structure. These include: (1) receipt of an ADP and any required asset transfer approval from the Commission; (2) approval of the Project PPA and asset transfer from the Minnesota Public Utilities Commission; (3) approval of the Department of Justice for the asset transfer under the Hart-Scott-Rodino Act; and (4) approval of the Federal Energy Regulatory Commission for the asset transfer under Section 203 of the Federal Power Act. Should this Commission and the Minnesota Commission provide the necessary authorizations and approvals, we will make the federal filings at the appropriate time, closer to close of the transaction.

Construction is expected to begin in the late 2013, primarily involving certain activities related to engineering, procurement and construction. The current project schedule contemplates commercial operation in late 2015.

We estimate the total capital cost of Pleasant Valley will be approximately [TRADE SECRET BEGINS TRADE SECRET ENDS], including our anticipated development oversight and ownership transfer closing costs. Our PSA with RES Americas calls for payments of approximately [TRADE SECRET BEGINS TRADE SECRET ENDS] for development of the project. We estimate that our development oversight and ownership transfer costs will be up to \$4 million. We have included an additional [TRADE SECRET BEGINS TRADE SECRET ENDS] in our capital estimate used to calculate project costs to cover the risk of additional transmission interconnection costs for which the Company may be responsible.

V. IMPACT OF WIND PROJECTS ON PENDING NATURAL GAS PEAKING PROPOSAL

It appears that the wind projects we propose in this Application will not have any accredited capacity in the 2017 to 2019 timeframe and, as the result, will not affect the capacity need that is being addressed by our ADP/CPCN Applications before the Commission for our proposed peaking units in Case Nos. PU-13-194 and PU-13-195.⁵

However, the energy provided by these proposed wind projects may impact the *type* of resource selected to meet that need. We did not have access to the proposals of competing parties in the competitive acquisition proceeding at the time our decisions to add these wind project were made. We believe that our acquisition of the proposed

⁵ These units are part of our proposal for a total of three peaking units to be added to our system in Minnesota's competitive resource acquisition proceeding (Docket No. E002/CN-12-1240).

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600 MW of wind is reasonable, prudent, and necessary, and that any potential impacts to the resource selection are more appropriately addressed in the competitive acquisition proceeding.

VI. PROJECT SELECTION

In early February 2013, we notified the Commission and other stakeholders that we would be issuing a Request for Proposal for approximately 200 MW of wind generation. Timing of the selection process was a critical factor in order for any selected projects to meet the 2013 PTC requirements. We issued the RFP on February 18, 2013 and provided a link to our website where the RFP, model Power Purchase Agreement, and standard bidder forms were located.⁶

The RFP was open to proposals of any size up to 200 MW and of various structures including utility ownership, PPA, or any combination thereof with no preference given to any particular type of structure. The RFP specified that bids must be delivered to the Company by April 1, 2013 at 5:00 PM CDT.

The RFP generated proposals for 57 projects comprising approximately 6,300 MW of distinct resources. Many projects contained several PPA and ownership options with associated variations in size and price. Proposed project sites were located in Illinois, Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin.

A. Initial Screening Process

Bids remained sealed until the morning of April 3, 2013. Copies of proposals with a PPA component were provided to our Purchased Power group for further evaluation and copies of proposals with an ownership component were delivered to our Business Development group. Proposals containing offers for both PPAs and ownership structures were provided to both groups.

We performed an initial screening of bids based on our calculation of levelized cost. The screening was designed to provide an initial gauge of pricing and determine if the Company should move forward with the RFP. Results from this initial screening highlighted the attractive pricing of projects offered. We provide the results of our initial screening as a Trade Secret schedule to Mr. Wishart's Direct Testimony.

⁶ These documents are available at [xcelenergy.com](http://www.xcelenergy.com) at:
<http://www.xcelenergy.com/About Us/Our Company/Projects and RFPs/2013 Upper Midwest Wind Power Request for Proposals>

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The initial screening process allowed us to identify the most cost-effective projects, thus allowing us to target efforts on those projects having the best potential to provide long-term value to our customers. Based on the distribution of levelized cost we focused review on bids that were at or below \$29/MWh. We chose the cutoff price of \$29/MWh as it provided for a reasonable number of the most cost-effective proposals from which to focus further review efforts. The initial screening process identified 14 projects below the established levelized price threshold.

