

Staff Briefing Papers

Meeting Date **November 2, 2023**

Agenda Item 2*

Company **Minnesota Power**

Docket No. **E-015/AA-23-180**

In the Matter of Minnesota Power’s Petition for Approval of the Annual Forecast of Automatic Adjustment Charges for the period of January 2024 through December 2024.

Issues Should the Commission approve Minnesota Power’s Petition for approval of its Annual Forecast of Automatic Adjustment Charges for the period: January 2024 through December 2024?

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✓ **Relevant Documents**

Date

Minnesota Power – Initial 2023 Petition (Public and Trade Secret)	May 1, 2023
Department of Commerce – Comments (Public and Trade Secret)	June 30, 2023
Minnesota Power – Reply Comments (Public and Trade Secret)	July 31, 2023
Department of Commerce – Response to Reply Comments	August 22, 2023

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

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I. Statement of the Issues

Should the Commission approve Minnesota Power's Petition for approval of its Annual Forecast of Automatic Adjustment Charges for the period: January 2024 through December 2024?

II. BACKGROUND

On May 1, 2023, Minnesota Power (MP or the Company) filed its 2024 Annual Forecasted Fuel and Purchased Energy Rates (Petition) for the calendar year 2024.

On June 30, 2023, the Minnesota Department of Commerce, Division of Energy Resources (Department) filed its comments requesting additional information before recommending approval of Minnesota Power's Petition.

On July 31, 2023, Minnesota Power filed Reply Comments providing the information requested by the Department.

On August 22, 2023, the Department filed a response to MP's reply comments and recommended approval of MP's 2024 forecast, with modifications.

III. Parties' Discussion

A. Minnesota Power – Initial 2024 Forecast

In compliance with the Commission's November 13, 2019 Order in Docket No. E-999/AA-18-373, Ordering Paragraph (OP) 9,¹ MP filed its annual compliance report regarding self-commitment and self-scheduling of large base load generators on March 1, 2023, in Docket No. E-999/CI-19-704.

1. 2024 Fuel Forecast and Purchased Energy Costs

The Company's forecasted 2024 Fuel and Purchased Energy (FPE) rates are based on assumptions and information known at the time the forecast was developed. Tables 1 and 2 summarize Minnesota Power's 2024 forecasted fuel and purchase power costs and sales.

¹ Petition at 4.

Table 1: Forecasted Fuel Cost Summary

	2024 Forecast
Company's Generating Stations	\$116,773,811
Plus: Purchased Energy	\$223,751,172
Plus: MISO Charges	\$53,475,047
Less: MISO Schedules 16, 17, & 24	\$(211,024)
Less: Costs Recovered through Inter-System Sales	\$129,639,147
Less: Costs Related to Solar	\$2,474,436
Plus: Time of Generation and Solar Energy Adjustment	\$1,527,833
Total Cost of Fuel	\$263,625,304
Total Fuel Clause Sales (MWh)	8,572,838
Average Cost of Fuel (¢/kWh)	3.069

Table 2: Forecasted Sales (MWh)

	2024 Forecasted Sales
Total Sales of Electricity	12,397,514
Residential	1,045,140
Commercial	1,230,613
Large Power Taconite	3,794,988
Large Power Paper and Pulp	599,802
Large Power Pipeline	310,455
Other Miscellaneous	333,861
Municipals	1,313,471
Inter System Sales	3,769,185
Less: Inter System Sales	3,769,185
Customer Intersystem Sales	940,132
Market Sales	2,826,652
Station Service	2,401
Sales due to Retail Loss of Load	0
Less: Solar Generation & Purchases	55,492
Total Fuel Clause Sales	8,572,838

Table 3 shows Minnesota Power's proposed monthly forecasted rates to be implemented January 1, 2024.

Table 3: Proposed Monthly FPE Forecasted Rates (¢/kWh)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.521	3.421	2.937	2.884	3.096	2.740	3.173	3.229	2.961	2.874	2.830	3.159

2. Revised Tariff Sheet

Minnesota Power asserted that it will submit a compliance within 10-days of the Commission Order with a redline and clean revision of the FPE Rider to reflect approved rates.

3. Planning Resource Auction

The Company reported that due to the delay and the continued uncertainty in the MISO Planning Resource Auction (PRA) results, it did not include any capacity revenue for the January through December 2024 time period. The uncertainty comes from the new seasonal construct and Seasonal Adjusted Capacity methodology. The Company stated that it will provide an update during the Reply Comment period and adjust the 2024 FPE Forecast when the 2023/2024 PRA for the January through May 2024 time period are known, so long as the results are a net revenue position.

