

215 South Cascade Street  
PO Box 496  
Fergus Falls, Minnesota 56538-0496  
218 739-8200  
[www.otpc.com](http://www.otpc.com) (web site)



March 1, 2021

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

**PUBLIC DOCUMENT – NOT PUBLIC  
(OR PRIVILEGED) DATA HAS BEEN EXCISED**

**RE: Otter Tail Power Company  
In the Matter of an Investigation into Self-Commitment and Self-Scheduling of Large  
Baseload Generation Facilities  
Docket No. E999/CI-19-704  
Annual Compliance Filing**

Dear Mr. Seuffert:

Otter Tail Power Company (Otter Tail) submits this annual compliance filing in the above referenced docket in response to the Minnesota Public Utilities Commission's (Commission) November 13, 2019 Order in Docket No. E-999/AA-18-373 (AAA Order), which was revised and summarized in Attachment A of the January 11, 2021 Order in Docket No. E-999/CI-19-704.

Not Public Attachment 02 to this filing contains the hourly required information in an Excel file format. *Due to the vast size of this file, paper copies are not provided.*

## **1. Overview of Analysis**

Otter Tail conducted an analysis of its co-owned baseload coal units, Big Stone Plant (Big Stone) and Coyote Station<sup>1</sup> (Coyote), for purposes of providing a reasonable quantification of the difference in the cost of running the plant versus corresponding prevailing market prices for energy those units are paid during times when those plants are self-committed or self-scheduled into the market. Consistent with last year's annual filing, Otter Tail has excluded Hoot Lake Plant from its analysis as that plant is scheduled to cease operations at the end of May this year.

---

<sup>1</sup> Big Stone Plant is a 474 MW plant, of which Otter Tail is a 53.9% owner. Coyote Station is a 427 MW plant, of which Otter Tail is a 35% owner.

Will Seuffert  
March 1, 2021  
Page 2

For purposes of clarity, Otter Tail provides the following definitions of the terms Self-Commitment and Self-Schedule dispatch:

**Definitions:**

**Self-Commitment dispatch:** During a self-commitment, the utility requests the Midwest Independent System Operator (MISO) to commit the unit. The unit is committed to at least the unit's economic minimum output. MISO will commit the unit independent of market pricing assuming such a commitment does not result in a reliability concern. The unit is paid the prevailing Locational Marginal Price (LMP) market price for that unit and is not assured to be made whole to its costs. During self-commitment MISO may dispatch the unit above minimums if market pricing is supportive of such dispatch.

**Self-Schedule dispatch:** Market Participants may submit self-schedules consisting of fixed quantities of energy, per hour, that may be dispatched from an online unit. If the self-schedule is less than the unit's economic maximum, the unit may be dispatched above the self-schedule on an economic basis. A self-schedule is a price taker up to the self-scheduled amount. Any cleared amount above the self-schedule is eligible to set price. A self-schedule is not a guaranteed dispatch unless the unit is designated as must-run or as a self-commitment. Otter Tail utilizes a self-schedule when units are undergoing testing and require specific generation output levels. It also uses a self-schedule when self-committing resources to ensure the economic minimum is dispatched.

**2. Reasons to Self-Commit or Self-Schedule:**

**Capacity Accreditation Requirements**

Seasonal dispatch is not currently viable for Otter Tail Power generating units. In order to meet MISO Module E capacity accreditation requirements, Otter Tail must utilize, and accredit, its large baseload generation facilities. Every generator that is a MISO accredited capacity resource maintains a daily must offer requirement. This offer can be at either a self-commit offer or an economic offer. This must offer requirement does not allow Otter Tail to de-commit, meaning make the unit unavailable to MISO for commitment and dispatch, on a seasonal, or otherwise basis, except for when the unit is on mechanical outage, overhaul, testing, etc. In the event Otter Tail were to forego capacity accreditation of the Big Stone or Coyote generators, Otter Tail would need to procure additional capacity resources to meet the MISO Module E capacity requirements. Additional methods of procuring capacity would include construction of new generation facilities, bi-lateral capacity purchases from other capacity holders, or the purchase of capacity through the annual MISO capacity auction.

Otter Tail utilizes a full economic commitment offer for all company generating units except for Coyote Station and Big Stone Plant. The current offer practices of Coyote Station and Big Stone Plant are detailed below.

**Coyote Station Joint Ownership**

Coyote is offered as a "must-run" unit, meaning Otter Tail schedules its share of the unit as self-committed at minimum output. MISO can choose to dispatch the unit higher if market and/or reliability conditions merit additional output. Coyote is co-owned by Otter Tail (35 percent), Minnkota Power Cooperative (30 percent), Montana Dakota Utilities (25 percent), and Northwestern

Will Seuffert  
March 1, 2021  
Page 3

Energy (10 percent). Otter Tail, Minnkota Power Cooperative<sup>2</sup>, and Montana Dakota Utilities operate within the MISO market, while Northwestern Energy operates within the SPP market. The SPP and MISO markets do not coordinate the commitment nor the dispatch of jointly owned units. Furthermore, both markets model the shares of a jointly owned unit as individual, separate, and distinct generators. If each partner share of the unit were to be offered as economic, it is probable that only a portion of the entire unit would be committed and dispatched. Partial commitment and dispatch would result in under recovery of startup and make whole payments to the partners whose shares were not committed or dispatched. From a practical standpoint, since the plant is one physical generator, commitment of a single owner's share of the plant will result in the commitment of all owners' shares of the plant. Furthermore, from a co-owner contractual standpoint, if one owner calls on their share of the plant, all owners are required to take their share's minimum output. Coyote coal costs are approximately [PROTECTED DATA BEGINS... ...PROTECTED DATA ENDS] percent fixed costs and [PROTECTED DATA BEGINS... ...PROTECTED DATA ENDS] percent variable costs. Historically, as a result of the fixed costs, there have been relatively few hours throughout a typical year where it did not make economic sense to operate the plant. The 2020 market year has been an exception, producing historically low LMP pricing. Co-owners are presently in discussions to consider implementation of economic offer capability at Coyote Station. It is expected that the Coyote Station economic offer capability would be similar to the Big Stone Plant offer processes described below.

