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Minneapolis, MN 55401

March 29, 2019

—Via Electronic Filing—

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

RE: REPLY COMMENTS
INTEGRATED DISTRIBUTION PLAN
DOCKET NO. E002/CI-18-251

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission the enclosed Reply Comments in response to February 22, 2019 Comments filed by parties.

Pursuant to Minn. Stat. § 216.17, subd. 3, we have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact Jody Londo at (612) 330-5601 or jody.l.londo@xcelenergy.com or me at (612) 330-6064 or bria.e.shea@xcelenergy.com if you have any questions regarding this filing.

Sincerely,

/s/

BRIA E. SHEA
DIRECTOR, REGULATORY & STRATEGIC ANALYSIS

Enclosure
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Dan Lipschultz
Matthew Schuerger
Katie J. Sieben
John A. Tuma

Vice Chair
Commissioner
Commissioner
Commissioner

IN THE MATTER OF THE DISTRIBUTION
SYSTEM PLANNING FOR XCEL ENERGY

DOCKET NO. E002/CI-18-251

REPLY COMMENTS

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission these Reply Comments in response to the February 22, 2019 Comments filed by parties.

We appreciate parties' comments on our first Integrated Distribution Plan (IDP); the first in the state's history. All parties were supportive of the stakeholder engagement we conducted in advance of submitting our IDP, and all recommended the Commission accept our IDP. As most comments recognized, the IDP is, in large part, an iterative process. This is particularly true given the early state of distributed energy resources (DER) in Minnesota and the nascent nature of integrated distribution planning and advanced planning tools and protocols in the industry in general. We look forward to continuing the conversation fostered by the IDP with all interested stakeholders through the coming years.

As we discussed in our IDP, the electric utility industry is in a time of significant change. Increasing customer expectations and technological advances have reshaped what customers expect from their energy service provider and how those services are delivered. Technologies that customers can use to control their energy usage, such as smart thermostats, electric vehicle (EV) chargers, and smart home devices are evolving at a fast rate. Customers have come to expect more now from their energy providers than in the past, and major industry technological advances provide new capabilities for utility providers to manage the electric distribution grid and service to customers.

Like other aspects of the industry that are transitioning and advancing, we are on the forefront of integrated distribution and system planning. This includes evaluating and procuring the next generation of distribution planning tools, which we are doing to increase our forecasting and analysis capabilities. It also includes building foundational advanced grid capabilities, which we also have underway. The IDP we submitted is reflective of these realities and discusses the actions we are taking to mature our capabilities.

Collectively, we are building the foundation of integrated distribution planning in Minnesota, like occurred in the past with integrated resource planning. Evolving distribution planning processes to be more like resource planning will need to be thoughtful and planful, and will take time – yet parties’ Comments appear to expect that IDPs should already be “routine” like an Integrated Resource Plan (IRP). IRPs are grounded in Minnesota statutes and rules, with the IRP process specifically grounded in Minn. R. 7843, which prescribes the purpose and scope, filing requirements and procedures, content, the Commission’s review of resource plans, and plans’ relationship to other Commission processes, including certificates of need and the potential for contested case proceedings.¹

Distribution planning is more immediate; its full planning horizon correlates to the five-year action plan period of an IRP, which is generally a continuation of past IRPs. Distribution systems are utilities’ point of connection for customers. While an unexpected loss of a macro system component, such as a power plant, can often be covered by the Midcontinent Independent System Operator (MISO) system without interruption of power to customers, loss of a distribution system component often results in a power outage to the customers it was serving. While there is some redundancy in the system to avoid this circumstance, the types of issues addressed by distribution planning are typically much more immediate than IRPs – and do not have a back-up like MISO. Therefore, evolving distribution planning practices will need to be thoughtful – and ensure the focus remains on the immediacy of customer reliability.

¹ Minn. R. 7843.0500, subp. 3 prescribes the factors for the Commission to consider in reviewing IRPs. “The Commission shall consider the characteristics of the available resource options and of the proposed plan as a whole. Resource options and resource plans must be evaluated on their ability to: maintain or improve the adequacy and reliability of utility service; keep the customers’ bills and the utility’s rates as low as practicable, given regulatory and other constraints; minimize adverse socioeconomic effects and adverse effects upon the environment; enhance the utility’s ability to respond to changes in the financial, social, and technological factors affecting its operations; and limit the risk of adverse effects on the utility and its customers from financial, social, and technological factors that the utility cannot control.”

