BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

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| In the Matter of the Complaint by Juhl Energy LLC against NorthWestern Corporation dba NorthWestern Energy for Establishing a Purchase Power Agreement | Docket EL16-021 |

**PREFILED RESPONSE TESTIMONY OF BLEAU J. LAFAVE**

**ON BEHALF OF NORTHWESTERN ENERGY**

## Table of Contents

## Witness Information

**Q. Please state your name and business address for the record.**

A. My name is Bleau J. LaFave. My business address is 3010 West 69th Street, Sioux Falls, South Dakota 57108.

**Q. By whom are you employed and in what position?**

A. Currently, I am Director of Long Term Resources. My responsibilities include overseeing the long-term supply growth strategies for NorthWestern, including large project development, acquisitions, optimization, and planning for the electric and natural gas portfolios.

**Q. Please describe your education and business experience and business credentials.**

A. I earned a Bachelor of Science in mechanical engineering from the South Dakota School of Mines and Technology in 1994. After I completed my degree, NorthWestern Public Service employed me as a project engineer. Working for NorthWestern, I have held several positions, including operations engineer, Huron area engineer, Aberdeen area engineer, maintenance process leader, support services process leader, corporate procurement manager, director of utility services, director of large project development, director of South Dakota and Nebraska supply planning and development, director of long-term growth, and vice president of operations for NorthWestern Services Corporation. During this period, I served in many operations and administration functions with a focus on operations management, procurement, logistics, contracts, fleet, facilities, utility engineering, measurement, and customer service.

I began my current position in 2011, focusing on long-term growth in supply for Montana, South Dakota, and Nebraska and large project development and acquisitions.

## Purpose of Proceeding

**Q. Please explain the purpose of this proceeding.**

A. This proceeding was initiated by Juhl Energy, Inc. ("Juhl") for purposes of establishing the terms of three purchase power agreements ("PPAs") with NorthWestern. Juhl asserts that it has certified three proposed wind projects ("Projects") as qualifying facilities ("QF") under the Public Utility Regulatory Policy Act of 1978 ("PURPA"), and is entitled to contracts under which it will sell electric energy and capacity from the three proposed wind farms totaling approximately 60 megawatts ("MW") at NorthWestern's avoided costs of energy and capacity. Although there are numerous provisions to which the parties must agree for such a contract, the controlling provision is likely the determination of NorthWestern's avoided cost, as that calculation has a significant impact on the financial viability of the proposed project.

**Q. Has Juhl proposed contract terms?**

A. Yes. Juhl and NorthWestern continue to work through the negotiations of the PPAs. In his Prefiled Direct Testimony, Corey Juhl stated, "I expect that Juhl will reach a final agreement on the specific contract language soon, and I do not anticipate that the non-rate terms will prevent an agreement at this juncture." NorthWestern agrees. However, if Juhl and NorthWestern are unable to come to an agreement on the terms and conditions of the PPAs, the open items will need to be addressed in this docket.

## Purpose of Testimony

**Q. What is the purpose of your prepared direct testimony?**

A. The purpose of my testimony is to sponsor and explain NorthWestern's position regarding the necessary and correct contract terms for PPAs with Juhl for its proposed three wind farms that will generate 60 MW of wind energy and will be constructed as QFs under PURPA. My testimony first addresses the required price terms to make the PPAs compliant with PURPA. Second, I rebut the

testimony of Juhl's witness, Roger Schiffman, regarding his estimation of NorthWestern's avoided costs and Juhl's assertion that it has established a legally enforceable obligation ("LEO"). Lastly, I address the non-price terms necessary to create a viable unconditional offer by Juhl, which by binding itself to sell, imposes an LEO to purchase on NorthWestern in a manner which will not harm the economic interests of NorthWestern's customers. If necessary, I will file testimony regarding the non-price terms separately.

Specifically, in this testimony, I provide:

- the framework for the federal and state regulatory requirements for qualifying facilities;
- introduce NorthWestern's witnesses;
- an overview of NorthWestern's estimated avoided capacity costs
- rebut avoided costs calculations made by Mr. Schiffman;
- discuss the customer impact of the differences between NorthWestern's actual avoided costs and Juhl's demand; and,
- discuss PPA terms that are unresolved in our discussions with Juhl.

## Juhl's Avoided Cost Rate

### Framework

**Q: What is the source of the requirements for a utility concerning a qualifying facility requesting to provide energy and capacity?**

A: South Dakota utilities have requirements under the United States Code, 16 U.S.C. § 824(a)-3; Section 210 of the Public Utility Regulatory Policies Act of 1978 ("PURPA"), 18 C.F.R. pt. 292; Docket No. RM79-55, Order No. 69; and the 1982 South Dakota Public Utilities Commission Order F-3365.

