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Surrebuttal Testimony and Schedule
Farah L. Mandich

STATE OF NORTH DAKOTA
BEFORE THE
NORTH DAKOTA PUBLIC SERVICE COMMISSION

In the Matter of the Application of Northern States Power Company
for an Advance Determination of Prudence for the 460 MW Sherco Solar Facility

Case No. PU-21-152
OAH File No. 20210274

Exhibit___(FLM-3)

Resource Planning

June 7, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND TITLE.

A. My name is Farah L. Mandich. I am Director of Resource Planning and Bidding for Northern States Power Company-Minnesota (NSP or Xcel Energy or the Company).

Q. ARE YOU THE SAME FARAH L. MANDICH WHO SUBMITTED PRE-FILED DIRECT TESTIMONY AND REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY IN THIS PROCEEDING?

A. The purpose of my Surrebuttal Testimony is to respond to the Rebuttal Testimony of North Dakota Public Service Commission (Commission) Advocacy Staff witness Mr. James A. Heidell. My testimony responds to Mr. Heidell's assessment of the Company's Application for an Advanced Determination of Prudence (ADP) for the 460 MW solar photovoltaic (PV) facility at our Sherburne County Generation Station site (Sherco Solar or the Project), in light of the Company's most recent Integrated Resource Planning cycle and recent policy developments affecting the energy and capacity markets implemented by the Midcontinent Independent System Operator (MISO). I also respond to Mr. Heidell's analysis of the alternative cost assignment mechanism proposed by the Company, focusing on the proxy pricing mechanism that the Company proposed.

Q. AT A HIGH LEVEL, WHAT DOES MR. HEIDELL RECOMMEND?

A. Mr. Heidell recommends rejecting the company's ADP application based primarily on uncertainty with the Project's seasonal capacity accreditation under the new MISO seasonal resource adequacy construct. In the alternative, he recommends using a proxy pricing mechanism equal to the cost of a brownfield CT as defined in NSP's 2020-2034 Upper Midwest Resource Plan Alternate Proposal (IRP).[1]

Q. HOW DO YOU RESPOND TO MR. HEIDELL'S RECOMMENDATION?

A. Given the low levelized cost of the Sherco Solar project, volatility risk in MISO's Planning Resource Auction (PRA), the Company's status as the largest power supplier in MISO's Zone 1, and the lack of other least cost resources available to come online by 2026, the Commission should grant the Company's ADP application for the Project. The Sherco Solar project will provide needed capacity and is a prudent addition to the Company's portfolio of generation resources in every situation. However, if the Commission wishes to use a proxy pricing method as previously proposed by NSP, the appropriate proxy pricing mechanism remains MISO's Cost of New Entry (CONE) value, which is based on the cost of a new, or greenfield, combustion turbine (CT), because the Company is already pursuing a brownfield CT project within its system and there are no other brownfield sites that present a practicable alternative to Sherco Solar.

[1] The Minnesota Public Utilities Commission granted its approval of the IRP in April, 2022. IN THE MATTER OF THE 2020-2034 UPPER MIDWEST INTEGRATED RESOURCE PLAN OF NORTHERN STATES POWER COMPANY D/B/A XCEL ENERGY, MPUC Docket No. E-002/RP-19-368, Order Approving Plan with Modifications and Establishing Requirements for Future Filings (Apr. 15, 2022). The Commission was kept apprised of the IRP proceeding by means of informational filings made in Case No. PU-19-220.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is comprised of three main sections:

- First, I discuss the continued need of the Project based on the Company's IRP and concerns associated with relying on MISO's PRA.
- Next, I discuss the Company's economic analysis which demonstrates that Sherco Solar is a least-cost resource to help meet the Company's capacity deficit in 2026. This section also details why MISO CONE would be the most appropriate proxy pricing mechanism if the Commission rejects the Company's ADP application.
- Finally, I provide an update on MISO's seasonal capacity accreditation methodology process and explain why the unfiled methodology is currently too speculative to use in this case.