As we discussed in our IDP, there is broad recognition in the industry that integrated distribution planning, distribution system evolution, and DER integration is a journey that experts have portrayed in stages and sometimes as, “walk, jog, run.” There also is broad agreement among experts that such a deliberate, staged approach to increased sophistication in planning is important. For example, the Department of Energy has observed that U.S. utilities are in Stage 1/walk in terms of timing and pace toward a modern distribution grid, which is generally described as focused on foundational infrastructure, reliability, operational efficiency, and security. This stage is also about improving foundational capabilities related to the availability, quantity, and quality of data, which is often achieved by implementing communications systems. Utilities in Minnesota are squarely in Stage 1 with the rest of the industry. Once these foundational capabilities have been developed, DER integration analysis and planning occurring in the second, or “jog” stage can move forward. We believe our measured approach that we are taking to advanced planning and an advanced grid appropriately recognizes the present nascent circumstances in the industry and in Minnesota.

Lessons learned from these states that Paul De Martini, ICF International, shared as part of his presentation at the Commission’s October 24, 2016 grid modernization distribution planning workshop included:

- Changes to distribution planning should proactively align with state policy objectives and pace of customer DER adoption.
- Define clear planning objectives, expected outcomes and regulatory oversight – avoid micromanaging the engineering methods.
- Define the level of transparency required for distribution planning process, assumptions and results.
- Engage utilities and stakeholders to redefine planning processes and identify needed enhancements.
- Stage implementation in a walk, jog, run manner to logically increase the complexity, scope, and scale as desired.

We think it is important that all parties be grounded in the current state of the industry, and the importance of advancing at a measured pace in planning and advancing the distribution system. Like the Commenters, we too are excited about the future, and are taking steps to advance our capabilities and the system. That said, we caution against adding new requirements or expanding existing requirements before determining near-term priorities and areas of focus for the IDP. We believe there can and should be balance between advancing distribution planning, capabilities, and grids – and the practicalities of the current state of the underlying regulatory framework and industry in general.

If the Commission wants to move IDPs to be more like IRPs as parties seem to expect, the underlying regulatory and procedural framework for distribution planning needs significant work and it should be in a forum that includes all utilities. This work will inform the tools and processes utilities ultimately employ. For example, the Commission needs to make determinations and clarify processes to create greater certainty for moving our grid modernization business plans forward.² Similarly, utilities need to better understand how stakeholders are using the IDP information (if at all) and what presentation and format is most meaningful. Like IRPs, changes to the distribution planning process will also need to consider related processes, including cost recovery.

Below, we discuss broad areas of interest that emerged in Comments in the context of the evolving planning landscape and in terms of our next IDP: (1) the level of expected detail of cost-benefit analyses (CBA) for planned investments; (2) DER broadly, and non-wires alternatives (NWA) compared to traditional distribution infrastructure investments specifically; and, (3) the grid modernization investments that comprise our advanced grid plan. We also respond specifically to various other comments and requests for additional information.

In addition to addressing specific comments from parties, we also respond to the Department's recommendation that we suggest any refinements we see necessary to the IDP filing requirements that would enhance our ability to meet the Commission's Planning Objectives. Toward that end, we respectfully request the Commission to consider modifying two of the current IDP requirements, which we believe will improve future IDPs as follows:

- *Modify the IDP Filing Cadence to Biennial.* As we discuss further in this Reply, the current annual filing requirement does not allow sufficient time to fully engage with stakeholders toward achieving the Commission's planning objectives, nor to engage meaningfully on important issues such as planning for DER, a comprehensive approach to NWA, or our advanced grid plans; it also does not allow the Company to make meaningful progress on its objectives. We specifically request the Commission require our next IDP be submitted November 1, 2019, then biennially thereafter.³
- *Modify the Explanation Requirement to Eliminate Ambiguity.* As further discussed in

² Such as determining the meaning of "certification" of a grid modernization investment and taking action to clarify the process for grid modernization rider requests.

³ This would also align the IDP filing dates for all rate-regulated electric utilities, to allow for cross-utility analysis or comparison, an area that may be of interest for the Commission and other parties.

this Reply, the Department suggests that we may not be fully in compliance with the IDP requirements due to the specific wording of the requirement to explain any circumstances where we were not able to fully comply with another requirement. In this case, the reason was due to the compressed timeframe to submit our initial IDP. The wording of the requirement is ambiguous as to whether that is an acceptable circumstance, which we believe is not the Commission's intent. We therefore specifically request the Commission modify the relevant IDP requirement as follows:

“For filing requirements which Xcel claims is not yet practicable or is currently cost-prohibitive to provide, Xcel shall indicate for each requirement:

1. Why the Company has claimed the information is not yet practicable or is currently cost-prohibitive...”

Finally, we note that we have incorporated stakeholder feedback into our stakeholder engagement plans that will inform our November 1, 2019 IDP filing. Specifically, we will hold a workshop on April 10, 2019 on the topic of NWA, and a later workshop to discuss a cost-benefit framework for grid modernization investments.

