

March 15, 2022

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E111/M-21-728

Dear Mr. Seuffert:

Attached are the comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

Dakota Electric Association's 2021 Integrated Distribution Plan

In the attached comments the Department provides its response to the Minnesota Public Utilities Commission's (Commission) November 15, 2021 *Notice of Comment Period In the Matter of Distribution System Planning for Dakota Electric Association*.

The Department requests additional information from Dakota Electric and will provide final recommendations in Party Reply comments.

The Department is available to respond to any questions the Commission may have on this matter.

Sincerely,

/s/ MATTHEW LANDI
Rates Analyst

/s/ CHRISTOPHER WATKINS
Rates Analyst

ML/CW/ar
Attachment



Before the Minnesota Public Utilities Commission
Comments of the Minnesota Department of Commerce
Division of Energy Resources

Docket No. E111/M-21-728

I. INTRODUCTION AND BACKGROUND

A. OVERVIEW

On November 1, 2021, Dakota Electric Association (DEA, or the Company) filed its 2021 Integrated Distribution Plan (2021 IDP)¹ as required by the Minnesota Public Utilities Commission (Commission) in its November 2, 2020 Order in Docket No. E111/M-19-674 (the 2020 Order).²

On November 15, 2021, the Commission issued a *Notice of Comment Period In the Matter of Distribution System Planning for Dakota Electric Association* (Notice). The Commission's Notice seeks comments on the issue of whether the Commission should accept or reject Dakota Electric Association's 2021 Integrated Distribution Plan (IDP).

The Commission's Notice also identifies five topics open for comment, which are as follows:

1. Should the Commission accept or reject Dakota Electric's Integrated Distribution Plan (IDP)?
2. Does the IDP filed by Dakota Electric achieve the planning objectives outlined in the filing requirements as amended by the Commission's November 2, 2020 Order? [footnote omitted]
3. What IDP filing requirements provide the most value to the process, and why?
4. Are there filing requirements that are not information and/or should be deleted or modified, and why?
5. Are there other issues or concerns related to this matter?

¹ Dakota Electric Association 2021 IDP Report, Docket No. E111/M-21-728. November 1, 2021. Accessed at (PUBLIC): <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={4083DC7C-0000-CC1C-B781-9A1151B35962}&documentTitle=202111-179361-01>.

² *In the Matter of Dakota Electric Association's 2019 Integrated Distribution System Plan*, Docket No. E111/M-19-674 (2019 IDP). ORDER ACCEPTING INTEGRATED DISTRIBUTION PLAN AND MODIFYING FILING REQUIREMENTS. November 2, 2020. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={50E08A75-0000-C621-A51A-767BD9B11243}&documentTitle=202011-167944-04>.

B. DAKOTA ELECTRIC ASSOCIATION'S 2021 IDP

Dakota Electric's IDP is required to be filed biennially and to be responsive to the Commission's IDP Planning Objectives, consisting of information required by the Commission's IDP Filing Requirements.³ The IDP is intended to build upon Commission, stakeholder, and customer understanding of the Company's distribution system planning in two key areas: (1) development of a framework for ongoing distribution system planning and related analyses (such as DER forecasts); and (2) grid modernization implementation plans and analyses. At a high level, DEA's 2021 IDP provides an overview of its distribution system management strategies and how the Company plans the system to be responsive to state energy policies while meeting customers' current and future needs.

The Commission's IDP Filing Requirements require utilities to provide information and analyses related to internal distribution system planning processes, historical actual and budgeted capital expenditures, present and forecasted levels of distributed energy resources (DER), forecasted levels of energy demand, hosting capacity data, and non-wires alternatives (NWA) analysis. Utilities are also required to discuss how their IDPs fulfill the Commission's IDP Planning Objectives.

DEA provided a Compliance Matrix in Attachment F of its 2021 IDP which indicates where in the IDP the Company addressed each of the Commission's Planning Objectives.⁴ The Department's Initial Comments on DEA's 2019 IDP viewed analysis of financial data and NWAs as helpful in understanding how ratepayer funds are spent on the distribution system as well as the potential of NWA analysis to defer utility investments in traditional capital assets.⁵

DEA's 2019 IDP projected total distribution spending of approximately \$94.1 million between 2019 and 2023. DEA's 2021 IDP decreased that projection to \$90.14 million between 2021 and 2025.

The table below provides a high-level overview of the projected spending levels DEA provided in its 2019 and 2021 IDPs, organized by the IDP Budget Categories required by IDP Filing Requirement 3.A.29. IDP Filing Requirement 3.A.29 requires DEA to provide information on "[p]lanned distribution capital projects, including drivers for the project, timeline for improvement, summary of anticipated changes in historic spending"⁶ and contains eight IDP Budget Categories, which are listed in the table below.

³ The Department's review of each utility's 2019 IDP proceedings found that the only comprehensive list of IDP filing requirements that reflect modifications made by the Commission's Orders related to utilities' 2019 IDPs is found in the Commission's December 4, 2020 *Notice of Stakeholder Meeting*, which was filed in each utility's 2019 IDP proceeding. See Attachment 2 of the December 4, 2020 *Notice of Stakeholder Meeting* for red-line version of Dakota Electric's IDP Filing Requirements (IDP Filing Requirements). Accessed at:

<https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={50352E76-0000-C27D-8DB5-05C019CDB398}&documentTitle=202012-168786-04.>

⁴ 2021 IDP, Attachment F. Accessed at (PUBLIC):

<https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={4083DC7C-0000-CC1C-B781-9A1151B35962}&documentTitle=202111-179361-01.>

⁵ Department's Initial Comments, at 11. Docket No. E111/M-19-674. January 29, 2020. Accessed at:

<https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={C044F36F-0000-C611-AFD8-4B6EF6C0604A}&documentTitle=20201-159804-01.>

⁶ IDP Filing Requirement 3.A.29.

**Table 1. Comparison of DEA Distribution System Spending Projections:
2019 and 2021 IDP**

	2019 IDP (2019 - 2023)	2021 IDP (2021 - 2025)	Δ
IDP Budget Category	Spending (Millions)	Spending (Millions)	(Millions)
<i>Age-Related Replacement and Asset Renewal</i>	\$14.993	\$13.435	\$ (1.56)
<i>New Customer Projects and New Revenue</i>	\$20.746	\$21.847	\$ 1.10
<i>System Expansion or Upgrades for Capacity</i>	\$12.481	\$16.077	\$ 3.60
<i>Projects Related to Local (or other) Government Requirements</i>	\$9.229	\$9.030	\$ (0.20)
<i>System Expansion or Upgrades for Reliability and Power Quality</i>	\$6.891	\$6.410	\$ (0.48)
<i>Other</i>			\$ -
<i>Metering</i>	\$17.146	\$12.450	\$ (4.70)
<i>Grid Modernization and Pilot Programs</i>	\$12.635	\$10.886	\$ (1.75)
Total Spending	\$ 94.12	\$ 90.14	\$ (3.99)

For each IDP Budget Category and overall, this table calculates the difference in projected spending between the 2019 IDP and the 2021 IDP.

These filings were made two years apart from one another (on November 1, 2019 and November 1, 2021), and overall distribution system spending projections decreased from approximately \$94.12 million to \$90.14 million over that time period.

It is important to note that this isn't an apples-to-apples comparison given the periods analyzed in each filing (e.g., the 2019 IDP period covers years 2019 through 2023, whereas the 2021 IDP period covers years 2021 through 2025).

To obtain a better apples-to-apples comparison between each filing, the Department reviewed the annual spending projections provided in each filing and was able to compare projected spending between the 2021 through 2023 period. Table 2 below provides such a comparison.