II. PROJECT NEED

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I respond to points Mr. Heidell made in his testimony regarding the need for the Project. In particular, I address portions of his testimony in which Mr. Heidell suggested that the project is not necessary. In response, I explain why it would not be prudent to plan to use purchases to obtain the capacity that the Project is meant to provide.

Q. PLEASE DISCUSS THE COMPANY'S APPROACH TO RESOURCE ADEQUACY.

A. As I discussed in my rebuttal testimony, the Company conducts its resource planning consistent with Fixed Resource Adequacy Planning (FRAP) principles, meaning we plan to meet our full capacity needs plus our MISO-required planning reserve with resources that NSP either owns or for which we have

long-term contracts. If the Company does not follow FRAP principles and add capacity resources over the next several years to meet our full MISO obligations, we would become reliant on bilateral zonal resource credit purchases and/or the PRA to obtain the additional capacity credits that forecasts indicate will be needed.

Q. DOES MR. HEIDELL IDENTIFY ANY RISKS ASSOCIATED WITH RELYING ON BILATERAL ZONAL RESOURCE CREDIT PURCHASES OR THE PRA TO MEET THE COMPANY'S MISO OBLIGATIONS?

A. No. Mr. Heidell does not identify any risks associated with a "short-term reliance on the PRA."[2]

Q. DO YOU AGREE WITH THIS ASSESSMENT?

A. No, for several reasons. First, relying on the PRA or bilateral zonal purchases violates the Company's long-standing FRAP principles. The Company has not traditionally relied on MISO's capacity market to meet customer needs and planning reserve margin requirements and we view such reliance as a backstop option to be used only if other acquisition approaches have not been successful. This long-standing approach of owning or entering into contracts for generation has traditionally served NSP well and it would not be prudent to depart from it unless there was a compelling reason to do so.

Second, the Company is the largest supplier of capacity in MISO Zone 1 and accounts for approximately half the load planning requirements in Zone 1. If the Company changed its approach in the coming years and relied on the PRA

[2] Rebuttal Testimony of Mr. Heidell, line 22, page 12.

to meet its own resource adequacy needs, the transformation of NSP from a self-supplier of capacity to a purchaser would fundamentally alter the dynamics of the Zone 1 market. This could have reliability impacts not just for the Company but for other utilities in Zone 1. Essentially, given NSP's size and traditional role in Zone 1, it could significantly impact the availability of short-term purchased capacity and could increase the cost of capacity credits if we relied on the market to meet our capacity needs.

Finally, while MISO's PRA has cleared at low prices in many years, including in 2023, the market can be volatile and increasing exposure to it puts customers at risk for high, unplanned costs in future years. In its presentation of the 2023 PRA results, MISO reiterated this point, pointing out that currently low prices "do not reflect the continued risks posed by the portfolio transition."[3] Projections based on MISO-member-announced plans show a continued decline in accredited capacity over the last several years. This trend is likely to continue. Further, although the market cleared at relatively low prices this year, MISO has indicated capacity could be tight this summer and potentially require reliance on load modifying resources and operating reserves. Given these trends within Zone 1—and within MISO more broadly—it remains prudent for the Company to continue using FRAP principles to plan its system, adding physical generation resources to the system, and not rely on the PRA or other forms of market purchases to meet its MISO planning reserve requirements.

[3] *MISO Planning Resource Auction Results for Planning Year 2023-24*, Page 9, *accessed at* 2023 Planning Resource Auction (PRA) Results628925.pdf (misoenergy.org).

Q. DO YOU HAVE ANY ADDITIONAL THOUGHTS ABOUT MR. HEIDELL'S CHARACTERIZATION OF THE PROJECT NEED?

A. Yes. While Mr. Heidell seems to suggest that the Company could meet its short-term capacity needs through the PRA when discussing the need for Sherco Solar,[4] he also notes that the North Dakota IRP Alternate Plan contains nearly 1,500 MW of additional CT resources when compared to the approved IRP Alternate Plan by 2030.[5] In other words, Mr. Heidell questions the need for capacity expansions when discussing solar resources, but apparently acknowledges a need for additional capacity when that capacity is supplied by CTs. Either the Company has properly identified the need for new generation resources or it has not; the need for capacity does not depend on whether that capacity will be supplied by solar resources or gas-powered CTs.

