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March 1, 2023

VIA E-FILING

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

Re: **In the Matter of Minnesota Power's Petition for Approval of the Annual
Forecasted Rates for its Rider for Fuel and Purchased Energy Charge
Docket No. E015/AA-21-312
Annual True-up Report**

Dear Mr. Seuffert:

Minnesota Power respectfully submits to the Minnesota Public Utilities Commission its Annual Automatic Adjustment True-up Report of Forecasted Fuel and Purchased Energy rates for the calendar year 2022 pursuant to the decisions rendered by the Commission in Docket No. E999/CI-03-802 and where applicable, in compliance with Minnesota Rules 7825.2800 to 7825.2840 governing Automatic Adjustment of Charges.

Please contact me at (218) 355-3455 or hcreurer@allte.com if you have any questions regarding this compliance filing.

Yours truly,

Hillary A. Creurer
Regulatory Compliance Administrator

HAC:th
Attach.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's Petition for Approval
of the Annual Automatic Adjustment Charges for the
Period of January 2022 through December 2022

Docket No. E015/AA-21-312
**MINNESOTA POWER'S
ANNUAL TRUE UP REPORT AND
RATE ADJUSTMENT PROPOSAL**

I. Introduction

On December 2, 2021, the Minnesota Public Utilities Commission ("Commission") authorized Minnesota Power (or the "Company") to implement its calendar year 2022 Fuel and Purchased Energy Rider ("FPE Rider" or Fuel Adjustment Clause "FAC") forecast rates, based on forecasted sales of 8,763,862 MWh and forecasted fuel costs of \$229.1 million.

On June 30, 2022, Minnesota Power submitted a significant unforeseen rate adjustment proposal to adjust rates by \$36.0 million due to higher than forecasted market pricing and the associated impacts on congestion costs between generation and load. After a 30-day notice period and no objection to the rate adjustment, Minnesota Power increased the approved monthly fuel cost rates for August through December 2022 by \$36.0 million, in accordance with Ordering Paragraph 3 of the Commission's June 12, 2019 Order¹ ("June 2019 Order") which states:

"The Commission adopts a threshold of plus or minus 5 percent of all FCA costs and revenues to determine whether an event qualifies as a significant unforeseen impact that may justify an adjustment to the approved fuel rates. The electric Utilities are permitted to implement revised rates following a 30-day notice period, subject to a full refund, if no party objects to the revised rates."

The Company's actual 2022 sales were 8,962,240 MWh and actual fuel costs were \$285.9 million. This resulted in a total under collected amount of \$13.3 million in fuel costs for 2022. Minnesota Power proposes a 2022 FAC True-up amount of

¹ Docket No. E999/CI-03-802

approximately \$13.3 million be collected over a 12-month period beginning the first of the month following Commission approval.

II. Description and Purpose of Filing

This filing contains information provided in compliance with Minn. Rules 7825.2800 through 7825.2840 and Ordering Paragraph 7 of the June 2019 Order. The Commission's June 2019 Order approved a variance to Minn. Rules 7825.2800 through 7825.2840 and reporting requirements for the annual forecast and true-up filings.

In the June 2019 Order in Docket No. E999/CI-03-802, Order Points 1 and 7 state the following:

Order Point 1

"The Commission approves variances to Minn. R. 7825.2800, .2810, .2820, .2830, and .2840 in accordance with the language stated above in Section II."

Order Point 7

"The Commission adopts the reporting changes outlined in Attachments 1, 2, and 3 of the joint comments with the following reporting requirement added to the annual true-up filing: each Electric Utility shall provide a complete analysis and discussion of the consequences of self-commitment and self-scheduling of their generators, including the annual difference between production costs and corresponding prevailing market prices."

Then as part of the November 13, 2019 Order in Docket No. E999/AA-18-373, Order Point 9 states:

"The Commission will open an investigation in a separate docket and require Minnesota Power, Otter Tail, and Xcel to report their future self-commitment and self-scheduling analyses using a consistent methodology by including fuel cost and variable O&M costs, matching the offer curve submitted to MISO energy markets."

Minnesota Power's annual compliance report regarding self-commitment and self-scheduling of large base load generators was filed on March 1, 2022 in Docket No. E999/CI-19-704.

A. Rule 7825.2800 Annual Reports: Policies and Action

Attachment 11 includes information regarding Minnesota Power's fuel and energy source procurement and energy dispatching policies.

B. Rule 7825.2810 Annual Report: Automatic Adjustment Charges

Attachment 2 includes Minnesota Power's forecasted to actual comparison of Automatic Adjustment Charges for the period of January 2022 through December 2022.