4. Model and Forward Energy Prices

a. RTSim Model

Minnesota Power used the RTSim production cost model for budgeting and planning purposes. The RTSim model is a detailed hourly simulation that dispatches generation to meet customer load requirements, while simultaneously factoring in bilateral contracts and the energy market, and assigns the appropriate energy costs to customers. The inputs that drive the model include customer loads, forecasted forward energy prices, contract energy purchases and sales, and generation parameters (i.e., fuel costs, maintenance schedules, economic dispatch status, etc.) The model's output includes the energy and costs for thermal generation, hydro generation, wind generation, bilateral contracts, and MISO market purchases and sales.

b. Forward Energy Prices

For forward energy prices, Minnesota Power used the forward market energy price outlook. The 2024 energy price outlook is based on a 10-business day average of forward market energy price at close from February 7, 2023 through February 21, 2023. The market prices are used in the model for generation dispatch and the MISO market purchase costs or MISO market sales revenues.

5. Customer Sales

Minnesota Power explained that its sales forecast was based using the following assumptions:

Residential:

- Based on Minnesota Power's 2022 Annual Electric Utility Forecast Report (AFR).²
- The Residential Class' sales forecast is primarily driven by residential customer account growth (Regional housing starts), weather, and energy efficiency.

Commercial:

- Based on Minnesota Power's 2022 AFR.³
- The Commercial Class' primary energy sales drivers are commercial customer account growth (Gross Metro Product), weather, regional employment and population, and conservation. The modeling also accounts for some irregular energy consumption behavior

² Docket No. E-999/PR-22-11.

³ *Id.*

due to COVID-19 restrictions in recent history. The econometric results are adjusted for the expected installation of new customer-owned generation.

Taconite:

- Operating at levels reflective of the historical average, adjusted for current U.S. steel mill operating levels. Routine maintenance incorporated based on historical trends and customer business plans, if known. Inter-system sales such as Incremental Production Services (IPS) fixed and variable non-firm are based on contract terms, historical trends and customer business plans, if known.

Paper and Pulp:

- Operational customers reflective of 2019 operating levels.
- A new paper customer has started operations. Routine maintenance incorporated based on historical trends and customer business plans, if known.
- Inter-System sales such as IPS, Replacement Firm Power Service (RFPS), Economy, and Non-firm are based on contract terms, historical trends and customer business plans, if known.

Pipelines:

- 3-year average with one pipeline customer adjusted for a known operations change.

Other Miscellaneous:

- Based on Minnesota Power's 2022 AFR.⁴
- Other large industrial customers assume a 3-year (2020-2022) annual sales historical average. Adjustments are applied for any known or expected change in operation that would impact energy sales.

Municipals:

- 13 customers reflect a new contract with reduced firm demand and energy sales. One customer reflects an increase in load relative to recent years due to change in pipeline pumping operations and restart of a large oil refinery. Hibbing Public Utilities reflects a new agreement that incorporates the city utilizing their own generation and market to serve their load removing their firm demand and energy sales.

Losses:

- Transmission losses are allocated to Firm Transmission service, Non-Firm Transmission, and Distribution-level service based on their projected energy requirements and expected losses at each level of service.
 - Total transmission losses allocated to Firm transmission customers is about 205,000 MWh.
 - Total losses allocated to Firm Distribution customers is approximately 245,000 MWh (Transmission loss = 91,000) + (Distribution loss = 154,000).

⁴ Docket No. E-999/PR-22-11, at 4.

6. Generation Costs

a. Boswell

Assumptions for Boswell:

- 2023 year-end inventory fuel volume and total costs as forecasted in February 2023 latest estimate provides January 1, 2024, beginning fuel inventory.
- Fuel cost forecast provided is for Minnesota Power share only (WPPI Energy (WPPI) owns 12.5 percent of inventory per the Minnesota Power/WPPI Operating Agreement).
- 2024 delivery volume, as approved by Minnesota Power Fuel Strategy Group.
 - Rail transportation cost is based on actual 2024 BNSF contract with All-LF escalator based upon L.E. Peabody and Associates forecast.
 - Rail fuel surcharge based upon EIA diesel forecast.
 - Coal topper pricing escalated 2 percent from 2023.
 - Coal commodity cost is based on actual coal 2024 coal contracts and open position based upon L.E. Peabody and Associates forecast.
 - Previous month's ending inventory (Total MMBtus and \$) + Current month coal deliveries (Total MMBtus and \$) = weighted average current month coal burn cost.
- Coal burn based upon generation formulated in RTSim modeling.
- Outages as provided by Generation Operations.
- 2024 Montana/Wyoming coal blend ratios remain consistent with 2023 target (60 percent Wyoming, 40 percent Montana for Boswell Energy Center (BEC) and 50 percent Wyoming, 50 percent Montana for BEC 4).
- Natural gas costs based upon 2024 Henry Hub Forward Natural Gas Curve, from Gas Daily and includes pipeline tariff cost.

b. Hibbard

Assumptions for Hibbard:

- Biomass burn based upon generation formulated in RTSim modeling.
- Biomass Pricing based upon 2024 forecasted forest residue pricing.
- Natural gas costs based upon 2024 Henry Hub Forward Natural Gas Curve, from Gas Daily, and includes City of Duluth Comfort Systems transportation charges.
- Also see Attachment 2 of MP's petition, "Fuel Procurement" for additional support.

c. Laskin

Assumptions for Laskin:

- Natural Gas burn based upon generation formulated in RTSim modeling.
- Natural gas costs based on 2023 Henry Hub Forward Natural Gas Curve, from Gas Daily, and pipeline transportation based upon actual supplier contract formula pricing.
- Also see Attachment 2, "Fuel Procurement" for additional support.

d. Wind

Assumptions for Wind:

- Minnesota Power used a 5-year historical average to estimate wind generation levels.
- Wind generation owned by Minnesota Power has a \$0 fuel cost.

e. Hydro

Assumptions for Hydro:

- Minnesota Power used a 5-year historical average to estimate hydro generation levels.
- Hydro generation owned by Minnesota Power has a \$0 fuel cost.

