MINNESOTA PUBLIC UTILITIES COMMISSION

Staff Briefing Papers

Meeting Date	December 20, 2018	Agenda Item *4
Company	Minnesota Power (MP)	
Docket No.	**E015/M-18-545**	
	In the Matter of Minnesota Power's Petition for Approval of a 250 MW Nobles 2 Wind Power Purchase Agreement	
Issues	Should the Commission approve MP's petition for approval of the Nobles 2 Power Purchase Agreement (PPA)? Should the Commission approve the conditions proposed by the Department of Commerce? Should the Commission find the PPA is a reasonable and prudent way for Minnesota Power to continue to meet its obligations under Minnesota's Renewable Energy Standard in Minn. Stat § 216B.1691 and the July 2016 IRP Order?	

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✓ **Relevant Documents**	**Date**
Minnesota Power, *Petition*	August 22, 2018

Relevant Documents | **Date**

Relevant Documents	Date
Department of Commerce, *Comments*	September 21, 2018
Nobles 2, LLC, *Reply Comments*	October 5, 2018
Minnesota Power, *Reply Comments*	October 5, 2018
Department of Commerce, *Supplemental Comments*	November 15, 2018
Minnesota Power, *Supplemental Comments*	December 6, 2018
Nobles 2, LLC, *Supplemental Comments*	December 6, 2018

I. Statement of the Issues

Should the Commission approve MP's petition for approval of the Nobles 2 Power Purchase Agreement (PPA)?

Should the Commission approve the conditions proposed by the Department of Commerce?

Should the Commission find the PPA is a reasonable and prudent way for Minnesota Power to continue to meet its obligations under Minnesota's Renewable Energy Standard in Minn. Stat § 216B.1691 and the July 2016 IRP Order?

II. Procedural Background

On July 18, 2016 the Commission issued its *Order Approving Resource Plan With Modifications* (2016 IRP Order) in Docket No. E015/RP-15-690. The 2016 IRP Order required that, "By the end of 2017, Minnesota Power shall initiate a competitive bidding process to procure 100–300 MW of installed wind capacity."

Accordingly, Minnesota Power, a public utility operating division of ALLETE, Inc. (MP or the Company), issued a Request for Proposals (RFP) for up to 300 MW of nameplate wind capacity on July 27, 2016. The Company received 35 project sites from 17 bidders that totaled over 5,000 MW of nameplate capacity.

On July 28, 2017 MP filed a petition for approval of their Energy*Forward* Resource Package in Docket No. E015/AI-17-568. This resource package consisted of three projects:

- a PPA for the 250 MW Nobles 2 wind project in southwestern Minnesota;
- a PPA with the 10 MW Blanchard Solar Project in central Minnesota; and
- affiliated-interest agreements proposing to dedicate 48% of the proposed 525 MW Nemadji Trail Energy Center (NTEC) natural gas combined cycle project in Superior, Wisconsin to MP.[1]

On September 19, 2017, the Commission issued its *Order Referring Gas Plant for Contested Case Proceedings, and Notice and Order for Hearings*,[2] which directed the Company to refile their wind and solar PPAs in separate dockets.

On May 10, 2017, the Company executed a PPA with Nobles 2 for a 250 MW wind project.

On July 20, 2017, the Company executed the First Amendment to the PPA with Nobles 2.

[1] While the NTEC order has not yet been issued, at the October 29, 2018 Commission hearing, the Commission approved a 50% share of the NTEC capacity.

[2] Docket Nos. E015/AI-17-568 and E015/RP-15-690.

On August 20, 2018, the Amended and Restated Power Purchase Agreement (Amended PPA) for 250 MW of Renewable Generation with Nobles 2 was signed.

On August 22, 2018, MP filed its Petition for Approval of a 250 MW Nobles 2 Wind PPA (Petition). The Petition requested, among other things, that the Commission confirm the PPA is consistent with the IRP and that the project is a reasonable and prudent way to meet the Renewable Energy Standard (RES). (The Amended PPA has a condition precedent for Commission approval within ten months of the filing.)

On September 21, 2018, the Department of Commerce, Division of Energy Resources (DOC or the Department) filed comments citing a number of concerns over the process MP undertook to come to an agreement with Tenaska[3] for the Amended PPA. As a result, the Department initially recommended the Commission reject the PPA.

On October 5, 2018, Nobles 2 Power Partners, LLC (Nobles 2) and MP filed separate reply comments clarifying, and explaining the reasons for, the modifications to the original PPA.

On November 15, 2018, DOC filed supplemental comments that further analyzed the contract and concluded MP and Nobles 2 satisfactorily explained its reasons for amending the PPA. Thus, the DOC ultimately recommended approval with a few conditions.

On December 6, 2018, Nobles 2 filed reply comments agreeing with the requests made by DOC and intends to make the requisite amendments as a compliance filing.

On December 6, 2018, MP also filed reply comments confirming their efforts to make amendments to the PPA as requested by DOC. MP also recognized that they will "not have specific details regarding the full extent of the transmission risk and associated customer impact until the MISO interconnection study process is completed and Tenaska executes a generator interconnection agreement."

III. MP's Petition

A. Project/PPA Summary

The PPA is between MP and Nobles 2 Power Partners, LLC (Nobles 2), an affiliate of Tenaska, Inc., for the 20-year purchase of 250 MW wind-generated energy and capacity from the Nobles 2 facility located in Nobles County along Buffalo Ridge, a sixty-mile long expanse of rolling hills about 2,000 feet above sea level, in southwestern Minnesota.[4] The Nobles 2 Wind Project will also work to achieve NRIS (Network Resource Interconnection Service) status, which is

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[3] Throughout these briefing papers, staff makes references both to Tenaska and to Nobles 2 Power Partners, LLC. As stated, Tenaska is the parent company and Nobles 2 Power Partner, LLC is its affiliate. For these briefing papers, staff refers to Tenaska when discussing the negotiations with MP and Nobles 2 Partners, LLC when referring to the party comments.