On December 23, 2019 in Docket Nos. E015/MR-19-443 and E015/GR-19-442 the Commission approved the Company's proposed changes to the base cost of energy. The Company moved all fuel related costs to the Fuel and Purchased Energy Charge, with zero cost of fuel in the base energy rate, effective January 1, 2020.

C. Rule 7825.2820 Annual Auditor's Report

Attachment 1 includes the Independent Auditor's Report on Minnesota Power's accounting for automatic adjustments during the period of January 2022 through December 2022.

D. Rule 7825.2830 Annual Five-Year Projection

The annual five-year projection is part of the Company's FAC Forecast filing which is filed annually on May 1.

E. Rule 7825.2840 Annual Notice of Reports Availability

Attachment 12 includes the service lists of the interveners in the previous two general rate cases.

F. Other Reports and Information included in the 2022 FAC True-up

- Attachment No. 3 – Monthly MISO Day 2 Charges and Allocation
- Attachment No. 4 – Auction Revenue Rights Process and Information
- Attachment No. 5 – Plant Outage Reporting
- Attachment No. 6 – Annual Daily ASM Charges and Summary
- Attachment No. 7 – Report Addressing the Purchase Power Agreement with Manitoba Hydro
- Attachment No. 8 – Wind Curtailment Reporting

- Attachment No. 9 – Offsetting Revenues and/or Compensation Received by Investor-Owned Utilities (IOUs)
- Attachment No. 10 – Generation Facilities Maintenance Expense Report

III. 2022 FPE Forecast to Actuals

Minnesota Power proposes a FPE Rider True-up charge of \$13.3 million. The primary driver impacting 2022 fuel costs and the under collection was higher than forecasted market prices and the associated impacts on congestion costs between generation and load. Minnesota Power adjusted the 2022 FPE rates by \$36.0 million for August through December timeframe based on a significant event rate adjustment request filed on June 30, 2022.

The proposed 2022 FPE Rider True-up is based on a comparison of the 2022 FAC forecast, including the significant event filing, to actual fuel and purchases as summarized below. Additional information on the 2022 FPE calculation and the under recovered amount of \$13.3 million related to 2022 can be found in Attachment 2.

Table 1: Fuel Cost Summary

	2022 Adjusted Forecast	2022 Actual	Difference
Company's Generating Stations	\$87,497,496	\$130,269,082	\$42,771,585
Plus: Purchased Energy	\$210,911,146	\$262,867,849	\$51,956,703
Plus: MISO Charges	\$18,239,651	\$59,750,884	\$41,511,234
Less: MISO Schedules 16, 17 & 24	\$(107,186)	\$(406,916)	\$(299,730)
Less: Fuel Cost Recovered through Inter System Sales	\$88,073,950	\$167,749,176	\$79,675,226
Less: Costs Related to Solar	\$-	\$83	\$83
Plus: Time of Generation and Solar Energy Adjustment	\$384,405	\$440,270	\$55,864
Forecasted Cost of Fuel /1	\$229,065,935		
Significant Events Filing /2	\$36,052,884		
Total Cost of Fuel	\$265,118,819	\$285,985,742	\$20,866,923
Total Fuel Clause Sales (MWhs)	8,763.9	8,962.3	198.4
Average Cost of Fuel	\$30.25	\$31.91	\$1.66

/1 Approved by Commission Order dated December 2, 2021 in Docket No. E015/AA-21-312.

/2 Rates increased from August through December 2022 after 30-day notice and no objection to June 30, 2022, request in Docket No. E015/AA-21-312.

A. Sales

Customer sales increased by 198,378 MWhs, or 2 percent, over forecasted sales mainly due to increased Large Power Taconite sales. In addition, Inter System sales increased by 832,716 MWhs mainly due to increased MISO market sales. However, Inter System sales are removed from the Total Sales of Electricity as they are non-FAC MWhs. Minnesota Power used the RTSim production cost model to determine the volume and cost of MISO market sales used in the forecast. Actuals are looked at hourly so there will be hours where Minnesota Power is a net seller and hours when Minnesota Power is a net purchaser which creates market purchases and sales in a month.

Table 2: Sales Comparison

2022 Sales (MWh)	Forecasted Sales	Actual Sales	Difference
Total Sales of Electricity	11,917,313	12,948,280	1,030,966
Residential	1,033,882	1,063,695	29,813
Commercial	1,188,275	1,181,292	(6,983)
Large Power Taconite	3,925,163	4,297,541	372,378
Large Power Paper and Pulp	485,003	490,030	5,027
Large Power Pipeline	316,335	305,030	(11,305)
Other Miscellaneous	332,806	341,716	8,910
Municipals	1,498,638	1,299,049	(199,589)
Inter System Sales	3,137,211	3,969,927	832,716
Less: Inter System Sales	3,137,211	3,969,927	832,716
Customer Intersystem Sales	872,711	820,924	(51,787)
Market Sales	2,260,131	3,140,614	880,483
Station Service	4,369	8,390	4,021
Sales due to Retail and Resale Loss of Load	-	-	-
Less: Solar Generation & Purchases	16,240	16,112	(128)
Total Fuel Clause Sales	8,763,862	8,962,240	198,378