### **Big Stone Plant Joint Ownership**

At the end of April 2020, Big Stone co-owners implemented coordinated offer processes that allowed for joint economic offer capability. Big Stone is co-owned by Otter Tail (53.9 percent), Montana Dakota Utilities (22.7 percent), and Northwestern Energy (23.4 percent). Big Stone maintains similar market operating complexities as Coyote. Big Stone straddles both the MISO and SPP wholesale energy markets and can be committed and dispatched by either ISO. Big Stone contractual obligations require partners to take their minimum share of the plant whenever another owner calls for commitment. Big Stone differs from Coyote in that its coal contract is structured utilizing nearly 100 percent variable costs, which results in a higher percentage of hours where MISO/SPP LMP market pricing is lower than Big Stone variable operating costs. Per the co-owner contract, utilization of an economic offer requires unanimous agreement amongst the three co-owners. If any co-owner requests self-commitment, all other co-owners are required to self-commit their share of the plant. Similarly, if MISO or SPP calls for a co-owner's portion of the plant, all other co-owners are obligated to self-commit their share, at least to minimum output.

### **Single Day Commitment by MISO**

It should also be noted that MISO utilizes a single day commitment and dispatch process. This means that market conditions for a given day, and that day only, would need to justify the economic commitment and dispatch of a unit. This often includes a large startup cost for baseload plants and may artificially increase cycling of the unit. The single day commitment and dispatch process does not consider the economics of running a baseload plant across multiple days. MISO has explored the possibility of a multi-day commitment process but does not currently have plans for development or implementation in the foreseeable future.

---

<sup>2</sup> Northern Municipal Power Agency owns a 30% share of the plant. Minnkota serves as operating agent for NMPA.

Will Seuffert  
 March 1, 2021  
 Page 4

### 3. Analysis Approach

The following reporting items in sections A-F were set forth in Attachment A of the Commission's January 11, 2021 Order in Docket No. E-999/CI-19-704.

*A. In the investigation docket, Minnesota Power, Otter Tail, and Xcel shall provide stakeholders with the underlying data (work papers) used to complete their analyses, in a live Excel spread sheet, including, at minimum, the data points listed below for each generating unit, with the understanding that this may include protected data.*

Hourly data for all units:

- a) Date and hour
- b) Commit status (Null / Economic / Emergency / Must Run / Outage / Not Participating)
  - i. Any hours with unavoidable self-commitment should be labeled as such, with a cause listed for the self-commitment in that hour. (Testing, contract, dispatch of co-owned generation, etc.)
- c) Dispatch Status for Energy (Null / Economic / Self Schedule)
- d) Cleared MW
- e) Day ahead locational marginal price at unit node
- f) Real time MW adjustment
- g) Real time locational marginal price at unit node
- h) Day ahead dispatch minimum
- i) Real time dispatch minimum
- j) Fuel cost (\$/MWh)
  - i. If a utility excludes any fuel costs from its MISO offer curves, the utility should also provide an analysis that includes all fuel costs, including those currently treated as fixed costs due to contractual terms.
- k) Variable operations and maintenance costs (\$/MWh)
  - i. Utilities should provide Unit Fuel Costs and Unit Variable Cost as separate line items.
  - ii. Utilities should include all preventative maintenance in O&M costs for reporting purposes.
  - iii. Future analyses of self-commitment and self-scheduling should include all production costs including fuel, variable operations and maintenance, and other variable costs associated with the plant.
- l) Day ahead locational marginal price representative of utility load zone
- m) Real time locational marginal price representative of utility load zone
- n) Whether Day Ahead Cleared = Day Ahead Dispatch Minimum (0 or 1)
- o) Actual production in MWh (for all 8,760 hours of the year)
- p) Day ahead MISO payment
- q) Real time MISO payment
- r) Net MISO energy payment
  - i. Include ancillary services revenues and any other make-whole payments as a separate column in all reporting on revenue from generation.
- s) Production costs ((J+K) \* O)
- t) Net cost or benefit (R-S)

Monthly or annual data for all units:

- u) Revenue from ancillary services (monthly)*
- v) Fixed operations and maintenance costs (preferably monthly) or reasonable estimates in approximation thereof*
- w) Capital revenue requirements (annual) or reasonable estimates in approximation thereof*
- x) Average heat rate at economic minimum*
- y) Average heat rate at economic maximum*
- z) To the extent not already provided, utilities should provide the following:*
  - i. Length of minimum decommit time for each unit;*
  - ii. Number of times in the analysis period that each unit incurred losses over a duration greater than or equal to its minimum decommit time;*
  - iii. Of the periods identified in (ii), the number of periods when losses were greater than the relevant startup cost (warm or cold startup cost, depending on the length of the period); and*
  - iv. Sum of losses in excess of startup cost that were incurred during periods identified in (iii).*

**Otter Tail Response**

In addition to the above points a through z, Otter Tail added six columns to the Big Stone hourly data to the spreadsheet template, allowing for further analysis and insight into this unit. As noted above, Otter Tail is one of three Big Stone co-owners and the unit participates in both the MISO and SPP markets. As a result, there are numerous hours when Otter Tail is obligated to self-commit its share of the plant outside of Otter Tail's control. The additional six columns allow for analysis of hours when Otter Tail endorsed self-commitment of Big Stone Plant. This analysis removes those hours of self-commitment when Otter Tail was forced to self-commit for reasons outside of Otter Tail's control. These six columns summarize MISO energy revenues, ASM revenues, make whole payment revenues, variable production costs, and net benefits for Otter Tail endorsed hours of self-commitment.

**Filing Attachments:**

Attachment 1 to this filing provides a summary of the monthly revenues and costs for Big Stone and Coyote for the current period.

Attachment 2 to this filing provides the requested hourly data for Big Stone for the current reporting period and an analysis of the minimum decommit time and startup costs.

Attachment 3 to this filing provides the requested hourly data for Coyote for the current reporting period and an analysis of the minimum decommit time and startup costs.

