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May 1, 2024

Mr. Steve Kahl  
Director of Administration/Executive Secretary  
North Dakota Public Service Commission  
State Capitol  
600 East Boulevard, Dept. 408  
Bismarck, ND 58505-0408

**RE: In the Matter of Otter Tail Power Company Advance Prudence  
Application– Astoria Station Onsite Fuel Inventory System  
Case No. PU-23-066  
OAH File No. 202300080  
Supplemental Filing**

Dear Mr. Kahl:

Otter Tail Power Company (Otter Tail) hereby submits to the North Dakota Public Service Commission (Commission) its Supplemental Filing in the above-referenced matter.

Copies have been sent to you via USPS.

Please contact me at (218) 739-8956 or [cstephenson@otpc.com](mailto:cstephenson@otpc.com) if you have any questions regarding this filing.

Sincerely,

*/S/ CARY STEPHENSON*  
Cary Stephenson  
Associate General Counsel

vjm  
Enclosures  
By electronic filing and U.S. mail

**STATE OF NORTH DAKOTA  
BEFORE THE  
PUBLIC SERVICE COMMISSION**

**In the Matter of Otter Tail Power  
Company Advance Prudence  
Application – Astoria Station  
Onsite Fuel Inventory System**

**Case No. PU-23-066  
OAH File No. 202300080**

**Supplemental Filing**

**I. INTRODUCTION**

During the North Dakota Public Service Commission’s April 12, 2024 work session concerning Otter Tail Power Company’s (Otter Tail or Company) Application for an Advance Determination of Prudence (Application) the Commission considered having the record in this docket updated to account for recent material developments. These developments concern the Midcontinent Independent System Operator’s (MISO) (1) proposed changes to the Value of Lost Load (VOLL) and (2) proposed accreditation methodology changes whereby MISO will calculate capacity accreditation based on the Direct Loss-of-Load (DLOL) method for all resources.

Otter Tail believes these developments are relevant to the Commission’s consideration of the Company’s Application. Therefore we respectfully request that the Commission allow the record to be supplemented by this filing, with Advocacy Staff having the opportunity to respond. Moreover, we believe the proposed VOLL changes whether standing alone or in combination with the DLOL methodology changes support a pause in the Commission’s consideration of the Company’s Application pending MISO finalizing and submitting the proposed VOLL changes to the Federal Energy Regulatory Commission (FERC) later this year, most likely in Q3.<sup>1</sup> While we do not expect MISO to materially change its proposed VOLL before making its submission to FERC, we believe it beneficial and prudent for the Commission to assess MISO’s final proposal and any supporting material MISO may develop prior to its FERC filing. This filing describes MISO’s proposed changes to VOLL and the potential impact on the Astoria Station LNG Fuel Storage Project. This filing also addresses MISO’s adoption of the

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<sup>1</sup> The MISO Market Subcommittee Minutes from April 18, 2024 note the following in item #8: “The proposed increase of VOLL has generated interest in VOLL Circuit Breaker mechanisms. The VOLL is connected to four items in the Tariff, and MISO proposed adjustments to some of these relationships. MISO anticipates presenting a final proposal on VOLL, ORDC, EDR Offer Cap and VOLL Circuit Breaker at the May MSC, with a targeted FERC Filing in Q3 2024.”  
<https://cdn.misoenergy.org/20240523%20MSC%20Item%2001c%20Minutes%2020240418632668.pdf>

DLOL accreditation methodology and how this change may affect Otter Tail's Application.

## II. VALUE OF LOST LOAD CHANGES

MISO recently proposed increasing the VOLL from \$3,500/MWh to \$10,000/MWh, approximately a three-fold increase. We believe this is relevant to the Commission's consideration of the Astoria Station LNG Fuel Storage Project because the proposed changes would, if approved by FERC, constitute a material increase in the level of financial risk faced by Otter Tail and its customers in situations where Astoria Station is unable to be dispatched when called upon by MISO.