**Q: Please describe generally PURPA.**

A: Congress passed PURPA in response to the Arab oil embargo in 1973 and 1974. The goal of PURPA was to reduce our dependence on foreign oil and to promote efficient production and use of energy. PURPA was a broad act with many

provisions. In this proceeding, we are concerned with only one section of PURPA, Section 210. Section 210 requires the Federal Energy Regulatory Commission ("FERC") to adopt rules that impose a purchase obligation on utilities and prohibits FERC from adopting any rule that provides for a rate that exceeds the incremental cost to the utility for alternative energy. Generally speaking, Section 210, which is codified as 16 U.S.C. § 824(a)-3, has two primary pillars. First, it requires utilities to purchase electric energy from QFs. Second, it requires that the price paid by the utility be set so that the utility's customers are indifferent to the source of their electric energy. These twin pillars are the "purchase obligation" and "consumer indifference" standards.

**Q: Has FERC adopted rules regarding Section 210 of PURPA?**

A: Yes. Referring to 16 U.S.C. § 824a-3(a), FERC's cogeneration and small power production rule, provides, in part:

> [T]he Commission shall prescribe, and from time to time thereafter revise, such rules as it determines necessary to encourage cogeneration and small power production, and to encourage geothermal small power production facilities of not more than 80 megawatts capacity, which rules require electric utilities to offer to . . . (2) purchase electric energy from such facilities. . . .

Additionally, 16 U.S.C. § 824a-3(b), establishes criteria to be used regarding the rates for purchases by electric utilities:

> The rules prescribed under subsection (a) of this section shall insure that, in requiring any electric utility to offer to purchase electric energy from any qualifying cogeneration facility or qualifying small power production facility, the rates for such purchase—
>
> (1) shall be just and reasonable to the electric consumers of the electric utility and in the public interest, and

(2) shall not discriminate against qualifying co-generators or qualifying small power producers.

No such rule prescribed under subsection (a) of this section shall provide for a rate which exceeds the incremental cost to the electric utility of alternative electric energy. *(emphasis added)*

The assumption underlying a utility's purchase obligation provision was that QFs would be able to produce electric energy at a lower cost than the utility. However, to protect against the possibility that QFs could not produce at a lower cost, the consumer indifference provision was included. It is important to note that the costs that a utility can actually avoid by purchasing the QF's output determine the price paid to QFs. The QFs costs are not material to determining a utility's avoided cost. Nothing in PURPA requires that utilities pay QFs a rate that makes them financially viable or allows them to obtain financing. Nor is there any provision in PURPA that permits QFs to dictate contract terms contract to the utility.

**Q: What are the requirements for a utility concerning a qualifying facility requesting to provide energy and capacity under PURPA?**

A: Under PURPA, utilities have the obligation to purchase from QFs in accordance with 18 C.F.R. § 292.304, unless exempted by §§ 292.309 and 292.310, any energy or capacity made available by a QF. The purchasing rate must be just and reasonable to the electric consumers of the electric utility and in the public interest. The rate must not discriminate against QFs.

PURPA requires that any electric utility pay no more than the utility's avoided costs for purchases.

**Q: Has NorthWestern sought an exemption under 18 C.F.R. §§ 292.309 and 292.310 under PURPA for the Projects?**

A: No. NorthWestern filed for relief from PURPA's mandatory purchase obligation on October 4, 2016. Although NorthWestern believes that the Juhl Projects would have the same access to the markets as any other generator within the SPP footprint, FERC's rebuttable presumption under PURPA does not include QFs with a nameplate capacity of 20 MW or less. NorthWestern has not sought an exemption applicable to these proposed Projects.

**Q: Has the South Dakota Public Utilities Commission ("SDPUC") adopted any rules or orders concerning requirements for QFs?**

A: Yes, Order F-3365.

**Q: What are the requirements for a utility concerning a qualifying facility requesting to provide energy and capacity under 1982 South Dakota Public Utilities Commission Order F-3365?**

A: Under Order F-3365, the SDPUC found that rates for purchases from QFs with a design capacity of more than 100 kW should be set by contact negotiations between the QF and the electric utility. The SDPUC would act as a dispute arbitrator between the parties in accordance with this rule and PURPA requirements if agreement between the parties cannot be reached.

The SDPUC ruled that a contract term of fewer than 10 years is a short-term contract and more than 10 years is a long-term contract. Additionally, the SDPUC determined the basis for short-term and long-term capacity avoided cost.

According to Order F-3365, the SDPUC held that both short-term and long-term contracts should include an overall energy credit based on the average of the expected hourly incremental avoided costs calculated over the appropriate on-peak and off-peak hours as defined by the utility.