Attachment 4 to this filing provides the fixed monthly O&M costs for Big Stone and Coyote, per Attachment A of the Commission's January 11, 2021 Order, part v.

Attachment 5 to this filing provides plant heat rate information as available from Big Stone and Coyote plant per Attachment A of the Commission's January 11, 2021 Order, parts x and y.

Will Seuffert  
 March 1, 2021  
 Page 6

Attachment 6 to this filing provides a summary of the minimum decommit time analysis for each plant per Attachment A of the Commission's January 11, 2021 Order, part z.

The following outlines Otter Tail's analysis approach and assumptions included in the requested analysis, as well as other factors not included or considered:

1. This analysis compares the 2020 market energy revenues received versus both the variable costs included in determining the plant's MISO offer curve and the variable costs included in determining the plant's MISO offer curve plus fixed fuel costs. The market energy revenues are derived by the hourly Day Ahead (DA) and Real Time (RT) Locational Market Prices (LMP) per MWh of production.
2. Revenues associated with participation in the Ancillary Services Market (ASM) are included in this analysis.
3. Revenues associated with unit make whole payments are included in this analysis.
4. The costs of reagents are included in this analysis as they are included as part of Otter Tail's offer curve submitted to MISO. Otter Tail's reagent costs are not part of the FCA, but instead are recovered in base rates.
5. One factor that is not quantifiable is the potential impact on both market prices and the related commitment and dispatch of any other Otter Tail generating units when either Big Stone or Coyote Station switch between self-commitment and economic commitment offer status.
6. The large coal units require different time durations for hot, warm, and cold starts. Also, from an "on" condition, the unit must cool for different durations in order to qualify for a hot, warm and cold start. The combined duration of cool down time and start up notification time for the coal plant starts are as follows:

**Table 1**  
**Startup Times by Plant**

Startup Conditions	Big Stone Plant	Coyote Station
	[PROTECTED DATA BEGINS ...	
Cold Start (including cool down time)		
Warm Start (including cool down time)		
Hot Start		
		... PROTECTED DATA ENDS]

7. Prior to economic commitment considerations, start-up costs were represented only by the fuel required for cold, warm or hot starts, because the plant was not cycled due to market demand. With the possibility of increased cycling due to market demand, the Big Stone and Coyote Plant co-owners are reviewing the need to apply additional maintenance costs to the startup costs of each unit. All co-owners must agree to apply these costs in the same proportionate ownership share level. Otherwise, one co-owner's share of the plant could be committed and dispatched disproportionately by the market, skewing market clearing results and financial compensation. This is under review.
8. Otter Tail has not allocated any costs to variable preventative maintenance in this analysis. Variable preventative maintenance is not a term that Otter Tail is familiar with in tracking costs associated with operation or maintenance of a power plant.

*B. Minnesota Power, Otter Tail, and Xcel Energy shall file a compliance filing within 60 days of this order containing the required data consistent with the decisions in this order, with formulae intact, that the utility will fill out for each unit in future filings, including clear definitions of each input. The utilities shall do this in consultation with each other, the Department, and stakeholders. The Commission delegates authority to the Executive Secretary to approve this compliance filing for use in the March 2021 filings in Docket No. E-999/CI-19-704.*

#### **Otter Tail Response**

Representatives from Minnesota Power, Otter Tail, and Xcel Energy met on January 20, 2021 to discuss a consistent reporting format for the required data. Further meetings, which included representatives from the Minnesota Department of Commerce, Division of Energy Resources, Commission staff, Fresh Energy and the Sierra Club, took place in late January and early February. The parties all agreed to the format used in Attachment 02 to this filing, which was also provided in the Compliance filing submitted by Minnesota Power on behalf of all the utilities, dated February 11, 2021.<sup>3</sup> On February 22, 2021, the Executive Secretary of the Commission issued a Notice of Approval of Annual Compliance Reporting Template.

*C. Minnesota Power, Otter Tail, and Xcel Energy shall evaluate whether reducing minimum operating levels would benefit customers and to include that evaluation and discussion in the March 1, 2021 compliance report.*

In March of 2016, Big Stone Plant reduced its total plant economic minimums from  
**[PROTECTED DATA BEGINS...**

**...PROTECTED DATA ENDS]** Except for testing and plant derates, and the air-quality control system (AQCS) scrubber train transition issue described below, the Otter Tail share of Big Stone Plant is self-scheduled at the economic minimum of **[PROTECTED DATA BEGINS...**  
**...PROTECTED DATA ENDS]**.

---

<sup>3</sup> *In the Matter of an Investigation into Self-Commitment and Self-Scheduling of Large Baseload Generation Facilities*, Docket No. E999/CI-19-704, Compliance Report

Will Seuffert  
March 1, 2021  
Page 8

In 2015 Big Stone Plant completed construction and began operation of a new AQCS system that reduced nitrogen oxides and sulfur dioxide emissions by approximately 90 percent and mercury emissions by approximately 80 percent. The AQCS system requires operation of two scrubber trains when operating at high output levels and one scrubber train when operating at low output levels. The physical minimum limitation under two scrubber trains is

**[PROTECTED DATA BEGINS...**

**...PROTECTED DATA ENDS]** The physical minimum limitation under one scrubber train is **[PROTECTED DATA BEGINS...**

**...PROTECTED DATA ENDS]**, which is the value listed in Columns K and L of Attachment 2 to this filing. Transitioning between one and two scrubber trains requires physical plant reconfigurations that can be labor intensive, cause additional wear and tear to the AQCS system, and require a minimum of 20 minutes to complete. As a result of this physical plant limitation associated with the AQCS system, it is sometimes necessary to adjust the self-schedule limit up to the two-train minimum.

The Big Stone Plant self-schedule utilizes the two-train minimum during times when market pricing is expected to remain high (calling for increased plant output) or when low market pricing is expected to be short-lived, avoiding the complexities associated with the AQCS scrubber train transition.

