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November 21, 2023

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

Dear Mr. Kahl:

Please find enclosed for filing Surrebuttal Testimony of Otter Tail Power Company witnesses Mr. Ryan Retzlaff supporting the Company's Application for Advance Prudence Application– Astoria Station Onsite Fuel Inventory System.

An original and copies of the Company's Surrebuttal Testimony are being sent via mail. Please contact me at (218) 739-8956, or cstephenson@otpc.com should you have any questions with respect to this filing.

Very truly yours,

/S/ CARY STEPHENSON
Cary Stephenson
Associate General Counsel

vjm
Enclosures
By electronic filing
c: Service List

Before the North Dakota Public Service Commission
State of North Dakota

In the Matter of the Application of Otter Tail Power Company
For Advance Prudence on the Astoria Station Onsite
Fuel Inventory System in North Dakota

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

Exhibit____

ASTORIA STATION PROJECT

Surrebuttal Testimony

RYAN D. RETZLAFF

November 21, 2023

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 Q. PLEASE STATE YOUR NAME AND EMPLOYER.

3 A. My name is Ryan D. Retzlaff. I am employed by Otter Tail Power Company (Otter
4 Tail or Company) as its Manager of Power Services.

5

6 Q. PLEASE SUMMARIZE YOUR CURRENT RESPONSIBILITIES.

7 A. The primary responsibility of Power Services is to implement wholesale energy
8 market strategies that optimize Otter Tail’s generation resources with other
9 resource alternatives to meet customer needs in a low-cost, reliable manner, all
10 while maintaining an appropriate level of risk tolerance. I oversee the Company’s
11 wholesale energy market functions, including daily submission of generation offers
12 and load bids, procurement of natural gas fuel for our generation resources,
13 oversight of the Company’s Auction Revenue Rights and Financial Transmission
14 Rights portfolios, procurement of forward energy, capacity, and natural gas
15 contracts, and accounting of wholesale energy market financial settlements.

16 **II. PURPOSE AND OVERVIEW OF SURREBUTTAL**
17 **TESTIMONY**

18 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

19 A. The purpose of my testimony is to rebut various portions of Mr. Heidell’s
20 surrebuttal testimony while also providing additional context. I discuss risk
21 mitigation options for intraday pricing risk. I explain why Mr. Heidell’s critique of
22 Otter Tail’s Winter Storm Uri economic analysis is faulty due to a presumption of
23 perfect, after the fact, knowledge while discounting upward pricing indicators.
24 Finally, I discuss the value and limitations associated with aligning the daily
25 natural gas and electric schedules.

26

27 Q. DO YOU AGREE WITH MR. HEIDELL THAT THERE ARE OTHER WAYS,
28 OTHER THAN ONSITE FUEL STORAGE, TO MANAGE “GAS PRICE
29 NOMINATION RISK”?

30 A. Overall, I disagree in part due to a lack of delineation of differing risk types. Mr.
31 Heidell uses the term “gas price nomination risk”, which is vague in describing the

1 specific types of risk faced by natural gas fired generation. Forward gas purchases,
2 natural gas call options, and natural gas storage alternatives do not fare well when
3 hedging intraday pricing risk, as discussed below. It is true that these mechanisms
4 can serve as financial hedges against changing monthly and daily market
5 movements. However, as discussed in previous testimony and data requests, even
6 when seeking to hedge against monthly and daily price movements, these hedging
7 mechanisms are problematic for several reasons.
8

9 Q. WHAT ARE THOSE REASONS?

10 A. The reasons why these hedging mechanisms are a problem include complexity of
11 sizing, liquidity, expense, and long-term price certainty.
12