The SDPUC's order also states that interconnection costs are to be assessed to

the QF on a non-discriminatory basis and that capacity credits be included in any purchase rates. The order specified that contractual or otherwise, costs of capacity credits should be based on capacity actually avoided; and if the purchase does not enable a utility to avoid capacity costs, capacity credits should not be allowed.

**Q: What is an LEO, and where does that fit into the FERC regulations?**

A: As described in the FERC rules that I cited earlier, FERC created the concept of an LEO to protect QFs from a utility's refusal to sign a contract. By taking certain actions, a QF can unconditionally obligate itself to deliver electric energy and capacity over a set period. When a QF incurs an LEO, the utility has the ability to enforce the delivery obligation against the QF. When or how an LEO is established varies from state to state. The SDPUC has not determined what is necessary to establish an LEO in South Dakota. However, the touchstone of an LEO is the QF's unconditional commitment to sell energy and capacity to a utility.

**Q: If Juhl asserts that it has created an LEO, would you agree?**

A: No. NorthWestern's position is that there needs to be some certainties around purchasing from a QF before an LEO can exist. For example, NorthWestern feels a QF must make an offer to sell electricity at NorthWestern's avoided cost. Juhl has never indicated a willingness to sell electric energy to NorthWestern at NorthWestern's avoided cost.

Certainty of delivery of energy from a QF is important. Juhl has never offered any assurances of delivery of any electric energy that NorthWestern would be able to rely on or enforce an obligation to deliver expected energy and capacity. In order to provide assurance of delivery, Juhl Energy would need to complete the interconnection process for each project. Because each of the projects exceed 10 MW and are located within the Southwest Power Pool ("SPP") Balancing Authority ("BA"), each project needs to work through the SPP process for

interconnection. Juhl has yet to complete the interconnection process with SPP. Until it executes generator interconnection agreements, Juhl cannot provide any assurance as to the timing or even if energy can be delivered. If the project comes online prior to the completion of any upgrades, the project will not be able to guarantee that the output can be delivered to NorthWestern's customers. Any delay would need to be reflected in the avoided cost.

An LEO is a substitute for, not a path to, a contract. Without agreeing to the utility's avoided cost or providing any assurance of delivery, it is NorthWestern's opinion that a QF does not create an LEO under PURPA; there is nothing the utility can enforce.

## Introduction of Witnesses

**Q: Who will be testifying concerning this docket and what will they be discussing?**

A: NorthWestern will have two additional witnesses:

- Luke Hansen's testimony will discuss the energy avoided cost modeling for the Juhl projects.
- Autumn Mueller's testimony will provide an overview of the transmission issues.

## NorthWestern's Avoided Cost Rate

**Q: Under PURPA, what are the major factors in calculating avoided costs?**

A: Valuation of the output of any QF begins by asking what costs will the utility avoid and what additional expenses will it incur by purchasing from the QF. NorthWestern examines this question in light of its portfolio.

**Q: What value and costs do the Juhl wind projects provide to NorthWestern customers?**

A: The Juhl wind projects provide energy, capacity, and Renewable Energy Credits ("REC") to NorthWestern's portfolio. They also impose increased customer costs

for regulation in SPP and rate base recovery costs of asset investments for the interconnections and network upgrades.

## NorthWestern's Avoided Energy Cost Rate

**Q: How is the value (avoided cost) of energy provided by the Projects evaluated and calculated?**

A: The value of the energy provided by the Juhl wind projects is a function of the electric market forecast, NorthWestern's generation portfolio, and NorthWestern's customer load. As outlined in the Prefiled Response Testimony of Luke Hansen, NorthWestern uses PowerSimm™ ("PowerSimm") from Ascend Analytics to calculate the value of the energy. PowerSimm economically dispatches NorthWestern's generation portfolio in combination with market forecasts to meet customer load. For each hour of the forecast, three dispatch conditions result from this economic dispatch.

1. The portfolio is short energy and is purchasing from the market
2. The portfolio is long energy and assets in the portfolio have been dispatched and can be backed down, or
3. The portfolio is long energy and no assets in the portfolio can be backed down.

As described in Mr. Hansen's testimony, each condition has a value and provides a forecasted avoided cost for the output from each of the proposed Juhl projects.

**Q: Is there a guideline for the appropriateness of the avoided cost of energy calculation?**

A: Yes. The avoided cost of energy cannot exceed the energy price forecast. Since all assets in SPP, including NorthWestern's assets, are economically dispatched, the highest variable cost paid by NorthWestern customers is NorthWestern's node Locational Marginal Price ("LMP") in SPP. Because NorthWestern's portfolio includes generation from owned resources and energy from power purchase agreements, NorthWestern is not making market

purchases 100% of the time. When NorthWestern is relying on its owned resources, its avoided cost for energy is less than the market forecasted price.