7. Purchase Costs

Manitoba Hydro:

- Contract Terms – Refer to Docket No. E-015/M-11-938.⁵

Minnkota Power Cooperation:

- Station Service Contract Terms – Refer to Docket No. E-015/AA-19-302.
- Renewable Source Contract Terms – Refer to E-015/GR-16-664. Purchase is offset by the sale to the renewable source customers in “Inter-system Sales Forecast.”

Purchase to serve Non-Firm Retail Customer:

- Based on customers load - No purchase made so price has been estimated.

Oliver County 1 – Refer to Docket No. E-015/M-05-975.

Oliver County 2 – Refer to Docket No. E-015/M-07-216.

Wing River – Refer to Docket No. E-015/M-07-537.

Nobles – Refer to Docket No. E-015/M-18-545.

Square Butte – Refer to Docket No. E-015/PA-09-526.

SES 20MW Solar:

- Generation – Refer to Docket No. E-015/M-20-828.
- Costs and generation will go to the Solar Energy Adjustment (SEA).

Purchase to Serve Municipal Solar Energy:

⁵ Staff notes that references to other dockets in this section relate to the dockets where costs used in this Petition were initially approved.

- Purchase to procure solar energy for a municipal customer. Purchase is offset by the sale to the municipal customer in “Inter-system Sales Forecast.”

Market Purchases:

- Minnesota Power uses the RTSim production cost model to determine the volume and cost for MISO market purchases. When additional energy is needed to serve load or it is lower cost to purchase energy from the market than to generate energy from Minnesota Power’s dispatchable fleet, the model will utilize the MISO market for purchases.

8. Inter-System Sales

- IPS and RFPS – Developed based on contract terms, historical trends, and customer business plans, if known.
- Economy and Non-Firm – Developed based on contract terms, historical trends, and customer business plans, if known.
- Municipal Incremental – 13 customers have a new contract with reduced firm demand and energy sales. Contract: Developed based on contract terms, historical trends, and customer business plans, if known.
- Municipal Solar Energy – Sales side of the direct pass through of the “Purchase to Serve Municipal Solar Energy.”
- Oconto – Refer to Docket No. E-015/AA-19-302.
- Hibbing Public Utilities – Customer outlook reflects the new agreement that incorporates the city utilizing their own generation and market to serve their load removing their firm demand and energy sales.
- Minnkota Power Cooperation – Renewable Source: Sales side of the direct cost pass through of the “Minnkota Power Cooperation Renewable Source”.
- Asset Based Sales (Non-MISO) – Minnesota Power uses a RTSim production cost model to determine when a sale is an asset-based sale or liquidation sale. For 2024, no asset-based sales to a counterparty have been forecasted.
- Liquidated Sales (Non-MISO) – MISO Market Sales – Minnesota Power uses a RTSim production cost model to determine when a sale is an asset-based sale or liquidation sale. For 2024, no liquidation sales to a counterparty have been forecasted.
- MISO Market Sales – Variable – Minnesota Power uses a RTSim production cost model to determine the volume and cost for MISO market sales. When excess energy is available and it is economical, the model will sell the excess energy into the MISO market. MISO Market Sales are either an asset-based sale or liquidation sale.

- Minnkota Power Liquidation – Refer to Docket No. E-015/AA-19-302.
- Oliver County 1: January through December 2022 Average.
- Oliver County 2: January through December 2022 Average.
- WPPI Energy - January through December 2022 average per day multiplied by the 2024 forecasted scheduled and forced outages⁶ at BEC 4.
- MISO Costs – Petition Attachment 3 summarizes MISO Costs breakdown and assumptions.
- Asset Based Sales Margins – Minnesota Power uses a RTSim production cost model to determine when a sale is an asset-based sale. The margins from these sales are included in the FAC Calculation (Attachment 1 – 2024 FAC Forecast Calculation) per the Rate Case Resolution Docket Nos. E-015/GR-19-442 and E-015/M-20-429. The margin from the Municipal Incremental Sale is also included in the Asset Based Sales Margins.