[4] Petition, at 1.

necessary for the project to provide capacity, and will increase the interconnection costs.[5] The expected capacity factor for the Project is as high as 47%. Figure 1 below shows location details:

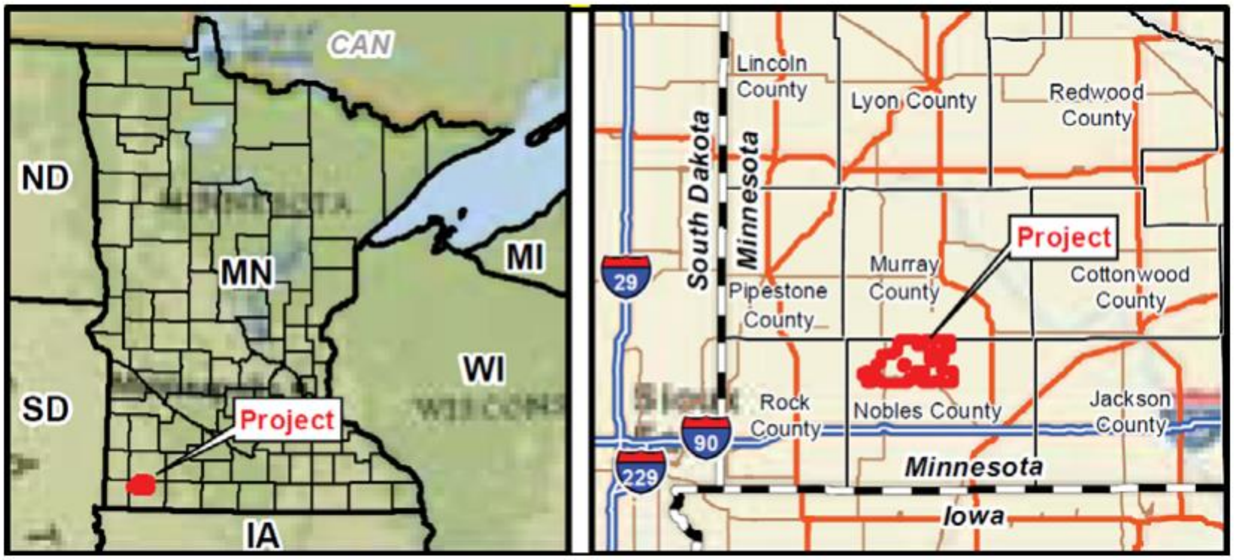

Figure 1: Nobles 2 Wind Facility Location, provided by MP[6]

In addition to supporting MP's long-term fleet transformation plans[7], MP believes this PPA will bring "considerable value to Minnesota Power customers, with a pre-established price that reflects qualification for the 100 percent PTC [Production Tax Credit], limited risk, and geographic diversity of the Company's renewable generation portfolio" and "also brings value to State of Minnesota by building new renewables in the state" that "will benefit local economies through landowner lease payments, production taxes, jobs (both temporary construction and permanent operations and maintenance jobs), and other local spending."[8]

The events predicating the amendments to the PPA as stated by MP were the passage of the Tax Cuts and Jobs Act (TCJA), which became effective January 2018, and a delay in the interconnection study with the Midcontinent Independent System Operator (MISO), with indicators that interconnection costs would be higher than anticipated.[9] The TCJA increased the costs of tax-advantaged investments, such as wind, which had a corollary effect on the PPA price.[10] The PPA partners – MP and Nobles 2 – renegotiated the terms of the PPA to reflect the increase in both overall costs and transmission upgrades. The Nobles 2 Wind project is still expected to have a commercial operation date of October 2020, as required by the 2016 IRP

[5] Nobles 2 reply comments, at 15.

[6] Petition, at 1.

[7] Implementation of MP's resource package arising out of the 2015 IRP will result in a resource mix of approximately 45% renewables (including hydro), renewable-enabling natural gas, and one-third compliant coal. This transition will provide more than a 40% reduction in greenhouse gas emissions by 2025 from 2005 levels.

[8] Petition, at 2-3.

[9] *Id*. at 3.

[10] *Id*.

Order.[11] Nobles 2 selected the Vestas V136-3.6 MW wind turbine generator and 10 to 21 V110-2.0 MW wind turbines.[12]

On July 20, 2017, MP executed the First Amendment to the PPA. Tenaska later approached MP in January 2018 regarding the implications the TCJA and again in April concerning interconnection costs. These could have considerable impact on the project, and Tenaska was "seriously considering their right to terminate the Nobles 2 PPA."[13] Tenaska believed that a "repricing mechanism was necessary"[14] and, after negotiations, the two parties were able to come to an agreement, and the Amended PPA was signed on August 20, 2018.[15]

The revised terms of the Amended PPA include, among other modifications, price adjustments—a transmission adder and a cost cap for network upgrades—and broadening the term by which MP may purchase the facility. MP explained the revised terms protect customers because "if the Amended PPA pricing becomes above available market alternatives … Minnesota Power, subject to Commission approval, could purchase Nobles 2 from Tenaska and would have rate base revenue requirements based on remaining capital value and O&M versus the Amended PPA pricing."[16]

In addition to staying on track to comply with the 2016 IRP Order requiring 100–300 MW of installed wind capacity by 2020, MP believes this project remains economic and is in the best interest of its ratepayers. Also, in MP's judgment, renegotiation was a far superior alternative to re-starting the RFP process. According to MP, "[i]f an RFP were to be reissued, the new offers would likely be more costly due to tax reform, phasing of PTCs, and higher MISO interconnection costs, such that Nobles 2 would continue to be favorable in comparison[17] as an economical project for customers."[18]

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[11] Petition, at 4.

[12] Nobles 2 reply comments, at 3.

[13] Petition, at 17.

[14] MP reply comments, at 4.

[15] Petition, at 17.

[16] MP reply comments, at 7.

[17] From MP's Petition: First, cost increases related to the TCJA affect the entire industry and are not unique to Nobles 2. Second, it is unlikely that a project with similar benefits to customers would emerge in the near future because Nobles 2 already qualifies for the 100 percent PTC, which has since been reduced for other new development to 80 percent and will reduce to 60 percent after January 2019. Therefore, any further delay related to a new competitive bidding 19 process would have a greater likelihood of creating cost and tax disadvantages, rather than benefits. Third, many of the competitive projects from the RFP are already being developed for other customers and are no longer available. Finally, Nobles 2 was selected in part due to the geographic diversity it brings to Minnesota Power's wind generation, and the uncertainty in transmission upgrade costs affect similarly situated projects within the MISO region.

[18] Petition, at 17.

The Nobles 2 Wind Project will connect to Xcel Energy's Nobles-Fenton 115 kV transmission line and is in the MISO August 2016 West Area interconnection queue.[19] The magnitude of projects applying during the August 2016 study period (amounting to approximately 5,600 MW) indicates that transmission upgrade costs could be significantly higher than initially anticipated.[20] Therefore, the Petition includes "a revised transmission price adjustment based on analysis of the MISO Network Upgrade costs that could be assigned to Nobles 2."[21] The final transmission network upgrades cost estimates are scheduled to become available in April 2019, and the Generation Interconnection Agreement (GIA) with MISO is expected by September 2019.[22] Other relevant milestones are listed in the table below:[23]

Milestone	Estimated Date of Achievement
Receipt of Major Permits	December 31, 2018
Interconnection Agreement Signed by All Parties Thereto	December 31, 2019
Specify Final Facility Configuration	December 1, 2019
Notice to Proceed Issued to Balance of Plant Contractor	January 1, 2020
Beginning of Erection of First Turbine	June 30, 2020
Delivery of Main Transformers to Site	July 31, 2020
Beginning of Commissioning of First Turbine	August 31, 2020
Commercial Operation Date	October 1, 2020

MP noted that another benefit of the Nobles 2 Project is that it is geographically diverse from the rest of the Company's wind resources. MP's current wind portfolio consists of more than 600 MW of both utility-owned and PPA structures, but most of MP's wind is its Bison 1-4 projects (totaling 496.6 MW) in North Dakota. Additionally, Oliver I and II, which are PPAs totaling 98.6 MW, are also in North Dakota. (MP owns the 25 MW Taconite Ridge project, which is located in Minnesota).[24]

Lastly, MP wished to provide regulatory transparency when they shared that during negotiations MP was approached by Tenaska about becoming an equity investor in the project

[19] Petition, at 21.