**Q: What is the forecasted energy price for NorthWestern's SPP load LMP for the duration of the requested contract for Juhl?**

A: The 20-year levelized energy price forecast from 2017 through 2036 for NorthWestern's load LMP is $30.85 and is provided in my Exhibit BJL-001. This price is not NorthWestern's avoided cost. At times when NorthWestern is not in the market, NorthWestern's avoided cost is less in value in those hours.

**Q: Why is the forecast proposed by NorthWestern appropriate to use?**

A: NorthWestern's electric price forecast described in Mr. Hansen's testimony consists of two components, real market transactions and EIA's escalation rate forecasts, that are publicly available and represent the most reliable fundamental forecast for NorthWestern Energy's LMP. Using basis adjusted prices from the closest liquid LMP provides short-term future prices that are based on actual transactions. Escalating the observed market prices by the nominal escalation rate published by EIA for market prices for the remaining years represents a solid fundamental industry forecast that is available to the public. This calculation is valid, repeatable, and publicly available. NorthWestern uses this method in the evaluation of all of NorthWestern's planning and portfolio decisions.

**Q: Why does NorthWestern's existing generation portfolio lower the avoided cost and how does that benefit NorthWestern customers?**

A: Because NorthWestern has a significant internal generation and PPA portfolio to serve its customers, NorthWestern customers are protected from high market prices. Under certain dispatch conditions, NorthWestern generates more power than customers need, resulting in off-system sales revenues that flow back to customers through the fuel adjustment rate.

**Q: In dispatch condition three listed above, NorthWestern's position is that if NorthWestern is long in generation and no assets can be backed down in NorthWestern's portfolio, the avoided cost for that hour is zero. Please explain why?**

A: In this situation, NorthWestern cannot avoid any cost by purchasing from the QF. NorthWestern cannot avoid market purchases; there are none. NorthWestern cannot avoid the variable cost of its owned-generation. Market prices are lower than the variable cost of the owned-generation. NorthWestern customers receive the benefit of any sales to the market when NorthWestern is long generation. If NorthWestern pays a fixed estimated market price to the QF, NorthWestern's customers are paying more than they would otherwise.

In the FERC Docket No. RM79-55, Order No. 69 referring to PURPA, in a section 292.303 concerning electric utility obligations under this subpart, the order states:

> "A qualifying facility may seek to have a utility purchase more energy or capacity than the utility requires to meet its total system load. In such case, while the utility is legally obligated to purchase any energy or capacity provide by a qualifying facility, the purchase rate should only include payment for energy or capacity which the utility can use to meet its total system load. These rules impose no requirement on the purchasing utility to deliver unusable energy or capacity to another utility for subsequent sale."

If NorthWestern is unable to use the energy delivered under this condition to serve the "total system load", the value of the energy delivered under this scenario for this hour is zero.

**Q: What happens to the revenues/losses if energy from the QF is sold to the**

**market because it cannot be used?**

A: The value of the sale is credited/debited back to customers.

**Q. If market sales for periods when NorthWestern cannot back down its generation or reduce its market purchases are included in the avoided cost for the Projects, do customers lose the value of the sale credit?**

**A.** Yes, customers are paying the project owner for the value of the sale in the levelized rate.

**Q: Why was it important for FERC to include this language in Order 69?**

A: Requiring utilities to provide sales values when the energy is not needed to serve load makes NorthWestern customers a long-term fixed market price guarantor for the developers. Customers would be locking in long term market rates for developers whether they needed the power or not. This requirement protects customers from high market prices when the energy is not needed to serve the utility's generation portfolio.

**Q: Is there any value included for non-carbon emission generation?**

A: Yes, but it is not large addition. It is limited to the forecasted value of the RECs and the fundamental forecast effects included in the Energy Information Association ("EIA"). Arbitrarily including an estimate for an additional unknown carbon cost is not appropriate; NorthWestern customers may or may not avoid such a cost in the future. Similar to the administrative rules used for rate filings in South Dakota, (SD Administrative Rule 20:10:13:44), utility costs are not included in rates unless they are "known with reasonable certainty and measurable with reasonable accuracy".

**Q: What is the avoided cost for ENERGY for the proposed Juhl projects?**

A: The 2017 20-year levelized avoided cost for energy from the proposed Juhl wind projects is $28.49 per MWh as provided in Mr. Hansen's testimony.