REPLY COMMENTS

I. COMMON AREAS OF INTEREST

In this section, we address the common areas of interest in parties' Comments: (1) the expected level of detail of CBAs for planned grid modernization investments; (2) DER, and specifically, NWA compared to traditional distribution infrastructure investments; and, (3) the grid modernization investments that comprise the Company's advanced grid plan.

A. Cost Benefit Analyses

As a preliminary matter, we recognize that this is an area of particular interest for many stakeholders, especially given that we are on the cusp of proposing significant grid modernization investments in the near-term. As a result, we intend to hold a Workshop in the first half of 2019 specifically focused on a CBA framework for grid modernization investments.

Parties' Comments largely focused on the level of expected detail for the grid modernization investments in our 5-year plan. The OAG and Fresh Energy particularly were critical of our approach of providing an indicative range of costs and net benefits – suggesting that by not providing detailed information underlying the

preliminary high level estimates and the net present value (NPV) range we presented, we were somehow not meeting our IDP requirements. We respectfully disagree.

1. *The IDP Requirements Wisely Do Not Specify a Level of Detail*

First, the IDP requirements do not specify a particular level of detail, which is sound policy. The Commission’s Order also recognizes that IDP will be iterative – and that the Company’s first filing would help stakeholders and regulators better determine what information and detail is needed to meet the specified planning objectives for IDP.⁴

In the case of the CBA, we included high-level ranges of costs and benefits for the foundational advanced grid investments in our 5-year plan, including Advanced Metering Infrastructure (AMI), Field Area Network (FAN), and Fault Location Isolation and Service Restoration (FLISR). As discussed at length in our IDP, we have key strategy questions related to these investments outstanding – including that we have not yet finalized our customer and data strategies. This makes the cost and benefit estimates that underlie our planned investments preliminary. Like any other companies analyzing potential investments, we grow and deepen the information we have about these foundational technologies over time, and refine that information as we become more certain about making the investment.

The relevant portion of the IDP requirements (Section D.2) requires only that Xcel include, “as appropriate,” a cost-benefit analysis for each grid modernization project in our 5-year action plan. The CBA information we provided in our filing was appropriately reflective of the high-level planning stage for our near-term grid modernization projects at the time of our filing.

Finally, the 5-year action plan of the IDP is intended to reflect our internal business plans, not form the basis for a prudency review nor support cost recovery. The Commission’s Order recognized this, stating:

Commission review of annual distribution system plans are not meant to preclude flexibility for Xcel to respond to dynamic changes and on-going necessary system improvements to the distribution system; nor is it a prudency determination of any proposed system modifications or investments.⁵

The OAG Comments also recognized that the IDP is not intended to assess

⁴ See Section III of the Order at page 4.

⁵ See Order, attached *Minnesota Integrated Distribution Planning Requirements* at page 1, Docket No. E999/CI-18-251 (August 30, 2018).

prudence, reasonableness, or cost recovery of our planned investments.⁶

For these reasons, it is appropriate for the Company to present the level of CBA commensurate with its state of planning for the grid modernization projects in its 5-year action plan.

2. *CBA is but One Tool to Evaluate Potential Investments*

Second, although we agree that CBAs may provide a helpful evaluation of a planned investment, their fundamental implication is that a project is only valuable if it saves more money than it costs. A CBA is *one of several* tools that can be used to evaluate the net value of a project or initiative to a company and its customers in order to assess and inform whether a potential investment should be further considered or implemented. It is not, however, the best or only tool to assess investments in all circumstances. The OAG Comments also recognized that grid modernization plans must be evaluated on more than a numerical CBA and that not all meritorious grid mod plans will necessarily provide a numerical cost-benefit ratio greater than 1.0.⁷

CBAs rely on numerous assumptions – some of which are quantifiable, some of which are not – and for most of which, parties will have differing perspectives and disagree. In the case of AMI – at the most fundamental level – our proposal will ensure that we can continue to support meter reading for the range of rates that we currently offer to customers. This functionality, while seemingly basic, is critical in that it positions the Company to continue to meet our requirements under the Commission’s Rules regarding meter reading, estimated bills, and meter accuracy.⁸ As we have previously explained, we are currently operating under an agreement with a vendor for Automated Meter Reading (AMR) services. Customers’ meter readings are gathered via the vendor’s proprietary, fixed wireless network that was initially deployed in the 1990s. Our AMR vendor has informed the Company that the network supporting our present AMR is approaching the end of its life.

This presents the opportunity to decide the right approach for Minnesota and whether that includes AMI to enable greater capabilities. In either case, we are facing a significant investment in metering infrastructure that will be necessary to continue to meet our fundamental meter reading and billing requirements. Part of this answer will likely need to involve examining whether the Company’s plan minimizes customer costs while best meeting present needs – and reasonably providing for future

⁶ OAG Comments at page 3.

⁷ OAG Comments at page 12.