[20] Petition, at 18.

[21] MP reply comments, at 6.

[22] Petition, at 21.

[23] Petition, at Exhibit C-1 (PDF pg. 79).

[24] Petition, at 9.

since Tenaska had lost their investor.[25] This would mean a non-regulated subsidiary of ALLETE would make a minority equity investment in Nobles 2. A non-binding MOU signed on March 21, 2018 indicated ALLETE's desire to continue discussions regarding the investment opportunity; however, no such agreement has been finalized at the time of the briefing papers.[26] Any role would "be separate and distinct from MP's role as the PPA offtaker."[27]

B. RFP Process and Compliance with Commission's IRP Order

Pursuant to Order Point 9 in the Commission's July 2016 IRP Order, MP issued an RFP on July 27, 2016 that sought power supply proposals for up to 300 MW of cost-effective wind resources.[28] MP sought proposals that could advantage of the PTC, offer capacity accreditable under current MISO's resource adequacy rules in MISO Local Resource Zone 1, and have an initial term of 20 years or longer.[29] Responses were due before September 7, 2016.

The independent evaluator Sedway Consulting managed the RFP process on behalf of MP. A total of 35 projects and 94 offers with locations in Iowa, Minnesota, North and South Dakota, and Wisconsin were received that totaled more than 5,000 MW of nameplate capacity.[30] No self-build proposals were submitted.

After a completeness review[31], the projects were ranked according to the projects' levelized energy prices, and those that were ranked higher moved on to a qualitative review before being quantitatively analyzed using Sedway's evaluation model[32]. Although the levelized price ranking provided a good approximation of how project economics might compare, an assessment of the offers' generation profiles and the energy benefits associated with those profiles provided a comprehensive comparison.[33] The top-ranked projects were short-listed in the fall of 2016, and the Company began negotiations with proposers into the spring of 2017. Sedway Consulting concurred with the Company's decision to make a final selection of the

[25] MP reply comments, at 4-5.

[26] MP reply comments, at 14 and Nobles 2 reply comments, at 17.

[27] Petition, at 18.

[28] Petition at 7.

[29] *Id*.

[30] *Id*.

[31] Any projects found to be incomplete had the opportunity to supplement their proposals.

[32] Renewable Bid Evaluation Model — a spreadsheet-based tool used to determine a proposal's net cost by calculating the present value of the project's costs and subtracting the present value of a proposed facility's hourly energy benefits. The costs in the net cost calculation included contract payments for delivered energy and an imputed debt cost for PPAs. Energy benefits were the product of the expected hourly generation of a facility and a forecast of hourly $/MWh energy market prices over the term of the contract. Sedway Consulting's evaluation model normalized the net cost by dividing it by the present value of a project's expected energy deliveries, thereby yielding a $/MWh levelized net cost.

[33] Petition, at 16.

Nobles 2 Wind Project, and MP executed the original PPA on May 10, 2017.[34] Table 1 below shows MP's Summary of Received Proposals:[35]

Table A-1
MP 2016 Wind Resource Solicitation
Summary of Received Proposals

	Participants	Number of Projects	Projects	State	Number of Offers
1	[TRADE SECRET DATA EXCISED]	3	[TRADE SECRET DATA EXCISED]	ND	6
2	[redacted]	1	[redacted]	SD	2
3	[redacted]	4	[redacted]	SD MN SD SD	14
4	[redacted]	2	[redacted]	MN	2
5	[redacted]	1	[redacted]	ND	2
6	[redacted]	1	[redacted]	MN	4
7	[redacted]	2	[redacted]	IA MN	16
8	[redacted]	1	[redacted]	MN	2
9	[redacted]	1	[redacted]	WI	1
10	[redacted]	2	[redacted]	MN SD	12
11	[redacted]	1	[redacted]	SD	1
12	[redacted]	1	[redacted]	MN	1
13	[redacted]	6	[redacted]	SD MN ND ND ND	6
14	[redacted]	1	[redacted]	ND	1
15	[redacted]	2	[redacted]	MN ND	4
16	[redacted]	2	[redacted]	MN	4
17	[redacted]	4	[redacted]	ND MN ND SD	16
	TOTAL	35			94

*This project was proposed at two different capacities (which are depicted in parentheses) and is counted as two projects in the project count column.

For more detailed information, please see Appendix B - Sedway Consulting Wind RFP Evaluation Report of the Petition.

C. Resource Planning Analysis

The Nobles 2 Project is anticipated to generate approximately 1,000 GWh per year.[36] As the figure below shows, it will displace market purchases and existing thermal generation. According to the Company's Strategist modeling, Nobles 2 will displace "[a]pproximately 324 GWh of market purchases and 452 GWh of existing thermal generation on average each year, with the remaining 233 GWh being excess energy transferred onto neighboring utility systems or the MISO market."[37]

[34] *Id*.

[35] MP reply comments, at 2.

[36] Petition, at 3 and 13.

[37] *Id*. at 13.

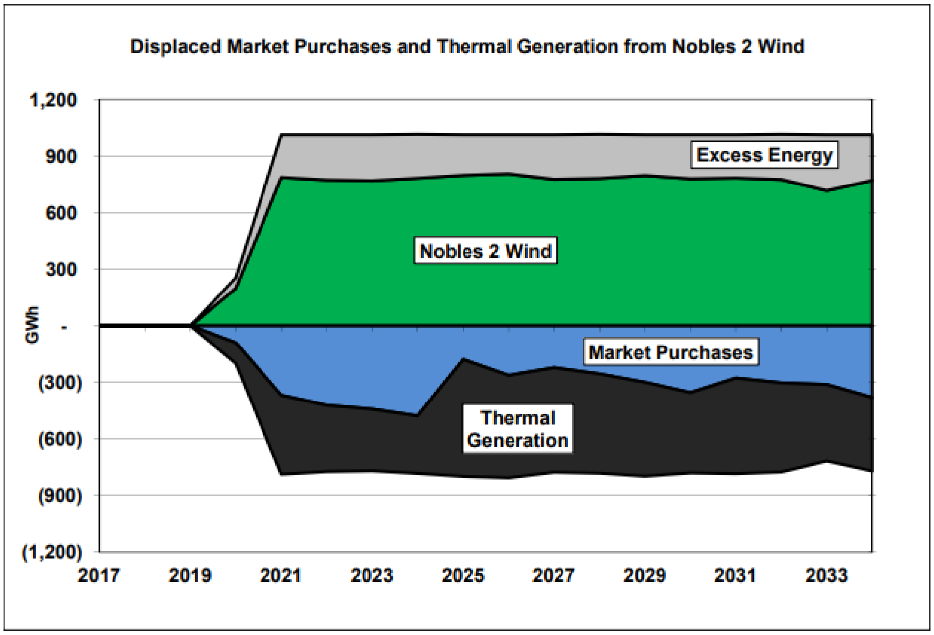

Figure 2: Energy Displaced by Nobles 2

To look at the cost impact of Nobles 2 within MP's long-term power supply, MP developed and evaluated ten Strategist futures[38] with up to 30 sensitivities for a total of 272 cases. According to MP's analysis, the Nobles 2 Project decreases power supply costs in all ten futures across all sensitivities with an average decrease in customer power supply costs of $179.7 million over the timeframe (2021-2034), ranging from a decrease of $86.2 million to $350.7 million, depending on the assumption for CO_2 regulation cost and externality costs.[39] The tables below compare the underlying key assumptions for each future as well as the change in power supply costs by adding Nobles 2 under each future.[40]