B. Initial Project Review

A significant consideration of any project is its ability to interconnect with the transmission system. Therefore, our Transmission Access group performed a detailed multi-factor review of the status of each project's MISO interconnection request and potential transmission requirements. This review identified potential significant issues around transmission interconnection cost and curtailment risk for several of the projects. Based on this analysis, the Transmission Access group recommended that a number of these projects be eliminated from further consideration.

The Purchased Power group performed an assessment of the PPA proposals based on the information provided by the Transmission Access group and information provided in the bids. Based on that analysis, Geronimo's Odell and Courtenay proposals were selected. The Business Development group used the information provided by the Transmission Access group and other information provided in the bids to determine the potential viability of develop /transfer projects. From this assessment, Business Development identified five projects that appeared attractive from an ownership perspective. These five projects were separated into three tiers to differentiate their relative attractiveness.

The Pleasant Valley project appeared at this point to have characteristics that stood out from the others. The project is located in close proximity to an existing owned facility that will allow for combined operation and maintenance resources. The project developer is also very experienced, with an excellent track record of siting and developing projects. Finally, the project is located in an area of historically-low wind curtailment.

The second tier of projects also appeared to be attractive, but had characteristics that made them less compelling than the Pleasant Valley Project. The third tier of projects were of interest, but had characteristics that were less attractive from an ownership perspective. As the result of the analysis, attention was focused on Pleasant Valley and one other proposal by RES Americas, with discussion continuing with one additional developer. The Business Development and Purchased Power areas

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proceeded with due diligence and contract negotiations on their recommended projects.

The Business Development and Purchased Power groups performed detailed due diligence on their recommended projects, evaluating a number of measures including price, energy production profile, curtailment risk, interconnection and transmission requirements and costs, environmental risk, developer experience and several other criteria. The process resulted in the projects presented in this Application.

We have also been in discussions with RES Americas regarding a second build transfer structured project in North Dakota. This project offers potentially attractive pricing, but our analysis uncovered possible transmission issues that have the potential to add significant costs to the project. We are currently reviewing a recent study by MISO to determine the extent of the transmission cost risks. If we can identify a solution to the transmission risk issue, we may bring this additional 150 MW project to the Commission in a separate ADP application.

C. Independent Audit of RFP Process

To provide additional transparency and to facilitate expeditious review of our Application, we engaged an independent outside consulting firm to perform an audit of the wind RFP process. The audit was designed to examine whether the process for obtaining and evaluating responses to the RFP was biased. The independent auditor's report, provided as Attachment D to this filing, concluded that the Company's RFP process was free from bias and afforded each proposal equitable care and consideration. In addition, the report noted that the process was rigorous, robust and consistent, and that the Company administered the process professionally and was thorough in its efforts.

VII. COST EFFECTIVENESS OF PROJECTS

To evaluate the cost-effectiveness of the proposed wind projects, we used the Strategist resource planning model. The Strategist Planning model simulates the operation of the NSP System and estimates the total cost of energy over the life of the projects on a present value basis. We use the model to test results under a range of input assumptions. Each proposed wind project was modeled individually and as a combined portfolio of all three projects. To assess their impact on customer costs, we simulated the operation of the NSP System over the next 40 years, with and without the 600 MW of wind generation proposed in this Application.

Wind generation creates a financial benefits form reducing the amount of fossil fuel

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purchases and the amount of energy that is purchased from the market. When wind resources are producing energy, generation from conventional resources such as natural gas plants can be reduced while still delivering reliable service to our customers. The Strategist analysis accounts for these cost savings as well as the impact of the capital commitments or PPA payments associated with the wind generation additions. However, as required by North Dakota statute, no environmental externality costs are included in the analysis.