Table 2. Comparison of DEA's Distribution System Spending Projections for the 2021 – 2023 Period: 2019 and 2021 IDP

	2019 IDP (2021 - 2023)	2021 IDP (2021 - 2023)	Δ
IDP Budget Category	Spending (Millions)	Spending (Millions)	(Millions)
<i>Age-Related Replacement and Asset Renewal</i>	\$ 8.94	\$ 7.95	\$ (0.99)
<i>New Customer Projects and New Revenue</i>	\$ 12.61	\$ 13.23	\$ 0.62
<i>System Expansion or Upgrades for Capacity</i>	\$ 7.70	\$ 9.44	\$ 1.74
<i>Projects Related to Local (or other) Government Requirements</i>	\$ 5.46	\$ 5.45	\$ (0.01)
<i>System Expansion or Upgrades for Reliability and Power Quality</i>	\$ 4.19	\$ 3.80	\$ (0.39)
<i>Other</i>	\$ -	\$ -	\$ -
<i>Metering</i>	\$ 6.54	\$ 12.43	\$ 5.89
<i>Grid Modernization and Pilot Programs</i>	\$ 7.12	\$ 9.96	\$ 2.84
Total Spending	\$ 52.55	\$ 62.26	\$ 9.71

This table calculates the difference in spending reported in the 2021 IDP for each IDP Budget Category and overall as compared to the 2019 IDP for the 2021 through 2023 period. DEA's total planned distribution system spending over these three years increased by \$9.71 million. The increase in projected spending over these three years is a result of additional investments in the IDP Budget Categories of Metering and Grid Modernization and Pilot Programs. Projected investments in these two categories are both primarily driven by one-time increases in spending with \$5.38 of the additional \$5.89 million projected spending in Metering planned for 2021, and \$2.6 of the additional \$2.84 million projected for Grid Modernization and Pilot Programs planned for 2023. Both investments are a part of DEA's ongoing Advanced Grid Infrastructure (AGI) grid modernization initiative, scheduled for completion in 2023 and approved for cost recovery by the Commission in Docket No. E111/M-17-821.

Finally, the Department reviewed the 2021 IDP's provision of information related to DEA's historical actual distribution system spending from the 2016 to 2020 period and compared that spending to DEA's projected distribution system spending from the 2021 to 2025 period. This high-level overview of financial data in DEA's 2021 IDP is summarized in the table below.

Table 3. Comparison of Distribution System Spending Reported in DEA's 2021 IDP, Historical Actual (2016 – 2020) vs. Budgeted (2021 – 2025)

IDP Budget Category	Historical Actual (2016 - 2020)		Budgeted (2021 - 2025)		Δ	
	Spending (Millions)	% of Total Spend	Spending (Millions)	% of Total Spend	(Millions)	%
Age-Related Replacement and Asset Renewal	\$ 19.57	28.33%	\$ 13.44	14.91%	\$ (6.14)	-31.35%
New Customer Projects and New Revenue	\$ 18.44	26.69%	\$ 21.85	24.24%	\$ 3.41	18.48%
System Expansion or Upgrades for Capacity	\$ 5.82	8.42%	\$ 16.08	17.84%	\$ 10.26	176.33%
Projects Related to Local (or other) Government Requirements	\$ 6.72	9.73%	\$ 9.03	10.02%	\$ 2.31	34.36%
System Expansion or Upgrades for Reliability and Power Quality	\$ 6.89	9.97%	\$ 6.41	7.11%	\$ (0.48)	-6.91%
Other	\$ -		\$ -		\$ -	
Metering	\$ 5.70	8.24%	\$ 12.45	13.81%	\$ 6.76	118.61%
Grid Modernization and Pilot Programs	\$ 5.96	8.62%	\$ 10.89	12.08%	\$ 4.93	82.77%
Total Spending	\$ 69.09		\$ 90.14		\$ 21.05	30.47%

DEA's total budgeted distribution system spending is projected to be \$90.14 million for the 2021 through 2025 period compared to the historical actual distribution system spending of \$69.09 million for the 2016 through 2020 period. DEA has budgeted an increase in spending for every IDP Budget Category except for Age-Related Replacement and Asset Renewal and System Expansion or Upgrades for Reliability and Power Quality. The total increase is largely attributable to two IDP Budget Categories: System Expansion or Upgrades for Capacity, and Metering; together, they account for \$17.02 million of the \$21.05 million total increase in distribution system spending.

C. THE GUIDANCE DOCUMENT FROM SYNAPSE ENERGY ECONOMICS, INC.

As explained in the Department's February 9, 2022 Letter,⁷ the Department retained Synapse Energy Economics, Inc. (Synapse) in response to the Commission's September 27, 2019 Order in Docket No. E002/M-17-797 requesting that the Department secure specialized technical professional investigative services to investigate the potential costs and benefits of proposed grid modernization investments. Synapse provided analysis specific to projects proposed by Xcel in its next rate case or Transmission Cost Recovery filings, and provided a methodology to be used by the Department in making recommendations to the Commission regarding any such future proposed investments by Xcel or other regulated public utilities.

⁷ Minnesota Department of Commerce. Letter of the Minnesota Department of Commerce, Division of Energy Resources Introducing Synapse Energy Economics' Review and Assessment of Grid Modernization Plans. Report for Minnesota Department of Commerce. Filed in Docket No. E002/M-19-666, E999/DI-20-627, E002/M-20-680, E002/M-21-694, E002/M-21-814, E017/M-21-612, E015/M-21-390, and E111/M-21-728. February 9, 2022. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={E09BE07E-0000-CB2C-85E2-91C3122300BD}&documentTitle=20222-182633-05>.

Through this engagement and in service of the Commission's request, Synapse developed a document, attached to the Department's Letter, titled *Review and Assessment of Grid Modernization Plans: Guidance for Regulatory, Utilities, and Other Stakeholders* (Guidance Document). The Guidance Document was developed to support the analysis of grid modernization investments in Minnesota, and the Department intends to use its methodology in assessing proposals from all utilities submitting IDPs.

II. DEPARTMENT ANALYSIS

The Department's analysis responds to the IDP-related topics of the Commission's Notice. First, the Department provides additional insight regarding the Guidance Document and the Department's analytical framework and methodology that will be applied to utility IDPs and grid modernization plans and proposed investments.

A. THE DEPARTMENT'S ANALYTICAL FRAMEWORK AND METHODOLOGY

The Department aims to apply a consistent and methodical approach to analyzing biennial IDPs from Dakota Electric Association (and other regulated utilities) with the goal of providing timely and useful advice to the Commission to ensure a) completeness of submitted IDPs in meeting IDP Filing Requirements and Commission-ordered modifications, b) consistency in planning scenarios and horizons, economic evaluation techniques, and forecasting methodology across system resource and transmission planning dockets, and c) utility IDPs continue to provide the conceptual foundation and context for short- and long-term grid modernization investment while eliminating information asymmetries between utilities and regulators.

As noted in the Guidance Document, the emergence of new technologies on the distribution grid has introduced new complexities and opportunities in how utilities plan and operate the electricity grid across multiple scales. Increased interoperability between technologies and applications requires that regulators understand the implications of the incremental investments by utilities in the distribution system across the scale of the grid as a whole. This necessitates the provision of a detailed and consistently applied benefit-cost analysis (BCA) framework to ensure that any and all distribution and grid modernization investments are responsive to state policy and customer needs and can be clearly justified as responding to these first principles. If these conceptual linkages throughout a project's development are not first clearly defined in proposals, the Commission runs the risk of approving superfluous or wasteful spending or allowing for cost recovery that does not accurately capture the true range of benefits and costs to ratepayers.

The Guidance Document is intended to help the Commission, stakeholders, and utilities thoughtfully and comprehensively approach investments made to modernize utility distribution systems so that the true range of benefits and costs to ratepayers associated with such investments are sufficiently understood and evaluated. Section 3 of the Guidance Document details Initial Filing Requirements that are intended for all Minnesota utilities that submit proposals for grid modernization investment plans. These requirements address the information that should be provided with these plans, including necessary detail on economic evaluation methods and results to support proposed investments.

The Department will evaluate utility grid modernization proposals using the initial filing requirements detailed in Section 3 of the Guidance Document.

An important aspect of the Guidance Document is Section 4, which details Ongoing Reporting Requirements. As explained in the Department's Letter, the Guidance Document is intended in part to complement and incorporate the recommendations of the Department's report called *Methods for Performance Evaluations, Metrics, and Consumer Protections for AMI and FAN* (December 2020 Report), filed in Docket Nos. E002/M-19-666 and E999/DI-20-627.⁸

Section 4 of the Guidance Document is the manifestation of this intent, as the Department's December 2020 Report is intended to prescribe methods for evaluating performance of a grid modernization investment, establish metrics that can be used in cost recovery assessments, and establish consumer protection at the outset of a utility grid modernization proposal. Similarly, Section 4 of the Guidance Document is intended to hold utilities accountable to the costs they anticipate incurring in pursuing a grid modernization proposal, as well as the realization of the benefits that a utility claims a grid modernization proposal will provide over the life of the grid modernization project.