If forward prices are expected to remain low, transition to the one train minimum is implemented and the self-schedule is updated accordingly. It should also be noted there is additional complexity in timing, communication, and market pricing issues associated with updating physical plant operating limits. As previously mentioned, Big Stone Plant is a joint owned unit with co-owners operating in two different energy markets (Otter Tail – MISO, Montana Dakota Utilities – MISO, NorthWestern Energy - SPP). Decisions to transition between one and two trains are driven by short-term market forecasts, impacted by both the SPP and MISO energy markets. While Big Stone Plant operations seek to optimize customer energy costs, it is not possible to perfectly predict forward, hourly, short-term energy pricing and optimal AQCS scrubber train operation.

Minimum load at Coyote Station changed from **[PROTECTED DATA BEGINS...**  
**...PROTECTED DATA ENDS]** in May 2020.

*D. Utilities with co-ownership of baseload generating units shall discuss options of economically committing those units within the terms of their partnership in the March 1, 2021 compliance report.*

Big Stone Plant co-owners have implemented the capability to offer the unit into the MISO and SPP markets utilizing an economic offer. As previously mentioned, Big Stone straddles both the MISO and SPP wholesale energy markets and can be committed and dispatched by either ISO. Big Stone contractual obligations require partners to take their minimum share of the plant whenever another owner, or market, calls for commitment. Per the co-owner contract, utilization of an economic offer requires unanimous agreement amongst the three co-owners. If any co-owner requests self-commitment, all other co-owners are required to self-commit their share of the plant.



Similarly, if MISO or SPP calls for a co-owner's portion of the plant, all other co-owners are obligated to self-commit their share, at least to minimum output. This results in economic decommitment occurring only when all three co-owners agree to offer the unit economically and the MISO and SPP markets do not choose to economically commit the unit.

As of late April 2020, co-owners have been meeting regularly to discuss and coordinate Big Stone Plant offer practices. In these meetings, co-owner marketing teams meet with Big Stone operations staff to discuss the health of the unit, operational considerations, historical, current, and projected market conditions (in both the SPP and MISO markets), weather forecasts, and potential adjustments to the economic offer curves. Co-owners will then indicate their offer preference, and duration of, for either an economic offer or self-commitment. In the event one co-owner calls for self-commitment, all other co-owners are required to self-commit their share at minimum output.

Generally, Big Stone co-owner marketing teams meet twice per week to discuss market conditions and offer strategy. The periodicity of the meetings can be stretched out or shortened, as needed, during times of low market pricing (extended decommitment) or high market pricing (extended commitment). Co-owner marketing teams maintain communication between regularly scheduled meetings in the event market conditions call for updated offer parameters.

Coyote Station co-owners are currently discussing potential implementation of economic offer capability for the unit. Coyote Station has the same co-owners as Big Stone Plant with the addition of Minnkota Power Cooperative. While a decision allowing for economic offer capability has yet to be reached, Otter Tail has worked with the other co-owners to develop the necessary communication and process foundations to allow for future implementation. The protocols and limitations for Coyote economic offer capability are expected to be nearly identical to the protocols and limitations, as described above, for Big Stone economic offer capability.

- E. Minnesota Power, Otter Tail, and Xcel Energy shall file in their March 1, 2021 filing a complete analysis of the costs and benefits of economic or seasonal dispatch relative to self-scheduling at the following facilities:*
- a. Coyote Station*
  - b. Big Stone Plant*

#### **Otter Tail Response**

Otter Tail's analysis is included in Section 4 of this filing.

- F. Otter Tail shall provide a discussion of the options of changing its current coal contract at Coyote Station and evaluation of how potential costs of changing the contract compare to Coyote Station's past and forecast operating losses in Docket No. E-999/CI-19-704.*

### **Otter Tail Response**

Coyote Station obtains all of its fuel through an all-requirements Lignite Sales Agreement (LSA) with Coyote Creek Mining Company, L.L.C (CCMC), a subsidiary of North American Coal. Coyote Station is a mine-mouth lignite coal generation plant, meaning lignite coal is mined adjacent to Coyote Station. Under the LSA, CCMC is responsible for developing, constructing, operating and eventually reclaiming the mining facility, the costs of which are reflected in the terms of the LSA. Much of these costs are fixed costs which do not vary with the amount of fuel produced and consumed by Coyote Station. This type of coal supply agreement is significantly different than coal supply arrangements used by non-lignite, non-mine mouth facilities, where coal is a commodity available from different suppliers under short term agreements. Coyote Station's co-owners and CCMC entered into the LSA in 2012 with a term through the end of 2040<sup>4</sup>. The long term of the LSA reflects the unique nature of mine mouth facilities.

As with any contract, there are limited options for changing the terms the LSA. As one of several co-owners Otter Tail lacks the ability, by itself, to alter the terms of the LSA. The co-owners together lack the ability to make unilateral changes to the LSA. Therefore, any changes to the LSA would need to be secured through negotiations. Changes to the LSA would require at least two agreements: (1) an agreement among co-owners on changes, to include trade-offs necessary to secure negotiated contract changes, and (2) an agreement between the co-owners and CCMC (and North American Coal) to change terms. Also, CCMC entered into long term financing arrangements to support its operations under the LSA. It is likely that CCMC's lenders would need to approve changes impacting CCMC's revenues.

Coyote Station has consistently provided a net benefit to Otter Tail customers on a variable cost basis. The markets in which the co-owners operate (SPP and MISO) are evolving, with recent historically low LMP pricing. As noted above, Coyote Station co-owners are currently discussing potential implementation of economic offer capability for Coyote Station, similar to that employed by Big Stone Plant. MISO and SPP market conditions will largely drive future LSA discussions. As one of several co-owners Otter Tail does not believe it prudent to speculate on what if any changes to the LSA would be feasible under various market forecasts. Doing so could ultimately impair potential negotiations to the detriment of the co-owners' customers.

Finally, it should be noted that the Coyote Station co-owners are working to identify cost saving efficiencies within the terms of LSA. The Coyote Station co-owners recently worked directly with the CCMC staff to reforecast estimated coal tons and to review options for reducing the cost of coal. As a result of that effort, **[PROTECTED DATA BEGINS...**

**...PROTECTED DATA ENDS].**

---

<sup>4</sup> In Docket No. E017/D13-795 the Commission approved extending the remaining life of Coyote Station by 8.4 years from 19 years to 27.4 years, with an AYFR of 2041 to correspond with anticipated duration of the LSA.