Q. ARE THERE ANY OTHER REASONS WHY THE COMPANY HAS IDENTIFIED THE PROJECT AS ONE OF THE NEAR-TERM SOLUTIONS FOR CAPACITY NEED?

A. One reason why the Company has identified the Project to meet the near-term current capacity deficit is because it can come online relatively quickly, especially when it is not reliant on the MISO generator interconnection queue. We can often construct renewable resources in less time than some other utility-scale resources, and Sherco Solar is being built in proximity to the site of an existing Company generation facility. As discussed in previous testimony, this allows the Company to utilize existing interconnection rights, thereby eliminating the delays associated with the MISO interconnection queue. Both the North Dakota IRP Alternate Plan and the Company's approved Alternate Plan

[4] Rebuttal Testimony of Mr. Heidell, lines 18-23, page 12.

[5] *Id.* at lines 6-7, page 16.

underscore this reality, selecting solar to meet near term needs and only beginning to add greenfield CT resources—which can take longer to receive interconnection rights for and construct—in the 2027-30 timeframe.

III. ECONOMIC ANALYSIS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I respond to Mr. Heidell's economic analysis and reiterate why the Project remains the least cost resource to help fulfil the Company's identified capacity need in 2026. I also respond to Mr. Heidell's analysis of the Company's recommended proxy price and explain why his proposal to use the cost of a brownfield CT is misguided.

A. Sherco Solar Costs

Q. DOES THE COMPANY'S RESOURCE PLANNING ANALYSIS INDICATE THAT SHERCO SOLAR IS PART OF THE LEAST COST PLAN TO FULFILL THIS IDENTIFIED CAPACITY NEED?

A. Yes. Consistent with my earlier testimony, our most recent resource planning analysis indicates that Sherco Solar is part of a least cost plan to prudently meet the Company's identified capacity need in 2026. Critically, this is the case even when North Dakota assumptions are used. The North Dakota Scenario presented in the Company's 2021 IRP filing clearly shows that the next incremental resource selected to meet system needs is a utility-scale solar resource.

Q. WHAT IS THE COMPANY'S CURRENTLY PROJECTED ESTIMATE OF THE LEVELIZED COST OF ENERGY (LCOE) FOR THE PROJECT?

A. We currently estimate a LCOE of **[PROTECTED DATA BEGINS** **[PROTECTED DATA ENDS]**. This estimate assumes that the project qualifies for the full 10-year production tax credit (PTC) plus a 10 percent "energy community" bonus credit available under the Inflation Reduction Act.

Q. DOES THIS LCOE REMAIN COMPETITIVE IN COMPARISON TO OTHER SOLAR PROJECTS IN THE REGION?

A. Yes. NSP recently completed a request for proposals (RFP) seeking at least 900 MW of solar or solar-plus-storage hybrid resources to come online by the end of 2025, including up to 300 MW of capacity to replace the remainder of the open transmission interconnection rights from Sherco Unit 2 that will not be utilized by the Project. The RFP was open to projects connected directly to the distribution system in our five-state Upper Midwest system, in addition to transmission-interconnected assets located in MISO Zone 1. Sherco Solar has an LCOE **[PROTECTED DATA BEGINS]** **[PROTECTED INFORMATION EDNS]** lower than the cheapest shortlisted project. Moreover, that project was unable to proceed because the developer could no longer maintain its pricing quoted in the RFP.

