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June 15, 2021

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

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RE: In the Matter of an Investigation into Self-Commitment and Self-Scheduling of Large Baseload Generation Facilities
Docket No. E999/CI-19-704
Response Comments

Dear Mr. Seuffert:

Otter Tail Power Company (OTP) hereby submits its Response Comments to the Minnesota Public Utilities Commission (Commission) in the above referenced matter.

OTP has electronically filed this document with the Minnesota Public Utilities 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 regarding this filing, please contact me at 218-739-8279 or stommerdahl@otpco.com.

Sincerely,

/s/ STUART TOMMERDAHL
Stuart Tommerdahl
Manager, Regulatory Administration

cjh
Enclosures
By electronic filing
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of an Investigation into Self-Commitment and Self-Scheduling of Large Baseload Generation Facilities	**Docket No. E999/CI-19-704** **OTTER TAIL POWER COMPANY RESPONSE COMMENTS**

I. INTRODUCTION

These Response Comments respond to the Office of the Attorney General's (OAG's) June 1, 2021 Reply Comments. In its Reply Comments, the OAG makes claims about Otter Tail Power Company's (OTP) Coyote Station that appear to be based on a fundamental misunderstanding of the analytical value of comparing of the plant's production costs to market prices (MISO revenues). Also, the OAG's Reply Comments reflect a misunderstanding of the fundamental differences between delivered-fuel plants and mine-mouth plants. As explained in these Response Comments, Coyote Station is the only mine-mouth generating facility that falls under the Commission's regulation, and therefore it may be understandable that some parties are not adequately familiar with these differences.

These Response Comments explain the comparison of production cost to market price and for what purposes that comparison is useful. They also explain more fully the fundamental design and operational differences between delivered fuel plants and mine mouth plants. These issues are also addressed in part in OTP's Reply Comments. These Response Comments provide additional discussion to specifically address the OAG's Reply Comments.

RESPONSE

A. For a particular plant, the comparison of production costs to market prices (MISO revenues) is useful in assessing its flexibility, but it is not adequate for assessing the plant's cost effectiveness.

Given the OAG's Reply Comments, it appears there continues to be a potential for a misapplication of the production-cost-comparison-to market-price analysis in this docket. That comparison is useful in assessing the flexibility of a plant, but there are many cost-effective plants that have limited operational flexibility and would show "production cost losses" as that term is

used by the OAG in its Reply Comments, including most non-dispatchable renewable resources and many base load generators.

For illustration, OTP performed the same production-cost-comparison-to-market-price for its most recent major wind PPA, Ashtabula III.[1] The results are proportionally *greater* production cost losses for the Ashtabula III PPA than for Coyote Station:

[PROTECTED DATA BEGINS…

…PROTECTED DATA ENDS]

OTP expects that all of its wind PPAs (and other utilities' wind PPAs) would show similar if not larger negative results under this analysis. But this does not mean that the Ashtabula III wind PPA or other PPA's are not cost-effective contributors to OTP's resource portfolio. It means that they are not able to flexibly respond to market prices, which is not a surprise, as they were not conceived or designed for that purpose. Wind generators frequently operate at times when market prices are low, and they are frequently unavailable at times when market prices are high, but they produce energy at consistent prices over time and contribute cost-effectively to OTP's resource portfolio.

The same has generally been true also for OTP's baseload resources: they are limited in their ability to respond to market prices, but they too were not conceived or designed for that purpose. Like the wind generators, they have been able to produce energy at consistent prices over time and they contribute cost effectively to OTP's resource portfolio.

The questions in this docket are aimed at whether baseload resources might be operated more flexibly, given that increased flexibility might increase market opportunities in very low

[1] The Ashtabula III PPA price is comparable to or lower in price than other OTP wind PPAs, and it is therefore intended to serve as a reasonable proof for the point made by this illustration.
[2] Energy, ancillary services, congestion, capacity and other.
[3] Revenues through May 18, 2021; costs through April 30, 2021.

market conditions. And it is useful to consider this question and consider how flexibility might be increased for the baseload units. But, again, they were not generally conceived or designed for flexibility. If flexibility was the sole operational goal for generation resources, all generators would be natural gas peakers or other highly flexible alternatives. Neither renewable generators nor baseload generators fare well under these criteria.