B. Department of Commerce – Comments

The Department noted that in compliance with the Commission’s June 12, 2019 Order in Docket No. E-999/CI-03-802, Minnesota Power filed its 2024 Annual Forecasted Fuel and Purchased Energy Rates (Fuel Report) for the calendar year 2024.⁷

The Department recommended that the Commission accept the following compliance filings by Minnesota Power:

1. Fuel and Energy Source Procurement and Energy Dispatching Policies (Minnesota Rules 7825.2800).
2. Forecast of Annual Automatic Adjustment Charges (Minnesota Rules 7825.2810).
3. Annual Five-Year Projection of Fuel Costs (Minnesota Rules 7825.2830).
4. Annual Notice of Reports Availability (Minnesota Rules 7825.2840).

1. Sales Forecast for 2024

Table 4 compares Minnesota Power’s Approved 2023 Sales (MWh) and 2024 Forecasted Sales (MWh).

⁶ Outage assumptions are found in Petition Attachment 5.

⁷ Department’s Comments; at 1.

**Table 4: 2023 and 2024 Forecasted Sales
(MWh)**

	Approved 2023	2024 Forecast	Change in MWh	Percent Change
Total Sales of Electricity	13,594,358	12,397,514	(1,196,844)	-8.80%
Residential	1,036,816	1,045,140	8,324	0.80%
Commercial	1,195,779	1,230,613	34,834	2.91%
LP Taconite	4,231,901	3,794,988	(436,913)	-10.32%
LP Paper and Pulp	600,104	599,802	(302)	-0.05%
LP Pipeline	309,481	310,455	974	0.31%
Other Misc.	334,745	333,861	(884)	-0.26%
Municipals	1,326,588	1,313,471	(13,117)	-0.99%
Inter System Sales	4,558,944	3,769,185	(789,759)	-17.32%
Less: Inter System Sales	4,558,944	3,769,185	(789,759)	-17.32%
Customer Inter System Sales	844,414	940,132	95,718	11.34%
Market Sales	3,712,057	2,826,652	(885,405)	-23.85%
Station Generation Service	2,473	2,401	(72)	-2.91%
Sales due to Retail Loss of Load	-	-	-	-
Less: Solar Generation & Purchases	57,323	55,492	(1,831)	-3.19%
Total Fuel Clause Sales	8,978,091	8,572,838	(405,253)	-4.51%

The Department pointed out that, largely driven by lower Large Power Taconite Sales and lower Inter System Sales, MP's total sales forecast for 2024 compared to 2023 shows lower forecasted total sales for 2024.⁸

The Department cited MP's report that it continues to use the RTSim production cost model for budgeting and planning purposes and, in this proceeding, to estimate the monthly fuel costs. The Department noted that according to MP:

The RTSim model is a detailed hourly simulation that dispatches generation to meet customer load requirements, while simultaneously factoring in bilateral contracts and the energy market and assigns the appropriate energy costs to customers. The inputs that drive the model include customer loads, forecasted forward energy prices, contract energy purchases and sales, and generation parameters (i.e., fuel costs, maintenance schedules, etc.) The model's output includes the energy and costs for thermal generation, hydro generation, wind generation, bilateral contracts, and MISO market purchases and sales.⁹

The Department noted that it asked Minnesota Power to provide all inputs and outputs for the

⁸ Department Comments at 4.

⁹ MP's Petition, Attachment No. 1, at 2.

RTSim Production Costs Model in the 2024 Fuel Forecast and based on its review of Minnesota Power's response, the Department did not identify any issues of concern.¹⁰

In Table 5, the Department compared Minnesota Power's 2024 sales forecast to 2020 to 2022 actual sales (three most recent years of actuals) and three-year average for 2020 to 2022 as provided in Minnesota Power's response to Information Request No. 1.

Table 5: Minnesota Power's 2020 to 2022 Actual Sales Compared to 2024 Sales Forecast per MWh

	2020 Actuals	2021 Actuals	2022 Actuals	2020-2022 Average	2024 Forecast
Total Sales of Electricity	12,868,727	14,566,917	12,948,280	13,461,308	12,397,514
Residential	1,046,011	1,043,665	1,063,695	1,051,124	1,045,140
Commercial	1,134,254	1,174,413	1,181,292	1,163,320	1,230,613
LP Taconite	4,295,593	4,428,819	4,297,541	4,340,651	3,794,988
LP Paper and Pulp	752,072	489,259	490,030	577,120	599,802
LP Pipeline	348,130	341,031	305,030	331,397	310,455
Other Misc.	316,907	341,353	341,716	333,325	333,861
Municipals	1,340,290	1,393,315	1,299,049	1,344,218	1,313,471
Inter System Sales	3,635,470	5,355,063	3,969,927	4,320,153	3,769,185
Less: Inter System Sales	4,415,869	5,355,063	3,969,927	4,580,286	3,769,185
Customer Inter System Sales	780,399	1,067,722	820,924	889,682	940,132
Market Sales	3,112,893	3,412,055	3,140,614	3,221,854	2,826,652
Station Generation Service	4,521	6,126	8,390	6,346	2,401
Sales due to Retail Loss of Load	518,056	869,160	-	462,405	-
Less: Solar Generation & Purchases	16,165	17,215	16,112	16,497	55,492
Total Fuel Clause Sales	8,436,693	9,194,640	8,962,240	8,864,524	8,572,838

Since 2024 fuel clause sales are slightly lower than 2022 actuals and the three-year average, and the MP explained the reason for the lower forecasted sales, the Department recommended approval of Minnesota Power's 2024 sales forecast to set 2024 FCA rates. The Department noted Minnesota Power's FCA revenues and costs are subject to true-up in the 2024 True-Up Report.