13 Q. CAN YOU EXPLAIN WHAT YOU MEAN BY THOSE TERMS?

14 A. Yes. As it relates to forward gas purchases, natural gas call options, and natural
15 gas storage alternatives, determination of the contract size (the daily delivery
16 amount) must occur well in advance of when the gas will be delivered and
17 consumed. It becomes necessary to weigh the quantity of gas that will likely be
18 liquidated during non-event days against the need for significantly increased gas
19 volumes during event days. Unless the hedging mechanisms are significantly
20 oversized, it is unlikely they would be large enough to adequately carry the unit
21 through an extended winter storm event. Liquidity refers to accessibility of a
22 product. Long-term price certainty refers to certainty of pricing into forward years.
23 According to Otter Tail's gas supplier, Tenaska Marketing Ventures, the Ventura
24 call option market is illiquid, and the sellers of call options are difficult to find. Any
25 call option purchase would likely be short term in nature that would not be
26 guaranteed (availability or terms) beyond one or two seasons. Currently, there are
27 no storage facilities on the Northern Border Pipeline. As such, storage on this
28 pipeline cannot be procured at any cost. Utilization of storage on other
29 pipelines is cost prohibitive due to pipeline transport costs. Data request number
30 ND-PSC-2.09 of docket number PU-23-066 provides a detailed discussion of
31 this topic.
32

1 Q. DO FORWARD NATURAL GAS PURCHASES, NATURAL GAS CALL OPTIONS,
2 AND NATURAL GAS STORAGE ALTERNATIVES PROVIDE COMPARABLE
3 INTRADAY RISK HEDGING CAPABILITY AS COMPARED TO ONSITE LNG
4 FUEL STORAGE?

5 A. No, these hedging mechanisms compare poorly against onsite LNG fuel storage
6 when considering intraday pricing risk. Per my previous testimony, intraday
7 pricing risk (or intraday pricing deltas) is described as:

8
9 “During volatile pricing conditions the natural gas market can vary
10 dramatically between the time a generation offer is given to MISO
11 and when MISO clears the offer. If the quantity of MWs cleared
12 varies from expectations, and the price to procure or liquidate
13 additional natural gas fuel supply varies from expectations, the
14 generator can be exposed to significant pricing risk.” (Retzlaff
15 Original Testimony page 4 lines 16-21.)
16

17 Intraday pricing risk can also occur if MISO were to call upon the unit unexpectedly
18 during the real time market, which occurred during Winter Storm Elliot. Forward
19 gas purchases, natural gas call options, and natural gas storage alternatives, are
20 bound to the scheduling constraints of the daily natural gas trading schedule. They
21 must be nominated, executed, or liquidated at defined periods of the gas trading
22 day. As such, these mechanisms would experience extended periods of
23 unavailability. Onsite LNG storage is available on demand at any time of the day,
24 under all market conditions, and is the optimal hedging mechanism for intraday
25 pricing risk. It is also the only hedging mechanism that can hedge against loss of
26 physical natural gas supply.
27

28 Q. WOULD A FORWARD NATURAL GAS PURCHASE, NATURAL GAS CALL
29 OPTION, OR NATURAL GAS STORAGE ALTERNATIVE HAVE ENABLED
30 ASTORIA STATION TO AVOID ITS FORCED OUTAGE DURING WINTER
31 STORM ELLIOT?

32 A. No. The outage was due to lack of fuel supply, which these hedging mechanisms
33 could not have remedied. Furthermore, even if gas supply had been available,
34 MISO called for Astoria commitment and dispatch late in the day, which would

1 have likely been well past the contracted timeline to nominate these possible gas
2 resources for delivery.

3
4 Q. WOULD ONSITE LNG STORAGE HAVE ENABLED ASTORIA STATION TO
5 AVOID ITS FORCED OUTAGE DURING WINTER STORM ELLIOT?

6 A. Yes. Onsite LNG storage would have enabled Astoria to run through the outage,
7 which was due to lack of fuel supply, with no interruption. MISO would have been
8 able to continue commitment of Astoria for both economic and reliability purposes
9 for the duration of the winter storm event.

10
11 Q. DO YOU AGREE WITH MR. HEIDELL THAT OTTER TAIL CAN LIMIT RISK BY
12 SIMPLY ADJUSTING THE ASTORIA STATION OFFER STRATEGY?