The Department is appreciative of the hard work and dedication shown by DEA in maintaining and improving the reliability, resiliency, and safety of their distribution grid in Minnesota. The requisite investments made by the Company to maintain this system have historically been approved and made under an implicit trust that that this spending was the most efficient and appropriate use of ratepayer funds. In calling for increased scrutiny into distribution system spending the Department is not implying that this trust has been misplaced or abused, but rather the increasing complexity and interoperability of components in the modern distribution system requires coincident increased scrutiny and detail of analysis to ensure efficient resource allocation and ratepayer protection.

Therefore, the Department affirms the following from the February 9, 2022 Letter:⁹

It is the Department's intention to evaluate utility grid modernization proposals based on the prescriptions of the Guidance Document and will do so absent Commission action.

Nevertheless, the Department recommends that the Commission require utility grid modernization proposals to adhere to the filing requirements, methods of evaluation, and ratepayer protections detailed in the Guidance Document.

⁸ Minnesota Department of Commerce. Methods for Performance Evaluations, Metrics, and Consumer Protections for AMI and FAN. Department of Commerce Report to the Public Utilities Commission. Filed in Minnesota Public Utilities Commission. Docket. No. E-002/M-19-666 and E-999/DI-20-627. December 1, 2020. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={40E01F76-0000-C232-AC19-D0DBF3B76F62}&documentTitle=202012-168688-02>.

⁹ Department Letter, at 10.

B. IDP NOTICE TOPIC #1: SHOULD THE COMMISSION ACCEPT OR REJECT DAKOTA ELECTRIC ASSOCIATION'S INTEGRATED DISTRIBUTION PLAN (IDP)?

The Department's review of DEA's IDP begins at a threshold question: did the Company provide information and analyses required by the Commission's IDP Filing Requirements and previous Commission Orders?

As a preliminary matter, the Department notes that Dakota Electric formatted their IDP such that the sections corresponded sequentially with the filing requirements from the Commission's February 20, 2019 Order (2019 Order) in Docket No. E111/CI-18-255. The Department has reviewed the filing in its entirety and concludes that DEA has sufficiently addressed each of the IDP Filing Requirements and Commission Orders.

However, the Department will provide a final recommendation regarding whether the Commission should accept DEA's 2021 IDP in Party Reply comments once the Department reviews additional information from DEA and has an opportunity to review valuable stakeholder input.

C. IDP NOTICE TOPIC #2: DOES THE IDP FILED BY DAKOTA ELECTRIC ASSOCIATIONS ACHIEVE THE PLANNING OBJECTIVES OUTLINED IN THE FILING REQUIREMENTS AS AMENDED BY THE COMMISSION'S FEBRUARY 20, 2019 ORDER?

The Commission's February 20, 2019 Order (2019 Order) in Docket No. E111/CI-18-255 provided the Commission's Planning Objectives:¹⁰

The Commission is facilitating comprehensive, coordinated, transparent, integrated distribution plans to:

- Maintain and enhance the safety, security, reliability, and resilience of the electricity grid, at fair and reasonable costs, consistent with the state's energy policies;
- Enable greater customer engagement, empowerment, and options for energy services;
- Move toward the creation of efficient, cost-effective, accessible grid platforms for new products, new services, and opportunities for adoption of new distributed technologies; and,
- Ensure optimized utilization of electricity grid assets and resources to minimize total system costs.
- Provide the Commission with the information necessary to understand Xcel's short-term and long-term distribution system plans, the costs and benefits of specific investments, and a comprehensive analysis of ratepayer cost and value.

¹⁰ *In the Matter of Distribution System Planning for Dakota Electric Association*, Docket No. E111/M-18-255. ORDER ADOPTING INTEGRATED DISTRIBUTION PLAN FILING REQUIREMENTS. February 20, 2019. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={A0DA0B69-0000-CF11-A917-686CD810C5CF}&documentTitle=20192-150449-01>.

The Commission's 2020 Order requires DEA to do the following:¹¹

Dakota Electric shall discuss in future filings how the IDP meets the Commission's Planning Objectives, including:

- A. An analysis of how the information presented in the IDP related to each Planning Objective;
- B. The location in the IDP;
- C. Analysis of efforts taken by the Company to improve upon the fulfillment of the Planning Objectives; and
- D. Suggestions as to any refinements to the IDP filing requirements that would enhance Dakota Electric's ability to meet the Planning Objectives.

Appendix F – Table Showing Where Commission's Objectives are Discussed in IDP, found on pages 149 and 150 of DEA's 2021 IDP, identifies the page numbers of where each component of the Commission's Planning Objectives are addressed in the IDP.¹²

Section 9 of the Introduction offers a high-level overview of how the IDP meets the Commission's Planning Objectives, briefly summarizing how each of the following sections of the IDP relate to the Commission's Planning Objectives.¹³ Section 9a of the Introduction discusses the efforts taken by the Company to improve upon the fulfillment of the Planning Objectives, noting the significance of the Company's AGi grid modernization initiative and how having access to more granular data across their territory will further enable the Company to fulfill the Commission's Planning Objectives.¹⁴ The Company provides suggestions for improvements for future IDP filings in Section 9c, noting DEA's limited staff resources to compile the data required for the biennial IDPs and corresponding trend among stakeholders in calling for expanding the scope of IDPs and related other regulatory dockets. DEA understands that the IDP reporting structure touches on aspects of their operation outside the distribution system and expects the process to evolve over time, cautioning that if the IDP process will end up being as time- and labor-intensive as the Integrated Resource Plan (IRP) process there are planning and resource considerations that the Company will need to consider.¹⁵

The Department reviewed Appendix F and analyzed whether DEA's 2021 IDP was responsive to the Commission's Planning Objectives.

¹¹ *In the Matter of Dakota Electric Association's 2019 Integrated Distribution Plan*, Docket No. E111/M-19-674. ORDER ACCEPTING INTEGRATED DISTRIBUTION PLAN AND MODIFYING FILING REQUIREMENTS. Order Point No. 2. November 2, 2020. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={50E08A75-0000-C621-A51A-767BD9B11243}&documentTitle=202011-167944-04.>

¹² 2021 IDP, Appendix F, at 149.

¹³ 2021 IDP, at 18.

¹⁴ 2021 IDP, at 20.

¹⁵ 2021 IDP, at 22.

1. Planning Objective #1- Maintain and enhance the safety, security, reliability, and resilience of the electricity grid, at fair and reasonable costs, consistent with the state's energy policies

Appendix F provides a list of locations throughout the IDP where Dakota Electric discusses each of the topics referenced in the Commission's first IDP Planning Objective, broken down into its component topics of safety, security, reliability, resilience, and maintaining costs.

a. Safety

In DEA's 2021 IDP safety is mentioned only as it relates to the new capabilities of their new AGI meters or considerations the Company must make when planning for increased DER penetration on their distribution system. There are no sections of the IDP that discuss how safety standards inform planning processes or risk management, nor any mentions of how safety metrics are defined and tracked in the Company's operations. The Department reviewed DEA's most recent Safety, Reliability, and Service Quality report¹⁶ and found no notable instances that would imply safety concerns are not adequately addressed by the Company, but would find a high-level discussion within the IDP of how safety informs decision-making processes at DEA when designing and operating their distribution system instructive.