B. Generation

Minnesota Power saw an increase of almost [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] of generation during 2022. The higher energy production at Minnesota Power's thermal generation fleet as well as Hibbard Renewable Energy Center ("Hibbard") due to being called upon by MISO more frequently because of the higher market prices than forecasted. In addition, when Minnesota Power submitted its forecast in May 2021 the Company did not anticipate

Boswell Unit 3 would be dispatched the majority of the year, as it transitioned to economic dispatch in July 2021. The increased generation at the Company's Laskin facility was due to MISO dispatching the units for reliability purposes.

Table 3: Generation MWh Comparison

2022 Generation (MWh)	Forecasted Generation	Actual Generation	Difference
	[TRADE SECRET DATA BEGINS]		
Boswell Unit 3			
Boswell Unit 4			
Hibbard			
Laskin			
Wind			
Hydro			
Total			
	[TRADE SECRET DATA ENDS]		

C. MISO Market Pricing and Congestion

The market volatility Minnesota Power experienced during 2021 followed suit in 2022 with the continuation of gas market volatility, coal supply concerns due to the anticipated rail strike, and a changing grid which created unpredictability across the energy market.

Table 4 below compares the average MISO Market price used in the 2022 forecast to actual average MISO Market prices.

Table 4: Average Market Price Comparison

\$/MWh	2022 Forecast	2022 Actual	Difference
	[TRADE SECRET DATA BEGINS]		
Average Market Price			
	[TRADE SECRET DATA ENDS]		

D. What is Minnesota Power Doing to Control Congestion Costs

Short Term:

[TRADE SECRET DATA BEGINS]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **TRADE SECRET DATA ENDS]**

Minnesota Power will continue to optimize the use of its HVDC transmission line to cost-effectively deliver its 600 MW wind portfolio in North Dakota to customers. Minnesota Power's HVDC line operates like a physical FTR, providing a financial mechanism that reduces congestion cost for customers. The HVDC line is an important congestion mitigation asset that Minnesota Power is using today to manage customer cost.

Medium Term:

Minnesota Power has been evaluating the causes of congestion in the region in detail. This study work focused on looking at the Day Ahead Binding Constraint data to identify the constraints that are contributing the most to the system congestion. As a next step, Minnesota Power has initiated discussions with a consulting firm that specializes in determining changes to the current system configuration to relieve system congestion. New Grid is the entity that provides these services, and this work appears to be a way to move Minnesota Power to a place where there are specific identifiable solutions to system transmission constraints.

Minnesota Power anticipates there will be reduced congestion as part of FERC Order 881 compliance, which requires all transmission providers, to use ambient-adjusted

ratings as the basis for evaluating near-term transmission service. The order will become effective July 2025 and take into account ambient air temperatures as well as solar heating impacts. Minnesota Power anticipates more renewable energy will be allowed to flow across congested transmission corridors resulting in lower congestion cost across the system.

Minnesota Power also engages in regular conversations with neighboring utilities on future projects that could reduce congestion in the region. The Company was recently made aware of a system configuration change in southwest Minnesota that will result in lower congestion cost for our wind in southwest Minnesota. Minnesota Power plans to stay engaged with neighboring utilities on efforts being made to reduce congestion in the medium-term.

Long Term:

Minnesota Power continues to work with MISO on future transmission additions through the Long Range Transmission Plan (“LRTP”). The LRTP Tranche 1 portfolio has several new transmission projects identified in Minnesota and North Dakota. Minnesota Power anticipates that congestion cost will be lower due to those projects being placed into service. However, it is important to note that the magnitude of congestion reduction can vary, especially if new wind and solar builds outpace the capability of new transmission in the area. Building new transmission to better distribute energy production from renewable rich regions will be needed to reduce congestion cost as Minnesota moves towards a 100 percent carbon free power supply by 2040.

IV. Other

On March 11, 2011, the Commission issued an Order approving a Purchase Power Agreement (“PPA”) with Manitoba Hydro for the period of May 2011 through April 2022.² As part of the Commission’s Order, Minnesota Power is required to provide the information regarding Product B and C energy. The information the Commission

² In the Matter of a Petition by Minnesota Power for Approval of a Purchase Power Agreement with Manitoba Hydro, in Docket No. E015/M-10-961.

requested can be found in Attachment 7. Due to the expiration of this PPA, this 2022 FAC True-up filing includes the final report on Product B and C under the Manitoba Hydro PPA.

