OTTER TAIL POWER COMPANY
Case No: PU-24-091

Response to: ND Public Service Commission
Analyst: Christopher C. Hanson
Date Received: August 23, 2024
Date Due: September 13, 2024
Date of Response: September 13, 2024
Responding Witness: Jason Weiers, Manager, Transmission Project Development - (218) 739-8311

Data Request:
What N-1 events were identified as justification for the line and which of these were in ND?

Attachments: 0

Response:

MISO has identified that the Jamestown – Ellendale 345 kV Project, in combination with the Big Stone South – Alexandria – Cassie's Crossing (Big Oaks) 345 kV Project, relieves thermal (i.e. loading) issues on 40 transmission elements and relieves voltage issues on 97 transmission elements during N-1 events.[1]

MISO has provided the study results from Tranche 1 of the Long Range Transmission Plan to the Applicants. The Applicants have carefully reviewed this information and have quantified that there are 2,010 N-1 events in the pre-LRTP Tranche 1 portfolio models that resulted in thermal issues and 1,728 N-1 events in the pre-LRTP Tranche 1 portfolio models that resulted in voltage issues.

Of the 2,010 N-1 events that resulted in thermal issues, 88 N-1 events were located in North Dakota. Likewise, of the 1,728 N-1 events that resulted in voltage issues, 229 N-1 events were located in North Dakota. The specific N-1 events have not been identified by the Applicants due to their sensitive nature as Critical Energy Infrastructure Information (CEII) but can be obtained from MISO once the applicable arrangements are in place for receiving CEII.

[1] See Tables 6-1 and 6-2 on page 43 of the MTEP21 Addendum available on the MISO website at: https://cdn.misoenergy.org/MTEP21%20LRTP%20Tranche%201%20Portfolio626133.zip

OTTER TAIL POWER COMPANY
Case No: PU-24-091

Response to: ND Public Service Commission
Analyst: Christopher C. Hanson
Date Received: August 23, 2024
Date Due: September 13, 2024
Date of Response: September 13, 2024
Responding Witness: Jason Weiers, Manager, Transmission Project Development - (218) 739-8311

Data Request:
Exclusive of the need to get power out of ND and to feed the Ellendale-Big Stone & the future Big Stone-Sherburne lines, were there other alternatives identified that would have addressed the previously identified issues for less cost?

Attachments: 0

Response:

No. MISO evaluated the following alternatives and concluded that these other alternatives did not address the previously identified issues as effectively as the preferred projects. Therefore, cost estimates were not developed for these alternatives.

Alternative #	Project #1	Project #2	MISO's Conclusions[1]
---	Jamestown – Ellendale 345 kV Line	Big Stone South – Alexandria – Cassie's Crossing (Big Oaks) 345 kV Line	Preferred projects.
1	Jamestown – Ellendale 345 kV Line	Big Stone South – Alexandria 345 kV Line	Without double circuit to Cassie's Crossing (Big Oaks), there are new N-1 issues around Alexandria.
2	Jamestown – Ellendale 345 kV Line	Big Stone South – Hankinson – Fergus Falls 345 kV Line	Creates new issues on the 230 kV and 115 kV system around Fergus Falls.
3	Jamestown – Ellendale 345 kV Line	Big Stone South – Hazel Creek – Blue Lake 345 kV Line	Reduces nearly all overloads of concern, but not to the extent of the preferred project.
4	Jamestown – Ellendale 345 kV Line	Big Stone South – Alexandria 345 kV Line + Big Stone South – Hazel Creek – Blue Lake 345 kV Line	As a combination of alternatives (1 + 3), the south circuit to Blue Lake does not add enough value over the preferred project.
5	Jamestown – Ellendale 345 kV Line	Big Stone South – Breckenridge-Barnesville 345 kV Line	There are still a few key overloads on the key 230 kV system around Wahpeton which are not solved by this alternative.

[1] See pages 41-43 of the MTEP21 Addendum available on the MISO website at: https://cdn.misoenergy.org/MTEP21%20LRTP%20Tranche%201%20Portfolio626133.zip

OTTER TAIL POWER COMPANY
Case No: PU-24-091

Response to: ND Public Service Commission
Analyst: Christopher C. Hanson
Date Received: August 23, 2024
Date Due: September 13, 2024
Date of Response: September 13, 2024
Responding Witness: Jason Weiers, Manager, Transmission Project Development - (218) 739-8311

Data Request:
Did MISO include the impact of Applied Digital's operation and future plans as well as the prospect of generation west of Fargo into their calculations? If not, have either of your companies attempted to assess this impact?

Attachments: 0

Response:

MISO did not include Applied Digital's operation and future plans in the Future 1 models that were used to identify the Tranche 1 portfolio. The Future 1 models were finalized prior to Applied Digital's commitment to construct new facilities at Jamestown and Ellendale. Neither Otter Tail nor Montana-Dakota have attempted to assess the impact of Applied Digital because neither company has the production cost modeling software tool, PROMOD, to do so. However, Otter Tail and Montana-Dakota have included Applied Digital's operation and future plans in subsequent MISO models once they committed to moving forward with their projects starting in 2022. As such, Applied Digital's load at Jamestown and Ellendale are included in the Future 2A models being evaluated as part of the LRTP Tranche 2.1 portfolio.

Through the model building process for the Tranche 1 portfolio, MISO performed a resource expansion across their footprint based on information gathered from the integrated resource plans of its members. In addition, MISO also added future generation to the models to balance load and generation in a 10-year and 20-year horizon. As part of this resource expansion, the Future 1 models did include the prospect of generation west of Fargo.[1] More specifically, the Applicants' identified that 200 MW of natural gas generation was assumed to have been added near Hankinson and approximately 800 MW of solar generation was assumed to have been added northwest of Fargo near Buffalo, Pickert, and Mapleton.

---

[1] Series 1 MISO Futures Resource Forecast Siting Locations are found on the MISO website at: https://cdn.misoenergy.org/20211110%20PAC%20Item%2003b%20MISO%20Futures%20Resource%20Siting%20-%20Corrected%20F2%20and%20F3602575.xlsx