NorthWestern's portfolio reduces the avoided cost from the market price forecast of $30.85 by $2.38 per MWh. This is reasonable considering the low market prices and forecasts currently existing in SPP and EIA. If forecast were increased, this difference would also increase.

**Q: Why is this method of calculating the avoided cost used by NorthWestern the most appropriate and accurate method?**

A: NorthWestern uses publicly available, market driven, and fundamentals based energy forecasts. Applying this forecast to the same economic dispatch model used for planning, portfolio optimization, and evaluation of new internal or external resources provides consistent, non-discriminatory, and repeatable calculations of the total portfolio used to provide generation to NorthWestern.

## NorthWestern's Avoided Capacity Cost Rate

**Q: How is the value (avoided cost) of capacity provided by the Juhl wind projects evaluated and calculated?**

A: NorthWestern currently meets its Minimum Required Capacity Margin as required by SPP in their SPP Effective 2016 Planning Criteria attached as Exhibit BJL-001. NorthWestern will need to replace the expiring contracts starting in 2019.

**Q: What value is used for the avoided cost of capacity?**

A: In order to meet its existing capacity requirement, NorthWestern has contracted with a third party to supply capacity for that last 30 to 35 MW of capacity need through the end of 2018. NorthWestern escalated the capacity value of the last year (currently $3.50 per Kw-month through the end of 2018) of the contract by a 2% escalation rate to reflect the escalation of fixed cost associated with capacity units. Through NorthWestern's 2016 capacity RFP, NorthWestern has an executable offer of $3.50 for 35 MW starting in 2019.

**Q: How much capacity was accredited to the proposed Juhl wind projects?**

A: SPP has very specific criteria for the net capability of intermittent resources to provide capacity that change based on the penetration of these resources in the SPP footprint. These criteria are described in the SPP Effective 2016 Planning Criteria attached as Exhibit BJL-004. The accredited capacity is specifically determined by each project and its production. For the first three years of wind production data, projects are accredited with 5% of nameplate capacity. After that the initial three years of operation, the historic production of the facility is used to calculate the next year's accredited capacity. This process is defined by SPP in the planning documents referenced above that are effective for those years.

**Q: What are the effects of the SPP planning criteria and NorthWestern's portfolio on the avoided capacity cost for the proposed Juhl projects?**

A: The value of the avoided cost is determined for the 20-year levelized contract term based on the current value of the executed capacity contracts. No costs can be avoided by NorthWestern customers until 2019. In 2019, Juhl will receive a 5% accreditation of capacity paid in accordance with contract terms. At the end of 2020, the accredited capacity for the Juhl wind projects will be calculated in accordance with the then current SPP Planning Criteria. Juhl will be paid the calculated accredited capacity times the capacity value for that year. This will be repeated each year for the remaining term of the agreement.

**Q: Why would it be inappropriate to provide the proposed Juhl projects with a flat accredited capacity amount?**

A: NorthWestern customers will only avoid capacity costs that are accredited by the SPP process. If a factor is assumed for the Juhl projects and NorthWestern is unable to get accreditation for the output, NorthWestern's customers would be paying for a benefit they do not receive. Since this requirement as to how capacity credits for renewable resources will be calculated has changed since the SPP Planning Criteria were established in 2013 , it is not unreasonable to

assume that future criteria will change too. It would be inappropriate to establish a fixed or flat accredited capacity in this docket as the capacity accredited value established through SPP may vary year to year. Customers should only be expected to pay the appropriate rate for capacity as determined by SPP and not pay a rate that is arbitrarily established under current conditions. Similar to energy, under PURPA the utility is required to provide a value (price) for energy. The utility does not guarantee the amount of energy that the intermittent resource will provide. NorthWestern has provided the projects an accredited capacity price supported by the SPP criteria. The determination of what is actually delivered by Juhl will be evaluated at that time.

## Juhl Projects Incremental Costs

**Q: What increased customer costs are being evaluated for the proposed Juhl wind projects?**

A: The Juhl projects will impose incremental costs associated with regulation, rate base recovery costs associated with the interconnection of each project, and rate base recovery costs associated with any transmission service upgrades required due to the proposed projects.

**Q: How were the costs for regulation (integration) determined?**

A: On February 2, 2016, SPP issued a report for the Regulation Support for Wind Integration. On page 5 of the report, SPP determined that the average cost of regulation per MWh of wind energy is $0.24 for 2015. This rate reduction was increased by the actual year over year forecasted rate escalation published in the 2016 EIA AEO report for the natural gas wholesale price estimates similar to the electric pricing forecast. This escalation assumes natural gas generation will be the marginal resource for providing regulation.