V. Conclusion

Minnesota Power submits this annual true-up report and proposed FPE Rider True-up charge of \$13.3 million pursuant to the Commission's rules regarding Automatic Adjustment of Charges and Docket No. E999/CI-03-802.

Dated: March 1, 2023

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Hillary A. Creurer".

Hillary A. Creurer
Regulatory Compliance Administrator
Minnesota Power
30 W. Superior Street
Duluth, MN 55802
(218) 355-3455
hcreurer@allte.com

Report of Independent Accountants



Report of Independent Accountants

To the Management of ALLETE, Inc.:

We have performed the procedures enumerated below, which were agreed to by ALLETE, Inc. (the “Company,” as the engaging party) and the Minnesota Public Utilities Commission (the “MPUC”), solely to assist you in evaluating compliance with rule 7825.2820 of the Rules of the Minnesota Public Utilities Commission (the “MPUC”) governing Automatic Adjustment Charges. The Company is responsible for Section A of Minnesota Power’s Annual Report of Automatic Adjustment Charges for the period January 1, 2022 through December 31, 2022 found in Attachment No. 2 (Section A) of the Company’s Annual Reports Containing Fuel Information and Data (the “Annual Report”) pursuant to MPUC Rules 7825.2800 – 7825.2840

In an agreed-upon procedures engagement, we perform specific procedures that the Company has agreed to and acknowledged to be appropriate for the intended purpose of the engagement and we report on findings based on the procedures performed. The procedures performed may not address all the items of interest to a user of this report and may not meet the needs of all users of this report and, as such, users are responsible for determining whether the procedures performed are appropriate for their purposes. The parties specified in this report have agreed to and acknowledged that the procedures performed are appropriate for their purposes. This report may not be suitable for any other purpose.

The procedures performed and results thereof are as follows:

1. For the period January 1, 2022 through December 31, 2022, we compared 16 haphazardly selected invoices received from the Company’s energy providers to the amount recorded and paid by the Company and determined they were in agreement.
2. For the period January 1, 2022 through December 31, 2022, we compared the \$0 base costs of power approved by the Commission in Docket No. E015/MR-19-443 to the bases used by the Company in the Fuel Adjustment Clause Calculation and found them to be in agreement.
3. We recalculated the billing adjustment charge (credit) per kWh charged to customers for purchased power for the period January 1, 2022 through December 31, 2022 as set forth in the Fuel Adjustment Clause Calculation for the Automatic Retail Fuel Adjustments and Recovery Report for each customer class listed for mathematical accuracy and found all to be calculated accurately.
4. We obtained the accounting records for the revenues billed to customers for energy delivered for the period January 1, 2022 through December 31, 2022. We compared total sales of electric energy to the Company’s general ledger and found them to be in agreement.
5. For the period January 1, 2022 through December 31, 2022, we compared 16 haphazardly selected individual billings across all customer classes and compared the automatic adjustment charges and credits included in the bills to the billing adjustment charge (credit) reported by the Company in the Fuel Adjustment Clause Calculation and found them to be in agreement.



6. We compared corrections for fuel adjustment clause charges or other billing errors included within the Fuel Adjustment Clause Calculation for the period January 1, 2022 through December 31, 2022 to the Company's general ledger. No corrections or other billing errors were noted.
7. For the period January 1, 2022 through December 31, 2022, we compared the revenue reconciliations from the CIS (Customer Information System) sub-ledger to the Company's general ledger for total revenue and found them to be in agreement. For the period January 1, 2022 through December 31, 2022, we compared the cost of power reconciliations, which includes (1) coal burned, (2) total purchase power, (3) MISO non-recoverable cost, and (4) purchased steam, to the Company's general ledger and found them to be in agreement within \$182,000.
8. For the period January 1, 2022 through December 31, 2022, we recalculated true-ups included within the Fuel Adjustment Clause Calculation and traced the related revenue and expense amounts to the Company's accounting records. No true-ups were noted.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA). We were not engaged to and did not conduct an audit or an examination engagement, the objective of which would be the expression of an opinion, or a review engagement, the objective of which would be the expression of a conclusion, on Section A of Minnesota Power's Annual Report of Automatic Adjustment Changes for the period January 1, 2021 through December 31, 2021 found in Attachment No. 2 of the Company's Annual Report. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

In performing this engagement, we are required to be independent of ALLETE, Inc. to meet our ethical responsibilities, in accordance with the relevant ethical requirements related to our agreed-upon procedures engagement.

This report is intended solely for the information and use of Management of ALLETE, Inc. and the MPUC and is not intended to be and should not be used by anyone other than these specified parties.