b. Security

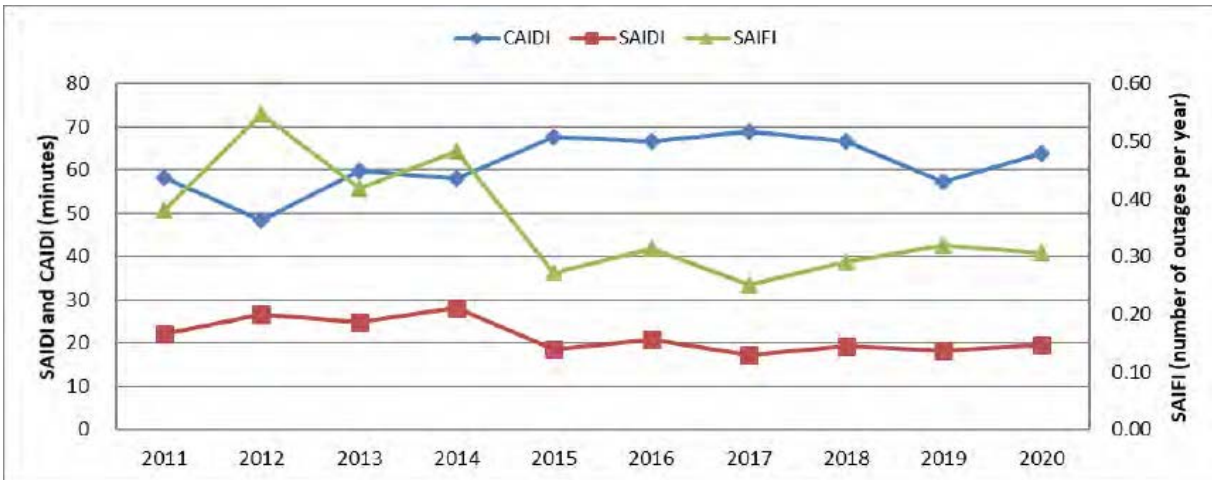
Dakota Electric provided information regarding cyber security concerns within the context of their Long-Term Distribution System Modernization and Infrastructure Investment Plan in Section D of the IDP. The Company noted that within the next couple of years the GIS, outage management system (OMS), supervisory control and data acquisition (SCADA) systems, and other sub- and supporting systems will be in the replacement process phase, necessitating extra care in ensuring that new software and platforms can be fully protected from cyber security threats.¹⁷ DEA did not provide any information or discussion on physical security measures taken to protect distribution system equipment or property.

c. Reliability and Resilience of the Electricity Grid

Reliability and resilience are referenced by DEA throughout its 2021 IDP as an important expectation of its members and core objective of its business operations. DEA provided a graph of historic reliability indices for the company over the past ten years (excluding Major Event Days), taken from their most recent Safety, Reliability, and Service Quality Report and reproduced below.

¹⁶ *Dakota Electric Association SRSQ Informational Filing*. Docket No. E111/M-21-202. March 29, 2021. Accessed at: <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={E0597E78-0000-C41B-8812-36D2C11C911B}&documentTitle=20213-172307-01>.

¹⁷ 2021 IDP, at 96.

Graph 1. Historic Reliability Indices for Dakota Electric¹⁸

DEA noted that in 2020 each of these metrics were within internal performance targets and reflect performance that exceeds the national average, ranking DEA as among the most reliable electric utilities in the United States. Table 4 below provides a comparison of DEA's reliability performance in 2020 to statewide and national averages.

Table 4. 2020 Distribution System Reliability Indices¹⁹ for Dakota Electric Association, Minnesota Utilities average²⁰, and United States Utilities average²¹

Reliability Performance Metric	2020 DEA	2020 MN Average	2020 US Average
SAIDI	19.5	84.7	116.0
SAIFI	0.31	0.90	1.013
CAIDI	63.7	94.6	114.5

¹⁸ 2021 IDP, at 7. See also *Dakota Electric Association SRSQ Informational Filing*. Docket No. E111/M-21-202. March 29, 2021. Accessed at:

<https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={E0597E78-0000-C41B-8812-36D2C11C911B}&documentTitle=20213-172307-01>.

¹⁹ SAIDI: System Average Interruption Duration Index, system wide average outage duration for an average customer. SAIFI: System Average Interruption Frequency Index, system wide average number of interruptions for an average customer per year. CAIDI: Customer Average Interruption Duration Index, average outage duration any given customer would experience per year.

²⁰ U.S. Energy Information Administration. Reliability Metrics Using IEEE of U.S. Distribution System by State, 2020 and 2019. Accessed at https://www.eia.gov/electricity/annual/html/epa_11_02.html.

²¹ *Id.*

d. Fair and Reasonable Costs

The Department is developing the knowledge base to better evaluate whether investments made or costs incurred by DEA in the maintenance and operation of the distribution system are fair and reasonable. However, this does not imply that there is any reason to assume that they are unreasonable. At this time the Department has limited information with which to quantitatively assess the reasonableness of specific investment strategies made by DEA in managing the distribution system. To accurately ascertain the most fair and reasonable costs to be recovered from ratepayers, the Department would need to see reference and investment scenarios and BCA results that were studied by DEA, consistent with the Guidance Document's prescriptions. This will involve additional transparency on the Company's part regarding certain types of distribution system investments. The Department addresses this in Section II.C.4 below in the analysis of the fourth Planning Objective.

e. Consistent with State Energy Policies

The Company did not provide a discussion of how state energy policy influences distribution system planning or budgeting allocations. There is no clear line of sight from specific technology investment decisions back to guiding Commission objectives or legislative principles. The Department expects DEA and other utilities to illuminate that connection, and notes that such connections are likely to help establish the bona fides of proposed initiatives.

The Department is considering a recommendation to create such a link: a requirement that utilities discuss how each technology or program offering proposed is influenced by IDP Planning Objectives and state energy policies (as well as local government mandates and/or policy goals), including how the metrics chosen to evaluate the performance of those technologies or program offerings in meeting those objectives were selected. The Department invites DEA and other stakeholders to provide feedback on whether this topical area needs further elucidation.

2. Planning Objective #2 - Enable greater customer engagement, empowerment, and options for energy services.

Most of the discussion provided by DEA regarding customer engagement, empowerment, and energy service options centered around the Company's ongoing AGi project. This initiative includes the installation of new Aclara I-210+C meters, load control receivers, production meters on distributed energy resource (DER) installations, a new Meter Data Management (MDM) system, and a web-based member portal to allow customers to review 15-minute interval usage. The Company expects that the infrastructure will be in place to allow the portal to be available to membership in 2022, and that this new granular data being provided directly to customers will facilitate an expansion of possible energy services provided and an increase in customer participation.

DEA noted that they are currently beginning to evaluate Advanced Distribution Management Systems (ADMS) to integrate new capabilities provided by AGi equipment while replacing GIS, OMS, and SCADA technologies that are reaching end-of-life within the next five years. The Company anticipates that new ADMS may be needed to operate a more complex distribution system, and they have stood up an internal team to develop a set of use cases for ADMS and develop a Request for Proposals (RFP) document. Therefore, while the economic analysis of the AGi project has been conducted and provided to the Commission in Docket No. E111/M-17-821 the company does not yet have access to the data needed to create and compare alternative investment scenarios for future technologies or services enabled by the rollout of AGi and later addition of ADMS.

The Department requests that in future filings regarding customer-facing utility offerings and programs that may be enabled by new investments in grid modernization technologies such as the AGi project or an ADMS project, Dakota Electric provides the following information:

- **Internal benefit-cost analyses for reference and investment case scenarios, including reasonably known and analyzed alternatives;**
- **Assumptions and data supporting the projected customer participation rates;**
- **Sensitivity analysis for varying rates of adoption of proposed programs; and**
- **Discussion of how the proposed customer-facing utility offerings and programs may interact with existing or proposed Conservation Improvement Plan or Next Generation Energy Act programs.**

This information is required for an independent verification of the reasonableness of the proposed incurred costs related to new customer-facing utility offerings and programs. The Department also encourages the continued discussion of how proposed business cases for new technology or service offerings not only address customer expectations but are responsive to - and enabling of - state policy goals and objectives that can serve as a proxy for understanding what society deems to be valuable and will lead to more efficient allocation of ratepayer funds to provide this value.²²

3. *Planning Objective #3 - Move toward the creation of efficient, cost-effective, accessible grid platforms for new products, new services, and opportunities for adoption of new distributed technologies.*

In addition to the observations above, the Department finds it instructive to evaluate DEA's response to the third Planning Objective by analyzing the differences in distribution system spending over the time periods 2016 – 2020 and 2021 – 2025. Table 3 above provides a breakdown of DEA's historic and projected distribution system expenditures. The Department provides it here again for convenience.

²² U.S. Department of Energy. *Modern Distribution Grid (DSPx). Volume 1: Objective Driven Functionality, Ver. 2.0.* (November 2019), at 16.

