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February 1, 2023

Mr. Will Seuffert Executive Secretary Minnesota Public Utilities Commission 121 7th Place East, Suite 350 St. Paul. MN 55101-2147

RE: In the Matter of Otter Tail Power Company's 2022-2036 Resource Plan Docket No. E017/RP-21-339 Reply Comments

Dear Mr. Seuffert:

Otter Tail Power Company (Otter Tail) respectfully submits these Reply Comments to the Minnesota Public Utilities Commission (Commission) in the above-referenced docket.

Otter Tail has electronically filed this document with the Commission and is serving a copy on all persons on the official service list for this docket. A Certificate of Service is also enclosed.

Should you have any questions, please contact me at njensen@otpco.com or (218) 739-8989.

Sincerely,

/s/ NATHAN JENSEN Nathan Jensen Manager, Resource Planning

kaw Enclosures By electronic service c: Service List

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STATE OF MINNESOTA BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Otter Tail Power Company's 2022-2036 Integrated Resource Plan Docket No. E017/RP-21-339

REPLY COMMENTS

I. PROCEDURAL BACKGROUND AND INTRODUCTION

Otter Tail Power Company (Otter Tail or Company) submitted its Initial Filing in this docket on September 1, 2021. On October 14, 2022 Otter Tail requested that the Minnesota Public Utilities Commission (Commission) bifurcate the docket to (1) maintain the established procedural schedule to address Otter Tail's proposed onsite fuel inventory at Astoria Station (Astoria) and (2) amend the established schedule for the balance of Otter Tail's resource plan to allow Otter Tail to update its resource plan and modeling to account for recent developments, including the adoption of a seasonal capacity construct by the Midcontinent Independent System Operator (MISO) and the passage of the Inflation Reduction Act (IRA).

On November 1, 2022, the Commission issued a notice granting Otter Tail's bifurcation request, with Astoria Initial Comments due December 1, 2022 (later changed to December 31, 2022) and Otter Tail's updates to the balance of its resource plan due March 31, 2023. On November 4 Otter Tail filed Supplemental Comments Summarizing Otter Tail's Request for Authority to Commence Development of Onsite Fuel Storage at Astoria Station.

On December 30, 2022, the following parties filed Initial Comments on Otter Tail's Astoria onsite storage proposal: (1) Minnesota Department of Commerce (the Department), (2) the Minnesota Office of the Attorney General – Residential Utilities Division (OAG), (3) Laborers' International Union of North America Minnesota and North Dakota (LIUNA), and (4) Operating Engineers Local 49 and North Central States Regional Council of Carpenters (Operating Engineers & Carpenters). All parties filing Initial Comments except the OAG support Otter Tail's proposal to commence development of onsite fuel storage at Astoria Station.

II. THE DEPARTMENT, LIUNA AND THE OPERATING ENGINEERS & CARPENTERS SUPPORT APPROVAL OF ONSITE FUEL STORAGE AT ASTORIA.

The Department, LIUNA and the Operating Engineers & Carpenters each filed Comments on December 30, 2022. All supported approval of Otter Tail's request for authority to install onsite fuel storage at Astoria, concluding that it will improve reliability for customers during extreme circumstances and mitigate the risks caused by natural gas price volatility and pipeline capacity unavailability. ¹ Otter Tail concurs.

III. PIPELINE LIMITATIONS IN DECEMBER 2022, WHICH CAUSED ASTORIA STATION TO BE PLACED ON FORCED OUTAGE DURING WINTER STORM ELLIOT, ILLUSTRATE THE SIGNIFICANT RISKS OF RELYING SOLELY ON PIPELINE-DELIVERED GAS.