A. Benefits from Displacement of Other Generation Resources

The addition of 600 MW of wind power displaces approximately 2,200 gigawatt-hours of electricity production annually at fossil fueled plants. In this section, we discuss our analysis that we believe will result in customer savings of approximately \$180 **\$176** million over the term of the Agreements.

1. *Customer Cost Savings*

Our analysis, using conservative assumptions, shows that the energy cost savings offset the capital costs and PPA payments of the wind projects we propose, resulting in significant costs savings to customers as summarized in Table 1 below. Over the term of the agreements, we anticipate that customers will save, conservatively, at least \$180 **\$176** million. Even if natural gas prices grow at only half the forecasted rate (1.7 percent versus a baseline of 3.4 percent) the projects are still expected to create significant benefits for our customers. These significant cost savings underscore the prudence of adding these resources to our system.

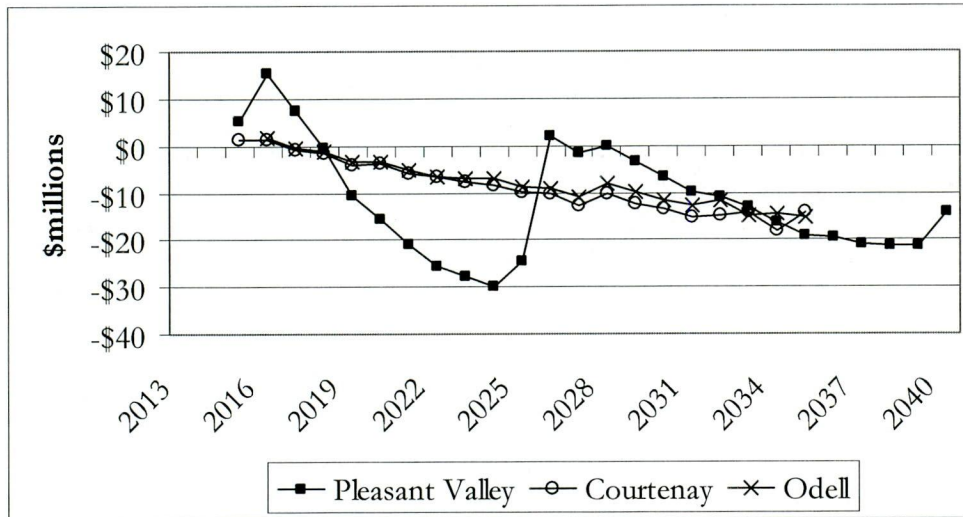
(REVISED) Table 1: Net PVRR Savings

	PVRR (\$ millions)	Reference Case (\$/ton CO2)	Low Gas (1.7% growth rate)
As Filed	Pleasant Valley 200MW	(\$90)	(\$17)
Corrected	Pleasant Valley 200MW	(\$88)	(\$15)
As Filed	Odell 200MW	(\$53)	(\$1)
Corrected	Odell 200MW	(\$51)	\$1
As Filed	Courtenay 200MW	(\$60)	(\$10)
Corrected	Courtenay 200MW	(\$58)	(\$7)
As Filed	Portfolio 600MW	(\$184)	(\$14)
Corrected	Portfolio 600MW	(\$176)	(\$7)

Shaded cells denote amounts as corrected

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Figure 1: Annual Net Costs (Savings)