PricewaterhouseCoopers LLP

Minneapolis, Minnesota
March 1, 2023

**Automatic Retail Fuel Adjustment Charges
Forecast to Actual Comparison
January 1, 2022 through December 31, 2022**

Docket No. E,G999/AA-04-1279, dated December 7, 2005

Docket No. E999/CI-03-802, dated December 12, 2018

Minn. Rule 7825.2810

A. Summary - Automatic Adjustment Charges:

Ref. No.	Revenue/Accounting Month Cost of Fuel	YTD 2022			Jan-22			Feb-22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
1	Company's Generating Stations	\$87,497,496	\$130,269,082	\$42,771,585	\$10,515,919	\$18,402,534	\$7,886,615	\$9,303,084	\$14,233,300	\$4,930,216
	Thermal	\$87,497,496	\$130,269,082	\$42,771,585	\$10,515,919	\$18,402,534	\$7,886,615	\$9,303,084	\$14,233,300	\$4,930,216
	Wind	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Hydro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Plus: Purchased Energy	\$210,911,146	\$262,867,849	\$51,956,703	\$18,642,745	\$19,845,772	\$1,203,026	\$15,963,513	\$18,841,708	\$2,878,195
	Market	\$146,558,411	\$200,113,421	\$53,555,010	\$11,822,379	\$14,128,993	\$2,306,613	\$10,491,985	\$13,131,451	\$2,639,465
	Wind	\$30,972,135	\$32,536,121	\$1,563,987	\$3,003,466	\$3,182,188	\$178,722	\$2,477,378	\$3,177,776	\$700,398
	Solar	\$0	\$137,350	\$137,350	\$0	\$0	\$0	\$0	\$0	\$0
	Square Butte	\$33,380,600	\$30,080,957	(\$3,299,643)	\$3,816,900	\$2,534,591	(\$1,282,309)	\$2,994,150	\$2,532,482	(\$461,668)
3	Plus: MISO Charges 1/	\$18,239,651	\$59,750,884	\$41,511,234	\$1,608,620	\$2,964,965	\$1,356,344	\$2,612,825	\$3,220,349	\$607,524
4	Less: MISO Schedules 16 & 17 & 24 1/	(\$107,186)	(\$406,916)	(\$299,730)	(\$14,378)	(\$14,898)	(\$519)	(\$11,252)	(\$40,227)	(\$28,975)
	Schedule 16	\$1,279,224	\$1,534,966	\$255,743	\$102,011	\$124,851	\$22,841	\$104,656	\$80,595	(\$24,062)
	Schedule 17	\$257,590	\$35,351	(\$222,240)	\$20,611	\$3,193	(\$17,418)	\$21,092	\$1,735	(\$19,357)
	Schedule 24	(\$1,644,000)	(\$1,977,233)	(\$333,233)	(\$137,000)	(\$142,942)	(\$5,942)	(\$137,000)	(\$122,557)	\$14,443
5	Less: Fuel Cost Recovered Through Inter System Sales	\$88,073,950	\$167,749,176	\$79,675,226	\$9,881,199	\$17,696,976	\$7,815,777	\$7,960,184	\$15,617,230	\$7,657,046
	Customer Inter-System Sales	\$21,722,900	\$39,813,172	\$18,090,272	\$1,648,902	\$4,509,615	\$2,860,713	\$1,704,113	\$4,019,974	\$2,315,860
	Market Sales	\$59,174,490	\$95,156,087	\$35,981,598	\$7,104,470	\$10,398,029	\$3,293,559	\$5,090,763	\$9,694,610	\$4,603,847
	Station Service	\$71,205	\$439,783	\$368,578	\$2,191	\$3,961	\$1,771	\$2,191	\$11,577	\$9,387
	MISO Costs 1/	\$2,544,847	\$6,881,946	\$4,337,099	\$298,537	\$596,482	\$297,945	\$387,822	\$678,240	\$290,418
	Sales due to Retail and Resale Loss of Load	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Asset Based Margins	\$4,560,508	\$25,458,189	\$20,897,680	\$827,100	\$2,188,889	\$1,361,789	\$775,295	\$1,212,829	\$437,534
6	Less: Costs Related to Solar	\$0	\$83	\$83	\$0	\$0	\$0	\$0	\$0	\$0
7	Plus: Time of Generation and Solar Energy Adjustment	\$384,405	\$440,270	\$55,864	\$21,036	\$20,844	(\$192)	\$25,807	\$29,855	\$4,048
8	Plus: Significant Events Filing Under Collection	\$36,052,884	\$0	(\$36,052,884)	\$0	\$0	\$0	\$0	\$0	\$0
9	Total Monthly Cost of Fuel	\$265,118,819	\$285,985,742	\$20,866,923	\$20,921,500	\$23,552,037	\$2,630,536	\$19,956,297	\$20,748,209	\$791,913
		% Difference		8%						