⁸ For example, Minn. Rules 7820.3300, 7820.3400, 7820.3800, 7826.0900.

capabilities, consistent with evolving customer expectations and public policy objectives. Sometimes this is referred to as a “least-cost, best-fit” approach.

In our view, the move to AMI allows the Company to retain the flexibility to add functionalities as technology advances and our customers’ expectations evolve. In that way, AMI fits into the building-block approach we have described – establishing a solid, open, and scalable foundation, continuing to meet our baseline regulatory requirements, and allowing for advancement toward additional functionalities. This is where a CBA may be helpful to aid the decision process.

However, over reliance on CBAs – particularly in the early stages of a potential investment – encourages overlooking other valid considerations, such as: (1) customer satisfaction; (2) customer convenience/inconvenience; (3) employee or customer personal safety; (4) power quality, reliability and resiliency; (5) customer service risks associated with aging systems; (6) strategic advancement of the distribution system to accommodate other customer interests, such as DER and EVs; (7) maintaining favorable utility market position with respect to service to customers; and (8) overall impressions of utility service and the regulatory environment in Minnesota.

How fundamental metering reading and billing capabilities are valued in the form of a CBA along with value in terms of customer satisfaction, or the utility effectively carrying out its obligation to provide reliable and safe electric service to customers is yet to be determined, and will likely be a topic of ongoing discussion – as will many of the other assumptions that go into a complex analysis such as this. The ultimate analysis for grid modernization investments will likely need to involve a number of tools that balance tangible and intangible benefits with required and desired capabilities.

We look forward to further engagement with stakeholders toward developing a balanced framework to evaluate advanced grid investments.

3. *False Precision Will Not Make Preliminary Plans More Closely Mirror Final Plans*

Third, by their nature, preliminary plans are directional. Presenting more granular data about preliminary plans would falsely imply a level of precision that does not yet exist. This carries a notable risk that a utility may later be expected to reconcile preliminary, directional analyses to the utility’s ultimate proposal – or worse, the utility may be inappropriately and unreasonably held to it for cost recovery purposes. While we recognize that parties may want more detail early in the investment planning process, until we are ready to seek cost recovery, our estimated costs and benefits may materially differ from our ultimate proposal. We are not now seeking cost recovery,

and as we explained, we have outstanding strategy questions that may have a significant impact on our actual proposal. As a result, we provided ranges in our IDP to account for our then-current level of uncertainty and point in our investment plan.

We support providing transparency into our grid modernization investment plans. But, in providing that transparency, we also must ensure we are not presenting a misleading picture. As such, the level of information we provide should be commensurate with where we are in terms of our strategy, investment certainty, and in relation to other regulatory processes intended to assess prudence, reasonableness, and cost recovery. In this case, we provided directional ranges of costs and benefits, noted outstanding aspects of our implementation strategy, and discussed the attributes of our proposed investment plan and its impact on customers.

Providing a detailed CBA would not recognize the fundamental meter reading and billing capabilities any AMI proposal will need to provide, and would imply a level of precision that does not exist at this point in the investment and regulatory cycles. Finally, providing detailed CBAs early in the investment process would distract from more timely issues and consume precious Company and stakeholder resources on issues that may significantly change or never materialize.

B. Distributed Energy Resources and Non-Wires Alternatives

Several parties commented on various aspects of DER and NWA including: (1) DER forecasting; (2) DER locational value; (3) NWA potential screening criteria; (4) how NWA are compared to traditional projects; and (5) the possibility of third-party NWA bids at this time.

1. DER Forecasting

Several parties commented on the DER forecasts we provided. Some suggested our forecasts may not fully recognize potential levels of various DER, including solar and EVs. Others suggested our forecasting will need to be refined and include practices such as probabilistic forecasting and locational value. Our IDP discussed the state of the industry, which currently lacks tools and experience predicting customer behavior and other key drivers of DER adoption, even in states such as New York, which has been working at advancing DER forecasting since at least 2015. We also noted a recent EPRI technical report that discusses shortcomings of existing DER adoption models.

It is within this context that we used our present tools and methodologies to inform the forecasts we provided in the IDP and discussed the initial steps we are taking to enhance our forecasting capabilities – namely:

- Include DER into bulk system forecasts,
- Move to forecast the intrinsic (i.e., not utility-program-driven) market adoption for solar PV, and
- Evaluate methodologies to better integrate DER forecasts into our load forecasts.

We also noted that our efforts to enhance forecasting capabilities may include new approaches, such as scenario analysis and probabilistic planning. With the nascent state of DER forecasting and levels of DER in Minnesota compared to other leading states, we believe taking a measured approach will allow us to learn from early adopters and in turn, reduce long-run implementation and integration costs. That said, we are committed to advancing our capabilities and will provide an update on where we are in this process in our next IDP. Finally, we note that we are updating our forecasts for our upcoming IRP, and expect to use those same forecasts in our next IDP.