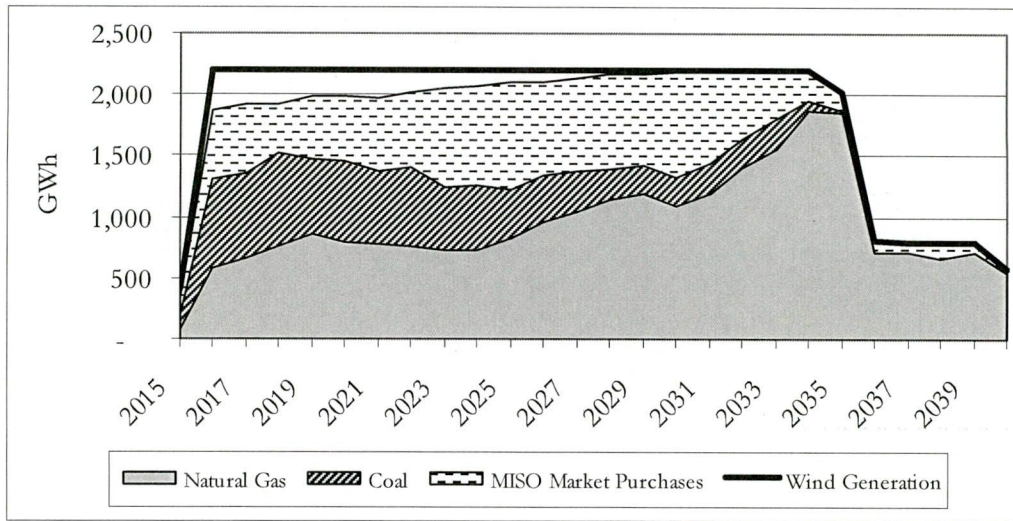


We note that initially, there is a short period of time during which the cost of the Pleasant Valley is higher than the benefits realized from lower fuel costs. This is because when Company-owned projects are first brought into service, their book value (and associated impact on base rates) is at its highest point. In subsequent years as the resource is depreciated, the cost to our customers falls, and creates a much larger benefit to our customers that, in this case, occurs in 2018 through 2025. Under baseline assumptions, the Pleasant Valley Project has the highest NPV benefits to our customers beyond the initial 2-3 years.

The benefits created by the projects are from avoided fossil fuel generation and other power purchases. Figure 2 below illustrates the results of the Strategist dispatch simulations. Most of the displaced energy (75 percent) will be natural gas generation and energy purchased from the MISO market. A small proportion will also be from coal and other generation. On average, the wind will displace over \$100 million annually in generation from other resources.

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Figure 2: Strategist Simulations – Displaced Energy



2. *Impacts from Curtailment*

The prudence of adding these wind generation resources is reinforced by our analysis of the impacts of wind curtailment on system costs. Figure 2 above also demonstrates that the Strategist analysis included a significant amount of curtailment. The empty area between the total Wind Generation line and the MISO Market Purchases area represents excess energy that could not be utilized by the dispatch simulation, and is equivalent to wind curtailment due to low customer demand at times of high wind generation.

From 2015 through 2025, this accounts for more than 10 percent of the total energy produced by the three projects. This is a very conservative estimate of curtailment, and is a result of how the MISO market is modeled in Strategist. Currently, less than 1.4 percent of wind is actually curtailed on the NSP System. Having the conservative 10+ percent estimate of curtailment built into our model ensures that the net benefits to our customers are not being overstated, and that the realized customer bill reductions may actually be larger than forecasted. The high curtailment rate in Strategist is a result of not allowing the model to sell excess energy into the MISO market. This is a prudent practice in resource planning to ensure that resources are not added to the NSP system at a cost to rate payers because of modeling results that rely on hypothetical profits from the sale of energy on the open market.

3. *Benefits from Future Fuel Cost Uncertainties*

The proposed wind projects will also provide qualitative benefits, because they act as a hedge against rising natural gas prices and potential future carbon regulations. If we

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were not to acquire these wind resources, future levels of natural gas consumption and MISO market purchases would be higher, creating higher cost uncertainty for our customers. Strategist simulations indicate that the additional 600 MW of wind will avoid the need for 7 bcf of natural gas and over 600 GWh of MISO market purchases annually. Over the lifetimes of these projects the total savings are expected to be over 170 bcf of natural gas and almost 13,000 GWh of MISO market purchases.

Likewise these wind resources will create a hedge against potential federal CO2 legislation. It is unclear when significant CO2 legislation might be imposed and what form it may take (cap and trade, carbon tax, strict annual limits), but these resource additions will add over 2,000 GWh of carbon-free energy annually reducing our annual CO2 emission by approximately 1.2 million tons or 5%. This will reduce our exposure to carbon regulation and will lower the cost of compliance with any CO2 goal or target level.⁷

To illustrate the benefit of these projects, Table 2 below shows the base case volumes of natural gas, market purchases and CO2 emissions – and the impact on these volumes of the studied projects.