Outside of our own RFP, the MISO market more broadly has experienced rising prices for solar PPAs. As of Q1 2023, median solar PPA prices in MISO are over $60/MWh or nearly **[PROTECTED DATA BEGINS]** **[PROTECTED DATA ENDS]** more than the LCOE for Sherco Solar. This price difference emphasizes our commitment to selecting low-cost solar

projects and the success we have been able to achieve in the face of persistent inflation and macroeconomic factors that have pushed prices higher.

Q. WILL SHERCO SOLAR BE CHEAPER TO OPERATE THAN CONTINUING TO OPERATE SHERCO UNIT 2?

A. Very likely, yes. Even if the Company could change course on the planned retirement for Sherco Unit 2 this year, operating the unit past 2023 would likely be more expensive than transitioning to Sherco Solar and reutilizing Sherco Unit 2's interconnection rights. As I explained in my rebuttal testimony, the MISO CONE is **[PROTECTED DATA BEGINS** [redacted] **PROTECTED DATA ENDS]**. Furthermore, that analysis has not been updated for increased costs due to the persistent inflation that have raised energy costs at Sherco Unit 2 over the last two years. Taken together, the comparatively low costs to construct and operate the Project and the rising costs to operate Sherco Unit 2 make it increasingly clear that the Project's output will be cheaper on an LCOE basis than Sherco Unit 2.

Q. DOES MR. HEIDELL AGREE THAT SHERCO SOLAR IS A LEAST COST RESOURCE IN THE 2024-26 TIMEFRAME UNDER NORTH DAKOTA PLANNING PRINCIPLES?

A. No. Mr. Heidell states that a "CT is the least cost resource in the ND Alternate Plan in 2025, 2026, and 2027."[6]

[6] Rebuttal Testimony of Mr. Heidell, lines 21-22, page 13.

Q. DOES THIS STATEMENT ALIGN WITH THE ACCREDITED CAPACITY ADDED BY YEAR IN THE NORTH DAKOTA ALTERNATE SCENARIO?

A. No. In Table 1 on page 15 of Mr. Heidell's rebuttal testimony, he provides the accredited capacity added by year in the North Dakota Scenario in the company's Alternate Plan. As the table reflects, the Project is selected for inclusion in 2024 in both the Company's Alternate Plan and its North Dakota Alternate Scenario.

Q. WHAT DOES THIS INDICATE?

A. Because the North Dakota Alternate Scenario was allowed to select for as many CTs as possible for every year of the IRP, solar's inclusion in 2024 indicates that new solar is a least cost resource needed to meet anticipated capacity deficits under North Dakota planning principles, and the Project under consideration here is a fulfillment of that need.

Q. GIVEN THESE RESULTS, WHAT DO YOU RECOMMEND?

A. I recommend that the Commission approve the Company's ADP application for Sherco Solar because the Project represents one of the least-cost resources to meet our anticipated upcoming capacity needs under North Dakota planning principles.

B. Proxy Pricing Alternatives

Q. DOES THE COMPANY CONTINUE TO SUPPORT THE USE OF MISO CONE AS A REASONABLE PROXY PRICE FOR ACCREDITED CAPACITY IF THE COMMISSION CHOOSES TO REJECT THE COMPANY'S ADP APPLICATION?

A. Yes. As the Commission knows, MISO CONE is an industry-standard, third-party generated estimate of the cost of constructing a greenfield CT. The Company continues to support the use of the MISO CONE for the 2024-25 planning year as a reasonable proxy price because the CONE value represents an unbiased calculation of the true cost of a greenfield CT, and the Company already uses MISO CONE as a proxy price for some solar resources in South Dakota.

Q. WHY IS MISO CONE A REASONABLE PROXY PRICE FOR SHERCO SOLAR?

A. MISO CONE represents the reasonable cost of an alternative resource the Company would need to procure to meet its capacity deficit in 2026. Apart from the Wheaton Repowering Project being developed by Northern States Power—Wisconsin (NSPW)—which is already accounted for in the Company's IRP plans to meet capacity needs—Xcel Energy does not have another viable brownfield site where it can construct a CT to meet its forecasted 2026 capacity deficit. Consequently, the likely least-cost alternative resource to meet the deficit would be a greenfield CT. Because MISO CONE represents an unbiased assessment of current construction costs for a greenfield CT, it would act as the most accurate proxy for replacing Sherco Solar's accredited capacity on our system.