2. DER Locational Value Determination

Several parties raised questions or otherwise discussed the topic of locational value of DER – including asking our view of the steps and tools we believe may be necessary to begin developing locational and temporal net benefit tests for DER. With the exception of the Minnesota Value of Solar proceeding (Docket No. E002/M-13-867), at this time, we have not taken action to broadly explore this issue in any Xcel Energy jurisdictions. This is a complex and prominent industry topic that – to our knowledge – no utility or state has comprehensively yet solved despite, in some cases, years-long efforts of regulators, stakeholders and utilities.

Like granular load and DER forecasting, broadly determining locational value will require advanced planning and analysis tools and protocols. We believe it will also require review and likely modification of current regulatory constructs and mechanisms to implement. To the extent the Commission wants to explore the locational value of DER in Minnesota either in conjunction with utility IDPs or otherwise, it should be in a forum that includes all utilities.

3. NWA Screening Criteria

Several parties suggested changes to the criteria we outlined to identify potential NWA opportunities in our first IDP. We anticipated, from our pre-filing stakeholder engagement process that this subject might be an area of interest for a number of parties. As such, immediately after we filed the IDP, we began work critically examining our screening criteria, reviewing the types of projects that would be most

viable for NWA analysis, and reviewing the types of metrics that would help identify those projects and allow us to dedicate resources to analysis of those projects. We also began planning our first IDP Workshop focused on NWA approach and screening criteria. We set the timing of the Workshop to be as soon as we thought we would be ready to discuss our updated thinking, and as early in the year as possible, so we would have time to integrate stakeholder feedback into our 2019 analysis. The Workshop is scheduled for April 10, 2019 and will be facilitated by Great Plains Institute. We therefore are not responding to all of parties' suggestions and comments as part of this Reply.

We note additionally that some parties suggested taking specific approaches developed in other states, and in one case, a Rocky Mountain Institute paper. Although we agree that there may be value in evaluating methodologies developed in other states, it is important to consider the policy and other frameworks within which those methodologies were developed in relation to Minnesota. We ask that parties be prepared to discuss the specific aspects of these methodologies that they would like to see adopted in Minnesota at our upcoming Workshop.

We will consider parties' input and discuss our updated screening criteria and approach to NWA in our next IDP. We will also include discussion on parties' suggestions.

4. Criteria to Compare NWA and Traditional Projects

The comments of Clean Grid Alliance, Minnesota Center for Environmental Advocacy, Sierra Club and the Union of Concerned Scientists commented that our NWA analysis compared only the costs of a traditional infrastructure project to the costs of an NWA project, without considering potential benefits of the NWA. We agree that as NWA analyses mature, it will be important to consider tangible benefits, such as cost savings from avoided transmission, and perhaps intangible benefits such as from reduced greenhouse gas emissions and reliability; for the analysis to be balanced, however, applicable benefits will need to accrue to both the traditional and NWA project alternatives.

5. Third-Party NWA Bids

The OAG requested that we discuss whether it would be possible and reasonable to implement a limited form of third-party bidding (or Request for Proposal (RFP) process) for NWA projects associated with the IDP. There are many facets of a NWA project, including the equipment itself, the platform to operate the equipment, software changes required to integrate with our systems, among other things. While there are some limited NWA pilot projects that involve RFPs in other states, the

industry requires a fair amount of maturation, including standardization of communications between and among devices, standardized control platforms across various technology types, and development of cybersecurity protocols.

We are hesitant to commit to a full turnkey third-party solution at this time, until there are further industry developments and we have been able to investigate these requirements further. We believe that the small first generation of NWA projects will be instructive in the industry and inform future requirements in this area.

C. Advanced Grid Investment Plan

The OAG and Fresh Energy commented on our advanced grid investment plan, recommending that the Company provide additional information about Integrated Volt Var Optimization (IVVO) and its various operating modes. The OAG requested we provide more specific information about IVVO, including how the Company's SmartVar initiative compares to IVVO and the timeline of Advanced Metering Infrastructure (AMI), Advanced Distribution Management System (ADMS), and potential further investigation of IVVO. Additionally, the OAG made a suggestion to engage a third-party engineer to evaluate the potential benefits of IVVO. As discussed below, we believe this suggestion is premature and not necessary at this point. Instead, we believe the most important focus for grid modernization investments is on foundational grid capabilities.

As we have discussed, our advanced grid strategy is to focus on foundational capabilities that will then allow the Company to layer in advanced applications and capabilities that leverage the foundational investments. ADMS was our first foundational investment and is well underway. It is a centralized system that will dynamically react to changes in conditions on the distribution system. The next set of investments in our 5-year advanced grid investment plan are also foundational and include: (1) the FAN, which will facilitate communications by and between field devices and Company back-office systems; (2) AMI, which will allow the Company to continue to read customer meters beyond the sunset of its current meter reading technology, while also enabling more sophisticated capabilities, such as dynamic rates, increased information for customers, and improved power quality event capture; and (3) FLISR, which provides grid sensing and self-healing capabilities that will provide valuable grid insights to Company engineering and operations personnel, and facilitate an improved reliability experience for customers.