13 A. I agree with Mr. Heidell that utilization of an optimized offer strategy is prudent.
14 Mr. Heidell states that risk would be reduced if Otter Tail would, “review prices,
15 market behavior and appropriately adjust its bids based upon the risks it calculates
16 with regards to next-day electricity prices, intraday gas costs, and potential losses
17 in reselling unused gas. (page 5 lines 16 – 19).” This statement suggests that Otter
18 Tail can significantly reduce risk during volatile system events by simply
19 considering, and better applying, these factors. Otter Tail does not consider itself
20 an expert in natural gas price forecasting, and as such, we have contracted with
21 Tenaska Marketing Ventures (TMV), a leading natural gas supplier and consultant,
22 to help us best predict future natural gas pricing. Otter Tail utilizes TMV gas
23 pricing forecasts to craft our Astoria generation offers. Even when utilizing the
24 TMV provided forecasts, and as demonstrated during both Winter Storms Uri and
25 Elliot, expert forecasts can vary widely from actual pricing results and system
26 dispatch conditions. To suggest that Otter Tail can substantially reduce risk during
27 volatile system events, when pricing is incredibly volatile and unpredictable, by
28 simply fine tuning our offer strategy is not a fair assessment. I would further
29 note that over pricing a generation offer can also result in uneconomic outcomes,
30 such as not being committed and dispatched when it would have been economic to
31 do so.

32

1 Q. IN HIS RESPONSE COMMENTS, MR. HEIDELL OFFERS A CRITIQUE OF
2 OTTER TAIL'S WINTER STORM URI ANALYSIS. DO YOU AGREE WITH
3 HIS CRITIQUE?

4 A. I take issue with considerable portions of his critique.

5

6 Q. WHY DO YOU TAKE ISSUE WITH HIS CRITIQUE?

7 A. Mr. Heidell's critique operates under the presumption of perfect, after the fact,
8 knowledge. He also discounts upward pricing indicators.

9

10 Q. WHAT ARE SOME OF THE UPWARD PRICING INDICATORS THAT
11 WERE DISCOUNTED?

12 A. I would point you to my response testimony, which is included below for your
13 convenience (Retzlaff Rebuttal Testimony page 15, lines 19 - 27):