Table 2: Hedge Value

Total System 2015-2050	Natural Gas (bcf)	Market Purchases (GWh)	CO2 (Million tons)
BASE	2,525	96,707	700
Pleasant Valley	(77)	(5,717)	(12)
Courtenay	(48)	(4,425)	(9)
Odell	(50)	(4,186)	(9)
All	(176)	(12,864)	(29)

Our proposed addition of these 600 MW of wind generation will create a hedge for our customers against the risk of increased fuel costs as a result of market forces or government regulation.

4. Estimated Customer Rate Impacts

We expect that, soon after initial operation, customers' overall bills will be lower than otherwise as a result of our proposed resource acquisition. Our Strategist dispatch simulation forecasts that the cost of the Pleasant Valley project and PPAs proposed in this Application will be more than offset by decreases in the cost of fossil fuel and

⁷ *Otter Tail Power Corporation, Advance Determination of Prudence, Application*, FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER at Finding 88, Case No. PU-06-481 (Aug. 27, 2008).

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other purchased energy over the lives of the projects.

While the 600 MW of wind resources represents the largest individual renewable energy acquisition we have made, the relative impacts are small due the large size of the NSP integrated system. Table 3 provides estimates of how average rates will be impacted by the proposed projects. Over the first four years the average impact on a typical residential bill would be a monthly *increase* of 18 cents; over the next six years (2019-2025), our models forecast an average *decrease* of 51 cents per month, resulting in a net decrease for customers.

Table 3: Annual Rate Impact Analysis

	2015	2016	2017	2018	2019	2020
Base Rates - Pleasant Valley	0.02¢/kWh	0.08¢/kWh	0.07¢/kWh	0.05¢/kWh	0.03¢/kWh	0.02¢/kWh
Fuel Clause - Geronimo	0.01¢/kWh	0.08¢/kWh	0.08¢/kWh	0.08¢/kWh	0.08¢/kWh	0.08¢/kWh
Wind Integration & Congestion	0.01¢/kWh	0.03¢/kWh	0.02¢/kWh	0.02¢/kWh	0.02¢/kWh	0.03¢/kWh
Avoided Fuel & Purchased Power	(0.02¢/kWh)	(0.13¢/kWh)	(0.14¢/kWh)	(0.15¢/kWh)	(0.17¢/kWh)	(0.17¢/kWh)
Net Rate Impact	0.01¢/kWh	0.05¢/kWh	0.02¢/kWh	0.00¢/kWh	(0.03¢/kWh)	(0.05¢/kWh)

	2021	2022	2023	2024	2025
Base Rates - Pleasant Valley	0.01¢/kWh	0.01¢/kWh	0.01¢/kWh	0.00¢/kWh	0.02¢/kWh
Fuel Clause - Geronimo	0.08¢/kWh	0.08¢/kWh	0.09¢/kWh	0.09¢/kWh	0.09¢/kWh
Wind Integration & Congestion	0.03¢/kWh	0.03¢/kWh	0.03¢/kWh	0.03¢/kWh	0.03¢/kWh
Avoided Fuel & Purchased Power	(0.18¢/kWh)	(0.19¢/kWh)	(0.20¢/kWh)	(0.21¢/kWh)	(0.22¢/kWh)
Net Rate Impact	(0.06¢/kWh)	(0.07¢/kWh)	(0.08¢/kWh)	(0.09¢/kWh)	(0.08¢/kWh)

Note: These estimated Pleasant Valley rate impacts are based on its inclusion in base rates. The Company has not yet determined whether it will seek cost recovery of project costs through base rates in a rate case or through a yet-to-be-filed Renewable Energy Rider. The cost recovery method will cause customer rate impacts to slightly differ.