Weather and related market events in December 2022 illustrate the risks of relying solely on just-in-time fuel deliveries from the gas pipeline. Winter Storm Elliot² commenced December 21, 2022 and ended December 26, 2022, with the most significant threats to reliability occurring from December 23 through December 24.³ Over this time period, Otter Tail experienced: (1) a forced outage at Astoria due to lack of fuel on Northern Border Pipeline, (2) natural gas pricing of \$150/MMBtu, and (3) MISO committing Astoria for reliability purposes under a unit offer utilizing approximately \$120/MMBtu natural gas costs even though locational marginal pricing (LMP) at Astoria was relatively low at the time. MISO provided Otter Tail make whole payments for this requested commitment which covered the unit's offer cost. These circumstances and the likelihood of similar circumstances in the future demonstrate the necessity and prudence of adding onsite fuel storage.

Extreme operating conditions for Astoria commenced on December 23, 2022, when the Northern Border Pipeline declared an operational flow order (OFO) limiting

Department Comments pp. 6-8.

² Winter Storm Elliot Winter was deemed a bomb cyclone, bringing extreme cold temperatures to the eastern two-thirds of the Lower 48, with blizzard conditions occurring in several states. See https://www.wunderground.com/article/storms/winter/news/2022-12-23-winter-storm-elliott-bomb-cyclone-midwest-northeast-winds-snow.

¹ LIUNA noted that "the proposed project is necessary to ensure reliability for customers" and that it will "limit the exposure of Otter Tail customers generally to cost and reliability risks associated with extreme weather events." LIUNA Comments at p. 1. The Council of Carpenters noted that the proposals will "help mitigate risks caused by natural gas price volatility and pipeline capacity unavailability" and "ensure the station serves as a true 'firm' resource that provides robust system reliability and that Otter Tail Power's customers are less exposed to short-term spikes in natural gas prices." Carpenters Comments at p. 1. The Department recommended approval of the project based in large part on its reliability aspects.

³ Otter Tail discussed the propensity of such events in its November 4, 2022, Supplemental Comments at p. 16. The North American Electric Reliability Corporation's (NERC) 2022-2023 Winter Reliability Assessment issued in November 2022 (available at https://www.nerc.com/pa/RAPA/ra/Reliability Assessments DL/NERC_WRA_2022.pdf) highlights the increased risk of extreme weather events and seemingly foreshadowed Winter Storm Elliot.

withdrawals from the pipeline to scheduled nominations.⁴ Despite the MISO LMP being relatively low, and the Astoria unit being priced utilizing extremely high natural gas, MISO continued to call for the unit during December 23 and December 24. During this time, Astoria was able to utilize natural gas from Otter Tail's Park and Loan balance (PAL),⁵ which Otter Tail ultimately exhausted.

After exceeding Astoria's PAL balance, and still facing a declared OFO at a time when additional gas nominations were not possible, Otter Tail was forced to place Astoria on outage due to lack of fuel. Of course, this occurrence is a stark illustration of the reliability risks that are posed by an operational strategy that relies solely on pipeline-delivered fuel at this important generating station. The occurrence of this forced outage alone should serve as sufficient demonstration that adding onsite fuel inventory is necessary and prudent.

But this event's illustration of risks does not end here. When the gas markets opened on the morning of December 24, Otter Tail was unable to procure gas at Astoria for any price because of increased demand and production facility freeze offs. These conditions persisted for over two days. And not until December 26 did fuel become available. At that time, we purchased 3,500 MMBtu at \$50/MMBtu to return us to within our PAL balance. As a result of these pipeline and gas market disruptions, Astoria was on forced outage and fully curtailed from operations from early morning December 24 into mid-morning December 26. Because of this occurrence, we expect to see a decrease in the unit's accreditation under the new Resource Adequacy accreditation methodology per Schedule 53 of MISO's Seasonal Accreditation Construct. This risk of reduced accreditation further demonstrates that adding onsite fuel inventory is necessary and prudent.

Fortunately, strong regional wind generation greatly contributed to keeping Otter Tail LMP pricing relatively low. During these events, Otter Tail avoided very serious market price consequences at Astoria in large part because strong regional wind generation helped keep Otter Tail's LMPs relatively low over these dates. Of course, we cannot count on low LMPs occurring during future pipeline/gas market disruptions. In this instance, the gas markets and LMP markets diverged, which is not a common occurrence. For some of Astoria's operating hours, we were able to utilize our very limited PAL balance—and this is only something we have for the purpose of balancing withdrawals. It is not a balance we can count on for prolonged risk mitigation (more

⁴ Northern Border Pipeline issued the OFO in order to protect system integrity. Extreme cold and blizzard

conditions resulted in natural gas production and processing underperforming throughout the Bakken region (specifically the Roosevelt, Rawson, Southeast Little Missouri, and Stateline receipt points).