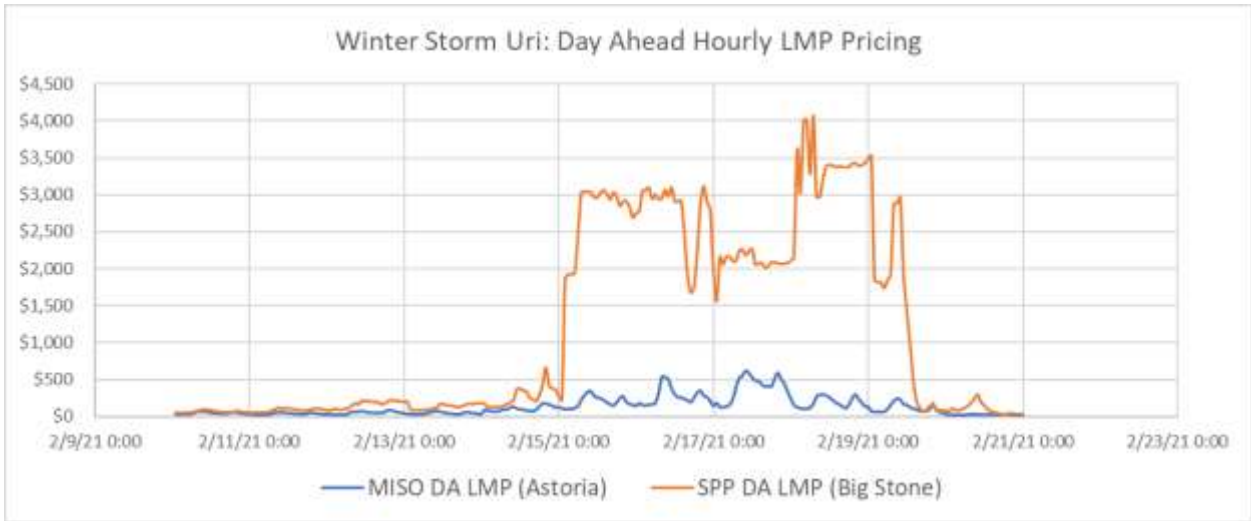
14

15 Throughout North Dakota and South Dakota there is considerable
16 overlap of the MISO and SPP footprints. During Winter Storm Uri
17 (February 10, 2021, through February 20, 2021) MISO day ahead
18 LMP pricing at Astoria averaged \$136.15/MWh (real time
19 \$114.78/MWh). During the same period, day ahead pricing in SPP
20 at Big Stone Plant (near Astoria Station) averaged \$1,173.33/MWh
21 (real time \$408.21/MWh). If system conditions would have been
22 different, it is plausible that MISO could experience pricing levels
23 like SPP.

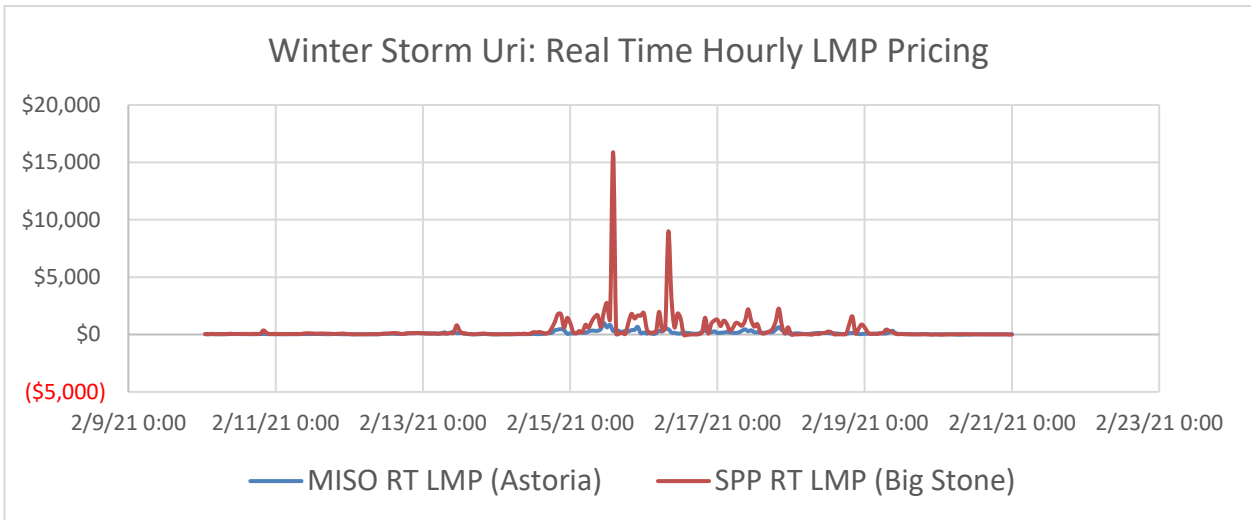
24

25 Below you will find the hourly LMP pricing graphs during Winter Storm Uri, both
26 day ahead and real time, for both MISO Astoria, and SPP Big Stone (an Astoria
27 proxy in the SPP market).

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Hourly day ahead pricing in SPP at Big Stone Plant exceeded \$4,000/MWh. Real time hourly pricing exceeded \$15,000/MWh. In addition, the MISO Value of Lost Load (VoLL), the hard price cap for market pricing, is \$3,500 but ongoing discussions have included proposals to raise it as high as \$25,000. During winter storm Uri real time hourly pricing reached \$991 at Astoria Station. The highest 5-minute real time interval reached \$2,184. I would also note that Winter Storm Uri was, at the time, an unprecedented event. There was no reasonable means for Otter Tail to predict pricing, commitment, or dispatch conditions.