Futures	Strategist Case Name	Resource Adequacy Season	CO_2 Regulation Penalty	Mid-Environmental Externality Values	Turn Energy Market Off	Excess Energy Sold Into Wholesale Market
Future 1	C1SR	Summer	No	No	No	Yes
Future 2	C2SR	Summer	No	No	No	No
Future 3	C3SR	Summer	Yes	No	No	Yes
Future 4	C4SR	Summer	Yes	No	No	No
Future 5	C1WR	Winter	No	No	No	Yes
Future 6	C2WR	Winter	No	No	No	No
Future 7	C3WR	Winter	Yes	No	No	Yes
Future 8	C4WR	Winter	Yes	No	No	No
Future 9	C5S	Summer	Yes	Yes	Yes	No
Future 10	C5W	Winter	Yes	Yes	Yes	No

[38] Futures 1 through 8 were run – half with and half without – the Commission-approved CO_2 regulation cost of $21.50 per ton in 2022, due to the uncertainty of the form of carbon regulation outcomes. Futures 9 and 10 included the Commission-approved CO_2 regulation cost and also included the Mid-Level Environmental Externality Values established by the Commission in 2017.

[39] Petition, at 14.

[40] Petition, at 12.

Power Supply Cost Comparison	Power Supply Cost without Nobles 2	Change in Cost with Nobles 2	Change in Cost with Nobles 2 + Transmission Cap
	($ in Millions, 2017 $)		
Future 1	$5,824.5	-$90.8	-$63.6
Future 2	$5,834.2	-$86.2	-$59.0
Future 3	$6,721.7	-$189.3	-$162.2
Future 4	$6,734.5	-$181.1	-$154.0
Future 5	$5,826.9	-$91.5	-$64.3
Future 6	$5,836.5	-$86.9	-$59.7
Future 7	$6,724.0	-$190.1	-$162.9
Future 8	$6,736.9	-$181.9	-$154.7
Future 9	$8,361.8	-$350.7	-$323.6
Future 10	$8,361.8	-$349.1	-$322.0
Average Decrease		**-$179.7**	**-$152.6**

In summary, Nobles 2 appears to be a cost-effective resource when reviewing MP's Strategist analysis.

IV. Parties' Comments

At this time, all parties support Commission approval of the Nobles 2 PPA. However, the Department initially recommended the Commission deny the petition, for a few reasons, but mostly because it was not sufficiently clear at the time that MP was acting in the ratepayers' best interests during the post-RFP phase.

An important fact to keep in mind is that after the original PPA was executed, Tenaska informed MP it may terminate the PPA unless terms were changed and the price was revised. This action necessarily changed the Department's review of the PPA and required a reevaluation of ratepayers' potential exposure to risk, as well as consideration of other options available to the Company, such as re-starting the bidding process.

Ultimately, upon receiving additional information and clarifications in the parties' October 5 reply comments, the Department concluded that reasonable attempts were indeed made to ensure the integrity of the renegotiation process; as a result, the Department recommended the Commission approve the PPA. While the Department reversed its position, staff believes the Department raised important concerns that, in the end, led to a much better and more comprehensive record.

A. Renegotiation

As stated above, in its initial comments, the Department voiced concerns regarding the integrity of the renegotiation process. In addition to the most obvious concern, the increased price, the Department was concerned that during and after the renegotiation phase, the independent evaluator, Sedway, was no longer involved. Also, the Department questioned the motivations behind and consequence of MP's acceptance of Tenaska's offer for MP to become a minority partner, which provided a potential incentive to increase the PPA price as high as possible.

According to MP's reply, "Tenaska represented that a repricing mechanism was necessary because of the changes in the tax laws and also in the estimated costs for transmission to interconnect the project."[41] In other words, significant, abrupt changes in the wind energy market prompted justifiable revisions to the originally agreed-upon price. In MP's view, the TCJA concerns Tenaska raised were reasonable, and MP assumed all wind projects would be under TCJA pressure. Therefore, since the Nobles 2 Project is a 100% PTC-qualifying project bid at a very competitive price, re-starting the RFP process would not have been beneficial.

Regarding the transmission network upgrade costs, MP and Nobles 2 noted that neither Tenaska nor any potential investment partner would benefit from higher-than-expected network upgrade costs, as they are paid to other transmission owners. During the negotiations which led to the Amended PPA, MP and Tenaska closely monitored the MISO transmission interconnection process and evaluated the potential for significant upgrades to be assigned to the Nobles 2 Project, as well as how these factors should be reflected in any amendments.[42]

According to Nobles 2, "[t]he TCJA included several provisions that have a material, negative effect on the economics of all renewable energy projects, including the Nobles 2 Project."[43] For example, Nobles 2 explained, "the change in tax rate lowers the tax savings to investors due to a decrease in the depreciation benefit to tax liability."[44] Nobles 2 illustrated the decrease in the deprecation benefit in Figure 2 of its reply comments:

[$]	Pre-TCJA	Post-TCJA
Operating Income	$ 5,000	$ 5,000
(+) Depreciation & Amortization	$ (7,000)	$ (7,000)
(=) Taxable Income / (Loss)	$ (2,000)	$ (2,000)
(x) Tax Rate	35%	21%
(=) Tax Benefit / (Liability)	$ 700	$ 420

The TCJA reduces tax benefit expectations for wind energy investors, which, Nobles 2 argued, is akin to an increase to a project's expected costs. Nobles 2 explained that investors wish to be ensured that renewable energy projects are financially viable, and the TCJA in particular led to Nobles 2's desire to revise the price:

> In the case of Nobles 2, the low price in the Original PPA left little-to-no room to absorb these substantial cost increases, causing Nobles 2 to alert Minnesota Power that it was contemplating terminating the Original PPA. Again, Nobles 2 did

[41] MP reply comments, at 4.

[42] *Id*. at 19.

[43] Nobles 2 reply comments, at 6.

[44] *Id*. at 7.