**Q: How were the costs for rate base recovery costs associated with the**

**interconnection of each project determined?**

A: NorthWestern Supply received copies of the Brule County Facilities Study, Davison County Facilities Study, and the Aurora County Facilities Study. Included in each estimate is a breakdown of charges into two categories of Transmission Provider Interconnection Facilities ("TPIF") and Network charges.

- TPIF are costs that are paid directly by the interconnection customer. There is no cost to customers in this category so the avoided cost is not affected by this amount.
- Network charges are paid for up front by the interconnection customer. Once the project is commercial, the interconnection customer is reimbursed the entire amount plus interest over time. The cost for the interconnection network upgrades will be included in NorthWestern's South Dakota rate base and recovered from NorthWestern customers. These costs directly impact NorthWestern's customers through their rates and the recovery costs are deducted from the avoided costs for the projects.

The network upgrade charges for the Brule, Davison, and Aurora projects are estimated to be $2,617,719; $2,304,741; and $2,368,792 respectively totaling $7,291,252. The revenue requirement for this investment was included as a cost deducted from the avoided costs for these projects. The calculation is included in my Exhibit BJL-001.

**Q: How were the costs for rate base recovery costs associated with the network upgrades for each project determined?**

A: As shown in my Exhibit BJL-001 REV tab, NorthWestern calculated the revenue requirement of the total network upgrade charges of $7,291,252 using the rates from the last rate case. Because the life of the assets are longer than the contract term, the net present value of the annual cost to customers was calculated. Using the net present value, a payment stream was calculated for the 20-year life of the contract. The increase costs through rates are

appropriately reflected in lowering the avoided cost rate keeping NorthWestern customers indifferent.

**Q: Are there other transmission costs or concerns with these projects?**

A: NorthWestern's Transmission Group has not identified any transmission service network upgrade costs for facilities that are not in SPP. For facilities in SPP, SPP has not completed the study. NorthWestern does not know if there will be upgrades required or not. If upgrades are required that will be included in the South Dakota rate base, the costs should be treated similar to the interconnection costs above.

If the SPP upgrades cannot be completed until after the projects COD, these projects will be unable to deliver all the energy to NorthWestern's customers. Energy that is not able to be delivered is an uncompensated curtailment. These project planning costs should not be passed to customers.

The contract will need to correctly reflect these unknown costs and the timing of the completion of the upgrade.

## NorthWestern's Total Avoided Cost Rate

**Q: In light of your testimony above, what is the total avoided cost rate of energy and capacity for the three proposed Juhl Wind projects totaling 60 MW?**

A: The 20-year levelized avoided cost rate for this project is $25.72 per MWh with an additional payment of $42,840 per MW-year of accredited capacity starting in 2019 as defined by the SPP tariff. This rate is based on an October 4, 2016 forecast starting in 2017 and continuing until 2036.

NorthWestern's portfolio reduces the avoided cost from the market price forecast discussed previously in my testimony of $30.85 by $5.13 per MWh. This is

reasonable considering the low variable cost to operate NorthWestern's owned generation and market prices and forecasts currently existing in South Dakota and escalations forecasted by the Energy Information Administration. If the forecasts were to increase, this difference would also increase.

The 20-year levelized avoided cost rate for 2018 through 2037 is $26.86 per MWh. (Exhibit BJL-002)

## Roger Schiffman Testimony Rebuttal

**Q: Do you agree with the avoided cost for the Juhl project as represented by Mr. Roger Schiffman in Table 1?**

Table 1 – Summary of Juhl Energy Avoided Cost Projections

| | |
|---|---|
| **Differential Revenue Requirement Levelized Avoided Cost - NPV @7.24% ($/MWh)** | **$47.29** |
| CO2 Compliance Cost Incremental Impact ($/MWh) | $11.63 |
| **Adjusted Avoided Cost, with CO2 ($/MW)** | **$58.92** |
| Capacity Value of Juhl Projects | $1.78 |
| **Total Levelized Avoided Cost, with CO2 and Capacity Value ($/MWh)** | **$60.70** |

A: No. The avoided cost for NorthWestern customers cannot exceed the forecasted market price. As I stated earlier, the most NorthWestern customers would pay for energy that is replaced by the proposed Juhl projects is the market forecast price. The current market price forecast of a 20 year levelized price is $30.85 per MWh. A properly calculated avoided cost calculation for NorthWestern Energy customers could never exceed that market forecast amount or even be close to the suggested $47.29.