1 Q. MR. HEIDELL STATES THAT 25 PERCENT, 50 PRECENT, AND 100 PERCENT
2 TIMELY PURCHASE SCENARIOS ARE NOT CREDIBLE, CITING A
3 \$150/MMBTU TIMELY GAS PRICE ON FEBRUARY 17TH, 2021, EQUATING TO
4 \$1,433/MWH LMP RECOVERY COST. IS THIS A FAIR ASSESSMENT?

5 A. Apart from the 100 percent timely purchase scenario, which was included in the
6 analysis to serve as a bookend, it is not. As just noted, there were factors suggesting
7 the Astoria LMP pricing could have well exceeded Mr. Heidell’s suggested
8 \$1,433/MWh LMP recovery cost. Furthermore, deciding to not procure gas goes
9 against a conservative approach to maintain adequate fuel inventory during
10 extreme market conditions. Perfect after the fact knowledge appears to make the
11 decision to avoid purchasing gas reasonable, but this looks very different under
12 real time operating conditions. Just because pricing didn’t go higher doesn’t mean
13 it couldn’t have or won’t during future events.
14

15 Q. MR. HEIDELL POINTS TO OTTER TAIL’S DECISION TO NOT PROCURE
16 EXPENSIVE, TIMELY NATURAL GAS DURING WINTER STORM ELLIOT TO
17 SUGGEST OTTER TAIL WOULD NOT HAVE PROCURED EXPENSIVE, TIMELY
18 NATURAL GAS DURING WINTER STORM URI. IS THIS A FAIR
19 CONCLUSION?

20 A. No, it is not. Comparing Winter Storm Uri to Winter Storm Elliot is akin to
21 comparing apples to oranges. While both Winter Storm Uri and Winter Storm
22 Elliot were extreme events, each storm maintained specific characteristics making
23 them unique onto themselves. In reference to Otter Tail’s decision to not procure
24 timely gas during Elliot, despite escalating natural gas prices, Astoria LMP energy
25 prices, both real time and day ahead, remained very low. The natural gas and
26 energy markets (at Astoria) diverged. This did not happen during Winter Storm
27 Uri. As natural gas pricing rose, LMP pricing at Astoria followed suit. Second,
28 during Winter Storm Elliot, the MISO regional wind forecast (and performance)
29 was very strong, increasing electric supply and further acting to suppress LMP
30 pricing at Astoria. During Winter Storm Uri, wind forecasts (and performance)
31 were very low, reducing electric supply and acting to increase LMP pricing at
32 Astoria. These two storms were considerably different winter events. Yet despite
33 all indications during Elliot, and despite very depressed LMP pricing, MISO chose
34 to commit and dispatch Astoria, for what appeared to be reliability reasons. Such
35 a commitment and dispatch would have been impossible for Otter Tail to forecast.

1 This type of variability and unpredictability lend further support to the value of
2 onsite fuel storage.

3
4 Q. IS IT REASONABLE TO ASSUME THAT OTTER TAIL WOULD NOT HAVE
5 PURCHASED ANY TIMELY GAS DURING WINTER STORM URI?

6 A. It is very unlikely that Otter Tail would have forgone some level of timely gas
7 purchases during Winter Storm Uri. Admittedly, to know exactly what Otter Tail
8 might have purchased on any given day is difficult to determine. For this reason,
9 our Winter Storm Uri economic analysis conducted sensitivities around timely
10 natural gas purchases. However, and as noted previously, there were indications
11 that Winter Storm Uri market pricing could have exceeded natural gas pricing. As
12 a capacity accredited resource, Otter Tail is obligated to offer the unit into the
13 market regardless of market conditions. In the event the unit is offered to the
14 market without procuring timely gas, and is then cleared, it must now go to the
15 market to buy gas at a cost that could greatly exceed the unit's offer. MISO only
16 guarantees make whole payments to the unit's offer, not the actual cost of fuel
17 procurement. During Winter Storm Uri, it turned out minimal timely gas
18 purchases would have been optimal. Under different market conditions, the
19 reverse could be true. Based on this balancing of risk factors, Otter Tail maintains
20 it would have likely procured natural gas somewhere between 25 percent to
21 50 percent of Astoria's output during Winter Storm Uri. With the addition of
22 onsite fuel capability, the intraday pricing risk associated with timely purchases
23 (and real time commitments) would be essentially eliminated.