> this in January of 2018, more than one year before it was obligated to do so under the Original PPA.[45]

The Department clarified in its November 15 supplemental comments that "there can be valid reasons to renegotiate a PPA."[46] Its September 21 initial comments noted concerns regarding the sequence of events, the incentive to inflate the price as a result of MP becoming a minority partner, and the lack of assurances that the integrity of the renegotiation process was kept intact. These concerns were assuaged by MP's and Nobles 2's additional information provided in reply comments. The Department concluded:

> In the reply comments the Parties provided additional information that mitigated the Department's concerns regarding the sequence of events, the change in pricing and risk, and efforts to maintain the integrity of the overall resource acquisition process. Therefore, as discussed above, the Department concludes that the concerns outlined in the Department's initial comments have been addressed by the Parties.[47]

B. The Department's Analysis of the Amended PPA

In its November 15 supplemental comments, the Department identified two remaining financial risks in the Amended PPA which may have negative impacts on MP's ratepayers. These are:

- seller default and termination of the Amended PPA before the expiration date; and
- entitlement by a lender or other party, as a result of the seller's default, to take over the project and terminate the Amended PPA.

Under these events, MP may be forced to find more costly replacement power if the Amended PPA is terminated, which could further affect MP's compliance with various legislative and Commission requirements.

The Amended PPA includes the following measures to reduce the financial risk to MP and its ratepayers of premature termination of the Nobles 2 project and the Amended PPA:

- security (Article 9);
- default, termination, and remedies (Article 11);
- insurance (Article 13);
- obligation to rebuild (section 6.6); and

[45] Nobles 2 reply comments, at 8.

[46] Department supplemental comments, at 4.

[47] *Id*. at 8.

- buyer purchase option (section 17.5).

Overall, the Department concludes that MP's ratepayers would be reasonably protected from the financial risks identified. However, in its recommendations, the Department highlighted two sections of the PPA, Section 11.4 (termination damages) and Section 11.5.3 (insurance), that warrant Commission action.

First, even after MP's October 5 reply, it was not clear to the Department why the non-defaulting party would be entitled to collect the damages incurred by the defaulting party. The Department explained that section 11.4 would allow MP to receive from Nobles 2 all of the actual damages incurred by MP in the event of default. The Department recommended that this language be revised, or MP should explain why the current language is correct.

Second, the Department observed there was an error in the discussion of insurance proceeds and asks for a revision to the language of Section 11.5.3 in the Amended PPA.

MP, in its December 6 supplemental response, commented that "subject to reaching an agreement, [MP] would submit changes and modifications ordered by the Commission to address remaining uncertainties through an amendment filing in this Docket."[48]

According to Nobles 2's December 6 supplemental response to the Department, Nobles 2 agreed to the Department's proposed amendments:

> Nobles 2 agrees with DOC-DER's recommendation that the Commission should approve the Power Purchase Agreement between Minnesota Power and Nobles 2 (the "PPA") and Nobles 2's Certificate of Need Application. Specifically, Nobles 2 agrees that minor amendments to Sections 11.4 and 11.5.3 to the PPA are appropriate to clarify the intent of the parties. Nobles 2 appreciates DOC-DER's careful review of the PPA language and asks that the Commission approve Minnesota Power's request for approval of the PPA, subject to the parties filing an executed amendment including the recommended changes as a compliance filing.[49]

MP agreed to the Department's amendments on the condition that Nobles 2 would also be fine with the amendments; Nobles 2 responded that it agreed to the proposed changes. In other words, all parties seem satisfied with the Department's recommendations. Staff confirmed with the Company that MP could bring the exact language of further PPA amendments to the Commission hearing, which it will submit as a compliance filing.

[48] MP December 6 supplemental response, at 1.

[49] Nobles 2 supplemental comments, at 1.

C. The Department's Proposed Conditions and Reporting Requirements

In its November supplement the Department recommended the following conditions and reporting requirements:

- Require MP to report in its monthly fuel clause filings and AAA the amount of any curtailment payments.

- In future wind resource acquisition processes MP is required to ascribe a value to the capacity of proposed wind resources unless MP can demonstrate that pursuit of capacity accreditation is not expected to be economic; and

- Until such time as a Commission-approved bidding process is in place, MP is to pursue an RFP to investigate the possible procurement of any generation resources needed to meet the Company's energy and capacity requirements, with no presumption that any Company-owned generation identified in that bidding process will be approved by the Commission. (The Department noted that this issue has already been raised in the NTEC docket.)

MP agreed to the Department's curtailment reporting recommendation. Nobles 2 did not take a position on procedural issues for MP.

V. Staff Analysis

MP, like other investor-owned utilities operating in Minnesota, went through a robust, wide-ranging IRP process which determined that additional wind energy is in the public interest. And, like Xcel Energy in particular, MP issued an RFP seeking proposals for wind resources that could match the size and timing requirements established by the Commission's order. Also like other wind RFPs, there was a robust response, and an independent evaluator was retained to monitor the RFP process and evaluate and rank all proposals.

In this section, staff's analysis aims to reflect the Commission's recent wind acquisition orders that have, since 2017, approved more than 2 GW of new wind for Minnesota utilities. The Commission's order approving Xcel's 1,550 MW wind portfolio, for example, approved proposals for reasons such as (1) consistency with the IRP; (2) cost; (3) environmental benefits; (4) non-price factors; and (5) RES compliance. Below, staff includes a portion of the order approving Xcel's 1,550 MW wind portfolio,[50] with the bold font emphasizing the Commission's rationale for approval, which will serve as the outline for the staff analysis here:

> **III. Commission Action**
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> **A. Wind Acquisition**

[50] Docket No. E-002/M-16-777, *In the Matter of the Petition of Xcel Energy for Approval of the Acquisition of Wind Generation from the Company's 2016-2030 Integrated Resource Plan*, at 6-7 (September 1, 2017).

> The Commission appreciates the work of the parties to produce a well-developed record that analyzes the proposal **consistent with the Commission's prior decision on Xcel's integrated resource plan**, and that thoroughly addresses the potential risks, particularly those to ratepayers. The parties extensively analyzed each project, **including cost and non-price factors**, and Xcel was responsive to issues raised.
>
> …
>
> Further, the Company evaluated the projects on an individual project basis and evaluated the wind portfolio as a whole using a modeling tool called Strategist, which simulates the operation of the Company's system and estimates the total cost of energy over the life of the projects on a present-value basis. **The results of the modeling showed that adding the wind resources would produce savings under scenarios where the costs of pollutant emissions are considered, as well as under scenarios where the costs of such emissions are not factored into the analysis.** In other words, the proposed wind portfolio is projected, under every scenario, to produce net savings to Xcel's ratepayers.
>
> …
>
> The Commission also concurs with the parties that the projects will facilitate Xcel's **compliance with the RES requirements under Minn. Stat. § 216B.1691**; additional wind is required if the Company is to meet the statute's 24 percent renewable energy standard by 2020, and the proposed portfolio is a least-cost resource addition under every scenario in Xcel's economic analysis.

In the following sections, staff will address each issue emphasized above—consistency with the IRP, cost, non-price factors, environmental benefits, and RES compliance—as well as additional factors unique to the Nobles 2 project.