Q. YOU MENTIONED THE WHEATON REPOWERING PROJECT, COULD YOU PLEASE DESCRIBE THE CURRENT STATUS OF THAT PROJECT?

A. Yes. NSPW's Wheaton Repowering Project will be located at the site of the existing Wheaton Generation Station and is expected to be in service by 2026. It will include a new F-class CT generator and five new reciprocating internal combustion engine (RICE) units. It will have a total combined capacity of 255 MW. NSPW applied for a Certificate of Convenience and Necessity and Wisconsin Department of Natural Resources Utility Permit to construct and operate the Wheaton Repowering Project with the Public Service Commission of Wisconsin in January of 2023.[7]

Q. WHY DID XCEL ENERGY DECIDE TO LOCATE A REPOWERING PROJECT AT THE EXISTING WHEATON GENERATION STATION?

A. Proximity to the existing station was an important siting consideration because the Wheaton Repowering Project can benefit from the existing infrastructure of a brownfield site, including the availability of natural gas; and, like the Sherco solar projects, it will reuse the interconnection rights currently utilized by the existing plant.

Q. IS THIS PROJECT ALREADY INCLUDED IN THE NORTH DAKOTA ALTERNATE PLAN?

A. Yes. The North Dakota Alternate Plan includes the addition of a brownfield CT at the Wheaton site in 2026, consistent with the Company's current plans.

[7] JOINT APPLICATION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AND WDNR UTILITY PERMIT, Docket No. 4220-CE-185.

Q. REGARDLESS, DOES MR. HEIDELL CONTINUE TO RECOMMEND USING THE COST OF A BROWNFIELD CT AS A REASONABLE PROXY PRICE FOR THE PROJECT?

A. Yes. Mr. Heidell continues to state that the reasonable proxy price for Sherco Solar is "the least cost CT option," which he identifies as a brownfield CT.[8]

Q. DO YOU AGREE THAT THE PROXY PRICE FOR SHERCO SOLAR SHOULD BE THE LEAST COST CT OPTION?

A. I agree that if a proxy price is used, it is appropriate to use a price based on a CT. However, the price should be based on the least cost *viable* CT option. In fact, Mr. Heidell never identifies this hypothetical brownfield CT in his testimony because such a site does not exist. To be clear, Xcel Energy is not forgoing the opportunity to develop a viable brownfield CT site by pursuing Sherco Solar. Instead, Xcel Energy is actively developing both Sherco Solar and a viable brownfield site—Wheaton—at the same time. However, there is not an additional, practical brownfield site that could be used as an alternative to Sherco Solar.

Q. GIVEN THE COMPANY'S VIABLE OPTIONS FOR A REPLACEMENT PROJECT FOR SHERCO SOLAR, WHAT DO YOU BELIEVE IS THE APPROPRIATE PROXY PRICE FOR SHERCO SOLAR?

A. Because the only viable projects that the Company could use to replace Sherco Solar are greenfield CTs, if the Commission decides to adopt a proxy price approach, it should use the MISO CONE price as the proxy price for the Project because MISO CONE represents an unbiased cost of a new greenfield CT.

[8] Rebuttal Testimony of Mr. Heidell, lines 15-18, page 20.

IV. CAPACITY ACCREDIDATION

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I respond to Mr. Heidell's discussion of the Company's approach to analyzing the Project based on future changes to how MISO will accredit non-thermal capacity. I describe the current state of MISO's changes to its resource adequacy construct and explain why it is not practical for the Company to postpone or alter resource planning based on forthcoming changes that are uncertain.