Will Seuffert  
 March 1, 2021  
 Page 11

#### 4. Analysis Results:

For the 2020 reporting period, the revenues, costs, and net benefits/costs of market operations for Otter Tail's Big Stone Plant and Coyote station are detailed in the narrative and summary tables below.

#### General 2020 Market Conditions

The 2020 calendar year maintained historically low LMP pricing throughout the MISO footprint. The ten-year history of average, annual, day ahead, LMP pricing at the Big Stone Plant and Coyote Station pricing nodes are reflected in Table 2 below:

**Table 2**  
**DA LMP Average Hourly Price History**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Big Stone Plant	\$22.43	\$19.61	\$24.24	\$28.56	\$20.57	\$19.08	\$21.20	\$25.30	\$20.08	\$13.74
Coyote Station	\$22.16	\$19.88	\$23.22	\$28.91	\$20.26	\$17.44	\$20.34	\$24.82	\$20.39	\$13.30

These very low 2020 LMP pricing levels were driven by several factors, including, but not limited to, low natural gas markets, continued renewable resource penetration, and impacts to load driven by the COVID-19 pandemic. The drastic change in 2020 LMP pricing greatly impacts Big Stone Plant and Coyote Station revenues as compared to previous years.

#### Big Stone Plant

For the 2020 reporting period, the revenues, costs, and net benefits/costs of market operations for Otter Tail's Big Stone Plant are reflected in Table 3 below. Table 3 compares the Big Stone market revenues against both variable costs and variable costs combined with fixed fuel costs.

**Table 3**  
**Big Stone Plant Net Benefit/Cost Summary 2020**

Revenue	Variable Costs	Variable Cost Net Benefit / Cost	Variable Costs Plus Fixed Fuel Costs	Variable Costs Plus Fixed Fuel Costs Net Benefit / Cost
<b>[PROTECTED DATA BEGINS...</b>				
<b>...PROTECTED DATA ENDS]</b>				

Monthly details for Big Stone Plant are included in Attachment 2 to this filing.

Revenues include MISO energy payments, ASM payments, and make whole payments. These revenues are reported on an hourly basis in columns S, T, and Z of the *Self-Commitment Hourly Template* tab in Attachment 2.

Variable costs include fuel for generation, reagents (i.e. lime, activated carbon, ammonia, emission allowances, and miscellaneous operation and maintenance costs (largely water treatment chemicals).

Will Seuffert  
 March 1, 2021  
 Page 12

Variable costs are reported on an hourly basis in column AB of the *Self-Commitment Hourly Template* tab in Attachment 2. Due to the co-ownership of Big Stone plant, and varying commitment and dispatch patterns of each co-owner, Otter Tail reports variable cost using an average per MWh cost by month.

Fixed fuel costs include train lease costs. Variable costs plus fixed fuel costs are reported on an hourly basis in column AC of the *Self-Commitment Hourly Template* tab in Attachment 2. Like variable costs, Otter Tail reports fixed fuel costs using an average per MWh cost by month.

Once again it should be emphasized that Big Stone Plant is a co-owned unit, operated in two markets, and that Otter Tail is obligated to self-commit their share of the plant if any other co-owner or either MISO or SPP commit a co-owner's share of the unit.

At the end of 2019, Otter Tail led the co-owner development of Big Stone Plant economic offer capability. This capability was implemented near the end of April 2020. Post economic offer capability implementation, there were significant periods of economic decommitment throughout the balance of 2020. Periods of economic decommitment occurred in the months May, June, September, November, and December. Given the historically low 2020 LMP pricing, implementation of economic offer capability resulted in significant savings to Otter Tail Power customers as compared to what might have been under a continued 100% self-commitment offer practice.

It should also be emphasized that for significant periods of 2020, Otter Tail was obligated to self-commit its share of the plant. The largest driver in forced self-commitment was higher LMP pricing in the SPP market. At the Big Stone node, SPP market pricing was nearly 22% higher than MISO pricing. The 2020 Big Stone pricing in SPP averaged \$16.74 per MWh versus \$13.74 in MISO. A \$3 average price difference can result in significantly increased commitment and dispatch patterns.

To demonstrate the impacts of the higher SPP market and forced self-commitment obligations, Otter Tail analyzed the months of May through December (the months of implemented economic offer capability). A comparison is made between actual 2020 Otter Tail share performance and what performance might have been if Otter Tail was not forced to self-commit. Table 4 reflects actual 2020 Otter Tail performance against the hours OTP would have endorsed self-commitment based solely on MISO market conditions.

**Table 4**  
**Big Stone Plant Actual vs. OTP Endorsed Self-Commitment Hours**  
**May-December 2020**

Scenario	Revenue	Variable Costs	Variable Cost Net Benefit / Cost
	[PROTECTED DATA BEGINS...]		
2020 OTP Actual Performance			
2020 OTP Endorsed Hours of Self-Commitment			
...PROTECTED DATA ENDS]			

Will Seuffert  
 March 1, 2021  
 Page 13

Monthly details for Big Stone Plant are included in Attachment 2 to this filing. Hourly calculations for this analysis can be found in columns AF through AK of the *Self-Commitment Hourly Template* tab in Attachment 2.

In summary, the historically low 2020 LMP pricing posed a significant challenge for Big Stone Plant operations. This was substantially aggravated by higher SPP market pricing often pulling the Otter Tail share into an underwater MISO market. However, implementation of economic offer capability resulted in a considerable number of hours of economic decommitment when both MISO and SPP market pricing was low. This resulted in substantial savings for Otter Tail customers compared to what might have been under a continued 100% self-commitment practice. Otter Tail will continue to work with its fellow co-owners to improve and enhance future plant performance.

**Coyote Station**

Table 5 below compares the Coyote Station market revenues against both variable costs and variable costs combined with fixed fuel costs for the 2020 reporting period.