The point of the illustration in Table 1 for the Ashtabula III PPA is to critique the implications of the OAG's comments that "production losses" (OAG's term for the production-cost-comparison-to-market-prices) are determinative of cost effectiveness. They are not. They are only determinative of whether a generator is highly responsive to market prices, and many generators have not been designed for that purpose. Whether any such generator is cost effective requires other analyses of the types generally considered in resource plan proceedings. It involves market price forecasts and other forecasts, capacity expansion modelling and other considerations.

Another way to give perspective to the usefulness of the production-cost-comparison-to-market-price analysis is to consider how it would be applied to non-dispatchable renewables, natural gas peaking generators, and baseload generators—which might be considered as representative of the spectrum of flexibility in generation resources. The non-dispatchable renewables would fare most poorly, with no ability to respond to the market and, for wind generators, likely with a high degree of inverse correlation to market price. On the opposite end of the spectrum are natural gas peaking generators, which would fare most favorably, as they are the most able to dispatch flexibly in response to changes in market prices. Baseload generators fall somewhere in the middle, as they were not designed to be flexible, but they are somewhat dispatchable depending on their specific design characteristics and other considerations. It is certainly a reasonable endeavor to consider whether it may be possible to increase their flexibility, but the lack of flexibility is not a fair indictment (when taken in isolation) of either renewables nor baseload generation units.

Also, the OAG's Reply Comments imply that OTP's customers have been harmed over this period according to their analysis of "production cost losses." But that is not the case. The results of the production-costs-comparison-to-market-prices is not a consequence of an increase in the costs of the baseload generators; it is a consequence of very low market prices, and OTP's customers have benefited from the low market prices over this period. If greater flexibility can be obtained, it may be that an even greater benefit from the low market prices can be obtained, but it

is a mischaracterization to use the production-cost-comparison-to-market-prices to claim that customers have been harmed by the current low market prices.

The goal of a utility's resource planning is to manage a portfolio of resources in a way that meets cost, risk, and other objectives. And if we were to focus on cost alone as a resource planning objective, we would focus on the performance of the portfolio of resources under a variety of circumstances over time. Table 2 below reflects the actual cost of energy paid by OTP's customers since 2010. It shows that OTP's customers have benefitted from OTP's consistent and cost-effective portfolio of resources over that period.

Table 2
Net Cost of Energy Paid by OTP Customers since 2010

Calendar Year	Net System Cost of Energy ($/MWh)
2010	23.04
2011	22.43
2012	23.11
2013	23.48
2014	25.15
2015	24.73
2016	23.06
2017	23.78
2018	24.14
2019	23.93
2020	20.30

As earlier stated, the production-cost-comparison-to-market-price used in this docket is useful in considering how greater responsiveness might improve the cost of energy, but it should not be misinterpreted as the OAG has suggested. If it were, it would suggest that renewables and baseload resources should be avoided because they are not adequately responsive to market prices.

Also, the OAG's Reply Comments imply there should be a similar degree of flexibility in the operations of Coyote and Big Stone (and possibly all baseload coal fired generators). But this expectation does not adequately take into consideration the major differences between these two plants: Coyote, a mine-mouth plant; and Big Stone a delivered-fuel plant. While comparing the "all-in" fuel costs of a mine-mouth plant and a delivered-fuel plant might be useful for several other purposes, it is not reasonable to ignore this difference when assessing the cost implications of efforts to increase flexibility of operations for these two different types of plants.

B. Coyote Station is the only mine-mouth plant which falls under the Commission's regulation, therefore additional explanation of the differences between mine-mouth plants and delivered-fuel plants may be useful.

In OTP's June 1, 2021 Reply Comments, OTP responded to the other Parties' April 30, 2021 Initial Comments in this docket. In those Reply Comments, we provided the following background:

1) OTP owns a 53.9 percent interest in Big Stone, which is a delivered-fuel plant, with its current Powder River Basin coal fuel railed-in from Wyoming, and
2) OTP owns a 35 percent interest in Coyote Station, which is a mine-mouth generating plant fueled by North Dakota lignite coal mined adjacent to the plant site.

OTP also provided the following background as a way to explain how these two plants differ in design and purpose:

1) As a delivered fuel plant, Big Stone is able to source coal from the various coal mines in Wyoming's Powder River Basin;
2) As a mine-mouth plant, Coyote avoids fuel delivery disruption and freight cost escalation risks.