⁵ Park and Loan (PAL) is the Northern Border Pipeline balancing service. Park and Loan is procured on an annual basis and entitles a customer to either park excess gas in the pipeline to be consumed later or to borrow gas from the pipeline to be replaced later, within a set, predetermined bandwidth.

than a few hours), and, as noted, that balance was ultimately fully depleted. Otter Tail customers could have seen very different results if regional LMP pricing would have followed natural gas pricing. Five days of onsite fuel, however, would have allowed Astoria to operate continuously throughout this most recent event. Astoria would have been able to remain online as a capacity resource for MISO instead of being forced into an outage for over two days for lack of fuel.

IV. OTTER TAIL'S RESPONSE TO THE OAG'S COMMENTS

As noted above, the OAG is the only party opposing onsite fuel storage at Astoria Station. The following comments address the OAG's arguments.

The OAG Incorrectly Overlooks the Full Hedging and Reliability Value of Onsite Fuel Storage at Astoria.

The OAG takes issue with the expense of onsite fuel storage at Astoria, suggesting that the investment is not warranted because there are few benefits beyond market hedging.⁶ The OAG Comments under-value the "hedging" that Astoria can provide with an onsite fuel inventory, and it does not adequately see or appreciate the reliability value of onsite inventory. Onsite fuel storage at Astoria will provide hedge value by protecting customers from extreme price spikes within the natural gas market in addition to ensuring reliable electric service during extreme conditions. For Otter Tail's service area, extreme conditions are most likely winter storms and extreme cold – i.e., the type of conditions when reliable electric service is needed the most. Otter Tail's responsibility to serve customers with reliable electric service is at the forefront of its proposal for onsite fuel storage at Astoria. As explained in greater detail in the following subsections, the OAG's comments do not adequately recognize these facts and they are sometimes based on a misunderstanding of how the gas and electric markets work.

В. Onsite Storage is Necessary to Mitigate Risks of Compromised **Pipeline Reliability**

The OAG contends that onsite fuel storage would not materially improve reliability, arguing that the Northern Border Pipeline serving Astoria is very

⁶ OAG Comments at pp. 2-3.

OAG Comments at pp. 2-3.

This focus in consistent the factors the Commission considers when evaluating resource plans under Minn. Rules 7843.0500 Subpart 3. The fist listed factor under this standard requires evaluation of the resource plan's ability to "maintain or improve the adequacy and reliability of utility service." Also, the Department notes that reliability projects such as Astoria onsite fuel storage often don't fit within a traditional cost/benefit assessment because reliability is "treated as a minimum that must be met rather than being a question of cost effectiveness." Department Comments at p.8.

reliable and that Astoria's location on the pipeline is advantageous.⁸ Otter Tail agrees that Astoria was planned and built with these factors in mind, but, even so, there is inherent risk of interruption to natural gas pipeline service as recently demonstrated by Winter Storms Elliot and Uri. Even highly reliable systems are not immune to breakdowns and interruptions, and it is not reasonable to ignore these risks, especially with ongoing changes to the marketplace and growing uncertainties relating to how larger electric and gas systems and markets can become compromised during weather events and other regional disruptions. As noted above, for Otter Tail's service area, extreme conditions are most likely winter storms and extreme cold – i.e., the type of conditions when reliable electric service is needed the most. Onsite fuel storage in this context provides more than a market price hedge – it ensures Otter Tail's ability to provide reliable electric service during extreme conditions.