**Table 5  
 Coyote Plant Net Benefit/Cost Summary 2020**

Revenue	Variable Costs	Variable Cost Net Benefit / Cost	Variable Costs Plus Fixed Fuel Costs	Variable Costs Plus Fixed Fuel Costs Net Benefit / Cost
<b>[PROTECTED DATA BEGINS...</b>				
<b>...PROTECTED DATA ENDS]</b>				

Monthly details for Coyote Station are included in Attachment 3 to this filing.

Revenues include MISO energy payments, ASM payments, and make whole payments. These revenues are reported on an hourly basis in columns S, T, and Z of the *Self-Commitment Hourly Template* tab in Attachment 3.

Variable costs include the variable component of the mine fuel invoice for delivered lignite **[PROTECTED DATA BEGINS... ...PROTECTED DATA ENDS]**, reagents costs (i.e., lime and activated carbon), coal conversion tax, miscellaneous variable operation and maintenance costs (largely water treatment costs). Variable costs are reported on an hourly basis in column AB of the *Self-Commitment Hourly Template* tab in Attachment 3. Due to the co-ownership of Coyote plant, and varying commitment and dispatch patterns of each co-owner, Otter Tail reports variable cost using an average per MWh cost by month.

Fixed fuel costs include the fixed component of the mine fuel invoice for delivered lignite **[PROTECTED DATA BEGINS... ...PROTECTED DATA ENDS]**. Variable costs plus fixed fuel costs are reported on an hourly basis in column AC of the *Self-Commitment Hourly Template* tab in Attachment 3. Like variable costs, Otter Tail reports fixed fuel costs using an average per MWh cost by month.

Will Seuffert  
 March 1, 2021  
 Page 14

As reported in the above section describing the Coyote Station fuel contract, Coyote Station is fueled by the Coyote Creek mine mouth plant. As a result of this fuel source, and the contract structure described above, much of the fuel costs for Coyote Station are fixed. This means Otter Tail is obligated to pay for these costs whether or not the fuel is consumed to generate electricity. These fixed costs equate to sunk costs and do not play a role in appropriately developing market offers on a day-to-day basis. As such, Otter Tail maintains it is appropriate to judge Coyote Station's commitment and dispatch decisions based on variable costs, not variable costs plus fixed fuel costs.

Like Big Stone Plant, Coyote Station experienced historically low LMP pricing in 2020. Unlike previous years, this resulted in periods of extended LMP pricing below the variable cost to operate Coyote station. These pricing periods were most frequent in the spring months of 2020. Despite this period of unprecedented, sustained, low LMP pricing, Coyote Station's annual performance still resulted in a substantial net benefit for Otter Tail customers, as compared against the unit's variable operating costs.

As a result of 2020 market conditions, Otter Tail is actively pursuing implementation of economic offer capability at Coyote Station. As mentioned previously, Otter Tail has already developed the necessary communication protocols and processes to allow for economic offer capability. In the event co-owners are agreeable to implement economic offer capability, it is important to note that Coyote will face many of the same obstacles as described with Big Stone, including multiple co-owners, multiple markets, and hours of forced self-commitment. However, once economic offer capability is advanced by the co-owners, this will allow for economic decommitment during periods of sustained low market pricing, resulting in additional savings for Otter Tail customers.

## **Item Z**

The following reporting item z, was set forth in Attachment A of the Commission's January 11, 2021 Order in Docket No. E-999/CI-19-704:

*z) To the extent not already provided, utilities should provide the following:*

- i. Length of minimum decommit time for each unit;*
- ii. Number of times in the analysis period that each unit incurred losses over a duration greater than or equal to its minimum decommit time;*
- iii. Of the periods identified in (ii), the number of periods when losses were greater than the relevant startup cost (warm or cold startup cost, depending on the length of the period); and*
- iv. Sum of losses in excess of startup cost that were incurred during periods identified in (iii).*

Item z, i, length of minimum decommit time for each unit, which Otter Tail interpreted as the combined cool down time and startup notification time, were described earlier in this filing and are listed in Table 1.

In Otter Tail's review of the filing requirements, items z, ii through z, iv were ambiguous and difficult to answer. As Otter Tail was uncertain about how to accurately develop the requested analysis, Otter Tail brought the issue to the other utilities, stakeholders, and the Department, as part of the required data template compliance filing meetings. Through these joint discussions, the utilities and stakeholders agreed that the language of item z was not specific enough to provide adequate direction



Will Seuffert  
 March 1, 2021  
 Page 15

to develop the requested analysis. Ultimately, Fresh Energy and The Sierra Club agreed to define and develop a calculation methodology for items z, ii through z, iv, which they then shared with the utilities and the Department. After a few relatively minor utility revisions, all parties came to agreement on the new item z calculation methodology. This new calculation directly utilizes the data provided within the agreed upon compliance filing template. The automated item z calculation resulted in two additional tabs being added to the template.

The updated item z calculation essentially asks four questions relating to 2020 operations:

1. How many times throughout the 2020 operating year did the unit maintain consecutive hours of operating losses greater than the minimum downtime of the plant (cool down time plus startup notification time)?
2. What were the cumulative operating losses of the occurrences identified in item 1?
3. How many of the occurrences in item 1 had operating losses greater than the startup cost of the unit?
4. What were the cumulative operating losses of the occurrences identified in item 3?

The item z analysis was applied to both a variable cost scenario and a variable cost plus fixed fuel cost scenario. Otter Tail completed the requested item z calculation utilizing a cold minimum downtime (hot to cold cooldown and cold startup notification times). Table 6 summarizes the item z analysis for Big Stone Plant and Coyote Station.

**Table 6**  
**Big Stone Plant and Coyote Station Item Z Summary Table**

Line		Big Stone Plant		Coyote Station	
		Variable Costs	Variable Costs Plus Fixed Fuel	Variable Costs	Variable Costs Plus Fixed Fuel
		[PROTECTED DATA BEGINS...]			
1	No. of Occurrences Consecutive Hours of Operating Loss Exceeds Min Downtime				
2	Cumulative Operating Losses of Hours Identified in Line 1				
3	No. of Occurrences in Line 1 Where Operating Losses Exceeded Startup Costs				
4	Cumulative Operating Losses of the Occurrences Identified in Line 3				
				...PROTECTED DATA ENDS]	

While Otter Tail appreciates the intent of the above analysis, we do not feel it is necessarily representative of actual operational effectiveness or historical performance at Big Stone Plant or Coyote Station.