A. Is Nobles 2 consistent with Minnesota Power's approved resource plan?

MP, Nobles 2, the Department, and staff agree that the Nobles 2 PPA is consistent with MP's approved 2015 IRP. The Commission determined in its July 18, 2016 IRP Order that "procuring additional wind generation in the near term … would benefit Minnesota Power's system by supplying low-cost energy,"[51] and therefore required MP to "initiate a competitive-bidding process to procure 100–300 MW of installed wind capacity."[52] Obviously the 250 MW Nobles 2 project is at the high end of the Commission's range; however, staff believes the Strategist modeling results, the options MP had available to it in the bid solicitation process, and current wind market activity and trends are important factors to consider, which collectively support the justification for procuring an amount closer to the high end of the range.

[51] Docket No. 15-690, *In the Matter of Minnesota Power's 2016–2030 Integrated Resource Plan,* Commission order, at 9 (July 18, 2016).

[52] *Id*., at Order Point 9.

1. Resource Plan Results

The Department mentioned in its comments that it did not re-run the Strategist model to evaluate the Nobles 2 project because this work had recently been completed in MP's Nemadji Trail Energy Center (NTEC) docket:

> The Department did not review the capacity expansion modeling in the Petition because the Company, the Clean Energy Organizations, and the Department all provided new modeling information quite recently in the proceeding regarding MP's NTEC proposal. The result of all three modeling approaches was that additional wind resources were selected. Given these robust, recent modeling results and the prices discovered by MP through the RFP process, the Department concluded that additional IRP analysis was unnecessary.[53]

In the NTEC docket, the Department's modeling results was clear on wind acquisition. It showed that "300 or 400 MW of wind capacity (three or four units) was selected by 2020 in all but three of the model runs."[54] In other words, 300-400 MW of wind was selected in 297 out of 300 modeling runs in the NTEC proceeding. The three exceptions had the highest level of wind prices (base price plus $20 per MWh) and no externality costs or CO_2 internal costs. The "base wind price plus $20 per MWh" is much higher than the Amended PPA and therefore is not a modeling run applicable to Nobles 2.

B. Is Nobles 2 cost-effective for MP's system?

In the Department's IRP analysis discussed above, its 2018 generic wind unit was modeled with a flat cost of $50 per MWh for 20 years, with an assumed a 42.5 percent capacity factor.[55] This means that Nobles 2 has a lower LCOE and higher capacity factor than the generic unit that was determined would be cost-effective for MP's system.

According to MP's Petition in the instant case, "[t]he results among the 10 futures range from a decrease of $86.2 million to a decrease of $350.7 million over the study period."[56] Also, MP's economic analysis found that "the addition of the Project decreases power supply costs in all ten futures across all 272 sensitivities considered" and by an average of $179.7 million over the study period.[57] Thus, staff believes it has been overwhelmingly demonstrated that Nobles 2 is cost-effective for MP's system.

1. Sedway Consulting Independent Evaluation Report

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[53] Department comments, at 4.

[54] Docket No. 17-568, *In the Matter of Minnesota Power's 2017 Energy*Forward *Resource Package*, SRR-3 of Rakow Direct, at 16 (January 19, 2018).

[55] Department comments, 2015 Resource Plan, at 17 (January 4, 2016).

[56] Petition, at 14.

[57] *Id*.

The Department was initially concerned that the price of the Amended PPA, as presented in the Petition, was approximately that of the second-best projects. With the benefit of additional information provided by MP in its reply comments, the Department ultimately concluded that "the comparison projects present substantially higher risk of cost increases depending on the results of the generation interconnection studies."[58]

Even though Nobles 2 now has the Department's support, staff believes it might be helpful to briefly discuss Nobles 2 in the context of all options the Company had available to it. Perhaps what is most instructive to this question is the Sedway report, filed as Appendix B of the Petition. (In response to the Commission's concerns regarding overuse of trade secret designations in MP's Blanchard Solar docket, MP worked with staff and filed a revised public version as Attachment A of its December 6 supplement.)

According to the Sedway Consulting (the independent auditor), wind projects in general are competitively priced relative to energy market prices:

> In the case of MP's 2016 wind solicitation, all of the top-ranked proposals had negative net costs. This may be attributable to the fact that the current wind industry is in a highly competitive phase and wind turbine costs have been declining. Developers appear to be willing to provide wind projects at lower prices than has been the case in the past. Also, the federal renewable Production Tax Credit (PTC) for wind projects will expire for any facilities that are not under construction by December 31, 2019. The extension of that PTC is in question, given the federal government's budget deficits. Thus, many developers are probably eager to commence construction on wind projects as fast as possible, even at low prices. In any case, MP received proposals that were clearly cost-effective, relative to expected energy market prices.[59]

In addition, according to the Sedway report, Nobles 2 was well-situated among the final project rankings, and MP's selection process was transparent and fair. Sedway's reasoning in reaching this conclusion was outlined as follows:

> Sedway Consulting developed an economic ranking of all proposals based on their $/MWh net costs, assessed the qualitative risks and benefits associated with the top-ranked proposals, presented the results to MP and discussed the selection of an appropriate short list of projects and counterparties with whom to commence negotiations. Sedway Consulting concludes that MP conducted fair and appropriate negotiations with those counterparties. Of those projects that were shortlisted, Tenaska's Nobles 2 proposal was the most cost-effective (i.e., lowest $/MWh net cost). That project will be a new 250 MW wind resource in Nobles and Murray Counties, Minnesota, with an expected commercial operation date of December 31, 2019. Sedway Consulting concludes that MP made the appropriate

[58] Department supplemental comments, at 8 (November 15, 2018).

[59] Appendix B: Independent Evaluation Report for Minnesota Power Company's 2016 Wind Resource Solicitation, Public Version, at 3-4 (June 6, 2017).

selection decisions in its solicitation and concurs with the decision to secure wind energy deliveries through the execution of the Nobles 2 Power Partners LLC power purchase agreement for the proposed 20 year term.[60]

2. Tax Cuts and Jobs Act (TCJA)

With regard to the increased price presented in the Amended PPA, MP noted that "cost increases related to the TCJA affected the entire industry and are not unique to Nobles 2."[61] The Company and Nobles 2 pointed out that MP is not the first utility to revise its price in petitions before the Commission as a result of the TCJA. For instance, both MP and Nobles 2 referenced Xcel's Dakota Range Wind Project, which the Commission approved subsequent to a resubmitted petition that included a revised, higher LCOE once the TCJA took effect.

Staff would add that Xcel was able to offset the increase to the LCOE for Dakota Range because of a smaller-than-expected amount of transmission upgrades after a MISO restudy of the DPP West Study Group, which MP might also realize.[62] (In addition, Xcel was able to benefit from a South Dakota Board of Economic Development for a Reinvestment Payment Program grant.) Given the current status of the MISO DPP 2016 August West Area Study queue, it is possible MP will likewise be able to offset the impact of the TCJA due to lowered network upgrade costs.