2. Forecasted Automatic Adjustment Charges for 2024

The Department noted that, as shown in Table 1, MP provided a Forecasted Fuel Cost Summary, with more detailed information in its Petition at Attachment No. 1, page 10. That summary includes wholesale asset-based margins and excludes fuel costs for inter-system sales.¹¹ As summarized in Table 6 and in response to Department's information request, MP provided its 2020 to 2022

¹⁰ Department Comments at 5.

¹¹ Department Comments at 7.

actuals, by year, a three-year average of 2020 to 2022 actuals, and 2024 forecast for Minnesota Power's Fuel Forecast Summary. The Company further compared the three-year average for 2020 to 2022 to the 2024 forecast and explained any fluctuations of 5 percent or more.

Table 6: 2020 to 2022 Actuals and 2020-2022 Three Year Average Compared to 2024 Forecasted Fuel Cost Summary per \$/MWh

	2020 Actuals	2021 Actuals	2022 Actuals	2020-2022 Average	2024 Forecast
Company's Generating Stations	\$76,291,181	\$111,316,951	\$130,269,082	\$105,959,071	\$116,773,811
Plus: Purchased Energy	\$193,346,296	\$302,780,486	\$262,867,849	\$252,998,211	\$223,751,172
Plus: MISO Charges	\$16,466,491	64,223,807	\$59,750,884	\$46,813,728	\$53,475,047
Less: MISO Sch. 16, 17, and 24	(\$164,843)	(\$79,627)	(\$406,916)	(\$217,129)	(\$211,024)
Less: Cost Recovered through Inter System Sales	\$97,823,379	\$160,780,204	\$167,749,176	\$142,117,586	\$129,639,147
Less: Costs Related to Solar	\$70	\$1,366	\$83	\$506	\$2,474,436
Plus: Time of Generation and Solar Energy Adjustment	\$432,548	\$386,358	\$440,270	\$419,725	\$1,527,833
Total Cost of Fuel	\$188,877,910	\$318,005,659	\$285,985,742	\$264,289,771	\$263,625,304
Total Fuel Clause Sales (MWh)	8,436,693	9,194,640	8,962,240	8,864,524	8,572,838
Average Cost of Fuel	\$22.39	\$34.59	\$31.91	\$29.81	\$30.75

Based on the information shown in Table 6, the Department noted that the Company's 2024 forecasted cost of fuel is very close to the three-year 2020 to 2022 average, though some differences are present throughout different categories. The Company also forecasted its owned 2024 generation to be higher than the three-year average while price per MWh remains nearly the same, resulting in higher generation costs.¹² Furthermore, as presented in Table 7, the Company's forecasted gas generation costs are down significantly compared to the three-year average, which was skewed by 2021 price spikes resulting from extreme weather events and 2022 market volatility.¹³

The Department further noted that compared to the 2020-2022 three-year average, forecasted purchased energy costs are lower. Additionally, the large increase of costs related to Solar are due to a new Solar Energy Standard 20 MW purchase that was not present in the 2022 actuals.¹⁴

¹² Department Attachment No. 4.

¹³ Department Attachment No. 5.

¹⁴ Department Attachment No. 4.

In response to a Department inquiry, Minnesota Power stated that it did not include any curtailment costs in its 2024 Fuel Forecast.¹⁵

The Department observed that, as shown in Table 6, the average 2024 cost of fuel is 3.17 percent higher than the three-year average for 2020 through 2022 actuals and 3.64 percent lower than 2022 actuals. Based on the additional information MP provided, the Department considered Minnesota Power's 2024 fuel forecast to be reasonable, and consequently, recommended approval of Minnesota Power's 2024 Fuel and Purchased Energy Forecast for setting initial FCA rates in this proceeding, subject to a true-up.

3. Forecasted Company owned Generation by Fuel Type and Location

Table 7 contains a compilation of information MP provided to the Department for its Company-owned generation costs, by facility, for 2020 through 2022, a three-year average of 2020-2022, and the 2024 forecast.