At Big Stone Plant, many of the above occurrences are a result of the SPP market, or co-owner requests, requiring the OTP share of Big Stone plant to remain online and self-committed.

Will Seuffert  
 March 1, 2021  
 Page 16

At Coyote, historically low LMP pricing has resulted in a year unlike any other since the start of the MISO market. In a typical year, the variable cost of Coyote operations is well below market pricing. As noted previously, Otter Tail is currently working with the other Coyote co-owners to potentially implement economic offer capability.

### Capital Requirements

Attachment A of the January 11, 2021 Order in Docket No. E-999/CI-19-704 requires the Company to provide the capital revenue requirements, or reasonable estimates in approximation thereof, for all generation units. Otter Tail operates its system as a whole unit, and while it is able to approximate a single rate base item, in this case generating units, carving out a single item is a narrow view of the overall impact on the cost of service.

Otter Tail provides Table 7 in compliance with this Order Point utilizing December 2019 FERC Form 1 information which provides the gross plant in service less asset retirement costs [Line 1] per steam plant<sup>5</sup>. The accumulated depreciation [Line 2] was taken from depreciation records as of December 31, 2019. An estimate of Minnesota Accumulated Deferred Income Taxes [Line 4] was allocated to each steam plant based on its weighted average of total 2019 actual plant in service as a percent of production net plant.

**Table 7**  
**Estimate of capital revenue requirements**  
**Rate Base 2019**

	A	B	C
		Coyote	Big Stone
Line		[PROTECTED DATA BEGINS...]	
1	Plant in Service		
2	Accumulated Depreciation		
3	Net Plant in Service		
4	Minnesota Accumulated Deferred Income Tax		
5	Rate Base		
6	Rate of Return Allowed on Rate Base		
7	Estimated Capital Revenue Requirement (OTP Share)		
8	MN Share		
9	Estimated Capital Revenue Requirement (OTP MN)		
			...PROTECTED DATA ENDS]

<sup>5</sup> FERC Form 1, page 402, Total Cost [Line 17] less Asset Retirement Costs [Line 16] by steam plant.



Will Seuffert  
March 1, 2021  
Page 17

## 5. Conclusion

The following conclusions can be drawn from the analysis conducted:

- a. The 2020 year was a historically low market pricing year. Market prices, which dictate the amount of revenue a unit is paid for its generation, can vary the results of this analysis from year to year.
- b. Implementation of economic offer capability at Big Stone Plant resulted in numerous economic decommitments, benefiting Otter Tail customers. Additional economic decommitments would have been possible except for higher SPP market pricing and requested co-owner self-commitment requests.
- c. Despite the historically low pricing year, Coyote Station continued to provide a net benefit to Otter Tail customers on a variable cost basis. Otter Tail continues to pursue optimized plant performance through the development of economic offer capability in conjunction with the other Coyote Station co-owners.

Big Stone Plant and Coyote Station have both provided over four decades of reliable, dispatchable, and economical energy. Over this time, Otter Tail has utilized co-ownership to capture economies of scale, shared benefits, and reduced risk to the benefit of our customers.

Various portions and attachments to this filing contain information that Otter Tail considers trade secret. Otter Tail believes this filing comports with the Commission's Notice relating to Revised Procedures for Handling Trade Secret and Privileged Data, pursuant to Minn. R. 7829.0500. As required by the revised procedures, a statement providing the justification for excising the trade secret data follows this letter.

Otter Tail has electronically filed this document with the Commission. In compliance with Minn. R. 7829.1300, subp. 2, Otter Tail is serving a copy of this filing on the Minnesota Department of Commerce- Division of Energy Resources and the Minnesota Office of Attorney General-Antitrust and Utilities Division. A Summary of the filing has been served on all persons on Otter Tail's general service list. A Certificate of Service is also enclosed.

If you have any questions regarding this filing, please contact me at 218-739-8279 or at [stommerdahl@otpc.com](mailto:stommerdahl@otpc.com).

Sincerely,

*/s/ STUART TOMMERDAHL*  
Stuart Tommerdahl  
Manager, Regulatory Administration

cjh  
Enclosures  
By electronic filing  
c: Service List

**STATEMENT REGARDING JUSTIFICATION FOR EXCISING  
TRADE SECRET INFORMATION**

Please note that Otter Tail Power Company has marked the following portions of this filing with the caption **NOT PUBLIC DOCUMENT – NOT FOR PUBLIC DISCLOSURE**, according to Minn. Stat. § 13.37, subd. 1(b). This statute protects certain "government data," as that term is defined at Minn. Stat. § 13.02, Subd. 7, from being disclosed by an administrative agency to the public.

- Tables 1, 2, 3, 4 and 5 in the filing letter – Plant specific economic information.
- Attachment 1 in its entirety – Plant specific economic information.
- Attachment 2 in its entirety – Plant specific economic information
- Attachment 3 in its entirety – Plant specific economic information
- Attachment 4 in its entirety – Plant specific operating information

The information being supplied in this filing is considered to be a "compilation" of data that (1) was supplied by Otter Tail Power Company, (2) is the subject of reasonable efforts by Otter Tail Power Company to maintain its secrecy, and (3) derives independent economic value, actual or potential, from not being generally known to or accessible to the public. Otter Tail has contractual obligations to maintain the confidentiality of this information, and this information, if publicly disclosed, could put Otter Tail Power Company at a competitive disadvantage to the detriment of the Company's customers.

It is Otter Tail Power Company's understanding that marking the filing in this manner is consistent with the revised procedures for handling trade secret and privileged data, as announced in the joint memorandum of the Office of Energy Security and Public Utilities Commission dated August 18, 1999 and which became effective September 1, 1999.