C. The OAG's Misunderstanding of Natural Gas Procurement Causes it to Incorrectly Assess of the Risk of Higher Cost Operations Without Onsite Fuel Inventory

The OAG accuses Otter Tail of "dramatically overstating the dual fuel proposal's potential cost savings" and that Otter Tail's estimates are "inflated by unreasonable assumptions." These mischaracterizations suggest the OAG likely does not understand the processes and timing of natural gas procurement. The OAG erroneously assumes that during a winter storm event Otter Tail can accurately forecast the "expected operation for Astoria on the following day." In reality, however, forecasting the MISO dispatch of a simple cycle combustion turbine is difficult during normal situations, and extraordinarily difficult during a winter storm event. This was illustrated during Winter Storm Elliot, where LMP pricing was very low, yet MISO continued to commit Astoria under an extremely high natural gas pricing offer. The OAG's Comments are based on an overly simplistic logic that LMPs will be the sole drives dispatch, and therefore its assessment is that exposure to high gas costs is mitigated because they will necessarily correlate with high LMPs (which is not a reasonable assumption, especially during periods of market strain or disruption). The events in December illustrate that is not the case, and therefore a generation owner cannot simply estimate the likelihood and duration of dispatch by forecasting LMPs. These are the kinds of events that make an onsite fuel inventory strategy reasonable.

⁸ OAG Comments at pp. 3-4.

⁹ OAG Comments at p. 4-5.

The OAG also states the "timely purchase percentage refers to the amount of surplus [emphasis added] purchases that would have been made even if the Company would not expect – based on the information available to it at the time – the plant to be economically dispatched." As explained above, this is where the OAG seems to misunderstand real world dispatch and operations. Otter Tail does not know how MISO will choose to dispatch Astoria when the Company is required to procure natural gas, hence the sensitivity analysis to timely purchases, especially during a winter storm event, with unknown and volatile LMP pricing and natural gas markets. At no point is Otter Tail trying to buy surplus gas above and beyond the point at which Otter Tail thinks the unit will operate; Otter Tail does not know the point at which the unit will operate, which requires the Company to make judgements well in advance of knowing clearing and future market conditions.

The OAG also engages in an unhelpful and misleading hindsight analysis in claiming that "MISO day-ahead energy market prices for the 17th were also abnormally high, but even the peak hourly market price (\$615/MWh) was still several hundred dollars per MWh below Astoria's expected fuel cost. Based on the information available at the time of these hypothetical purchases, it almost certainly would have been imprudent to procure pipeline gas for this day at the quoted price." The OAG comments are premised on an incorrect assumption that Otter Tail can precisely forecast future, winter storm event, market pricing, hours in advance of MISO clearing the market. Winter storm event pricing often results in the most volatile and extreme pricing conditions seen throughout the course of a year. Otter Tail could not have known what pricing might have reached under winter event conditions. Big Stone pricing in Southwest Power Pool, a short distance from Astoria, reached \$2,185/MWh for the same hour.

More generally, the OAG is critical of Otter Tail's sensitivity analysis that includes the full range of timely nominations for Astoria (from 0 percent to 100 percent.) Otter Tail provided the full range of nominations as book ends for its analysis. While it is unlikely that Otter Tail will always buy or sell at the worst possible time, it is likely that the Company will be selling or buying at inopportune times, reducing the value of the purchase or sale below "average" conditions. For example, when the market does not clear Astoria, it is likely the market didn't clear other units, resulting in multiple parties seeking to liquidate gas, potentially driving down the price.

¹⁰ OAG Comments at p.6.

¹¹ OAG Comments at p.8.

Otter Tail's analysis of the potential cost savings associated with onsite fuel storage is reasonable and robust. The OAG's critique of that analysis is not.