C. Non-Price / Qualitative Factors

It would be incomplete to evaluate Nobles 2, either on its own or compared to hypothetical alternatives, strictly by the LCOE metric or Strategist analysis. (To be clear, staff is making a general point, not responding to any party's argument.) This is why it is standard practice for independent evaluators, like Sedway, to assign bids a non-price score. Sedway's qualitative evaluation is presented on page A-6 of Appendix B.[63] Its criteria were:

- Site control;
- Resource certainty, schedule, and construction and O&M plans;
- Permitting status and ease;

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[60] Appendix B: Independent Evaluation Report for Minnesota Power Company's 2016 Wind Resource Solicitation, Public Version, at 2 (June 6, 2017).

[61] MP reply comments, at 8 (October 5, 2018).

[62] After Xcel submitted its initial Dakota Range petition, MISO conducted a restudy of the DPP 2015 August West Area Study Group (which included Dakota Range) due to the withdrawal of a 300 MW wind project in Iowa. The updated study results assigned a smaller amount of transmission upgrades to Dakota Range, resulting in lower expected transmission costs to bring the project online.

[63] In MP's initial petition, it filed a heavily-redacted version of Sedway's Confidential report and a public version, which removed the tables and other content. However, after discussions with staff, and in response to the Commission's concerns regarding trade secret designation during the Blanchard Solar hearing, MP filed a revised public version of the Sedway report as part of its December 6 supplement.

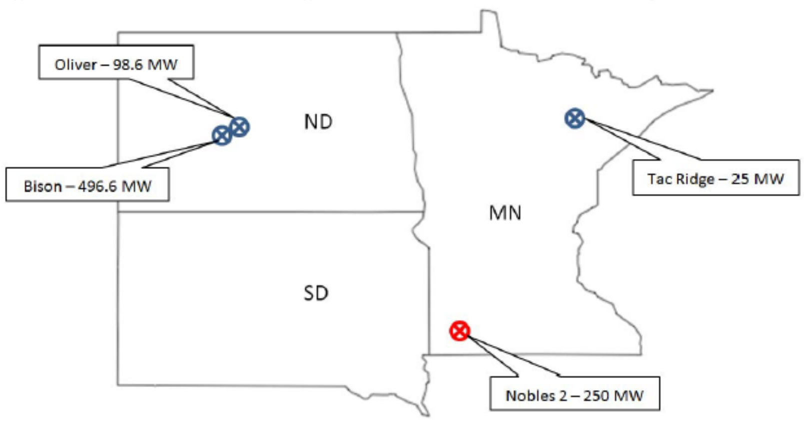
- Interconnection status; and
- Project team experience and financability.

According to Sedway, "[w]ith attractive pricing, a fairly high qualitative score, and a project location in southwestern Minnesota, this project represented a good option for MP and was shortlisted."[64]

In staff's view, not only have the non-price/qualitative factors likely improved substantially over time, but MP noted other important benefits of the project.

In particular, MP cited "strong support from landowners, labor unions, local agencies, and local elected officials"[65] as additional benefits Nobles 2 could provide. In addition, Nobles 2 will provide geographic diversity of its wind portfolio and perhaps provide an economic development opportunity in Minnesota. As shown by Figure 2 of the Petition, almost all of MP's existing wind is located in North Dakota (approximately 595 MW out of 620 MW):[66,67]

Figure 2: Minnesota Power's Existing Wind Resources and Nobles 2 Wind Project



Finally, prior to the additional information MP provided on the renegotiation, the Department's initial comments raised the possibility of re-starting the RFP. While no party recommends this course of action at this time, MP cautioned that re-starting the RFP process to seek wind projects sized according to the Commission's IRP order carries a substantial degree of risk. This is because Nobles 2 already qualifies for 100% of the PTC and the project has transmission certainty (since Nobles 2 is in the MISO DPP 2016 August West Area Study queue, which is expected to be completed next year). Staff agrees with MP's assessment of the potential problems associated with re-starting the RFP process.

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[64] Sedway report, updated public version, page A-8, (e-filed on December 6, 2018).

[65] MP reply comments, at 9 (October 5, 2018).

[66] Petition, at 9.

[67] MP reply comments, at 10 (October 5, 2018).

D. Environmental Benefits

Table 2 of MP's Petition summarizes the average annual reduction in emissions by the output of Nobles 2:[68]

Table 2: Average Annual Avoided Emissions (2021-2034)

Effluent	Average Annual Reduction
CO_2 (tons)	772,028
SO_2 (tons)	25
NO_x (tons)	139
Hg (lbs.)	1.4

In its Strategist analysis, MP modeled Nobles 2 across ten "Futures" with up to 30 sensitivities each, for a total of 272 cases. MP incorporated a CO_2 regulatory cost in 6 of the 10 Futures, and environmental externality values in 2 of the 10 Futures. Overall, staff believes MP appropriately accounted for environmental impacts in its economic analysis. In addition, staff agrees with MP that Nobles 2 will assist the Company in achieving the state's greenhouse gas reduction goal, as well as better-position MP for any potential CO_2 regulation in the future.

E. Should Nobles 2 qualify for the RES?

Staff agrees with MP and the Department that Nobles 2 qualifies as an "eligible energy technology" under the RES Statute and that Nobles 2 would enable MP to continue to meet its obligations under the RES.

F. How might the Commission consider *MISO interconnection cost uncertainty?*

Just prior to the August 20, 2018 execution of the Amended PPA, MISO released its initial DPP 2016 August West Area Phase I Study results, which revealed MISO transmission network upgrades costs that would be assigned to Nobles 2 and other projects in the same study queue.[69] MP noted, "this is a significant number and above the caps negotiated in the Amended PPA," however, MP further noted that Nobles 2 was "still on the lower end of wind projects in the same queue."[70]

On September 20, 2018, MISO released its final DPP Phase I Study report for the DPP 2016 August West Area, confirming the Nobles 2 total network upgrade costs to be "approximately $79 million, which is a significant multiple higher than Nobles 2's original expectations."[71]

The MISO network upgrade costs are important not only because the amount is higher than originally expected, but because MP negotiated a transmission adder and upgrade cost cap in

[68] Petition, at 14.

[69] MP reply comments, at 22.

[70] *Id*. at 23.

[71] Nobles 2 reply comments, at 11.

order limit customer risk. However, staff does not believe there is overwhelming ratepayer risk as a result of higher-than-expected network upgrade costs, such that it brings into question the merits of Nobles 2, for three reasons:

First, this appears to be a MISO-wide issue not unique to Nobles 2. This is explained and illustrated (although mostly with information designated as trade secret) on pages 12-14 of MP's reply comments. In fact, MP believes Nobles 2 might actually have an advantage, relatively speaking, regarding transmission costs for projects in the region.