**Table 7: Company Owned Generation – 2020 to 2022
Actuals, 2020 to 2022 Three-Year Average, and 2024 Forecast**

Company Owned Generation	2020 Actuals	2021 Actuals	2022 Actuals	2020-2022 Average	2024 Forecast
Coal					
Boswell 3	\$31,525,708	\$46,778,306	\$52,242,979	\$43,515,664	\$40,951,276
Boswell 4	\$43,172,017	\$53,449,013	\$57,234,785	\$51,285,272	\$68,167,952
Gas					
Laskin 1	\$295,310	\$3,542,131	\$6,306,886	\$3,381,442	\$848,299
Laskin 2	\$289,307	\$3,287,399	\$6,961,890	\$3,512,865	\$614,902
Biofuel					
Hibbard	\$1,088,837	\$4,260,102	\$7,522,542	\$4,263,827	\$6,191,381
Wind					
Bison	\$0	\$0	\$0	\$0	\$0
Tac Ridge	\$0	\$0	\$0	\$0	\$0
Hydro					
Hydro	\$0	\$0	\$0	\$0	\$0
Total Company Generation	\$76,291,179	\$111,316,951	\$130,269,082	\$105,959,071	\$116,773,811

Based on the Department's review, it considered Minnesota Power's owned generation assumptions to be reasonable. The Department noted that the Company's 2024 forecast is fairly consistent with 2022 actuals, except for significantly lower gas costs. The change was explained by MP as being due to "significant price volatility in the power Market".¹⁶ This resulted in more frequent and longer dispatch of the Laskin facility by MISO.

¹⁵ Department Attachment No. 6.

¹⁶ Department Comments at 10.

The Department considered Minnesota Power's 2023 owned generation forecast reasonable for the purposes of setting initial FCA rates in this proceeding, subject to the subsequent true-up.

4. Purchased Energy – Long Term PPAs

Minnesota Power provided details of purchase costs in Petition Attachment 1, pages 6 & 7. The Company forecasted purchased energy of \$223,751,172 for 2024. In response to Department Information Request 7, Table 8 provides purchased energy for 2020 through 2022, the 2020-2022 three-year average received,¹⁷ and the 2024 forecast.

Table 8: Purchased Energy – Long-Term PPAs for 2020 to 2022 Actuals, 2020 to 2022 Three-Year Average, and 2024 Forecast

Purchased Energy	2020 Actuals	2021 Actuals	2022 Actuals	2020-2022 Average	2024 Forecast
Coal – Square Butte	\$30,559,753	\$33,604,104	\$30,080,957	\$31,414,938	\$37,483,750
Hydro – MHEB	\$81,808,261	\$102,549,433	\$115,956,880	\$100,104,858	\$107,963,075
Gas – GREM	\$12,458	\$0	\$0	\$4,153	\$0
Wind	\$15,267,492	\$27,678,338	\$32,536,121	\$25,160,651	\$29,698,656
Solar	\$70	\$1,367	\$137,350	\$46,262	\$2,664,609
Market	\$65,698,262	\$138,947,245	\$84,156,541	\$96,267,349	\$45,941,081
Total	\$193,346,296	\$302,780,486	\$262,867,849	\$252,998,211	\$223,751,172

Based on MP's assumptions and contract information for purchased energy, the Department considered the information to be reasonable. The Department noted that the Company's 2024 forecast has lower market purchases and appears reasonable, when compared to 2020 through 2022 actuals, and the 2020 through 2022 three-year average. The Department therefore recommended the Commission approve Minnesota Power's purchased energy forecast for setting initial FCA rates in this proceeding, subject to subsequent true-up.

5. MISO Energy Market (MISO Day 2) and Ancillary Services Market

The Department noted that MP 2024 forecasted MISO Market Charges are \$53,475,047.¹⁸ Moreover, MP provided MISO Day 2 Charges and Allocations in Petition, Attachment No. 3. Table 9 summarizes the Total Net MISO Charges (MISO Day 2 and ASM) included in Minnesota Power's 2024 Fuel and Purchased Energy Forecast. It also provides allocation of MISO charges between retail and municipal sales on a per-MWh basis.

¹⁷ Department Attachment 8.

¹⁸ Petition, Attachment 1, Page 10.

Table 9: 2024 Forecasted Net MISO Charges¹⁹

Total Net MISO Charges		
MISO Market Purchases		\$19,926,132
MISO Cost – Other than Energy		\$53,475,047
MISO Costs Recovered through Inter-System Sales (Market Sales)		(\$8,286,184)
MISO Costs Recovered through Inter-System Sales (Customer Sales)		(\$35,634,440)
MISO Market Sales		(\$36,239,777)
Net Total MISO Charges		(\$6,759,222)
Allocation of Net MISO Charges		
Retail Sales (in MWh)	7,263,558	(\$5,724,127)
Municipal Sales (in MWh)	1,313,471	(\$1,035,095)
Total FCA Sales	8,577,029	(\$6,759,222)

The Department pointed out that Minnesota Power's Net MISO charges for its 2023 forecast was a \$19.1 million revenue credit due to higher expected inter-system sales and higher expected MISO market sales,²⁰ compared to a \$6.8 million revenue credit for the 2024 forecast. The difference is primarily due to a \$20.5 million decrease in MISO Market sales, from a \$56.7 million credit in the 2023 forecast to a \$36.2 million credit in the 2024 forecast.²¹ The Department requested that MP explains in Reply Comments the reasons for the decrease in MISO Market sales between the 2023 and 2024 forecast.