### Value of Lost Load

VOLL is a key parameter in setting the market energy price during times of energy shortfalls. "The Value of Loss Load (VOLL) represents the price that demand is willing to pay to avoid loss of service. Currently, the Tariff defines the VOLL to be \$3,500/MWh. MISO proposes updating the VOLL to \$10,000/MWh based on updated willingness to pay calculations as well as other key considerations . . ."<sup>2</sup>

VOLL is used as a market price cap to the Marginal Energy Component (MEC); as an administrative price used by MISO during load-shedding events, and as an input to the Operating Reserve Demand Curve (ORDC). Currently, VOLL has a connection to the Emergency Demand Response (EDR) Offer. MISO, however, is proposing to discontinue this relationship.<sup>3</sup>

The VOLL is a form of MISO scarcity pricing.<sup>4</sup> As stated by MISO "[s]carcity pricing refers to the notion of increasing Day-Ahead and Real-Time energy prices above the incremental cost of the marginal resource under conditions when the system is short on generation capacity, which manifests itself as the inability of MISO to procure sufficient reserves. MISO Market signals are the most effective and efficient mechanism to incentivize resource behaviors that promote reliability on the Bulk Electric System."<sup>5</sup>

The current \$3,500/MWh VOLL was established at the launch of the Ancillary Services Market in 2009.<sup>6</sup> Raising the VOLL to \$10,000/MWh is intended to encourage market participants to take actions to avoid exposure to higher pricing. In explaining

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<sup>2</sup> MISO Scarcity Pricing White Paper: Value of Lost Load and Operating Reserve Demand Curve, March 2024, p. 9 (hereinafter "MISO Scarcity Pricing White Paper"): <https://cdn.misoenergy.org/20240418%20MSC%20Item%2004d%20Scarcity%20Pricing%20White%20Paper%20VOLL%20and%20ORDC632355.pdf>

<sup>3</sup> MISO Scarcity Pricing White Paper, p. 9.

<sup>4</sup> MISO Scarcity Pricing White Paper, pp. 7-9.

<sup>5</sup> MISO Scarcity Pricing White Paper, Executive Summary, p. 5.

<sup>6</sup> MISO Scarcity Pricing White Paper, p. 8.

the proposed VOLL increase MISO’s Chris Hanson recently explained that “[w]hen the system is in a more vulnerable state, prices should reflect the risk of diminishing reserves,” noting that “[w]ith higher prices, we expect lower volatility and more preparation to avoid those kinds of real-time energy deficiencies.”<sup>7</sup>

### Application of the Proposed VOLL to the Day Ahead & Real Time Energy Markets

Generation owners have an obligation to offer their generation into MISO’s day-ahead energy market. If MISO determines a generator is needed for the next day, it will clear the unit, and MISO will pay the generator owner the day-ahead clearing price for the MWhs that MISO has called on. If something forces the generator offline, including instances when fuel is unavailable, the generator owner will be required to pay the real-time energy price for the MWhs it fails to deliver as determined by the day-ahead dispatch requirements. Under the proposed VOLL increases, the highest allowable real-time energy price will now be \$10,000 /per MWh instead of the current \$3,500 per MWh.

With respect to Astoria Station, if the plant cleared the MISO day-ahead market at the plant’s maximum winter output of 286 MW, and the plant failed to deliver its output because of disruptions in pipeline delivered fuel, the maximum real-time energy market exposure under the proposed rules will be \$2.86 million *per hour* compared to \$1 million per hour under the current VOLL rules.