Second, staff agrees with Nobles 2 that uncertainty regarding the final network upgrade costs should be viewed in light of the total expected net savings. Nobles 2 noted, "[t]he expected benefits of the Project range from $59 million to $350 million under [MP's] scenarios."[72]

Third, according to the Department, "given the large number of projects that have withdrawn from the 2016-Aug-West study . . . it would appear that transmission network upgrade costs for Nobles 2 are more likely to decrease than increase in the on-going 2016-Aug-West phase two study."[73]

Below, staff shows MISO's "Queue Projects information" for the DPP 2016 August West study group, as of December 1, 2018.[74] Nobles 2 (Project Number J512) is highlighted in yellow. MISO's information shows that roughly half of the wind projects have withdrawn (in red):

Queue Projects Information at DPP Decision Points as of 12/01/2018

Withdrawn
Change
Increase
PGIA

2016-AUG-West	Phase 2	J302	Wind	NRIS	101	101	100	100		
2016-AUG-West	Withdrawn	J414	Wind	NRIS	120	120	Withdrawn			
2016-AUG-West	Withdrawn	J415	Wind	NRIS	200	200	Withdrawn			
2016-AUG-West	Withdrawn	J439	Wind	NRIS	500	500	Withdrawn			
2016-AUG-West	Phase 2	J457	Wind	NRIS	150	150	150	0		
2016-AUG-West	Withdrawn	J459	Wind	NRIS	200	200	Withdrawn			
2016-AUG-West	Phase 2	J476	Wind	NRIS	246	246	246	246		
2016-AUG-West	Phase 2	J503	Wind	NRIS	100	100	100	100		
2016-AUG-West	Withdrawn	J511	Wind	NRIS	200	200	Withdrawn			
2016-AUG-West	Phase 2	J512	Wind	NRIS	250	250	250	250		
2016-AUG-West	Phase 2	J541	Wind	NRIS	400	400	400	400		
2016-AUG-West	Phase 2	J555	Wind	NRIS	140	140	140	140	140	140
2016-AUG-West	Withdrawn	J562	Wind	NRIS Only	119.6	119.6	Withdrawn			
2016-AUG-West	Withdrawn	J563	Wind	NRIS Only	150	150	Withdrawn			
2016-AUG-West	Phase 2	J569	Wind	NRIS	100	100	100	100		
2016-AUG-West	Withdrawn	J575	Wind	NRIS	100	100	Withdrawn			
2016-AUG-West	Withdrawn	J577	Wind	NRIS	102.8	102.8	Withdrawn			
2016-AUG-West	Phase 2	J583	Wind	NRIS	200.1	200.1	200	200		
2016-AUG-West	Phase 2	J587	Wind	NRIS	200	200	200	200		
2016-AUG-West	Phase 2	J590	Wind	NRIS	90	90	90	90	90	90
2016-AUG-West	Withdrawn	J593	Wind	NRIS	224	224	Withdrawn			
2016-AUG-West	Withdrawn	J594	Wind	NRIS	300	300	Withdrawn			
2016-AUG-West	Withdrawn	J596	Wind	NRIS	100	100	Withdrawn			
2016-AUG-West	Withdrawn	J597	Wind	NRIS	300	300	Withdrawn			
2016-AUG-West	Phase 2	J598	Wind	NRIS	300	300	300	300		
2016-AUG-West	Withdrawn	J599	Wind	NRIS	200	200	Withdrawn			
2016-AUG-West	Withdrawn	J607	Wind	NRIS	150	150	Withdrawn			
2016-AUG-West	Phase 2	J611	Wind	NRIS	110	110	110	110		
2016-AUG-West	Withdrawn	J613	Wind	NRIS	100	100	Withdrawn			
2016-AUG-West	Phase 2	J614	Wind	NRIS	66	66	66	66	66	66
2016-AUG-West	Withdrawn	J615	Wind	NRIS	70	70	Withdrawn			
2016-AUG-West	Phase 2	J637	Wind	NRIS	98	98	98	98		
2016-AUG-West	Withdrawn	J638	Wind	NRIS	204	204	Withdrawn			
2016-AUG-West	Withdrawn	J650	Wind	NRIS Only	151.8	151.8	Withdrawn			
2016-AUG-West	Withdrawn	J651	Wind	NRIS Only	151.8	151.8	Withdrawn			

[72] *Id*. at 13.

[73] Department supplemental comments, at 13.

[74] https://cdn.misoenergy.org/DPP%20Decision%20Point%20Updates110679.pdf

Of course, it will not be clear until the study work is complete how to assess the impact of projects dropping out of the queue. On the one hand, if the number of withdrawn projects have the effect of eliminating an expensive, required fix, the costs could indeed decrease. On the other hand, if the total cost for fixing the network stays roughly the same, the costs could go up since those costs will be divided among a smaller number of projects. As MP acknowledged, "until the MISO interconnection study process is completed and Tenaska executes a generator interconnection agreement, Minnesota Power will not know the full extent of the transmission risk and associated customer impact as set forth in the PPA."[75] However, MP committed to keeping the Commission informed of any transmission costs that may require further Commission review, as that process will likely continue until late-2019.

Nonetheless, the record demonstrates that all scenarios MP modeled shows Nobles 2 to be a cost-effective resource for MP's system. And, in the context of past Commission orders providing rationale for approval of wind projects, staff believes the Nobles 2 PPA checks all of the same boxes that show the Project is in the public interest.

[75] MP supplemental response, at 1 (December 6, 2018).

VI. Decision Options

Approval

1. Approve the Amended and Restated Power Purchase Agreement with Tenaska, Inc. to purchase 250 MW of wind-generated energy and capacity from the Nobles 2 wind-generation Facility under Minn. Stat. §§ 216B.1645 and 216B.1691 and Minn. Rules 7829.1300. *(MP, Department, Nobles 2)*

2. Deny Minnesota Power's Petition.

RES Compliance

3. Confirm the PPA to be a reasonable and prudent way for Minnesota Power to continue to meet its obligations under Minnesota's Renewable Energy Standard in Minn. Stat § 216B.1691 and comply with the July 2016 IRP Order. *(MP, Department, Nobles 2)*

The Department's Proposed Conditions

4. Require MP to revise the language of Section 11.4 or explain why the current language is correct. *(MP, Department, Nobles 2)*

5. Require MP to revise the language of section 11.5.3 that refers to the non-existent section 6.7. *(MP, Department, Nobles 2)*

6. Require MP to report in its monthly fuel clause filings and AAA the amount of any curtailment payments. *(MP, Department)*

7. In future wind resource acquisition processes MP is required to ascribe a value to the capacity of proposed wind resources unless MP can demonstrate that pursuit of capacity accreditation is not expected to be economic. *(Department, MP)*

8. Until such time as a Commission-approved bidding process is in place, MP is to pursue an RFP to investigate the possible procurement of any generation resources needed to meet the Company's energy and capacity requirements, with no presumption that any Company-owned generation identified in that bidding process will be approved by the Commission. *(Department, MP)*

Compliance Filing

9. In conjunction with Decision Options 4 and 5, require MP to submit revised language to Sections 11.4 and 11.5.3 of the Amended PPA as a compliance filing. *(Staff option)*