The Department concluded the Company's MISO Day 2 and ASM costs and revenues included in the 2024 forecast appear reasonable; and recommended approval of Minnesota Power's MISO Day 2 and ASM costs and revenues included in the 2024 forecast in this proceeding, subject to a subsequent True-up.

6. Asset-Based Margins

The Department cited that in the Commission's June 12, 2020 Order,²² it approved Minnesota Power's petition to move asset-based margins from base rates to the fuel clause adjustment. The Department acknowledged that in Minnesota Power's Attachment No. 1, p. 8 of 18, the Company stated that "for 2024, no asset based bilateral sales to a counterparty have been forecasted." The Company forecasted \$0 in non-MISO asset-based costs.²³

Minnesota Power used its RTSim production cost model to determine the volume and cost for 2024 forecasted MISO market sales totaling \$36,239,777.²⁴ The Department reviewed Minnesota

¹⁹ Department Comments at 12.

²⁰ Docket No. E015/AA-22-216, Department Comments dated June 30, 2022, p. 11.

²¹ Department Comments at 12.

²² Docket Nos. E-015/GR-19-442 and E-015/M-20-429

²³ Petition, Attachment 1, Page 9.

²⁴ Petition, Attachment 1, Page 16.

Power's RTSim inputs and outputs and found the assumptions to be reasonable.

The Department stated that, in response to its inquiry regarding return of asset-based sales margins to ratepayers, the Company wrote:

The FAC calculation in its simplest form is generation and purchase costs less fuel costs allocated to intersystem sales. Intersystem sales MWhs and costs are considered non FAC and that is why they are removed (or in other words, reduce fuel and purchased power remaining in the FAC) from the Minnesota Power's FAC Forecast calculation for 2023. Asset Based Sales have always been considered an Intersystem sale which reduces the sales and costs in the Retail FAC calculation. The Asset Based Sales margins refunded to customers are included in the 2024 FAC Forecast, Docket No. AA-23-180, Attachment No. 1, Page 10 of 18 under the detail of line 5 "Less: Cost Recovered through Inter-System Sales" which increases fuel costs recovered through Intersystem sales and in return reduces fuel costs remaining in the FAC which benefits customers.²⁵

The Department concluded the Company's 2024 forecasted asset-based margins appear reasonable and, , for the purpose of setting initial FCA rates in this proceeding, subject to subsequent true-up, recommended its approval.

7. Outage Costs – Forced and Planned

The Department noted that in MP's Attachment No 5 (Trade Secret Data), the Company explained its planned and unplanned outage methodology. For Boswell Units 3 and 4, planned outages are based on Original Equipment Manufacturer (OEM) guidelines. For unplanned outages, the Company wrote:

Minnesota Power utilizes the average of the previous ten years of the NERC [North American Electric Reliability Corporation] Generating Availability Data System ("GADS") Equivalent Unplanned Outage Factor ("EUOF") to calculated [sic] unplanned outages. The EUOF is the percent of hours during the year (given period) the unit was in an unplanned outage. The ten-year average ensures one good or bad year does not over or under-state forecasted unit performance.²⁶

Table 10 compares the Company's forecast to actual incremental costs for planned outages in 2020 through 2022.

²⁵ Department Attachment No. 9.

²⁶ Petition, Attachment 5, Page 3.

Table 10: Comparison of Forecast and Actual Planned Outage

Incremental Costs			
Incremental Costs	2020	2021	2022
Forecasted	\$3,441,487	(\$2,869,832)	(\$1,635,238)
Actual	(\$293,246)	\$6,415,192	\$2,697,271
Difference	(\$3,734,733)	\$9,285,024	\$4,332,509

Table 11 shows the unplanned outage information Minnesota Power provided.

Table 11: Unplanned Outages²⁷

Generation Specifications			
	Econ Min	Econ Max	EUOF ²⁸
Boswell Unit 3	75 MW	350 MW	7.4%
Boswell Unit 4	185 MW	580 MW	8.5%

Minnesota Power's 2024 forecast is lower than 2022 actual unplanned outage (MWhs). The Company's 2024 forecast of unplanned outages (MWhs) is less than the 2020 – 2022 average of actual unplanned outages (MWhs).²⁹ The Department recommended approval of the Company's 2024 forecast for planned and forced outage costs, subject to a subsequent true-up.

8. MISO Planning Resource Auction Revenues

The Department stated that, at the time the Company submitted its filing, the MISO Planning Resource Auction (PRA) results were unavailable. MP stated in its petition:

Due to the delay and the continued uncertainty in the MISO Planning Resource Auction ("PRA") results, Minnesota Power did not include any capacity revenue for the January through December 2024 time period. The uncertainty comes from the new seasonal construct and Seasonal Adjusted Capacity methodology. The Company will provide an update during the Reply Comment period and adjust the 2024 FPE Forecast when the 2023/2024 PRA for the January through May 2024 time period are known, so long as the results are a net revenue position.³⁰

The Department anticipated the PRA information and resulting update to the 2024 FPE Forecast to be included in the Company's Reply Comments.