Table 3. Comparison of Distribution System Spending Reported in DEA's 2021 IDP, Historical Actual (2016 – 2020) vs. Budgeted (2021 – 2025)

IDP Budget Category	Historical Actual (2016 - 2020)		Budgeted (2021 - 2025)		Δ	
	Spending (Millions)	% of Total Spend	Spending (Millions)	% of Total Spend	(Millions)	%
<i>Age-Related Replacement and Asset Renewal</i>	\$ 19.57	28.33%	\$ 13.44	14.91%	\$ (6.14)	-31.35%
<i>New Customer Projects and New Revenue</i>	\$ 18.44	26.69%	\$ 21.85	24.24%	\$ 3.41	18.48%
<i>System Expansion or Upgrades for Capacity</i>	\$ 5.82	8.42%	\$ 16.08	17.84%	\$ 10.26	176.33%
<i>Projects Related to Local (or other) Government Requirements</i>	\$ 6.72	9.73%	\$ 9.03	10.02%	\$ 2.31	34.36%
<i>System Expansion or Upgrades for Reliability and Power Quality</i>	\$ 6.89	9.97%	\$ 6.41	7.11%	\$ (0.48)	-6.91%
<i>Other</i>	\$ -		\$ -		\$ -	
<i>Metering</i>	\$ 5.70	8.24%	\$ 12.45	13.81%	\$ 6.76	118.61%
<i>Grid Modernization and Pilot Programs</i>	\$ 5.96	8.62%	\$ 10.89	12.08%	\$ 4.93	82.77%
Total Spending	\$ 69.09		\$ 90.14		\$ 21.05	30.47%

DEA notes that the Company's internal budgeting and project cost tracking processes identify investments using different categories than provided in the IDP Filing Requirements, instead using codes applied to construction work orders corresponding to the construction activity. Reorganizing past construction projects to correspond to the budget categories provided by the IDP Filing Requirements is a subjective process that results in an at-best rough estimate of costs, however DEA provided notes and an explanation of the assumptions used to reorganize the projects in Section A.26.²³

The Department notes that the proposed larger increases in spending in the System Expansion or Upgrades for Capacity, Metering, and Grid Modernization and Pilot Programs IDP Budget Categories comports with DEA's language elsewhere in the IDP and aligns with the Company's stated priorities. The deployment of AMI and production meters on customer DER systems as a part of the Company's AGi initiative - scheduled for completion in 2022 - is the primary driver of increased spending in the Metering category, and the costs for the associated new load control receivers were included in the Grid Modernization and Pilot Programs category.²⁴

²³ 2021 IDP, at 54.

²⁴ *Id.*, at 58.

The Department notes that in the provided lists of planned Capital Construction Projects estimated to cost greater than \$100,000 for 2021 and 2022 (Appendices D and E, respectively) the AGi Meter Exchange project is listed under the PUC IDP Category of Grid Modernization and Pilot Projects, not Metering as described beneath Table 19 in Section A.28.²⁵

The Department requests that DEA provide additional information and/or discussion clarifying which IDP Budget Category tracks the costs of each component of the AGi project over planning years 2021 – 2025 in Utility Reply comments.

While the analysis of relative investments across standardized categories is a useful tool, there is limited information provided that allows for a rigorous assessment of the investment decisions being made *within* each category. The Department addresses this in further detail in Section II.C.4 below.

The Department is building the capacity to make assessments regarding the efficiency or cost-effectiveness of grid investments within each IDP Budget Category, and in order to alleviate this asymmetry, the Department is considering a recommendation for future IDPs to include some illustrative examples of detailed and complete BCAs for proposed projects within each of the IDP Budget Categories. This analysis would include, at a minimum, a description of the methodology employed to prevent double counting of benefits or costs across programs or enabling technologies, a clear conceptual line of sight between the project selected and the Commission's Planning Objectives, and metrics to evaluate the project's performance with respect to the benefits identified and in relation to the Commission's Planning Objectives.

Such illustrations seem reasonably likely to help the Department, the Commission, and stakeholders develop a deeper understanding of how DEA plans for and spends ratepayer funds on these myriad grid investments.

The Department invites DEA and other stakeholders to provide feedback on this potential recommendation.

4. Planning Objective #4 - Ensure optimized utilization of electricity grid assets and resources to minimize total system costs

The fourth Planning Objective is designed to ensure optimized utilization of electricity grid assets and resources to minimize total system costs. The Department is building its knowledge base of issues related to this planning objective and expects to be better positioned to evaluate this Planning Objective over time as more experience is gained with utility distribution systems. One way to better discern whether Dakota Electric is optimally utilizing electricity grid assets and minimizing total system costs is to evaluate how DEA's forecasting and planning process informs spending on its distribution.

²⁵ *Id.*

Section A.5 and A.6 of DEA's IDP discusses the coordination of distribution and transmission system planning and load forecasting with Great River Energy (GRE). The process begins with a long-range load forecast that occurs every two years and looks beyond the next 10 years. Historical load growth patterns for DER penetration and generation are created from monthly and annual usage by member category.²⁶ Engineers from GRE and DEA work collaboratively to create Long-Range Transmission and Long-Range Distribution studies and assist each other in evaluating possible alternative scenarios before plans are finalized, to include Non-Wires Alternatives (NWA) that impact both the transmission and distribution systems.

To create short-range load forecasts DEA looks at the prior year's peak feeder and substation loads and projects its anticipated demand one year into the future to inform its Annual Construction Capital Budget. The prior year peak demands include reductions to potential demand from demand response operations, but new DER additions are not netted into the load forecasts as DEA does not receive advanced notice of DER generation being added to the system, and the prevalent generation type (solar PV) does not have significant output during system peaks that are typically experienced around 6 to 7pm in the summer.²⁷ DEA recognizes that as DER penetration increases on the distribution system so does the importance of the Company's ability to accurately forecast and understand the implications of DER, and is in the early stages of using more granular data from new AGI production meters to better understand the impacts of DER on feeder peak loading.²⁸

Section 5 of the Introduction to the 2021 IDP provides a discussion of how DEA develops and executes its Annual Construction Capital Budget. While the capital construction budget includes a 5-year forecast, only a one-year budget with specific projects is approved for the next year by DEA's Board and the Company maintains that the current distribution unity business model remains reactionary in nature and actual construction of new infrastructure must wait until an immediate need and/or impact to the distribution system is realized.

DEA states that once a draft list of the next year's capital construction projects is completed and cost estimates are created for each planning category the budget is reviewed for "ways to reduce, or delay, capital expenses prior to presenting the capital construction budget to senior management at Dakota Electric for further review, adjustments, and approval."²⁹ The Department finds that further discussion of this process would prove constructive in alleviating the information asymmetry that exists between utilities and stakeholders, and it is an area that the Department believes DEA should take efforts to address to provide additional transparency regarding its budgeting process. To properly evaluate whether investments selected after this comparative analysis satisfy the Commission's Planning Objective of optimized utilization of grid assets at minimal system costs the Department would require access to information regarding the considered alternatives and their associated benefits and costs, forecasting assumptions, and the assumed time period over which scenarios are compared.

²⁶ 2021 IDP, at 32.

²⁷ *Id.*

²⁸ *Id.*, at 33.

²⁹ *Id.*, at 14.

The Department requests that DEA provide additional information and/or discussion regarding how capital construction project alternatives are evaluated and funded in Utility Reply comments.

The Department understands that distribution system spending can fluctuate over the course of a year due to acute distribution system needs and the need for operational flexibility. It follows that projected spending levels would fluctuate and be inconsistent year-to-year as reported by DEA in their 2019 and 2021 IDPs, as the Department summarized above in Section I.B of these comments.