MWh Sales										
10	Total Sales of Electricity	11,917,313	12,948,280	1,030,966	1,138,849	1,303,272	164,423	1,002,442	1,156,215	153,772
	Residential	1,033,882	1,063,695	29,813	116,613	121,879	5,266	97,867	123,500	25,633
	Commercial	1,188,275	1,181,292	(6,983)	102,920	104,787	1,867	97,895	109,621	11,726
	LP Taconite	3,925,163	4,297,541	372,378	339,774	376,671	36,897	306,057	322,944	16,887
	LP Paper and Pulp	485,003	490,030	5,027	41,533	45,514	3,981	37,912	37,729	(183)
	LP Pipeline	316,335	305,030	(11,305)	29,255	27,395	(1,860)	29,192	27,054	(2,138)
	Other Misc.	332,806	341,716	8,910	29,804	29,519	(285)	28,294	30,257	1,963
	Municipals	1,498,638	1,299,049	(199,589)	136,265	122,486	(13,779)	122,990	107,099	(15,891)
	Inter System Sales	3,137,211	3,969,927	832,716	342,685	475,021	132,336	282,235	398,012	115,776
11	Less: Inter System Sales	3,137,211	3,969,927	832,716	342,685	475,021	132,336	282,235	398,012	115,776
	Customer Inter-System Sales	872,711	820,924	(51,787)	65,027	97,232	32,205	66,931	87,200	20,269
	Market Sales	2,260,131	3,140,614	880,483	277,525	377,725	100,200	215,172	310,521	95,349
	Station Service	4,369	8,390	4,021	133	63	(69)	133	291	158
	Sales due to Retail and Resale Loss of Load	0	0	0	0	0	0	0	0	0
12	Less: Solar Generation and Purchased MWh	16,240	16,112	(128)	856	615	(241)	1,102	1,206	104
13	Total Monthly MWh Sales	8,763,862	8,962,240	198,378	795,308	827,637	32,329	719,105	756,997	37,892
		%		2%						
	Fuel Adjustment Charge Fuel Clause (¢/kWh)									
14	1-Month Average Cost of Fuel (¢/kWh)	3.025	3.191	0.166	2.631	2.846	0.215	2.775	2.741	(0.034)
		YTD 2022			Jan 22			Feb 22		
		%		5%						

1 Month Average Cost of Fuel by Energy Type (¢/kWh)										
Billing Month:										
		YTD 2022			Jan 22			Feb 22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
15	Generation - Coal	0.653	0.849	0.197	0.849	1.155	0.306	0.908	0.843	(0.065)
16	Generation - Gas	0.002	0.006	0.004	0.002	0.004	0.003	0.000	0.007	0.007
17	Generation - BioFuel	0.018	0.073	0.056	0.033	0.069	0.036	0.032	0.072	0.041
18	Purchased Power - Coal	0.057	0.041	(0.016)	0.046	0.022	(0.025)	0.057	0.008	(0.049)
19	Purchased Power - Biomass	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	Purchased Power - Hydro	1.084	1.138	0.054	0.997	0.968	(0.030)	1.008	0.960	(0.048)
21	Purchased Power - Gas	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	Purchased Power - Wind	0.354	0.363	0.009	0.378	0.384	0.007	0.345	0.420	0.075
23	Purchased Power - Diesel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	Purchased Power - Solar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	Purchased Power - Unknown	0.445	0.738	0.293	0.325	0.243	(0.082)	0.426	0.431	0.005
26	Significant Event Adjustment	0.409	0.000	(0.409)	0.000	0.000	0.000	0.000	0.000	0.000
27	Total One-Month Average Cost 2/	3.022	3.208	0.186	2.631	2.846	0.215	2.775	2.741	(0.034)

B. Summary - Over/Under Recovery- 2022

		YTD 2022			Jan 22			Feb 22		
		Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)
1	Revenue Class Over/Under Recovery	\$231,771,476	\$245,039,378	(\$13,267,902)	\$18,585,642	\$20,104,405	(\$1,518,763)	\$18,108,587	\$17,885,945	\$222,642
	Residential	\$32,212,596	\$33,933,450	(\$1,720,854)	\$3,251,188	\$3,516,840	(\$265,652)	\$3,474,769	\$3,432,785	\$41,984
	Commercial	\$36,544,146	\$38,502,396	(\$1,958,250)	\$2,822,992	\$3,053,266	(\$230,274)	\$3,115,077	\$3,076,555	\$38,522
	Industrial	\$161,436,876	\$170,928,673	(\$9,491,797)	\$12,389,574	\$13,402,455	(\$1,012,881)	\$11,382,180	\$11,241,718	\$140,462
	Lighting	\$218,968	\$229,073	(\$10,105)	\$23,341	\$25,254	(\$1,913)	\$22,994	\$22,712	\$282
	Municipal Pumping	\$1,358,890	\$1,445,786	(\$86,896)	\$98,547	\$106,590	(\$8,043)	\$113,567	\$112,175	\$1,392
		% Difference		6%						