OTP pointed out that having a partial interest in two geographically dispersed baseload generation sources instead of a larger interest in a single baseload unit, mitigates risks associated with natural disasters. And OTP noted that these plants were designed and sited to take advantage of a fuel delivery diversity—with Big Stone a delivered-fuel unit and Coyote a mine-mouth unit. However, from the OAG's Reply Comments, it appears some parties may not have an adequate understanding of the significance of these differences.

There are no mine-mouth plants located in Minnesota. But mine-mouth plants are relatively common in other parts of the country, primarily in some southeastern states and states west of Minnesota. Of course, whether a state has mine-mouth plants is dependent on whether there are coal deposits and coal mines in those states. North Dakota is the only state bordering Minnesota with coal deposits, and therefore it is the only bordering state with mine-mouth plants. There are six mine-mouth plants in North Dakota. It is our understanding that mine-mouth plants also exist, for example, in Montana, Wyoming, Colorado, and in several states in the eastern U.S. In states without coal deposits, coal generators all must be delivered-fuel plants, meaning the fuel is shipped to the plant from elsewhere, typically by rail. At the beginning of this year, there were

five coal-fueled generators located in Minnesota, all of which were delivered-fuel plants. When Hoot Lake Plant retired in June 2021, it left four remaining delivered-fuel coal plants in Minnesota.

This difference between mine-mouth plants and delivered-fuel plants matters because mine-mouth plants, like Coyote Station, were conceived, sited, designed, and constructed with an understanding that they would have long-term integrated relationships with an immediately adjacent mine. The mine is typically intended to serve just the mine-mouth plant with which it contracts, and it is therefore typically much smaller than the large mines that serve numerous delivered-fuel plants, such as the mines in the Powder River Basin that serve Big Stone. One of the primary benefits of a mine-mouth plant, in contrast to a delivered-fuel plant, is that it is not dependent on the rail systems or other transportation systems, over which the coal necessary to fuel the plant must be transported. Of course, without having a secure and consistent long-term relationship with the adjacent mine, a mine-mouth plant would be exposed to fuel shortages; conversely, without a long-term relationship, the supplying mine would typically not make investments necessary to ensure the extraction of a consistent supply of coal necessary to fuel the plant. Without consistent fuel, the plant would not be reliable and would not be accreditable for capacity.

The benefit of not being dependent on fuel transportation is not just an abstract one. In late 2013 and into 2014, there were significant rail system constraints in our region caused by oil and agricultural deliveries and those cause significant concern for fuel supplies at delivered fuel plants.[4] Those constraints did not affect the reliability of mine-mouth plants like Coyote Station. This occurrence in 2013/2014 illustrates the benefits of the fuel delivery diversity that was understood when OTP and the plant owners originally chose to have interests in both Big Stone and Coyote, instead of having a larger interest in just one of the plants.

Because of the difference in the relationship, the mine/plant contracts for mine-mouth plants also have very different fixed/variable components when contrasted with delivered-fuel plants. These differences are because of the nature of the relationship and what each party requires from the relationship. The mine, in the case of a mine-mouth plant, must recoup its fixed costs (the costs of investments in opening the mine, the equipment, reclamation, etc.) and its variable costs (certain costs that vary with the volumes produced) generally from a single customer with

[4] Docket No. E999/AA-14-579, Department of Commerce Comments filed May 19, 2015, summarized the rail delivery issues experienced by Minnesota utilities in 2013 and 2014.

which it has a long-term relationship. The larger fixed components of these contracts when compared to delivered fuel contracts are not because the transacting parties have different desires about the way the plant should operate, etc. Similarly, the plant requires a long-term relationship with its supplier, to ensure a consistent supply of fuel at a known cost (it cannot replace that fuel from the market if the supplier were to increase its prices or become unreliable in some other way). These are the practical realities of mine-mouth plants, and they are the reasons for the differences in fuel contracts. These economic realities in the relationship are not different from a wind PPA, where the purchasing utility generally agrees upon fixed per-kwh pricing (or with slight escalation) so that the seller is assured of recouping its investment. This one-to-one relationship is different from the seller-buyer relationship for a delivered fuel plant and the mine that supplies it. And it results in larger non-volumetric (fixed) costs in the pricing. But fixed costs are not something incorrect that should be changed—not for the mine-mouth plant nor for the wind PPA. They are less flexible because of it, but it is inherent in the nature of what was intended in their original design and construction.