The OAG's Comments Regarding Xcel's Gas Plant Operations Do Not Support the OAG's Position; Instead, that Example Appears to Support the Necessity and Prudence of Adding Onsite Fuel Storage at Astoria

The OAG also argues that Xcel's peaking plant operations during Winter Storm Uri undermine Otter Tail's economic analysis, concluding that "rather than making large speculative purchases as assumed in Otter Tail's analysis, Xcel simply chose not to operate its plants on pipeline gas during the period of extremely volatile pipeline gas prices. This strategy allowed Xcel to avoid the massive speculative gas price market losses that make up the bulk of the Dual Fuel proposal's alleged benefits."12 Taking the OAG's argument on its face, the operation of Xcel's natural gas plants during Winter Storm Uri does not undermine Otter Tail's assumptions. To the contrary, the lack of production of Xcel's gas plants during Winter Storm Uri supports Otter Tail's analysis. One can reasonably assume that (1) Xcel gas units maintained a "must offer" requirement, 13 (2) Xcel gas units could only utilize pipeline-supplied natural gas with no storage capability, (3) and Xcel elected to procure some level of timely gas nominations for potential operations the next day, yet MISO chose not to clear the units, which means Xcel would have been required to liquidate their timely purchase at the then current market pricing. This is squarely in line with the Otter Tail analysis. If the Xcel resources are capacity accredited, they would have a MISO "must offer" requirement. Such units cannot simply be removed from the market during times of high volatility as suggested by the OAG. Lack of production does not necessarily imply lack of fuel procurement or liquidation of unused fuel.

OAG comments at p.10. Note, also, it is difficult to comment on how another utility has operated its generation units. Neither Otter Tail nor the OAG are privy to all the factors considered and weighed by that other utility, differences in its generation stacks, and differences in its resulting strategies.

13 Otter Tail and Xcel operate in MISO, and MISO has requirements for PRA resources that require them to be offered into the market (a "must offer" requirement). Participants offer units into the market and MISO decides whether the units are then called upon or not.

By Incorrectly Relying on Historical Data, the OAG Incorrectly Assesses the Risk of Market Disruptions in its Cost Benefit Analysis; this is Not a Reasonable Approach to Risk Management nor System Planning, especially given the Market-Wide **Generation Transformation that is Presently Occurring Onsite** Fuel Storage Impact on Customer Bills During Winter Storm Uri

The OAG argues that "even if there were a Winter Storm Uri-level pricing event every year for the next thirty years, the Dual Fuel proposal would still increase costs for customers" which appears to be another iteration of the claim onsite fuel storage is not cost effective. The OAG's conclusions appear to rest on historical LMP pricing and zero to 15 percent timely natural gas nominations, where, in reality, Otter Tail would likely purchase at least 25 percent (and as much as 50 percent) of expected natural gas requirements. See Supplemental Table 3-12: February 2021 LMP Pricing Scenario in Otter Tail's Supplemental Comments.¹⁵ If market conditions would have settled differently, in a case where MISO commitment and dispatch would have exceeded fuel nominations, a zero to 15 percent timely natural gas nomination strategy could have resulted in considerable cost increases for Otter Tail customers. As such, the OAG's assumed zero to 15 percent strategy scenario is not a strategy we would recommend. In practice, a 25 to 50 percent purchase is more likely.

The OAG also contends that LNG capability at Astoria would be rarely used and is therefore not cost justified, but it again bases this contention on historic data that is not representative of our industry's future. The OAG estimates that over the last 14 years "the estimated LNG price was lower than the pipeline gas cost in just 29 of 5,020 days over this span, or less than one percent of the time."16

The OAG's analysis incorrectly assumes the future will mirror the past. Recent events suggest otherwise. The time between winter storms Uri and Elliot was approximately 22 months. This is consistent with The North American Electric Reliability Corporation's (NERC) 2022-2023 Winter Reliability Assessment, which highlights the increased risks of extreme events.¹⁷ The more likely future is that there will be more extreme events where the reliability provided by onsite fuel storage will benefit Otter Tail customers, especially as dispatchable resources continue to be retired across MISO. Extreme events are the very times when peaking generation resources such as Astoria are needed the

¹⁴ OAG Comments at p.11.

¹⁵ Otter Tail's November 4, 2022, Supplemental Comments, p.15. ¹⁶ OAG Comments at p. 12.

¹⁷ https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_WRA_2022.pdf.

most. Within the context of Astoria's capacity factor of 12 percent, the proper comparison of the 5,020 days the OAG references should be 29 out of 602 days,¹⁸ a figure that will likely increase in the future.