Instances when generation owners have suffered VOLL payments in the real time energy market are rare.<sup>8</sup> That said, the fact that such events have occurred in the past suggest they may occur in the future, and MISO has recently warned of the potential increased risk of short duration scarcity conditions due to the changing generation fleet.<sup>9</sup> Were this to happen at Astoria Station, the magnitude of financial risk for Otter Tail and its customers would depend on the duration of the energy shortage within MISO. Such energy shortages may be short - measured in minutes, or conceivably much longer – measured in hours. By way of example, a fuel-driven outage at Astoria Station lasting three hours when VOLL caps are triggered could require Otter Tail to pay real time energy prices approaching \$9 million; all of which would flow to Otter Tail

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<sup>7</sup> *MISO wants \$10K VOLL, a Nearly Three-Fold Increase*, RTO Insider, March 3, 2024.

<sup>8</sup> Detailed data is lacking, but MISO has noted that VOLL shortage pricing is very rare with nine 5-minute intervals in the real time energy market as of April 2014. See *Continued Reforms to Improve Scarcity Pricing and Price Formation (MSC-2019-1) EDR off Cap and VOLL Circuit Breaker*, MISO Market Subcommittee, Slide 11, April 18 2024:

[https://cdn.misoenergy.org/20240418%20MSC%20Item%2008%20Continued%20Reforms%20to%20Improve%20Scarcity%20Pricing%20and%20Price%20Formation%20\(MSC-2019-1\)632556.pdf](https://cdn.misoenergy.org/20240418%20MSC%20Item%2008%20Continued%20Reforms%20to%20Improve%20Scarcity%20Pricing%20and%20Price%20Formation%20(MSC-2019-1)632556.pdf)

<sup>9</sup> Id.

customers through the Company's fuel clause. It is important to note this risk is in addition to intraday pricing risk.

What the record before the Commission reflects is that extreme winter events can disrupt the delivery of fuel on the Northern Border pipeline serving Astoria Station, as was the case during Winter Storm Elliot (December 2023), when the plant was forced to shut down for 51 hours.<sup>10</sup> Were such an event to occur in the future, resulting in Otter Tail's inability to deliver the plant's maximum output during a MISO energy shortfall, an event of modest duration could still have significant financial repercussions for Otter Tail and our customers.

Otter Tail believes that its proposal to provide fuel assurance to Astoria Station through on-site LNG fuel storage is in full alignment with the incentives and signals being sent by MISO through its proposed VOLL increase. Because of the incentives and signals from MISO, we would expect to see other utilities within MISO adopt on-site fuel storage and related fuel assurance projects. In this sense, LNG fuel storage at Astoria Station puts Otter Tail ahead of the curve in preparing for this risk. We also expect further discussion and analysis between and among MISO and its stakeholders prior to MISO's submission of new VOLL values to FERC.

As noted above, we encourage the Commission to defer action on the Company's Application pending MISO finalizing its VOLL proposal, most likely in Q3 of this year. This will allow the Commission to (1) consider further MISO commentary and analysis pending finalization of its proposed VOLL standards and (2) assess the Application based on the final standards adopted by MISO.

### **III. DIRECT LOSS-OF-LOAD ACCREDITATION CHANGES**

Otter Tail's prior filings in this docket note MISO's adoption of a seasonal resource adequacy construct and modifications to the accreditation methodology for thermal resources. The seasonal resource adequacy construct is significant as it establishes seasonal capacity auctions with each season having its own requirement based on seasonal coincident peak loads and a seasonal reserve margin. The Winter season, when the Company historically peaks, has had the highest Planning Reserve Margin Requirement (PRMR) percentage established by MISO for the first two Planning Reserve Auctions (PRA) under the new seasonal construct.

Along with the seasonal resource adequacy construct, coinciding with the 2023-2024 MISO Planning Year, MISO implemented availability-based accreditation for

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<sup>10</sup> In January 2024, Northern Border pipeline declared a Force Majeure event due to underperformance caused by freeze-offs, disrupting delivery for 61 hours though Astoria Station was largely uncommitted during this time.

thermal resources to align accreditation in the highest-risk periods. Resources that are reliable, especially during tight operating margin hours in MISO, receive stronger accreditation values compared to those that are not.