Q. PLEASE BRIEFLY DISCUSS MISO'S APPROACH TO RESOURCE ADEQUACY.

A. MISO's approach to assessing resource adequacy is a complex topic. In this testimony, I will provide only a high-level, general overview focused on issues relevant to points made by Mr. Heidell in his testimony. Under the current MISO program, load serving entities (LSEs), like the Company, are required to maintain resources that exceed their expected level of demand by a specific margin – the Planning Reserve Margin (PRM) – to cover uncertainty with regard to the availability of resources and level of demand. An LSE is able to demonstrate that they meet their Planning Reserve Margin Requirement (PRMR) through the FRAP[9] and offer their excess capacity or bid to acquire additional capacity through the PRA.

[9] In its FRAP, an LSE identifies resources that it owns or for which it has contractual rights that can be relied upon to meet its PRMR.

Q. TRADITIONALLY, WHAT TIMEFRAME DID MISO USE WHEN CONSIDERING RESOURCE ADEQUACY?

A. In the past, MISO looked at resource adequacy on an annual basis and conducted an annual PRA. As NSP is a summer peaking utility, the Company was required to ensure that we have enough capacity to cover the expected summer peak plus PRM.

Q. BROADLY SPEAKING, HOW HAS MISO CHANGED ITS APPROACH TO RESOURCE ADEQUACY?

A. MISO proposed changing to a seasonal resource adequacy approach, and the Federal Energy Regulatory Commission (FERC) approved some proposed Tariff revisions on August 31, 2022.[10] Under the new tariff, the Company and other LSEs are required to separately consider load obligations and generator capacity for the summer, fall, winter, and spring seasons. MISO now conducts separate resource adequacy auctions for each season. MISO also updated its methodology for accrediting the capacity of thermal resources, such as coal, nuclear, and gas-fired generators.

Q. DID THE APPROVED TARIFF REVISIONS ALSO INCLUDE REVISED CAPACITY ACCREDITATIONS FOR SOLAR RESOURCES?

A. No. MISO is currently working on a new methodology for accrediting non-thermal resources such as renewable generation and demand response programs. In the future, this new methodology will be used to determine the Project's capacity value in various seasons. At the present time, stakeholders are providing MISO with input regarding the methodology.

[10] *Midcontinent Indep. Sys. Operator, Inc.*, 180 FERC ¶ 61,141 (2022).

Q. HAS MISO DECIDED YET ON THE METHODOLOGY FOR NON-THERMAL RESOURCES TO PROPOSE IN ITS FERC FILING?

A. No. At this time, MISO intends to file the new methodology at FERC in late 2023, but no decision has yet been made.

Q. DID MISO'S CHANGES TO ITS APPROACH TO RESOURCE ADEQUACY PLAY A ROLE IN THE RESOURCE PLANNING THAT IDENTIFIED THE CAPACITY NEED THE PROJECT IS MEANT TO HELP ADDRESS?

A. No. The Company's IRP began in 2019 and concluded in April of 2022. In the IRP, the Company used then-current MISO annual solar capacity accreditation values—with an assumption of declining capacity value—to present the near-term capacity value of solar. It is well-known that the capacity value will decline over time as solar penetrations increase system-wide. Since MISO's capacity accreditation methodology for solar did not consider this, NSP valued generic solar in the IRP, and subsequently this Project, consistent with assumptions included in the MISO Transmission Expansion Plan (MTEP) at the time. This resulted in an accreditation value of 50 percent for 2020 to 2023, which then declines to 30 percent by 2033 at a rate of 2 percent annually.[11]

[11] Schedule 1_IRP Alternate Plan, page 14-15, June 25, 2021, *accessed at* 023-010.pdf (nd.gov).

Q. DID MR. HEIDELL ACKNOWLEDGE THAT MISO HAS NOT YET PROPOSED A CAPACITY ACCREDITATION METHODOLOGY FOR SOLAR RESOURCES UNDER ITS SEASONAL RESOURCE ADEQUACY PROGRAM?