9. Recommendations

The Department recommended the Commission approve Minnesota Power's filing, subject to a subsequent true-up, with exception to the following information in Reply Comments:

²⁷ Petition at Attachment 5, Page 7.

²⁸ The Equivalent Unplanned Outage Factor (EUOF) is based on a 10-year average.

²⁹ Department Comments at 16.

³⁰ Petition at 7.

1. Results of the MISO Planning Resource Auction and updates to the 2024 FPE Forecast.
2. Adjusted 2024 FPE Forecast and information supporting all changes.
3. The reasons for the \$20.5 million decrease in MISO Market sales between its 2023 and 2024 forecast.

C. Minnesota Power – Reply Comments

In Reply Comments, MP provided the following in response to the Department's requested information.

1. Results of the MISO Planning Resource Auction

MP stated that this year's MISO Planning Resource Auction capacity prices cleared extremely low. For the 2023 FPE Forecast period (June 2023 to December 2023) the total capacity sale revenue is \$23,330. For the 2024 FPE Forecast period (January 2024 to May 2024) the total capacity sale revenue is only \$771. The Company surmised that this is an immaterial amount of revenue for 2024 and doesn't necessitate an update to the 2024 FPE Forecast.

2. Adjusted 2024 FPE Forecast

The Company asserted that there have not been significant changes to Minnesota Power's initial 2024 FPE Forecast submitted on May 1, 2023, that would justify a forecast refresh at this time.

However, Minnesota Power noted that after the 2024 FPE Forecast was prepared, it noticed that the planned outage schedule included in Attachment 5 of its May 1, 2023 filing was not the correct version, and differed slightly from what was used in the forecast preparation. The Company pointed out that an updated Trade Secret Attachment 5 with a revised Planned Outages table is attached to its Reply Comments.³¹ The updated version reflects the outage timing and duration assumptions that were used in the production cost modeling for generation output in the 2024 FPE Forecast. It does not change the FPE forecast calculation or rates.

3. Decrease in MISO Market Sales

The Company's forecasted MISO market sales decreased from a \$56.7 million credit in 2023 to a \$36.2 million credit in the 2024 FPE. MP explained that the \$20.5 million decrease is because there is less Boswell generation forecasted in 2024 due to a longer planned outage and partly due to assumed lower MISO market prices for energy.³² Reduced Boswell generation results in less generation available for asset-based sales, which are reflected in MISO market sales.

MP further reported that there was an increase in projected delivered coal costs (\$/MMBtu) for Boswell generation in the 2024 FPE Forecast compared to the 2023 FPE Forecast. Lower MISO

³¹ MP's Reply Comments at 2.

³² *Id.*

market prices along with higher Boswell fuel costs led to reduced dispatch of Boswell generation. The combination of all of these factors resulted in less revenue from sales to the MISO market.

D. Department of Commerce – Response to Reply Comments

Overall, the Department recommended the Commission approve Minnesota Power's 2024 Fuel Forecast, subject to a subsequent true-up.

The Department's analyses to the additional information provided by MP is discussed below.

1. Results of the MISO Planning Resource Auction

The Department observed that, when MP filed its initial Petition, its MISO Planning Resource Auction results were unavailable. In Reply Comments, MP stated that auction resulted in 2024 capacity sales revenues of \$1,850. As a result, the Department agreed that the MISO capacity revenue is immaterial; however, this amount should be included in MP's 2024 FPE True-Up filing.

2. Adjusted 2024 FPE Forecast

The Department reviewed the Company's revised/corrected outage schedule found in Attachment 5 of the Company's Reply Comments and concluded it appears reasonable. Additionally, the Department agreed the corrections to the planned outage schedule are immaterial and do not change the Company's proposed 2024 FPE Forecast calculation or rates.

3. Decrease in MISO Market Sales

The Department concluded MP reasonably explained its forecasted decrease in 2024 MISO Market Sales.

4. Department's Recommendations

- Accept Minnesota Power's Annual Forecasted Fuel and Purchased Energy Rates for the Calendar Year 2024, subject to a subsequent true-up.
- Require Minnesota Power to make a compliance filing with a redlined and clean version of the Fuel and Purchased Energy Rider Tariff sheet with 10 days of Commission approval.

E. Staff Comments

Staff notes that the Department initially recommended approval of Minnesota Power's Petition of the Annual Forecast of Automatic Adjustment Charges with three exceptions. The Company provided the requested information. Upon review of the information provided in the Company's Reply Comments, the Department deemed the information reasonable, subject to subsequent true-up filing. Staff therefore concurs with the Department and Minnesota Power that the Commission approve the Company's Annual Forecasted Fuel and Purchased Energy Rates for 2024, subject to a subsequent true-up.

F. Decision Options

1. Approve Minnesota Power's Annual Forecasted Fuel and Purchased Energy Rates for the Calendar Year 2024, subject to a subsequent true-up. (Minnesota Power, Department)
2. Require Minnesota Power to make a compliance filing with a redlined and clean version of the Fuel and Purchased Energy Rider Tariff sheet with 10 days of the Commission's Order. (Minnesota Power, Department)