Thus far in the IDP proceedings the Department has been able to compare the budgeted and actual distribution system spending for two years, 2019 and 2020, by comparing the 5-year investment plan from DEA's 2019 IDP with the historical distribution system spending as reported in Section A.26 of the 2021 IDP.³⁰

Table 5. 2019 and 2020 Distribution System Investments, as Budgeted in 2019 IDP and Actual Reported Expenditures from 2021 IDP

	2019		Δ	2020		Δ
IDP Budget Category	Budgeted (Millions)	Actual (Millions)	(Millions)	Budgeted (Millions)	Actual (Millions)	(Millions)
<i>Age-Related Replacement and Asset Renewal</i>	\$ 3.06	\$ 3.07	\$ 0.01	\$ 3.00	\$ 5.77	\$ 2.77
<i>New Customer Projects and New Revenue</i>	\$ 4.36	\$ 4.30	\$ (0.05)	\$ 3.78	\$ 4.10	\$ 0.32
<i>System Expansion or Upgrades for Capacity</i>	\$ 1.59	\$ 0.83	\$ (0.76)	\$ 3.19	\$ 0.69	\$ (2.50)
<i>Projects Related to Local (or other) Government Requirements</i>	\$ 1.93	\$ 1.31	\$ (0.63)	\$ 1.84	\$ 1.11	\$ (0.73)
<i>System Expansion or Upgrades for Reliability and Power Quality</i>	\$ 1.35	\$ 1.31	\$ (0.04)	\$ 1.36	\$ 1.03	\$ (0.33)
<i>Other</i>			\$ -			\$ -
<i>Metering</i>	\$ 0.70	\$ 0.13	\$ (0.57)	\$ 9.90	\$ 5.59	\$ (4.31)
<i>Grid Modernization and Pilot Programs</i>	\$ 1.34	\$ 1.06	\$ (0.29)	\$ 4.18	\$ 2.69	\$ (1.49)
Total Spending	\$ 14.33	\$ 12.00	\$ (2.33)	\$ 27.24	\$ 20.97	\$ (6.27)

The Department notes that generally DEA has kept actual expenditures close to budgeted estimates for each category, with a few notable exceptions in 2020. DEA spent \$2.77 million more than budgeted for Age-Related Replacement and Asset Renewal, and explains in the 2021 IDP that the Company decided to increase spending in 2020 to accelerate replacement of wooden line poles greater than 60 years old which have been failing routine inspections at a much greater rate.³¹ The Department was unable to find a rationale from the Company for why the actual spending for of the System Expansion or Upgrades for Capacity, Metering, or Grid Modernization and Pilot Programs IDP Budget Categories was less than the budgeted amounts for 2020 (-\$2.5 million, -\$4.31 million, and -\$1.49 million, respectively).

³⁰*Id.*, at 55.

³¹ *Id.*, 56.

DEA provided the following explanation regarding why the IDP budget details are inconsistent year-to-year:³²

Dakota Electric has a limited labor pool to accomplish projects and peaks in the capital spending require increases in labor while, on the other hand, valleys in capital spending create an under-utilized labor pool. The 5-year capital construction budget forecast attempts to identify these periods of high and low spending and, if possible, it allows Dakota Electric to consider shifting spending to other years to help reduce capital budget swings. It is important to note that the majority of individual projects are not identified or approved by the Dakota Electric board beyond the next calendar year.

While this explanation is helpful in a broader sense, and in view of DEA's approach to setting and executing a capital construction budget, there is an important element of transparency missing from DEA's distribution system spending. As an example: it is difficult to fully understand the Company's projected increase in spending in the "System Expansion or Upgrades for Capacity" and "System Expansion or Upgrades for Reliability and Power Quality" IDP Budget Categories. The tables provided by DEA showing planned capital construction projects greater than \$100,000 for 2021 and 2022³³ list only a single PUC IDP Category of "System Expansion for Capacity *and* Reliability (emphasis added)", combining the two categories and obfuscating how planned investments can be justified as being responsive to Commission Planning Objectives. This, combined with the mismatch between DEA's internal budget cost tracking processes and the Commission-ordered IDP Budget Categories discussed above on page 14, makes it difficult for the Department to identify the actual allocation of resources by the Company to address the build-out and maintenance of the distribution system.

The Department requests that DEA provide a narrative explanation for the changes in spending for each IDP Budget Category compared to the 2019 IDP in Utility Reply comments. The Department also requests that the Company provide an explanation for how budgeted capital expenditures that are currently accounted for as System Expansion for Capacity and Reliability would be allocated between the IDP Budget Categories of System Expansion or Upgrades for Capacity and System Expansion or Upgrades for Reliability and Power Quality in the Company's 2021 – 2025 proposed budget.

The Department suggests that one approach to helping stakeholders understand spending on non-capacity related projects is to provide information that indicates that DEA is "right-sizing" its system by demonstrating projects are designed to solve the problem that is identified, and in so doing, that DEA is minimizing the amount of money being spent and can show that its spending is concomitant to the level of need.

Applied to the "System Expansion or Upgrades for Capacity" IDP Budget Category, DEA could provide stakeholders with information proving that DEA's spending on capacity-related projects is the "right size" for the problem identified. The Department asks the general question: is DEA's spending on specific components of the distribution system appropriate given the issue that the Company is trying to address or prevent?

³² *Id.*, at 58.

³³ *Id.*, Appendices D and E, respectively

The Department proposes “right-size analysis” as a way to help answer this question, defined as: the process of matching utility investments to the need identified by the engineering analysis of the distribution system so performance and reliability of the distribution system is achieved at the lowest possible cost. This also includes the process of looking at deployed equipment and identifying opportunities to eliminate redundancies, downsize components that may be no longer needed, repurpose and redeploy equipment, and/or incorporate NWA or DER to decrease loading thereby reducing thermal stress on components and extending the life of deployed assets, all without compromising performance or reliability with the express goal of reducing total system costs.

The Department’s experience in the distribution system, however, is limited, and invites Dakota Electric and other stakeholders to comment generally on this proposed analytical method. The preliminary theoretical approach articulated above can and should be scrutinized: is it the appropriate way to think about these issues and evaluate the general question articulated above?

The Department welcomes feedback and information on how to best approach answering this question.

- 5. Planning Objective #5 - Provide the Commission with the information necessary to understand the utility’s short-term and long-term distribution system plans, the costs and benefits of specific investments, and a comprehensive analysis of ratepayer cost and value*

The fifth Planning Objective relates to whether the IDP provides the Commission with information necessary to understand DEA’s short-term and long-term distribution system plans, the costs and benefits of specific alternatives to any proposed or anticipated investments, and a comprehensive analysis of ratepayer cost and value.

This planning objective articulates the expectation that utilities should prepare complete evaluations of planned investments, and particularly investments in grid modernization, to ensure that the Commission and stakeholders are provided with the necessary information to evaluate the reasonableness of these plans.

The Department emphasizes that information related to IDP Filing Requirement 3.D. is vital to understanding DEA’s distribution system plans, specifically with regards to investments in technologies that the Company asserts is necessary to modernize its distribution system. There should be a clear connection between the information and analyses provided in response to IDP Filing Requirement 3.D. and specific grid modernization proposals. The Department further addresses the value of IDP Filing Requirement 3.D., especially in the context of the Guidance Document’s prescriptions for filing requirements related to a utility’s grid modernization plans, in the Notice topics that follow.

The Department contends that certain elements of DEA’s IDP can be improved upon to assist with the evaluation of whether the IDP fulfills the Commission’s Planning Objectives, particularly if the Department’s and Synapse’s recommendations for additional information and transparency are heeded. Overall, the Department concludes that DEA generally provided relevant information and

sufficient information to assess whether the outcomes that the Planning Objectives articulate can materialize over time, but emphasizes the need for additional information and transparency in some aspects of the IDP.

D. IDP NOTICE TOPIC #3: WHAT IDP FILING REQUIREMENTS PROVIDE THE MOST VALUE TO THE PROCESS, AND WHY?

1. Overview

In general, the Department reiterates its focus on three overarching themes regarding distribution system planning: (1) distribution system planning should itself be cost-effective and lead to outcomes that are also cost-effective; (2) distribution system planning reporting should correct a historic, long-term information asymmetry between regulators and utilities; and (3) IDP requirements between utilities should be consistent to the greatest extent practicable. IDPs should provide stakeholders with enough information to enable the evaluation of a utility's approach to distribution system planning.

The Department builds upon these three themes by articulating a fourth, which was also evinced in Xcel's most recent Integrated Resource Plan proceeding in stakeholder comments and summarized in Staff Briefing Papers and is applicable to all utilities filing IDPs: utilities should undertake efforts to align the planning processes of integrated distribution system planning and integrated resource planning to the extent that such processes rely on tools, methods, data, and information (notably, forecasting of DERs) that can be shared in ways that lead to mutually beneficial outcomes for both processes and the consistent use of data and information in each process.³⁴

It is important to note that Dakota Electric does not create IRPs as it is a distribution-only electric cooperative, does not have any generation facilities, and relies on Great River Energy (GRE) for its energy needs. However, Dakota does create detailed short- and long-term forecasts for energy consumption. GRE relies on this forecast in creating a long-range load forecast for use in GRE's IRP.