C. Total Over/Under Recovery

2022 FAC True Up Amount (\$13,267,902)

A. Summary - Automatic Adjustment Charges:

Ref. No.	Revenue/Accounting Month Cost of Fuel	Mar-22			Apr-22			May-22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
1	Company's Generating Stations	\$7,464,840	\$9,919,143	\$2,454,303	\$4,302,399	\$8,395,685	\$4,093,286	\$5,383,839	\$6,533,761	\$1,149,922
	Thermal	\$7,464,840	\$9,919,143	\$2,454,303	\$4,302,399	\$8,395,685	\$4,093,286	\$5,383,839	\$6,533,761	\$1,149,922
	Wind	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Hydro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Plus: Purchased Energy	\$19,383,524	\$21,641,466	\$2,257,942	\$18,713,057	\$22,604,782	\$3,891,725	\$18,337,950	\$25,122,679	\$6,784,730
	Market	\$12,773,787	\$15,753,696	\$2,979,909	\$12,085,367	\$16,660,066	\$4,574,699	\$12,212,963	\$19,658,232	\$7,445,270
	Wind	\$2,843,487	\$3,217,485	\$373,997	\$2,916,589	\$3,504,674	\$588,085	\$2,802,487	\$2,729,667	(\$72,820)
	Solar	\$0	\$0	\$0	\$0	\$4,689	\$4,689	\$0	\$20,533	\$20,533
	Square Butte	\$3,766,250	\$2,670,286	(\$1,095,964)	\$3,711,100	\$2,435,352	(\$1,275,748)	\$3,322,500	\$2,714,247	(\$608,253)
3	Plus: MISO Charges 1/	\$1,599,655	\$3,006,053	\$1,406,398	\$1,167,548	\$8,848,739	\$7,681,191	\$803,503	\$5,780,765	\$4,977,262
4	Less: MISO Schedules 16 & 17 & 24 1/	(\$8,473)	\$31,268	\$39,741	(\$5,575)	(\$6,596)	(\$1,022)	(\$10,883)	\$2,019	\$12,902
	Schedule 16	\$107,767	\$158,519	\$50,752	\$110,713	\$132,330	\$21,618	\$106,425	\$136,829	\$30,404
	Schedule 17	\$20,760	\$2,163	(\$18,597)	\$20,713	\$2,669	(\$18,044)	\$19,693	\$2,511	(\$17,181)
	Schedule 24	(\$137,000)	(\$129,414)	\$7,586	(\$137,000)	(\$141,596)	(\$4,596)	(\$137,000)	(\$137,321)	(\$321)
5	Less: Fuel Cost Recovered Through Inter System Sales	\$8,392,589	\$12,810,138	\$4,417,550	\$7,157,612	\$14,481,320	\$7,323,708	\$7,501,023	\$11,452,905	\$3,951,883
	Customer Inter-System Sales	\$1,827,990	\$4,411,994	\$2,584,004	\$1,742,264	\$3,305,857	\$1,563,593	\$1,491,465	\$3,173,043	\$1,681,578
	Market Sales	\$5,858,076	\$7,086,568	\$1,228,492	\$5,168,182	\$9,667,555	\$4,499,373	\$5,975,760	\$7,696,604	\$1,720,843
	Station Service	\$16,723	\$29,291	\$12,568	\$25,971	\$69,981	\$44,010	\$2,191	\$98,750	\$96,560
	MISO Costs 1/	\$208,718	\$377,252	\$168,535	\$122,885	\$1,357,600	\$1,234,714	\$134,142	\$397,179	\$263,036
	Sales due to Retail and Resale Loss of Load	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Asset Based Margins	\$481,082	\$905,034	\$423,951	\$98,310	\$80,328	(\$17,982)	(\$102,535)	\$87,330	\$189,865
6	Less: Costs Related to Solar	\$0	\$0	\$0	\$0	(\$0)	(\$0)	\$0	\$0	\$0
7	Plus: Time of Generation and Solar Energy Adjustment	\$27,499	\$56,575	\$29,076	\$34,952	\$32,390	(\$2,561)	\$34,222	\$46,464	\$12,242
8	Plus: Significant Events Filing Under Collection	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	Total Monthly Cost of Fuel	\$20,091,403	\$21,781,831	\$1,690,428	\$17,065,918	\$25,406,872	\$8,340,954	\$17,069,374	\$26,028,745	\$8,959,371