B. Modeling of Selected Projects

1. Courtenay and Odell

We modeled the PPA alternatives in Strategist in accordance with the bidder-supplied data contained in the proposals. To test the impact of the capacity factors that the developers provided in their bids, we conducted sensitivity tests in Strategist where the annual generation was varied by plus and minus 5 percent.⁸

The profiles for the three proposed wind projects are based upon Typical Wind Year (TWY) profiles for existing NSP wind farms that are geographically proximate. These profiles were adjusted to match the target annual generation.

The Strategist model also included an additional wind integration cost to account for

⁸ Example: Base C.F.% = 45%. High C.F.% sensitivity = 45% * (1+5%) = 47.25%

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incremental operating reserves that may be required to support the intermittent nature of these resources. The levelized cost of this wind integration was \$3.62/MWh, equivalent to over \$7 million annually.

The cost for Odell and Courtenay are modeled as simple \$/MWh cost rates that adjust once per year to account for the fixed price escalations specified in the agreements. The hourly prices are multiplied by hourly generation simulated in Strategist to derive the total annual costs.

In accordance with the latest MISO effective load carrying capability (ELCC) analysis, we modeled Odell and Courtenay as having a 13.3 percent accredited capacity value. However, per MISO's tariff and business practices, our expectation is that our proposed wind resources will not be given this designation until 2021 when various transmission system upgrades, including MISO's MVP projects, are complete. Our modeling efforts reflect the expected capacity accreditation in 2021.

The Strategist model does not explicitly model transmission congestion and line losses for new resources. To ensure that we are accounting for all the costs associated with our wind proposal, we included the congestion and line loss estimates from MISO's 2012 Promod model.

2. *Pleasant Valley*

For Company-owned projects, the upfront purchase price must be translated into a projection of annual revenue requirement associated with financing, operations, depreciation, and taxes. Projections of upfront and on-going capital investments and annual operating and maintenance expenses must also be developed.

To test how variation from the capital expenditures and O&M would impact the overall cost-effectiveness of the projects, we conducted sensitivity tests in Strategist of plus and minus 25 percent of projected on-going capital investments and O&M expenses.

The economic benefit of an owned wind project is highly-dependent on the annual generation from the site. An analysis of the site-specific wind data was conducted by our consultant, V-Bar, utilizing the specific turbines planned for the project. The analysis predicted a net capacity factor of 45.80 percent for the wind turbines, which was used for our final levelized-cost analysis.⁹ Each additional MWh produced by a Company-owned project increases the value of the project because the higher the

⁹ There is a 50 percent probability that Pleasant Valley's capacity factor will exceed 45.8.

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production, the lower the average costs will be, and therefore, the larger the benefits. To test how capacity factors impact the economic value of Pleasant Valley, we performed a Strategist sensitivity analysis using +/- 5 percent of the expected annual generation. The base assumption for the life of each ownership option was 25 years, and sensitivities were performed for 20-year and 30-year lives. As with the two PPAs, Pleasant Valley was modeled with an accredited capacity value of 13.3 percent beginning in 2021.

C. Strategist Results

We evaluated the proposed wind projects as a total portfolio and as individual projects. The results of the Strategist analysis shows that these new wind resources will result in net savings for our customers under all sensitivity tests conducted. The Pleasant Valley project consistently has the highest PVRR savings, even under a PPA-comparable 20-year operating life, the minus 5 percent capacity factor, and the plus 25 percent ownership cost sensitivities.