IVVO is an advanced application that automates and optimizes the operation of the distribution voltage regulating devices, or VAr control devices, that are dispersed across distribution feeders. With IVVO, voltage can be monitored along the feeder and at select end points (rather than only at the substation), allowing the head-end

voltage to be lowered to achieve a variety of operational outcomes which are described later.

Although it is not one of the foundational investments we are currently focused on, IVVO is a part of our advanced grid plans and supports our advanced grid aspirations to create value for customers and build new grid capabilities. As discussed in our IDP, we have already purchased the IVVO module in ADMS and will test it as part of our initial ADMS deployment. In addition to the operating system and communication network however, there are several field equipment components of IVVO including voltage sensing devices that enable IVVO systems to operate the most effectively. Although there are alternatives, rather than investing in IVVO-specific devices, our plan in Minnesota is to leverage the capabilities of AMI meters as a cost-effective solution.

The ADMS that we are in the process of implementing can run the IVVO application in several different operating modes: Voltage Control, Peak Reduction, Var Control, and Conservation Voltage Reduction, which we also discussed in the IDP. There are important considerations involved in determining IVVO application on the system – some of which are technical, and others about maximizing value for customers. While we have provided discussion on these considerations to-date, we are happy to discuss the operating modes and these considerations in more detail in our next IDP.

Finally, we are in the process of implementing IVVO in our Public Service of Colorado (PSCo) operating company affiliate. We believe there will be valuable lessons learned through that implementation that will benefit any further analysis of potential application or benefits in Minnesota. We will provide an update on the PSCo implementation in our next IDP.

II. IDP REQUIREMENTS, CLARIFICATIONS AND SUGGESTED CHANGES

In this section, we respond to more narrow recommendations and requests for information. We ask the Commission to consider parties' comments and requests in the context of the planning landscape and expert agreement as to the state of the industry, the need to focus on foundational capabilities, and the importance of a deliberate, staged approach to increased sophistication in planning analyses.

A. IDP Requirements Compliance

The Department requested that we respond in our Reply regarding the practicability of supplementing our IDP as it relates to NWA analysis. As noted in our filing, although we put significant time and effort into the NWA screening process, given

the compressed timeframe, it was not feasible to complete a NWA analysis for all identified projects. The Department noted its appreciation for our discussion about this – characterizing it as thoughtful, helpful, and reasonable. The Department pointed however, to an IDP Requirement intended to address instances where a utility does not fulfill a filing requirement and thus must explain the reasons, which could be literally interpreted to apply to narrow circumstances (i.e., where the filing requirement is “not yet practicable” or is “currently cost prohibitive.”).

The Department suggests that the compressed timeframe underlying our limited NWA analysis does not expressly fit the context of this IDP requirement, and so the Company is not technically in compliance with the requirements. While the Department does not object to our approach to NWA in our 2018 IDP, it suggests we indicate in our Reply the practicability of supplementing our initial IDP to more fully fulfill IDP requirements 3.D.2 and 3.E.1. We respectfully disagree with the Department’s interpretation of this IDP requirement. However, we acknowledge that we could have better explained in the context of the “practicability” of completing a full NWA analysis, given the compressed timeframe and our present tools. It was not practicable to complete a full NWA analysis in our first IDP for the reasons we discussed.

In response to the question whether we believe it is practicable to supplement the IDP with further NWA analysis, no- it is not practicable. As we explained in the IDP, NWA analysis is incredibly time-consuming, manual, and resource-intensive. We actually began our NWA analysis for 2019 IDP purposes the day after we submitted our 2018 IDP. Rather than perform a backward-facing analysis, we believe a much more valuable use of resources is to focus on improving the process and fully meeting our requirements for our next report.

Additionally, we believe it would be helpful, for purposes of eliminating ambiguity going forward and avoiding potential unintentional failures to comply with the literal text of the IDP requirements, that the Commission consider modifying the following IDP requirement as indicated:

For filing requirements which Xcel claims is not ~~yet~~ practicable or is currently cost-prohibitive to provide, Xcel shall indicate for each requirement:

1. Why the Company has claimed the information is not ~~yet~~ practicable or is currently cost-prohibitive...

As the Commission and parties acknowledged at the outset of this proceeding and in setting the initial IDP requirements, Minnesota is at an early stage in integrated distribution planning, and the requirements have been set broadly as a starting point. That said, there may be present IDP requirements that may never be practicable or

that may later become not practicable to address. Similarly, new IDP requirements may be identified that provide greater value. Additionally, there was broad acknowledgement that the timeframe for our initial IDP filing was compressed. We believe the information that we submitted fully complies with our IDP requirements. To avoid uncertainty in the future, however, we also believe that striking “yet” from the above requirement at this early stage is reasonable and appropriate.