24
25 Q. MR. HEIDELL'S TESTIMONY HIGHLIGHTS THAT OTTER TAIL'S MODELING
26 OF WINTER STORM URI, UTILIZING A DAILY 50 PERCENT TIMELY
27 NATURAL GAS PURCHASE, WOULD HAVE RESULTED IN A \$9.7M LOSS
28 UNDER THE AVERAGE GAS CASE, DUE TO LIQUIDATION OF UNUSED FUEL.
29 HE THEN CONCLUDES, THAT DUE TO THIS LOSS, OTTER TAIL WOULD NOT
30 EXECUTE SUCH A STRATEGY. IS THIS A FAIR ASSESSMENT?

31 A. It is not. I would again point out that Mr. Heidell is operating under the
32 presumption of perfect, after the fact, knowledge. It is important to note that
33 yesterday's performance is not necessarily predictive of tomorrow's performance.
34 This is especially true during the middle of volatile system events. Uncertainty is
35 further compounded when moment to moment pricing indications send

1 conflicting signals (for example: high regional SPP pricing and high MISO five-
2 minute tick pricing compared against previous day ahead MISO LMP values not
3 exceeding prevailing gas pricing). As noted above, it is admittedly difficult to know
4 exactly what Otter Tail might have purchased on any given day. However, to
5 assume yesterday's uneconomic timely natural gas procurement would somehow
6 result in certainty to move into tomorrow's market, procuring zero fuel to cover an
7 unknown plant commitment, during the heart of a Winter Storm Uri event, would
8 not be realistic. Again, this is why the Winter Storm Uri analysis specifically
9 studied sensitivities to timely natural gas purchase levels.

10
11 Q. HOW WOULD HAVE ONSITE LNG STORAGE IMPACTED THE
12 ABOVE SCENARIO?

13 A. First, onsite LNG storage would have eliminated Otter Tail's difficult decision to
14 procure or not procure timely natural gas deliveries from the pipeline. If the
15 forecasted cost of delivered gas exceeded the cost of the stored LNG, Otter Tail
16 could simply utilize its stored onsite fuel, regardless of natural gas market price or
17 volatility. Second, Otter Tail would also maintain a low cost, stable, flexible, and
18 available fuel source (relative to the assumed market) that could be offered to
19 MISO at a cost far below received market revenues. In the scenario highlighted by
20 Mr. Heidell, the hedging decisions resulting in the \$9.7M liquidation loss would
21 be eliminated. Otter Tail would have been able to offer the onsite LNG generated
22 energy into the market for a calculated \$4.2M economic benefit. This would have
23 resulted in a net positive economic benefit of \$13.9M when comparing operations
24 with LNG onsite fuel against operations without LNG onsite fuel.

25
26 Q. MR. HEIDELL NOTES THE HARMONIZATION OF THE NATURAL GAS AND
27 ELECTRIC MARKETS COULD LEAD TO IMPROVED FUEL ASSURANCE. DO
28 YOU AGREE?