A. Yes. Mr. Heidell states that MISO has not yet developed the methodology to calculate capacity accreditation for solar resources and further states that the program will likely not be implemented until the 2024-2025 planning period.[12]

Q. BASED ON MR. HEIDELL'S TIMELINE, COULD NSP HAVE ANTICIPATED AND USED MISO'S CHANGE TO ITS SOLAR CAPACITY ACCREDITATION METHODOLOGY WHEN IT BEGAN ITS IRP PROCESS IN 2019?

A. No. The Company plans its resource acquisitions based on the current MISO tariff along with our own FRAP to prudently plan our system to meet future power needs. Since FERC has yet to evaluate—let alone approve—MISO's forthcoming solar capacity accreditation approach, the Company could not have anticipated and reflected this forthcoming change during our planning process. Even today, NSP does not know what methodology MISO will ultimately propose for non-thermal resources.

Q. SHOULD THE COMPANY WAIT TO ACQUIRE THE PROJECT UNTIL THE FORTHCOMING SEASONAL CAPACITY METHODOLOGY IS DETERMINED?

A. No. In the most recent IRP, the Company identified a capacity need for our system starting in 2026. Utility-scale generation projects like Sherco Solar require lead time for construction and regulatory approval. It would be imprudent and impractical to put capacity expansions on hold for every regulatory change that could affect the net economic benefits of future projects.

[12] Rebuttal Testimony of Mr. Heidell, lines 16-22, page 10.

Furthermore, regardless of the forthcoming construct, the Company's demand is summer peaking, which is the season in which solar provides the most benefit toward meeting capacity requirements. I will note that the Company is due to file its next IRP in 2024, and the modelling and planning presented in that matter, which the Commission will fully evaluate, will include an updated approach reflecting seasonal accreditation and sensitivities based on MISO's then-filed, non-thermal accreditation methodologies.

Q. WHY IS SUMMER CAPACITY ACCREDITATION MORE VALUABLE TO THE COMPANY THAN OTHER SEASONAL CAPACITY ACCREDITATION VALUES?

A. As I have noted above, the Company's demand peaks during the summer season. Consequently, resources which will have higher summer capacity accreditation values than winter accreditation values provide more benefit to NSP's system. Obviously, standalone solar resources, like the Project, will have significantly lower accredited capacity during the winter season than other seasons. For that reason, the Project is not expected to make a meaningful contribution toward meeting MISO winter capacity requirements. However, the Company's anticipated need is for summer capacity and Sherco Solar (and other PV solar projects) will contribute to meeting that need.

Q. DOES NSP ANTICIPATE A CAPACITY NEED DURING THE WINTER SEASON IN THE 2025-26 TIMEFRAME?

A. No. Our identified capacity needs are for the summer peaking season in the 2025-26 timeframe. Therefore the stronger accreditation values of solar during the summer season align the benefits of solar generation with the Company's near term capacity needs.

Q. HAS THE COMPANY TAKEN ANY MEASURES TO ACCOUNT FOR FUTURE REDUCTIONS IN THE PROJECT'S CAPACITY ACCREDITATION?

A. Yes. By declining the accreditation value of the project by 2 percent annually over the next ten years, we have accounted for the reality that solar resources will lose some accreditation value as more solar resource come online throughout MISO's system.

Q. DOES MR. HEIDELL AGREE WITH THE COMPANY'S ACCREDITATION VALUES FOR SHERCO SOLAR?

A. No. Mr. Heidell points to various MISO proposals discussed over the past 18 months to suggest that MISO's eventual capacity accreditation values will be lower than what the Company proposed in this proceeding. However, he also concedes that "the issue is being actively studied by MISO and there are different estimates of the long-term summer accredited capacity for solar."[13]

Q. DO YOU AGREE WITH MR. HEIDELL'S APPROACH TO THIS ISSUE?

A. No. Attempting to estimate what the MISO summer capacity accreditation value for the Project will be without any filed proposal from MISO is far too speculative to provide value now for current resource planning. For example, the limited values Mr. Heidell proposes for solar capacity accreditation in 2031 range from 1 percent to 23 percent.[14] Such a broad range does not provide any meaningful basis to use in evaluating the Project. The Company's proposal to use the known values in the MTEP and decrease the capacity accreditation over

[13] Rebuttal Testimony of Mr. Heidell, lines 17-18, page 11.