(REVISED) Table 4: PVRR Results (\$millions)

		Base	Low Gas	30 Year Operating Life	20 Year Operating Life	+5% Capacity Factor	-5% Capacity Factor	+25% On-Going Ownership Costs	-25% On-Going Ownership Costs
As Filed	Base Case (No Wind)	\$40,595	\$37,249	\$40,595	\$40,595	\$40,595	\$40,595	\$40,595	\$40,595
Corrected	Base Case (No Wind)	\$40,340	\$36,997	\$40,340	\$40,340	\$40,340	\$40,340	\$40,340	\$40,340
As Filed	Pleasant Valley	\$40,505	\$37,232	\$40,476	\$40,565	\$40,489	\$40,520	\$40,536	\$40,500
Corrected	Pleasant Valley	\$40,253	\$36,983	\$40,223	\$40,288	\$40,228	\$40,277	\$40,269	\$40,236
As Filed	Odell	\$40,542	\$37,248	\$40,542	\$40,542	\$40,540	\$40,544	\$40,542	\$40,542
Corrected	Odell	\$40,289	\$36,998	\$40,289	\$40,289	\$40,287	\$40,291	\$40,289	\$40,289
As Filed	Courtenay	\$40,535	\$37,239	\$40,535	\$40,535	\$40,533	\$40,537	\$40,535	\$40,535
Corrected	Courtenay	\$40,282	\$36,990	\$40,282	\$40,282	\$40,280	\$40,284	\$40,282	\$40,282
As Filed	All 3 Projects	\$40,412	\$37,235	\$40,382	\$40,472	\$40,395	\$40,428	\$40,443	\$40,407
Corrected	All 3 Projects	\$40,164	\$36,991	\$40,135	\$40,199	\$40,148	\$40,190	\$40,181	\$40,147

(REVISED) Table 5: Incremental PVRR from Base Case (\$millions)

		Base	Low Gas	30 Year Operating Life	20 Year Operating Life	+5% Capacity Factor	-5% Capacity Factor	+25% On-Going Ownership Costs	-25% On-Going Ownership Costs
	Base Case (No Wind)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
As Filed	Pleasant Valley	(\$90)	(\$17)	(\$120)	(\$31)	(\$106)	(\$75)	(\$59)	(\$95)
Corrected	Pleasant Valley	(\$88)	(\$15)	(\$117)	(\$52)	(\$112)	(\$63)	(\$71)	(\$104)
As Filed	Odell	(\$53)	(\$1)			(\$55)	(\$51)		
Corrected	Odell	(\$51)	\$1			(\$53)	(\$49)		
As Filed	Courtenay	(\$60)	(\$10)			(\$62)	(\$58)		
Corrected	Courtenay	(\$58)	(\$7)			(\$60)	(\$56)		
As Filed	All 3 Projects	(\$184)	(\$14)	(\$213)	(\$124)	(\$200)	(\$167)	(\$152)	(\$189)
Corrected	All 3 Projects	(\$176)	(\$7)	(\$205)	(\$141)	(\$192)	(\$150)	(\$159)	(\$193)

Shaded cells denote amounts as corrected

As indicated in the PVRR tables above, all projects provide cost savings to our customers, both individually and as a portfolio, even under the conservative sensitivity cases studied.

An alternate way of presenting the Strategist results is by calculating the levelized price of the projects and the other costs and benefits associated with them. Levelized prices are a fixed \$/MWh price that have the same NPV as the actual cost streams

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generated by Strategist. As mentioned previously, in addition to the direct project costs, the Strategist model also adds cost for wind integration, transmission congestion, and line losses. The primary benefit of the projects is displaced generation from fossil fuel resources, but the model also tracks capacity credit. Table 5 below illustrates how the levelized costs of the agreements are more than offset by the value of avoided generation.

Table 6: Levelized Costs Analysis - \$/MWh

	Pleasant Valley	Odell	Courtenay
	[TRADE SECRET BEGINS]		
Rev. Reqs / PPA Price			
Wind Integration			
Congestion/Line Losses			
Avoided Fossil Fuel			
Capacity Credit			
	TRADE SECRET ENDS]		
Net Cost (Benefit)	(\$11.11)	(\$8.18)	(\$9.20)

In summary, our proposed addition of these 600 MW of wind generation will lower our customers' bills while providing significant environmental and diversity benefits.