In addition to the already approved accreditation reforms, MISO recently filed a new tariff proposal with FERC in March 2024 to calculate resource class level capacity accreditation based on the Direct Loss-of-Load (“DLOL”) method for all resources.<sup>11</sup> MISO’s proposal is to begin the DLOL accreditation methodology for the 2028-2029 Planning Year. The DLOL accreditation methodology includes calculations of simulated availability of each resource class during critical hours. This differs substantially from current class level accreditation for thermal resources, which is based on five years of historical outage data. What will not change is that resource level accreditation for thermal resources will be based on actual availability during tight margin hours, incentivizing high levels of reliability and resources with firm fuel supplies.

According to Figure 1 below, MISO is forecasting capacity accreditation to fall across all resource classes across all seasons and low renewable capacity accreditations with the implementation of DLOL.

**Figure 1**

**Future 2A DLOL breakdown by fuel class (10-years out)<sup>12</sup>**

Future 2A DLOL breakdown by fuel class (10 year out)  
[Action Items from November 7-8, 2023, RASC meeting]

Future 2A 2032	Summer		Fall		Winter		Spring	
	UCAP*	DLOL (Base)	UCAP*	DLOL (Base)	UCAP*	DLOL (Base)	UCAP*	DLOL (Base)
Gas**	88%	84%	87%	75%	86%	82%	87%	78%
Combined Cycle	91%	85%	90%	83%	87%	77%	90%	84%
Coal	95%	83%	94%	81%	94%	79%	95%	69%
Hydro	94%	90%	95%	90%	94%	75%	96%	79%
Nuclear	92%	91%	94%	93%	96%	90%	90%	87%
Flex Units***	89%	70%	84%	73%	80%	77%	83%	74%
Pumped Storage	97%	78%	94%	95%	85%	35%	92%	68%
Storage	100%	89%	100%	96%	100%	56%	100%	72%
Solar		4%		11%		2%		1%
Wind		7%		14%		14%		9%

<sup>11</sup> Midcontinent Independent System Operator, Inc.’s Filing to Reform MISO’s Resource Accreditation Requirements, FERC Docket No. ER24-1648-000.

<sup>12</sup> MISO Resource Adequacy Subcommittee meeting, January 17, 2024, Slide 22.  
[https://cdn.misoenergy.org/20240117%20RASC%20Item%2007a%20Accreditation%20Presentation%20\(RASC-2020-4%20and%202019-2631379\).pdf](https://cdn.misoenergy.org/20240117%20RASC%20Item%2007a%20Accreditation%20Presentation%20(RASC-2020-4%20and%202019-2631379).pdf)

DLOL accreditation, if approved by FERC, will increase the need for and value of fuel assured generation at Astoria Station. Under DLOL accreditation, having best in class reliability supports the Company's efforts to maintain current accreditation levels and a higher share of a smaller class level accreditation. Additionally, high levels of accreditation at Astoria Station across all seasons will help the Company maintain resource adequacy and limit exposure to market risk from uncertain future capacity prices ---prices that may otherwise result from accreditation reforms and the implementation of the reliability-based demand curve. The Company recognizes that MISO is proposing to change how the PRMR is allocated which may impact its capacity requirements in all seasons. The impacts of that change are not known at this time. What is known is that DLOL accreditation changes highlight the value of fuel assured generation through on-site fuel storage.

#### **IV. CONCLUSION**

The Company respectfully request that the Commission add the information set forth above to the record, along with any response provided by Advocacy Staff. In addition to weighing these new developments, the Company requests that the Commission defer its final decision on the Application until such time as MISO submits its proposed VOLL tariff changes to FERC later this year. Finally, when the Commission considers the Application, Otter Tail respectfully requests the Commission issue an order for an advanced determination of prudence for the proposed Astoria Station onsite fuel inventory system.

DATED: May 1, 2024

Respectfully submitted,

**OTTER TAIL POWER COMPANY**

By: /s/ NATHAN JENSEN

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