2. IDP filing requirement 3.C: Distributed energy resource scenario analysis

This filing requirement generally requires utilities to prepare for various scenarios of DER deployment and proactively identify and plan for mitigations or investments to facilitate increased DER adoption. If Dakota Electric develops forecasts that are used in the IDP proceeding and also relied upon as part of GRE's IRP proceeding, this would allow Dakota Electric and GRE to consider the impact that DERs may have on its future resource acquisition needs, and likewise, cost-effective DER integration can be more readily identified in DEA's resource plan if costs and benefits are better understood in terms of the impact that DERs may have on DEA's distribution system.

³⁴ *In the Matter of Xcel Energy's 2020 – 2034 Integrated Resource Plan (IRP)*, Docket No. E002/RP-19-368. Staff Briefing Papers, at 115, 125 – 126, and 181 – 184. January 18, 2022. Commission Order forthcoming.

This is particularly timely given the recent growth rate of DER, specifically solar PV, penetration on DEA's distribution system since the last IDP was filed in 2019. In both the 2019 and 2021 IDPs, Dakota Electric maintained that the distribution system was able to accommodate the addition of 100 MW of DER generation capacity without necessitating significant distribution infrastructure changes, assuming the total DER installed on any feeder was rated to around 20% of the daytime minimum load (DTML) of that particular feeder.³⁵

The Department analyzed the incremental solar PV (the most prevalent DER type being added to DEA's distribution system) added each year going back to 2015, summarizing the findings in Table 6 below.

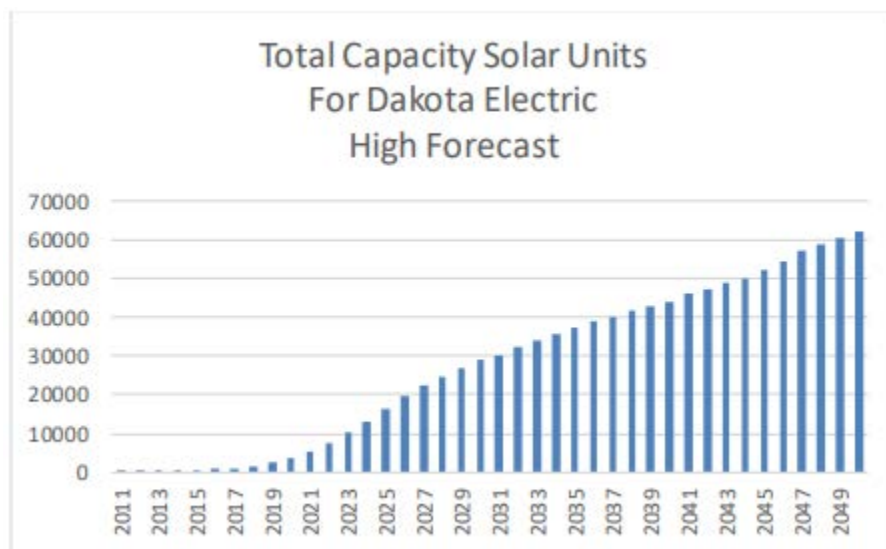
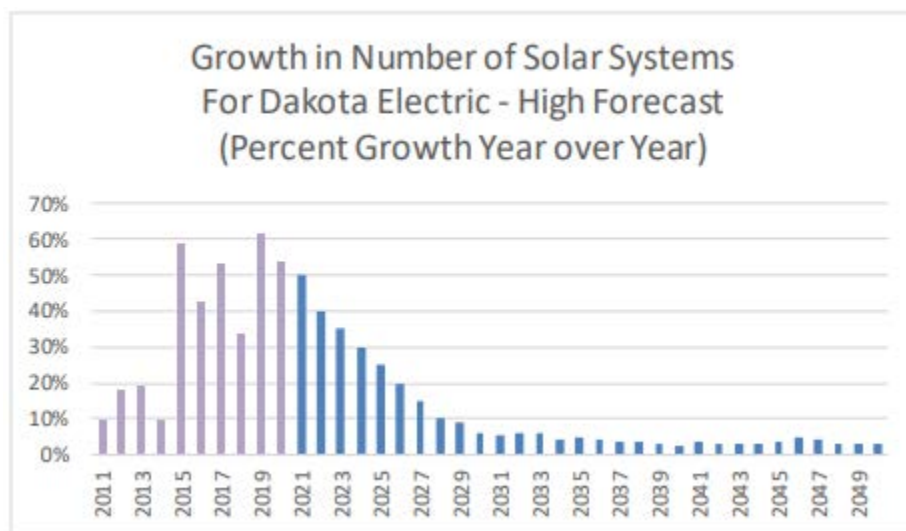
Table 6. Solar PV Installations and Nameplate kW (AC) Capacity Increases, 2015 - 2021

Year	Solar PV System Installations			Nameplate kW		
	Annual	Cumulative	% Change	Annual	Cumulative	% Change
2015	20	53	60.61%	204.62	471.77	76.59%
2016	23	76	43.40%	291.51	763.28	61.79%
2017	41	117	53.95%	1,433.91	2,197.19	187.86%
2018	40	157	34.19%	2,406.02	4,603.21	109.50%
2019	97	254	61.78%	3,914.25	8,517.46	85.03%
2020	137	391	53.94%	1,035.11	9,552.57	12.15%
As of October 1, 2021	265	656	67.77%	2,022.43	11,575.00	21.17%
In queue as of Oct 1, 2021	153	809	23.32%	1,250.00	12,825.00	10.80%

The Department notes that while the total nameplate capacity of 11.575 MW of solar PV interconnected to the system as of the filing of the 2021 IDP is not close to the total system hosting capacity identified in DEA's 2019 DER engineering analysis study, the growth rates for the annual solar units installed and the total installed capacity corresponds with DEA's "High" DER forecast case for 2022 – 2050.³⁶ Figures 1 and 2 below show the High DER forecast assumptions used by DEA for solar capacity quantity (kW) and annual percent growth in solar units.

³⁵ See 2019 IDP at 64, 2021 IDP at 68. DEA also notes that if DER capacities could be sized to existing loads and distributed across the system to equal the DTML of host feeders the distribution system could accommodate up to 200 MW of DER capacity.

³⁶ 2021 IDP, at 75. Note that DEA does not have staff to conduct forecasting as they do not create Integrated Resource Plans and thus used the Energy Information Administration's 2021 Annual Energy Outlook DER forecast as a proxy for setting low, medium, and high scenarios.

Figure 1. High DER Forecast of Solar Capacity Quantity (kW)³⁷**Figure 2. High DER Forecast of Annual Percent Growth in Solar Units³⁸**

DEA plans on utilizing production meters provided by the AGi initiative on all DER generation assets interconnected to the distribution system to obtain site-specific generation profile shapes and operational information, combine this data with 15-minute interval consumption information from customer AMI meters to generate load shapes stored in the MDM system, and use the aggregate energy usage and production data to analyze how DER interacts at the feeder level. These new capabilities will provide the Company with the information required to coordinate their investments more precisely to capacity needs at more granular level, optimize existing infrastructure, and identify opportunities for deferral of capital construction projects while maintaining system safety, reliability, and resiliency.

³⁷ *Id.*, at 75

³⁸ *Id.*

3. IDP filing requirements 3.A.26-30 and 3.E

Additionally, the Department also continues to support and encourage further development of those sections of DEA's IDP that elucidate the guiding philosophies and prioritization of variables in the creation of scenarios for analysis and ultimate selection of a final investment strategy.

In this and the 2019 IDP, Dakota Electric has provided a very instructive narrative of their business philosophies and processes when conducting comparative scenario analysis in their NWA analysis required by IDP Requirement 3.E. In the 2021 IDP the Company provided extensive and detailed information in Section E that explained DEA's requirements, assumptions, costs, and reliability considerations that informed the decision-making process for two major projects that triggered the need for a NWA analysis.

For each of these two projects, the construction of a new substation near Elko-New Market and another new substation in southern Lakeville, DEA evaluated four potential solutions³⁹ each under both a low and high load growth scenario. The projects were evaluated on their ability to cost-effectively meet the planning requirements of providing firm energy output when needed and for the duration of the need, be able to be brought back into service quickly during an emergency outage, and enter into a contractual obligation to provide energy services whenever called upon by DEA.⁴⁰

DEA provided detail in outlining the cost assumptions and operational considerations of each technology type and was transparent in its summary of the comparative analysis performed by the company in prioritizing outcomes and evaluating the effectiveness of each technology in meeting specified requirements.