**Q: Why is there such a big discrepancy between the numbers provided by Mr. Schiffman and the numbers provided by NorthWestern Energy?**

A: The numbers provided by NorthWestern are specific to the costs that are paid by NorthWestern's South Dakota customers considering the market forecast, the economic dispatch of NorthWestern's resources, and the NorthWestern customer

load. The numbers provided by Mr. Schiffman are a regional evaluation of the change in pricing resulting from adding 60 MW of wind generation to the region starting with a very elevated market price in Year One. Mr. Schiffman based his analysis on outdated projections, the Fall 2015 Ventyx Reference Case. NorthWestern also has no knowledge of what assumptions about inputs were used or how they were used because this information was not provided. Errors and bad assumptions can affect the output of adding a small generator to such a large regional footprint.

**Q: Do you believe there would be a significant change in SPP market pricing by adding 60 MW of wind to the region?**

A: It is unlikely. SPP has a significant portfolio of both load and generation that currently includes over 12 GW of wind generation. Because the SPP system is economically dispatched, such a small addition of 60 MW would have little effect on the LMP pricing unless the generation causes local congestion issues on the system.

**Q: Are there any congestion issues associated with these proposed projects?**

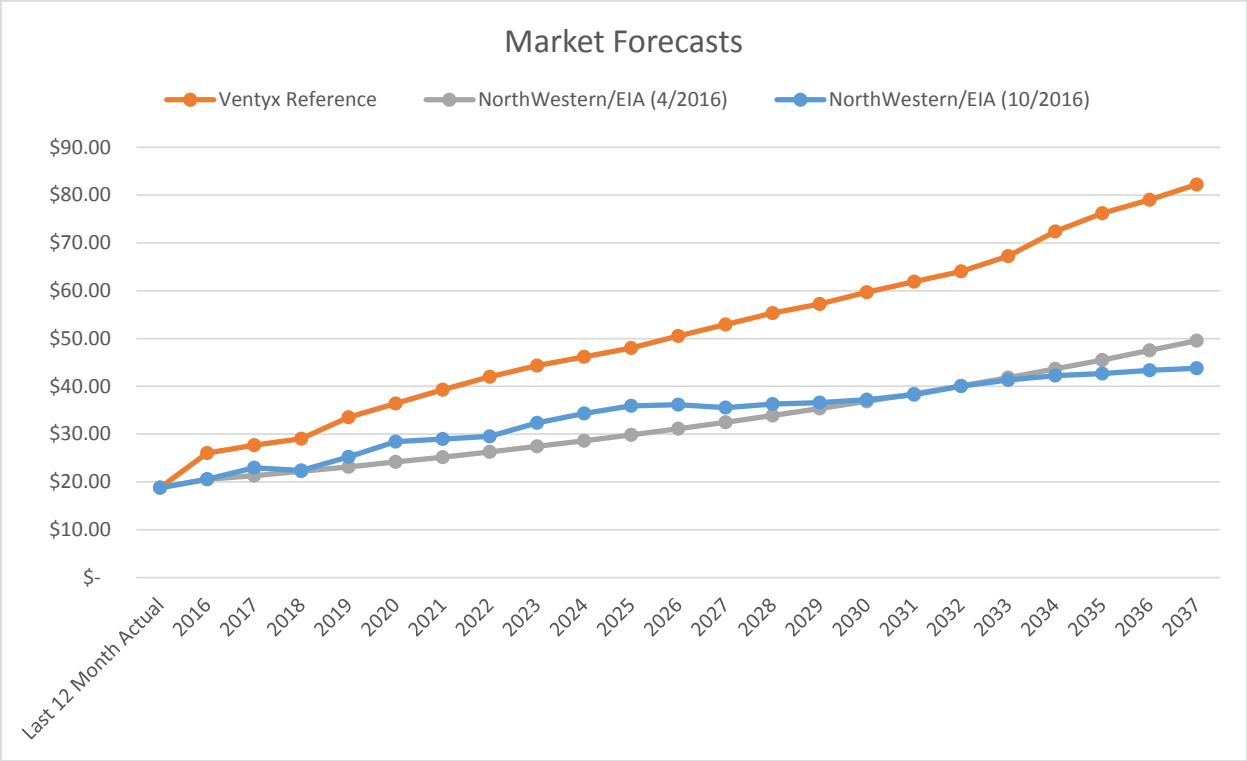
A: SPP has not completed their review of the new generation assets. There has not been a determination of any congestion issues at this time. If there are congestion issues that restrict the ability of the project to deliver the energy to the load, the impacts of that congestion would need to be included in the avoided cost determination.

**Q: What do you mean by "the forecast used by Roger Schiffman is an elevated rate"?**

A: Schiffman's forecast has an increased escalation rate over the EIA forecast and the first year in Roger Schiffman's model contains a significant jump over the rates that are currently being paid in SPP. Attached is a graph of the average

price NorthWestern has paid over the last year with SPP and moving forward with each annual forecast. Over the last year, NorthWestern customers have paid an average of $18.78 per MWh, reflecting nine months of 2016 and three months of 2015.