**Actual Big Stone Plant Performance Under Variable Costs**

Row Labels	Net MISO Energy Payments [PROTECTED DATA] BEGINS...	Total ASM Payments	Make Whole Payments	Variable Production Costs	Sum of Net Variable (Cost) or Benefit
<b>2020</b>					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>Grand Total</b>					

...PROTECTED DATA ENDS|

**Actual Big Stone Plant Performance Under Variable and Fixed Costs**

Row Labels	Net MISO Energy Payments [PROTECTED DATA] BEGINS...	Total ASM Payments	Make Whole Payments	Variable & Fixed Production Costs	Sum of Variable & Fixed (Cost) or Benefit
<b>2020</b>					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>Grand Total</b>					

...PROTECTED DATA ENDS|

**OTP Endorsed Self Commit Big Stone Plant Performance Under Variable Costs**

Row Labels	Net MISO Energy Payments - OTP Endorsed Self Commit Hours [PROTECTED DATA] BEGINS...	Total ASM Payments- OTP Endorsed Self Commit Hours	Make Whole Payments - OTP Endorsed Self Commit Hours	Variable Production Costs - OTP Endorsed Self Commit Hours	Sum of Net Variable (Cost) or Benefit - OTP Endorsed Self Commit Hours
<b>2020</b>					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>Grand Total</b>					

...PROTECTED DATA ENDS|

**Actual Coyote Station Performance Under Variable Costs**

Row Labels	Net MISO Energy Payments [PROTECTED DATA BEGINS...	Total ASM Payments	Make Whole Payments	Variable Production Costs	Sum of Net Variable (Cost) or Benefit
<b>2020</b>					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>Grand Total</b>					

...PROTECTED DATA ENDS]

**Actual Coyote Station Performance Under Variable and Fixed Costs**

Row Labels	Net MISO Energy Payment [PROTECTED DATA BEGINS...	Total ASM Payments	Make Whole Payments	Variable & Fixed Production Costs	Sum of Variable & Fixed (Cost) or Benefit
<b>2020</b>					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>Grand Total</b>					

...PROTECTED DATA ENDS]

**Otter Tail Power Company**

Fixed and Variable Plant Costs

**Annual Non-Fuel Variable Expenses**

(Reagents, Water, Emissions Allowances)

Plant	2020
Big Stone	[PROTECTED DATA BEGINS...
Coyote	...PROTECTED DATA ENDS]

**Annual Fixed O&M Expenses**

Plant	2020
Big Stone	[PROTECTED DATA BEGINS...
Coyote	...PROTECTED DATA ENDS]

**Otter Tail Power Company  
 Plant Heat Rates**

Plant: Big Stone	2020
	[PROTECTED DATA BEGINS...
Average Heat Rate at economic minimum	
Average Heat Rate at economic maximum	
Plant: Coyote	
Average Heat Rate at economic minimum	
Average Heat Rate at economic maximum	...PROTECTED DATA ENDS]



## 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 Letters of Availability to all other persons on the attached service list by electronic service or by first class mail.

**Otter Tail Power Company  
Annual Compliance Filing**

Dated this 1<sup>st</sup> day of **March, 2021**

/s/ CARLY HAIBY

Carly Haiby  
Regulatory Filing Coordinator  
Otter Tail Power Company  
215 South Cascade Street  
Fergus Falls MN 56537  
(218) 739-8472



First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Alison C	Archer	aarcher@misoenergy.org	MISO	2985 Ames Crossing Rd  Eagan, MN 55121	Electronic Service	No	OFF_SL_19-704_Official
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400  St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_19-704_Official
Brooke	Cooper	bcooper@allete.com	Minnesota Power	30 W Superior St  Duluth, MN 558022191	Electronic Service	No	OFF_SL_19-704_Official
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280  Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_19-704_Official
Bruce	Gerhardson	bgerhardson@otpc.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_19-704_Official
Allen	Gleckner	gleckner@fresh-energy.org	Fresh Energy	408 St. Peter Street Ste 220 Saint Paul, Minnesota 55102	Electronic Service	Yes	OFF_SL_19-704_Official
Kim	Havey	kim.havey@minneapolismn.gov	City of Minneapolis	350 South 5th Street, Suite 315M Minneapolis, MN 55415	Electronic Service	No	OFF_SL_19-704_Official
Holly	Lahd	holly.lahd@target.com	Target Corporation	33 South 6th St CC-28662 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-704_Official
Douglas	Larson	dlarson@dakotaelectric.com	Dakota Electric Association	4300 220th St W  Farmington, MN 55024	Electronic Service	No	OFF_SL_19-704_Official
Leann	Oehlerking Boes	lboes@mnpower.com	Minnesota Power	30 W Superior St  Duluth, MN 55802	Electronic Service	No	OFF_SL_19-704_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Randy	Olson	rolson@dakotaelectric.com	Dakota Electric Association	4300 220th Street W.  Farmington, MN 55024-9583	Electronic Service	No	OFF_SL_19-704_Official
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_19-704_Official
Isabel	Ricker	ricker@fresh-energy.org	Fresh Energy	408 Saint Peter Street Suite 220 Saint Paul, MN 55102	Electronic Service	Yes	OFF_SL_19-704_Official
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th PI E Ste 350  Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_19-704_Official
Shane	Stennes	stennes@umn.edu	University of Minnesota	319 15th Avenue SE  Minneapolis, MN 55455	Electronic Service	No	OFF_SL_19-704_Official
Lynnette	Sweet	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_19-704_Official
Stuart	Tommerdahl	stommerdahl@otpc.com	Otter Tail Power Company	215 S Cascade St PO Box 496 Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_19-704_Official
Brian	Tulloh	btulloh@misoenergy.org	MISO	2985 Ames Crossing Rd  Eagan, MN 55121-2498	Electronic Service	No	OFF_SL_19-704_Official
Laurie	Williams	laurie.williams@sierraclub.org	Sierra Club	Environmental Law Program 1536 Wynkoop St Ste 200 Denver, CO 80202	Electronic Service	No	OFF_SL_19-704_Official