The Department reiterates the earlier discussion in Section 3.C.3 above regarding a potential recommendation for future IDPs to include some illustrative examples of detailed and complete BCAs for proposed projects within each of the IDP Budget Categories. While not necessarily related to grid modernization, such information would nevertheless be consistent with the Guidance Document's prescriptions regarding the provision of additional information regarding the evaluation of utility investments.

4. IDP filing requirement 3.D

Regarding the Guidance Document: one of the Department's goals is to create a framework for grid modernization in Minnesota. Utility IDPs can serve as the planning forum for any such proposed investments, similar to the planning function that integrated resource plans (IRPs) in Minnesota serve.

³⁹ *Id.*, at 113 – 126. Options considered included: 1) construction of a new substation, 2) installation of an energy storage system, 3) installation of a solar plus storage system, and 4) installation of demand-side management technologies in homes.

⁴⁰ *Id.*, at 109.

Section 3.D of utility IDP Filing Requirements require utilities to provide a 5-year Action Plan as part of a 10-year long term plan for distribution system developments and investments in grid modernization, with sub-requirements for utilities to discuss topics and provide information that have parallels to the information that utilities are required to provide in utility IRPs, specifically related to requirements that a utility must identify resource options available to meet the service needs of its customers over the forecast period and supporting information that utilities are required to provide to support the selection of its proposed resource plan.⁴¹

Once the Commission approves the resource plan that identifies generic resources that it needs to acquire over the forecast period, a utility then proposes to acquire specific resources based on the resource plan and in a Certificate of Need (CN) proceeding that has its own extensive set of filing requirements and evaluation criteria upon which a decision to grant a CN must be made, all of which require a utility to demonstrate that it is making a reasonable, prudent decision in the public interest.⁴²

The Department contends that a meaningful connection between a utility's IDP and specific grid modernization proposals can and should be made in the same spirit of the IRP-CN connection. Section 3.D of a utility's IDP serves a similar planning function to the IRP process, and the Guidance Document serves a similar prudency determination and ratepayer protection function to the CN process.

It is in that spirit that the Department offers the Guidance Document for consideration and why the Department will evaluate grid modernization proposals based on the prescriptions of the Guidance Document.

E. IDP TOPIC #4: ARE THERE FILING REQUIREMENTS THAT ARE NOT INFORMATIVE AND/OR SHOULD BE DELETED OR MODIFIED, AND WHY?

1. The Definition of "Non-Traditional" Distribution Projects

The Department recommends that the Commission further clarify its intent in Filing Requirement 3.A.28 which requires the utility to provide "[p]rojected distribution system spending for 5-years into the future for the categories listed above, itemizing any *non-traditional* distribution projects (emphasis added)."⁴³

Upon review of the utilities' response to this filing requirement it appears to the Department as if respondents are choosing to define this somewhat ambiguous term as being synonymous with Non-Wires Alternatives and are thus only presenting itemized cost data for those projects meeting NWA thresholds for consideration. This has greatly limited the amount of detailed financial information provided to the Commission for review and frustrates Department efforts to confirm that projected investments in DEA's 5-year plan are indeed timed and sized appropriately to meet or otherwise respond to short-term distribution system needs.

⁴¹ See generally Minn. R. 7843, accessed at: <https://www.revisor.mn.gov/rules/7843/full>.

⁴² See generally Minn. R. 7849, accessed at: <https://www.revisor.mn.gov/rules/7849/full>.

⁴³ Commission's 2019 Order.

As a starting point for consideration, the Department invites feedback on a potential recommendation regarding the definition of “non-traditional” in the context of distribution system planning: should it be centered around the ability of a proposed project or technology to enable two-way information or power flows on the distribution system?

Such a definition would potentially capture the majority of technologies currently proposed as grid modernization projects that not only meet the Planning Objectives of enabling further customer engagement and options, but also enable the incremental deployment of additional technologies that each have their own unique set of costs and benefits that must be included in the immediate analysis of the proposal in front of the Commission.⁴⁴

2. Benefit-cost Analysis

Benefit-cost analyses (BCAs) are fundamentally necessary in order to better understand why DEA is proposing or planning to propose specific investments and determine whether the proposed investment is the most reasonable choice. This is especially true for grid modernization investments.

The Guidance Document affirms this view in Section 2.3:

BCA is a systematic approach for assessing the cost-effectiveness of investments by comparing benefits and costs of alternative options. The analysis entails identifying all the relevant benefits and costs of a project and determining whether the benefits exceed the costs over the lifetime of the expected program or project.

...

BCAs place the onus on the utility to demonstrate that an investment should be made, rather than starting from the assumption that it is necessary. By presenting and comparing the full range of costs and benefits to make the case for the utility investment in question, BCAs facilitate complete assessment of how a proposed investment will affect utility customers. BCAs...should be the primary means of evaluating grid modernization plans—even in instances where investments are claimed to be necessary.

The Guidance Document details how BCAs should be conducted by utilities so that the Commission and stakeholders can evaluate the reasonableness of the utility’s proposed investment.

Modifications of IDP Filing Requirements may be necessary if utilities are not furnishing appropriate levels of detail regarding their BCAs for proposed investments. However, at this time, the Department is not recommending any modifications of IDP Filing Requirements related to the provision of BCA information but will monitor future IDPs to ensure that Dakota Electric and utilities are providing BCA information consistent with the Guidance Document’s prescriptions.

⁴⁴ As an example, the Department notes that the ADMS (and associated customer- and grid-facing capabilities) currently under consideration by DEA for deployment is enabled by DEA’s AGI AMI meters and load controllers.

F. IDP TOPIC #5: ARE THERE OTHER ISSUES OR CONCERNS RELATED TO THIS MATTER?

As the Department explained in footnote 3, it was difficult to find a current version of utility IDP Filing Requirements. The Department suggests that IDP Filing Requirements should be published with each Commission Order that reflects any modifications so that stakeholders and utilities have an updated version of IDP Filing Requirements.

The Department recommends that the Commission include DEA's IDP Filing Requirements in its Order in this and subsequent IDP proceedings, including a red-line version if modifications are made to DEA's IDP Filing Requirements.

IV. DEPARTMENT RECOMMENDATIONS

The Department appreciates the opportunity to comment on Dakota Electric Association's 2021 IDP and looks forward to the review of other stakeholder comments. The Department commends DEA for the quality of its IDP and requests that DEA provide the following information in Utility Reply comments:

- **The Department requests that DEA provide additional information and/or discussion clarifying which IDP Budget Category tracks the costs of each component of the AGi project over planning years 2021 – 2025.**
- **The Department requests that DEA provide additional information and/or discussion regarding how capital construction project alternatives are evaluated and funded.**
- **The Department requests that DEA provide a narrative explanation for the changes in spending for each IDP Budget Category compared to the 2019 IDP. The Department also requests that the Company provide an explanation for how budgeted capital expenditures that are currently accounted for as System Expansion for Capacity and Reliability would be allocated between the IDP Budget Categories of System Expansion or Upgrades for Capacity and System Expansion or Upgrades for Reliability and Power Quality in the Company's 2021 – 2025 proposed budget.**

The Department makes the following, initial recommendations:

- **The Department recommends that the Commission require utility grid modernization proposals to adhere to the filing requirements, methods of evaluation, and ratepayer protections detailed in the Guidance Document.**
- **The Department requests that in future filings regarding customer-facing utility offerings and programs that may be enabled by new investments in grid modernization technologies such as the AGi project or an ADMS project, Dakota Electric provides the following information:**

- **Internal benefit-cost analyses for reference and investment case scenarios, including reasonably known and analyzed alternatives;**
 - **Assumptions and data supporting the projected customer participation rates;**
 - **Sensitivity analysis for varying rates of adoption of proposed programs; and**
 - **Discussion of how the proposed customer-facing utility offerings and programs may interact with existing or proposed Conservation Improvement Plan or Next Generation Energy Act programs.**
-
- **The Department recommends that the Commission include DEA's IDP Filing Requirements in its Order in this and future IDP proceedings, including a red-line version if modifications are made to DEA's IDP Filing Requirements.**

/ar

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Comments

Docket No. E111/M-21-728

Dated this **15th** day of **March 2022**

/s/Sharon Ferguson

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_21-728_M-21-728
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_21-728_M-21-728
Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	Yes	OFF_SL_21-728_M-21-728
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_21-728_M-21-728
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th PI E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_21-728_M-21-728
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