[14] *Id.* at lines 14-20, page 11.

the next ten years provides a better basis to use in evaluating summer capacity accreditation.

Q. BASED ON THE CURRENT INFORMATION KNOWN TO THE COMPANY AND THE COMMISSION, WHAT CAPACITY ACCREDITATION VALUE SHOULD THE COMMISSION USE TO EVALUATE THE PROJECT?

A. The Commission should use a 2023 accreditation value of 50 percent based on the current MTEP, with a decreasing accreditation value of 2 percent annually to account for increasing solar penetration in the MISO north region.

Q. IF THE COMMISSION REJECTS THE ADP FOR SHERCO SOLAR AND INSTEAD DETERMINES THAT A CAPACITY PROXY SHOULD BE USED, HOW WOULD A CHANGE TO THE MISO SUMMER CAPACITY ACCREDITATION OF SOLAR AND THE PROJECT IMPACT THE USE OF CONE AS A CAPACITY PROXY?

A. The Company's proxy price would only apply CONE to the actual MISO accredited capacity of the Project. Lower actual MISO capacity accreditation would result in a lower overall cost. Likewise, a higher actual MISO capacity accreditation would result in a relatively higher overall cost. The proxy would only be applied to the actual accredited capacity available to the Company to meet our resource adequacy obligations.

Q. COULD YOU PROVIDE AN EXAMPLE OF HOW THIS WOULD WORK IN PRACTICE?

A. Yes. Assume MISO decides that the capacity accreditation factor for the Project in a particular season is 20 percent. In such a scenario, the Company's proposed proxy pricing mechanism would multiply the nameplate capacity of the Project by the MISO accreditation factor to get the accredited capacity for the full project. In this example, we would take the Project's nameplate capacity—460

MW (or 460,000 kW)—times 20 percent for the accreditation capacity—or 92 MW (or 92,000 kW). This number would be further multiplied by CONE and the North Dakota allocation factor to determine the total amount recoverable from North Dakota customers for accredited capacity in the given season. For example, if accredited capacity in the season was 92 MW, and CONE was $8.70/kW-month, and the jurisdictional allocation factor was approximately 6 percent, the value of capacity for that season would be calculated in the following way:

$$\begin{aligned} &\textit{Total seasonal capacity cost in North Dakota } (\$) \\ &\quad = \textit{Nameplate kW} * \textit{Accreditation factor} \\ &\quad * \textit{CONE } (\$ \textit{ per kWmonth} \\ &\quad * \textit{North Dakota allocation factor} * \textit{months} \end{aligned}$$

Or in this specific example:

$$\$144{,}072 = 460{,}000\text{kW} * 20\% * \$8.70 * 6\% * 3$$

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF NORTH DAKOTA

NORTHERN STATES POWER COMPANY
ADVANCE DETERMINATION OF PRUDENCE –
460 MW SHERCO SOLAR PROJECT

CASE NO. PU-21-152

VERIFICATION

STATE OF MINNESOTA)
)SS.
COUNTY OF HENNEPIN)

Farah L. Mandich, being first duly sworn on oath, deposes and says that she is Director of Resource Planning and Bidding for Applicant Northern States Power Company, a Minnesota corporation, in the above-captioned matter, that the surrebuttal testimony submitted in the above-captioned matter under her name was prepared under her direction, that she knows the contents thereof, and that the same is true and correct to the best of her knowledge and belief.

Farah L. Mandich

Subscribed and sworn to before me on this 7th day of June, 2023

Notary Public
My Commission expires: JAN. 31, 2026

ROBERT W RIDER
Notary Public
Minnesota
My Commission Expires
Jan 31, 2026