Also, the fuel contract for Coyote is not uncommon, which can be seen in the length of contracts for the other mine-mouth plants operating near Coyote Station. In 2019 they all reported having contracts with remaining terms between 2037 and 2045.[5]

The OAG also makes an incorrect implication in its Reply Comments that Coyote Station has higher production costs than other plants, such as OTP's big Stone Plant--see Figure 2 in the OAG's Reply Comments.[6] Instead, the all-in production costs of Coyote Station are comparable to other plants, such as Big Stone. Table 3 below is derived from the same data the OAG used for its Figure 2. Table 3, below, shows that the per megawatt hour (MWh) production costs for Coyote have been comparable to the production costs of Big Stone Plant, at least since 2016. Prior to 2016, the production costs of Coyote were lower than for Big Stone.

[5] U.S. Department of Energy, The Energy Information Administration (EIA) Fuel Receipts and Cost Time Series File, 2019 Final Revision, Sources: EIA-923 and EIA-860.

[6] Note also that the "y" axis for Coyote and Big Stone are not on the same scale in Figure 2 of the OAG's Reply Comments.

Table 3
Comparison of Coyote and Big Stone Production Cost
($/MWh)

	2013	2014	2015	2016	2017	2018	2019	2020
	[PROTECTED DATA BEGINS…							
Coyote Total								
Big Stone Total								
								… PROTECTED DATA ENDS]

*Note: The Big Stone Plant had an air quality control system installed in 2015, and a scheduled periodic overhaul in 2018. Coyote was limited on output following a plant fire in 2015 and, had scheduled periodic overhauls in 2016 and 2019. Output was limited at both Big Stone and Coyote in 2020 due to low market prices and demands during to the effects of the COVID pandemic. Planned outages and derates can increase the price per MWh, as there are fewer MWh over which to spread costs.

The information in Table 3 also helps to clarify the illustration in the OAG's Figure 2. Figure 2 does not illustrate that Coyote was at parity prior to 2016 and exceeded Big Stone's production costs thereafter, as it implies. Rather, the OAG's Figure 2 illustrates that Coyote was a *lower-cost* plant in the years prior to 2016 and became more at parity with Big Stone after 2016.

II. CONCLUSION

In summary, the OAG's claims in its reply comments are inaccurate in that they mischaracterize implications of the earlier analysis in this docket. The OAG's criticisms would imply OTP and other utilities should avoid renewable generation and baseload generation in favor of natural gas peaking generation that can more flexibly respond to market prices. This would not be a reasonable implication to draw from the analysis. Instead, the analysis should serve as a guide to the additional value that might be achieved if additional flexibility can be achieved for generators so that low market prices might be captured more frequently. It is not an adequate analysis, however, from which to assess the cost-effectiveness of either renewables or base load resources. A resource planning assessment will be necessary for that purpose.

OTP appreciates the opportunity to provide these Response Comments. OTP respectfully requests approval of its annual filing and supports the Department's recommendations regarding items for consideration in next year's compliance filing which include:

- providing information on annual carbon dioxide emissions.
- providing applicable reasons for unavoidable self-commit status.
- providing plant startup conditions (cold, warm or hot) in future filings. OTP suggests incorporating the startup data within the existing reporting template in coordination with the other utilities and stakeholders.
- providing EFOR information.
- providing descriptions of changes to operating procedures and physical modifications to their units to ensure plants are becoming more flexible to meet upcoming challenges as applicable.

Dated: June 15, 2021

Respectfully submitted,

OTTER TAIL POWER COMPANY

By */s/ STUART TOMMERDAHL*

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CERTIFICATE OF SERVICE

RE: **In the Matter of an Investigation into Self-Commitment and Self-Scheduling of Large Baseload Generation Facilities**
Docket No. E999/CI-19-704

I, Carly Haiby, 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
Response Comments

Dated this **15th** day of **June, 2021**.

/s/ CARLY HAIBY
Carly Haiby, Regulatory Filing Coordinator
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