B. IDP Filing Date

Fresh Energy suggests the Commission alter the IDP filing date such that the Company can incorporate its current year planning process, pointing to the fact that the Company’s November 2018 IDP provided information from its Q4 2017 planning process. We clarify that the current November 1 timing is aligned with our planning and budgeting cycles, and represents the shortest amount of time for the Company to prepare the IDP after its most current budget cycle concludes.

To put this recommendation in context, we summarize key points of our planning process, using our current planning cycle to illustrate timing.

Planning Process – Key Dates and Timeframes

Planning Step	Timing	Data Available
5-year Load Forecast (2020-2024)	Q4 2018	Jan 1, 2019
5-year Budgets Complete	Mid-2019	Aug 1, 2019

Several parties have suggested we provide additional information and in some cases more detailed information. We need *at least* the amount of time afforded between when budgets are complete and the November 1 filing date to complete our analysis and fulfill the current IDP requirements. If the requirements expand, we may need *additional* time. At present, however, we believe the November 1 filing date is appropriate and should not be moved.

C. Detailed Feeder and Substation Information

The OAG and Fresh Energy request more detailed feeder and substation information – some of which involves technical capabilities that we do not currently have, some of which may implicate grid security or customer privacy considerations, and some of which we believe may be premature.

1. Minimum Daytime Load Information

Fresh Energy requests the Commission to require the Company to make tracking and

updating actual feeder minimum daytime loads (MDL) a priority. In early-filed Reply Comments, Fresh Energy also suggests numerous additions to the additional feeder and substation information OAG recommended be added to the IDP requirements. Regarding MDL, we have explained in the Hosting Capacity proceedings – including the present Docket No. E002/M-18-684 – the current technical barriers to collecting and applying actual MDL for hosting capacity purposes. In order to accurately determine MDL values for a given feeder, we need Supervisory Control and Distribution Automation (SCADA) capabilities. As discussed in our November 1, 2018 IDP, today we have SCADA level load monitoring capabilities in approximately 61 percent of our Minnesota substations. While we have a long-term plan to add SCADA to our substations at a measured pace, we estimate equipping the remaining 39 percent of Minnesota substations with those SCADA capabilities would be in the range of approximately \$30 to \$40 million.

Once we have SCADA capabilities in all of our substations, we would need to determine the MDL for each feeder similar to the way we determine peak loads. This would involve reviewing historical MDL values by year and forecasting a value based on that historical view, plus any known changes or other growth assumptions. Our existing system planning software is not capable of helping determine these values, like it does for the peak load values. At this time, it would be a labor-intensive manual process that may be improved upon in the future with additional software capabilities. We have discussed and considered the value of tracking and potentially forecasting MDL, and believe we will get there as our system and planning tools and capabilities advance. We are happy to report on our progress in future IDP reports.

2. *Other Detailed Substation, Feeder, and Transformer Data*

The OAG suggested the Commission require the Company to provide detailed demand, load, risk analysis and investment information at the substation, feeder, and transformer levels. In its early-filed Reply, Fresh Energy suggests adding a significant number of additional details to what would already be a substantial amount of detail. As we discuss elsewhere in our Reply, parties appear to expect IDPs to be more like IRPs. However, there is broad recognition in the industry that integrated distribution planning, distribution system evolution, and DER integration is a journey. There also is broad agreement among experts that a deliberate, staged approach to DOE has observed U.S. utilities are in, is generally described as focused on foundational infrastructure, reliability, operational efficiency, and security. This stage is also about improving foundational capabilities related to the availability, quantity, and quality of data, which is often achieved by implementing communications systems. Minnesota is squarely in Stage 1 with the rest of the industry. Once these foundational capabilities have been developed, DER integration analysis and planning occurring in the second stage can move forward.

That said, in addition to being premature, some of the detailed information OAG and Fresh Energy suggest be added to the requirements is not practicable without advanced planning tools and significant investments in SCADA and other advanced grid capabilities. Further, the OAG's suggestion that a more detailed spreadsheet would allow the Commission and parties to understand how the Company identifies and responds to risks on its system and performance over time is not realistic. As we have explained, distribution systems are utilities' point of connection for customers, and while there is some redundancy in the system, the types of issues addressed by distribution planning require the focus to remain on the immediacy of customer reliability. As such, plans and budgets are subject to change in response to emergent circumstances to prudently ensure customer reliability and the long-term health of the distribution system; projects that were previously approved may be delayed. Expecting that we will reconcile perhaps thousands of projects from year to year given this reality is not realistic or practicable. Finally, as we have also discussed in past grid modernization and IDP-related filings, we believe publicly providing actual or forecasted load information – and/or disclosure of risks on our system – at a granular level as is suggested here, implicates grid security and customer privacy and security.