VIII. PRUDENCE OF THE RESOURCE ACQUISITION

The Company's acquisition of these resource additions is prudent. We have evaluated the proposed 600 MW resource addition from both a long-term perspective and from a near-term rate impact perspective. We used the Strategist model to estimate the cost of energy from our system over the life of the projects. And we have evaluated the risks associated with the development of the Odell, Courtenay, and Pleasant Valley projects. Based on all of this analysis, we believe that it is reasonable and in our customer's interests for the Commission to grant an ADP for these projects. We also note that pursuant to N.D.C.C. § 49-05-16 (7), the Courtenay PPA is presumed to be prudent.

Our analysis, with its conservative assumptions, shows that the wind projects we propose will result in significant costs savings to customers. Over the term of the contracts, we anticipate that customers will save, conservatively, at least \$180 ~~\$180~~ **\$176** million. Even if natural gas prices grow at only half the forecasted rate (1.7 percent versus a baseline of 3.4 percent) the projects are still expected to create benefits for our customers.

Our analysis leads us to conclude that the addition of this wind power to our system is

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prudent because it will deliver substantial financial benefits to our customers. These financial benefits are reflected in a lower cost of energy in the near- and long-term, and in a significant hedge against future increases in the fuel and government regulation components included in the cost of energy.

Thus Company is cost-effectively acquiring the resources necessary to meet the regulatory requirements of all the jurisdictions in which we provide service.

IX. REASONABLE MITIGATION OF RISKS

The development of any wind project comes with certain risks. We have worked to identify these risks and reasonably mitigate them through prudent contracting practices. These risks include PTC risk, construction and capital risks, transmission cost risks, and operational risks, which are discussed more fully in the testimony of Mr. Wishart's Direct Testimony.

We have reasonably mitigated PTC risk under the PPAs by transferring that risk to the developer. For the Pleasant Valley PSA, we have negotiated provisions that require RES Americas to **[TRADE SECRET BEGINS**

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With respect to construction risks, the project developers are required to complete construction by dates certain, and for the Pleasant Valley Project, RES Americas is required to sell to us a fully-functioning project subject to certain exceptions.

We have no capital risks under the PPAs, as we will not own these projects, and their costs are to be recovered through the Fuel Cost Rider. We have attempted to identify additional capital risks for the Pleasant Valley Project by including a contingency to our analysis to account for them, as noted previously.

Interconnection and other transmission risk are perhaps the largest development risks we have identified. For the Pleasant Valley Project, RES Americas has incorporated into the purchase price the expected interconnection costs. We have agreed to **[TRADE SECRET BEGINS**

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For the Courtenay and Odell projects, Geronimo will absorb any costs above those

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currently estimated for the interconnection of those projects. The Odell project has been identified as being in an area where a higher than normal level of curtailment can be expected until several upgrades to the transmission system are placed in-service. We have mitigated this risk through terms in the PPA that specify that Geronimo will not be compensated for curtailments until all the transmission upgrades are completed.

The Courtenay project presents a unique transmission risk in that the project's location in North Dakota may require it to use the transmission system of non-MISO member, Minnkota Power. To mitigate this risk, the PPA requires Geronimo to absorb any additional costs imposed by Minnkota.

With respect to operational risks, the Courtenay and Odell PPAs are designed to compensate Geronimo for the actual electric energy delivered from the projects, thereby incentivizing Geronimo to efficiently operate and maintain their projects. The operational risks associated with an owned-project are similar but reside with the Company. However these risks are offset by higher potential benefits from Company ownership through longer project life and the possibility of higher than expected generation.

CONCLUSION

We believe that our acquisition of these resources will provide substantial and immediate benefits to our customers – saving customers approximately ~~\$180~~ **\$176** million in energy costs over the term of the agreements – and that we have reasonably mitigated the inherent risks associated with any new resource development.

Therefore, we respectfully request the Commission make an advance determination of the prudence of the Company's addition of the Courtenay, Odell, and Pleasant Valley wind generation resources to its system, and approve the asset transfer of Pleasant Valley to the Company as may be required.

Dated: July 26, 2013

Northern States Power Company

Respectfully submitted by:

/s/

Laura McCarten
REGIONAL VICE PRESIDENT
STATE AND REGULATORY AFFAIRS