29 A. I do, to an extent. There would certainly be benefits if the scheduling logistics of
30 the daily natural gas and electric markets could be aligned. If timely gas could be
31 secured at the same time day ahead market clearing awards were known, electric
32 generators could procure timely gas volumes to match their cleared schedule. Such
33 alignment would certainly be a step in the right direction. However, it also must
34 be highlighted that if such alignment were to occur, it would not solve intraday
35 pricing risk. Even under aligned gas and electric market timelines, MISO still

1 requires generation offers to be submitted hours in advance of posted clearing
2 awards. During such time delays, and during volatile market conditions, the
3 natural gas market can move significantly, resulting in actual fuel costs diverging
4 from the projected fuel costs utilized to craft the original generation offer. Recall
5 that MISO is only obligated to make the generator whole to their offer costs, not
6 the actual cost of fuel procurement. Under such a scenario, the aligned natural gas
7 and electric markets would ensure correct natural gas volume procurement, but
8 the price of the gas procurement could vary drastically from the price utilized in
9 the generation offer. Furthermore, alignment of the natural gas and electric
10 trading days would not protect generators during an unexpected real time
11 commitment scenario where volatile markets could result in divergence between
12 real time offers and actual fuel procurement costs. Lastly, it should be noted that
13 discussion regarding alignment of the natural gas and electric markets has been
14 ongoing for many years. While discussions continue, I am unaware of any timeline
15 or firm schedule that would move to align the two markets.

16
17 Q. WHAT WOULD BE REQUIRED TO ELIMINATE INTRADAY PRICING RISK?

18 A. Intraday pricing risk in the day ahead market could be eliminated if there was no
19 time delay between when the unit is offered and when MISO posts the day ahead
20 clearing results. It could also be eliminated if natural gas pricing remained fixed
21 during the same offer/clearing time delay. Unfortunately, neither of these two
22 options appear to be realistic or viable solutions. Real time intraday pricing risk
23 would remain, as MISO can unexpectedly call on a unit for commitment and
24 dispatch at any time. Onsite LNG storage would essentially eliminate all intraday
25 pricing risk through provision of a known, constant, flexible, and readily available
26 fuel supply.

27
28 Q. DO YOU HAVE ANY ADDITIONAL CONCLUDING OBSERVATIONS?

29 A. Yes. Otter Tail agrees with Mr. Heidell that it is critical to maintain a reliable
30 electric system. We also agree with Mr. Heidell that the “frequency, magnitude,
31 and consequences of major weather events is unknown and will vary and will not
32 be uniform across the United States.” It appears we disagree on the cost/benefit
33 balance of onsite LNG storage at Astoria. Admittedly, we don’t fully know what
34 type of events will occur in the future. However, Otter Tail believes there are
35 reasons (changing weather patterns, increased reliance on natural gas for

1 dispatchable generation, and increased utilization of non-dispatchable renewable
2 resources) that could likely increase the frequency and magnitude of volatile
3 system events, such as experienced during Winter Storms Elliot and Uri.
4 Construction and utilization of onsite LNG storage at Astoria would significantly
5 bolster our ability to optimize Otter Tail fleet performance during such future
6 system events.

7
8 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

9 A. Yes. It does.

10

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

**Otter Tail Power Company
Advance Prudence –
Astoria Gas Application**

Case No. PU-23-066

VERIFICATION

STATE OF NORTH DAKOTA)
) ss.
COUNTY OF OTTER TAIL)

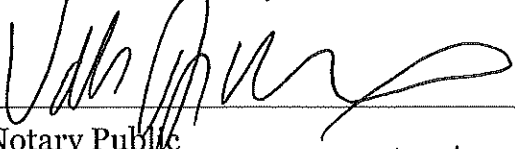
RYAN D. RETZLAFF, being first duly sworn on oath, deposes and says that he is the Manager of Power Services for Applicant Otter Tail Power Company; that the surrebuttal testimony submitted in the above-captioned matter under his name were prepared under his direction; and that he knows and verifies the contents thereof, and that the same is true and correct to the best of his knowledge and belief.

Dated this 21st day of November, 2023



Ryan D. Retzlaff

Subscribed and sworn to before
me on this 21st day of November, 2023.



Notary Public
My Commission expires 1/31/26