F. The OAG Is Incorrect in its Suggestion that Energy Conservation Might be a Substitute for Onsite Fuel Strategy to Mitigate Reliability and Economic Risks.

The OAG recommends that in lieu of onsite fuel storage at Astoria Station that Otter Tail should explore "other investments that could more meaningfully ensure customers' safety. In particular, investments in energy efficiency and weatherization are more attractive than ever in light of the significant rebates and tax credits included in the recently passed Inflation Reduction Act."¹⁹ The OAG goes on to note that home "improvements to building envelopes—e.g., insulation, air sealing, and window replacement—will also help homes maintain safe temperatures during (inevitable) power outages."

While conservation is a great tool for reducing overall energy consumption, it is not at all the right tool to address abrupt market disruptions or dispatch. In fact, Otter Tail continues to have a robust conservation improvement program (CIP) that has exceeded goals set by the Commission. Put another way, Otter Tail is already doing what the OAG suggests. Finally, if the OAG is suggesting that Otter Tail's customers should be satisfied with better insulation and windows to protect them during outages driven by extreme events (usually involving extreme cold), rather than having Otter Tail prepare to serve them with an onsite fuel inventory, that is a particularly insensitive and unreasonable suggestion. On this point the OAG badly misses the mark.

V. CONCLUSION

Based on the foregoing, Otter Tail respectfully requests that the Commission authorize Otter Tail to develop and install dual fuel at Astoria Station.

¹⁹ OAG Comments at p. 13.

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¹⁸ 29 days / (12% Astoria Capacity Factor x 5,020 days) = 4.8%.

Dated: February 1, 2023

Respectfully submitted,

OTTER TAIL POWER COMPANY

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CERTIFICATE OF SERVICE

RE: In the Matter of Otter Tail Power Company's 2022-2036 Resource Plan Docket No. E017/RP-21-339

I, Kim Ward, hereby certify that I have this day served a copy of the following, or a summary thereof, on Will Seuffert and Sharon Ferguson by e-filing, and to all other persons on the attached service list by electronic service or by First Class Mail.

Otter Tail Power Company Reply Comments

Dated this 1st day of February, 2023.

/s/ Kim Ward

Kim Ward Lead Regulatory Filing Coordinator Otter Tail Power Company 215 South Cascade Street Fergus Falls MN 56537 (218) 739-8268

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| First Name | Last Name | Email | Company Name | Address | Delivery Method | View Trade Secret | Service List Name |
|------------|------------|-----------------------------|--|--|--------------------|-------------------|----------------------|
| Cary | Stephenson | cStephenson@otpco.com | Otter Tail Power Company | 215 South Cascade Street Fergus Falls, MN 56537 | Electronic Service | Yes | OFF_SL_21-339_21-339 |
| Stuart | Tommerdahl | stommerdahl@otpco.com | Otter Tail Power Company | 215 S Cascade St PO Box 496 Fergus Falls, MN 56537 | Electronic Service | Yes | OFF_SL_21-339_21-339 |
| Amelia | Vohs | avohs@mncenter.org | Minnesota Center for Environmental Advocacy | 1919 University Avenue West Suite 515 St. Paul, Minnesota 55104 | Electronic Service | Yes | OFF_SL_21-339_21-339 |
| Laurie | Williams | laurie.williams@sierraclub. | Sierra Club | Environmental Law Program 1536 Wynkoop St Ste Denver, CO 80202 | Electronic Service | No | OFF_SL_21-339_21-339 |
| Cameron | Winton | winton.cam@dorsey.com | Dorsey & Whitney LLP | 50 S 6TH ST STE 1500 Minneapolis, MN 55402 | Paper Service | No | OFF_SL_21-339_21-339 |
| Patrick | Zomer | Pat.Zomer@lawmoss.com | Moss & Barnett PA | 150 S 5th St #1200 Minneapolis, MN 55402 | Electronic Service | No | OFF_SL_21-339_21-339 |