

Memorandum

To: Commissioners Christmann, Haugen-Hoffart and Fedorchak

From: Christopher C Hanson Public Utility Analyst

Date: 10/16/2024

Re: Otter Tail Power Company/Montana-Dakota Utilities Co., 345kV Transmission Line-Jamestown to Ellendale, Public Convenience & Necessity, Case No. PU-24-91

On February 29, 2024, Otter Tail Power Company (OTP) and Montana-Dakota Utilities Co. (MDU) filed a joint application for a Certificate of Public Convenience and Necessity to construct, own and operate approximately 85 miles of 345kV transmission line and expand four substations located in Stutsman, LaMoure, and Dickey Counties in North Dakota (the "Project").

A Notice of Opportunity for Hearing was issued on February 29, 2024, with a due date of May 10, 2024. No requests for hearing were received.

A memo was issued on June 26, 2024, providing the details of the cost, purpose and cost-benefit analysis of the project; the specific costs that would be allocated to North Dakota customers as a result of this project as well as the rest of MISO's tranche 1.

An informal hearing on this matter was held on July 8, 2024.

An order was proposed to approve the order for the August 14, 2024, North Dakota Public Service Commission (Commission) meeting. This order was tabled and a Work Session was then held on August 19, 2024, to discuss the outstanding issue and concerns regarding the project. There were several issues that the Commission requested be addressed:

1. What are the benefits to our North Dakota constituents?
2. How much of the reliability issues (N-1s and N-1-1s) affect North Dakota specifically and what is the impact of those issues? Does it affect pricing, lines, etc.?
3. Midcontinent Independent System Operator (MISO) should provide more specifics of the benefit metrics for zone 1 of this project and for just North Dakota (ND) if possible. Do these metrics consider the impact of Applied Digital and additional generation? Do they anticipate further generation that will continue to drive up congestion?

As a result of this session, we sent a request to MISO to explain the benefits to address the key reliability and economic benefits of the project.

In response, we received a letter from Jeremiah Doner, the Director of Cost Allocation with MISO on October 14, 2024, addressing the justification and benefits of this project. Specifically, he states that this project will remedy the N-1 and N-1-1 issues noted in the previous memo and he identifies the elements that are projected to be affected by thermal overload and voltage issues. These N-1 and N-1-1 events are *projected* based upon each company's long-term forecasts of load and generation growth. Essentially they are projected overloading of lines, transformers and substations that could result in customer outages.

Mr. Doner further notes that this not constructing this project is a critical part of the MISO LRTP Tranche 1 portfolio and that not constructing it would jeopardize the benefits of the other projects in the tranche and could lead to the development of less optimal solutions to address reliability and economic concerns.

Per Mr. Doner, this project ties together the existing Coyote-Maple River 345 kV and the Ellendale to Big Stone 345 kV lines. Further, this line, in conjunction with the Big Stone-Alexandria-Big Oaks project which will alleviate the loading issues along the North Dakota, South Dakota and Minnesota borders. In the absence of this project, those loading issues would need to be addressed by local reliability projects and borne by the local transmission pricing zones.

MISO looked at five alternatives, but all six proposals assumed the Jamestown to Ellendale line would be constructed. The only variations were related to the additional facilities to the east.

Mr. Doner identifies that these projects will provide more reliable and efficient delivery of energy from low cost, regionally sited generators. He further notes that this build-out will "allow for the continued interconnection of new generation resources in areas that offer higher capacity factors for intermittent resources, such as wind generation". In other words, it creates additional capacity for more wind to be transmitted from North Dakota eastward.

Additionally, we sent data requests to MDU & OTP requesting they identify the N-1 events used to justify this project and which of these were located within North Dakota; whether other alternatives to this project were investigated and whether MISO considered the impact of Applied Digital and the prospect of future generation in the studies that supported this project.

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Otter tail responded that 88 of the 2,010 total Tranche 1, N-1 projected thermal events and 229 of the 1,728 voltage issues were located within North Dakota. This isn't apples-to-apples with the application but does illustrate that a significant portion of the N-1 and N-1-1 events are located within North Dakota.

They further stated that (as noted by MISO) there were six options evaluated, but all options included the Jamestown to Ellendale line as it serves to connect the existing 345-kV infrastructure in North Dakota. OTP also noted that MISO did NOT include Applied Digital's operation and future plans in the model used to create Tranche 1 but ARE included in the model used for Tranche 2.1. This model DID include a projection of future generation located west of Fargo including 200MW of gas generation and 800 MW of solar.

Leif Clark also conducted an analysis of the pricing (LMP) and congestion (MCC) rates in the Ellendale area in the 12 months prior to Applied Digital coming online as well as the 12 months after they were fully operational and concluded that it had reduce the MCC rates in the Ellendale vicinity by 56% and 69% and conversely increased the LMP by 46% and 12% respectively. Thus, it does appear that Applied Digital did reduce the congestion which in turn increased the prices in the Ellendale vicinity. It could therefore be anticipated that the next phase of the Applied Digital expansion would further reduce the MCC and increase the LMP in the short term.

Cc Matt Olsen-Otter Tail Power
Travis Jacobson- Montana-Dakota Utilities