We believe there can and should be balance between advancing distribution planning and capabilities, and the practicalities of the current state of the underlying regulatory framework and industry in general. That said, we ask the Commission to refrain from adding any requirements for detailed substation, feeder, or transformer-level information as has been suggested before determining near-term priorities and areas of focus for the IDP – and until associated privacy and security concerns are properly considered.

D. Miscellaneous Clarifications

1. Planning Guidelines Compared to Overload Criteria

Fresh Energy requested that we clarify our system design guidelines in relation to the criteria we apply in our annual planning process to mitigate potential overload situations. We provide a brief summary clarification here. We will provide a more detailed discussion in our next IDP.

In summary, we plan and design our system to have additional capacity on adjacent feeders, so we can transfer customer load when needed, to avoid customer outages. The guideline we use for design purposes is to not exceed 75 percent loading.

When evaluating the system for potential overloads in our annual planning process,

we identify circumstances where feeders are projected to be loaded to at least 100 percent in normal and/or contingency situations. The criteria we apply in developing mitigations for this subset of feeders is when the projected overloads are at 106 percent or higher. The difference between the design guidance and planning criteria is the difference between conceptual design and actual circumstances that may require mitigation for reliability purposes as the system grows and evolves.

2. *FAN Uses*

Fresh Energy requested that we clarify whether the FAN will be the communications network for our advanced grid capabilities as it relates to data exchange and performing remote DER operations. In summary, it depends on the timeframe of the needed data exchange(s) and amount of data. In advance of our next IDP, we will work with Fresh Energy to more fully understand their questions regarding the FAN's DER data exchange capabilities, and will provide more details about the FAN's capabilities in this area and what we have planned in our upcoming IDP.

E. Suggested Changes to Enhance our Ability to Meet the Planning Objectives

The Department requested that we suggest any refinements to the IDP filing requirements that would enhance our ability to meet the Planning Objectives. To this end, we ask that (1) the IDP change to a biennial cadence to better support our ability to more deeply engage with stakeholders and have sufficient time to demonstrate progress on advancing our planning and grid capabilities, and (2) the IDP requirements be refined to focus more narrowly on the information essential to achieve the Commission's planning objectives.

1. *Shift to a Biennial Cadence*

We believe the single most impactful change the Commission could make would be to alter the IDP filing requirement to be every other year, like all other investor-owned utilities in Minnesota. The current annual process does not afford time for the Company to reflect on its processes, stakeholder feedback, the Commission's planning objectives, and any changes the Commission may make to future IDP requirements.

The Commission has recognized the powerful impact an effective stakeholder engagement process can provide. An annual process does not allow the Company a sufficient runway to meaningfully engage with stakeholders toward achieving the Commission's planning objectives. It also does not allow the Company to make meaningful progress on its objectives.

Finally, the Department recommended that the Commission require an analysis of how the information presented in the IDP report relates to each Planning Objective and the location of that information in the IDP report. We agree that including a specific discussion about how the Company is fulfilling the Planning Objectives would be helpful and provide value to the overall IDP. As to providing a cross-reference of specific page numbers that relate to each Planning Objective, we can provide that, but would only want to do so to the extent parties would find it useful.

2. *Feedback on Greatest Areas of Value*

The current IDP requirements are broad and extensive, and require a substantial amount of resources to fulfill. Several parties requested we provide more detail on various aspects of the IDP, some of which we touch-on in this Reply. There were no comments or discovery on many aspects of the IDP. As previously noted, we ask the Commission to consider parties' comments and requests in the context of the planning landscape and expert agreement as to the state of the industry, the need to focus on foundational capabilities, and the importance of a deliberate, staged approach to increased sophistication in planning analyses.

That said, in the interest of ensuring the IDP is a useful tool for stakeholders and the Commission – and that we are focusing our resources on those aspects – we would appreciate input and feedback on the use cases for the current IDP information/requirements. This will provide us helpful insights into how we may be able to make the information we provide the most useful in the near-term. We believe it may also be helpful for the Commission to consider refinements to the IDP requirements to more narrowly focus on the information essential to achieve the Commission's IDP objectives in the context of the current industry landscape.

CONCLUSION

We appreciate the opportunity to provide these Reply Comments. We respectfully request the Commission accept our Integrated Distribution Plan and modify our ongoing reporting requirements as requested in this Reply.

Dated: March 29, 2019

Northern States Power Company

CERTIFICATE OF SERVICE

I, Jim Erickson, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

Docket No. E002/CI-18-251

Dated this 29th day of March 2019

/s/

Jim Erickson
Regulatory Administrator

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