The Ventyx Reference forecast starts in 2016 with a price of $26.04 per MWh including a jump of $7.26 dollars in the first year of the forecast and an average escalation rate of 5.66%. There is no supportable reason for the first year jump from the prices that NorthWestern customers have experienced over the last year. Additionally, using an escalation rate that would exceed the rates provided in the EIA AEO 2015 forecast of 4.32% or the more recent escalation rate in AEO 2016 of 3.36% for the years 2018 to 2037, further escalates future years increasing market risk well beyond the annual EIA forecast. (Exhibit BJL-003)




**Q: Do you believe Mr. Schiffman's recommended carbon adder should be**

**reflected in an avoided cost for NorthWestern customers?**

A: No. As stated previously, it would not be appropriate to arbitrarily include an unknown carbon cost that NorthWestern customers may or may not avoid in the future. Similar to the administrative rules used for rate filings in South Dakota, Administrative Rule 20:10:13:44, utility costs are not included in customer rates unless they are "known with reasonable certainty and measurable with reasonable accuracy". In addition, no carbon penalties have been identified to be applied to carbon producing resources in South Dakota, on a regional basis, within SPP, or at the national level.

**Q: Do you believe Mr. Schiffman's recommended capacity payment should be reflected in an avoided cost for NorthWestern customers?**

A: No. The requested capacity payment by Mr. Schiffman equates to approximately $500,000 per year. As stated earlier, our current capacity contracts that cover NorthWestern's need through 2018 are prices at $3.50 per kW-month or just over $42,000 per MW-year. For 2018, the avoided capacity costs is zero. No additional capacity is needed. Under the current SPP tariff, for the first three years of operation of a wind farm, the accredited capacity is 5%. Using SPP's 5% accredited capacity with NorthWestern's current capacity rate, the value once capacity is needed would be about $142,000 per year. After the initial three years, the capacity accreditation will be evaluated according to the SPP tariff for those years. The $500,000 per year far exceeds the value of capacity to NorthWestern customers or that can be supported considering current NorthWestern contracts or capacity accreditation through SPP.

**Q: Do you believe Mr. Schiffman's description and development of his QF-In/QF-Out is an appropriate calculation of avoided cost for NorthWestern customers?**

A: No. Mr. Schiffman is proposing that when NorthWestern needs energy the project output would be valued at market price. When NorthWestern is long, Mr.

Schiffman's model values the output as a market sale. In other words, he is proposing that NorthWestern customers give market price for all of the output from the Juhl projects whether the energy is needed or not to meet customer demand. Under Mr. Schiffman's proposal, NorthWestern customers become a market energy broker locking in a price for 20 years while taking all of the market risk. This scenario is not supported by PURPA's avoided cost regulations.

**Q. Mr. Schiffman used Promod to calculate NorthWestern avoided cost. You used PowerSimm. Why is PowerSimm better?**

A. Mr. Schiffman configured the Promod model to provide the projects' market price for every MWh delivered calling it a QFin/QFout method. Then, Mr. Schiffman suggests that the installation of 60 MW of wind will lower the price of the SPP UMZ region and the LMP that serves NorthWestern's load by at least $47.39 per MWh of energy delivered by these wind projects. With all of these assumptions which include each piece of equipment, each load, and the detail required to evaluate such a small generator, it would be extremely difficult to attribute any definitive change in price to this small addition of energy into the SPP market. The repeatability, certainty, and probability of Mr. Schiffman's proposed approach would depend on the software's ability to maintain each piece of information from all of the utilities, generators, and transmission operators located within SPP.

NorthWestern's Power Simm model is specific to NorthWestern's system with NorthWestern's equipment, NorthWestern's load, and NorthWestern's LMP. By forecasting NorthWestern' load and economically dispatching NorthWestern's portfolio according an appropriate public forecast, NorthWestern is able to provide a valid, repeatable, and appropriate avoided costs calculation that provided developers with equal treatment in regards to other QFs, PPAs, and utility owned projects. This method also ensures that customers are treated fairly and in accordance with all of the requirements of PURPA.

## Contract Terms

**Q: Have NorthWestern and Juhl Wind agreed to all of the terms of the PPAs with the exception of price?**

A: No. NorthWestern and Juhl have had good discussion concerning the PPAs, but there are still some remaining items.

**Q: What terms should be changed or negotiated?**

A: As stated previously, if needed, I will file supporting testimony regarding any remaining contract issues at a later time.

**Q: Does this conclude your testimony?**

A: Yes