MWh Sales										
10	Total Sales of Electricity	1,060,058	1,192,939	132,881	925,574	1,107,714	182,141	999,679	1,044,222	44,543
	Residential	93,724	107,004	13,280	80,408	87,615	7,207	73,225	77,950	4,725
	Commercial	105,239	102,907	(2,332)	86,024	94,131	8,107	88,248	89,855	1,607
	LP Taconite	339,533	385,199	45,666	311,045	340,911	29,866	328,775	373,938	45,163
	LP Paper and Pulp	41,264	41,011	(253)	40,029	36,927	(3,102)	40,808	40,406	(402)
	LP Pipeline	31,318	25,548	(5,770)	28,150	24,956	(3,194)	25,077	24,179	(898)
	Other Misc.	29,031	30,436	1,405	27,797	28,592	795	26,772	27,695	923
	Municipals	125,869	111,844	(14,025)	109,401	105,256	(4,145)	109,889	103,721	(6,168)
	Inter System Sales	294,080	388,989	94,910	242,720	389,327	146,607	306,885	306,478	(408)
11	Less: Inter System Sales	294,080	388,989	94,910	242,720	389,327	146,607	306,885	306,478	(408)
	Customer Inter-System Sales	72,967	96,715	23,748	70,158	62,351	(7,807)	60,768	51,876	(8,892)
	Market Sales	220,081	291,472	71,390	170,958	325,523	154,565	245,985	252,682	6,697
	Station Service	1,032	803	(229)	1,604	1,453	(150)	133	1,920	1,787
	Sales due to Retail and Resale Loss of Load	0	0	0	0	0	0	0	0	0
12	Less: Solar Generation and Purchased MWh	1,256	1,735	479	1,561	1,169	(392)	1,762	1,663	(99)
13	Total Monthly MWh Sales	764,722	802,214	37,492	681,293	717,219	35,926	691,032	736,082	45,049
Fuel Adjustment Charge Fuel Clause (¢/kWh)										
14	1-Month Average Cost of Fuel (¢/kWh)	2.627	2.715	0.088	2.505	3.542	1.037	2.470	3.536	1.066
Mar 22				Apr 22			May 22			

1 Month Average Cost of Fuel by Energy Type (¢/kWh)										
Billing Month:										
		Mar 22			Apr 22			May 22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
15	Generation - Coal	0.670	0.759	0.089	0.387	0.502	0.115	0.407	0.454	0.047
16	Generation - Gas	0.000	0.002	0.002	0.003	0.003	0.001	0.000	0.009	0.009
17	Generation - BioFuel	0.020	0.035	0.015	0.011	0.071	0.060	0.007	0.082	0.075
18	Purchased Power - Coal	0.076	0.045	(0.032)	0.092	0.049	(0.043)	0.070	0.077	0.007
19	Purchased Power - Biomass	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	Purchased Power - Hydro	1.029	1.014	(0.015)	1.044	1.041	(0.003)	1.223	1.210	(0.013)
21	Purchased Power - Gas	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	Purchased Power - Wind	0.372	0.401	0.029	0.428	0.489	0.061	0.406	0.371	(0.035)
23	Purchased Power - Diesel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	Purchased Power - Solar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	Purchased Power - Unknown	0.460	0.459	(0.001)	0.539	1.388	0.848	0.357	1.334	0.976
26	Significant Event Adjustment	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	Total One-Month Average Cost 2/	2.627	2.715	0.088	2.505	3.542	1.037	2.470	3.536	1.066

B. Summary - Over/Under Recovery- 2022

B. Summary - Over/Under Recovery- 2022				Mar 22			Apr 22			May 22		
				Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)
1	Revenue Class Over/Under Recovery			\$18,191,505	\$18,804,993	(\$613,488)	\$15,369,473	\$21,728,485	(\$6,359,012)	\$15,653,667	\$22,407,081	(\$6,753,414)
	Residential			\$2,850,145	\$2,945,364	(\$95,219)	\$2,225,062	\$3,146,624	(\$921,562)	\$1,952,355	\$2,794,868	(\$842,513)
	Commercial			\$2,767,880	\$2,861,200	(\$93,320)	\$2,413,092	\$3,412,196	(\$999,104)	\$2,270,538	\$3,250,455	(\$979,917)
	Industrial			\$12,455,985	\$12,876,982	(\$420,997)	\$10,623,479	\$15,017,177	(\$4,393,698)	\$11,329,765	\$16,217,150	(\$4,887,385)
	Lighting			\$19,105	\$19,748	(\$643)	\$14,767	\$20,887	(\$6,120)	\$12,535	\$17,943	(\$5,408)
	Municipal Pumping			\$98,390	\$101,699	(\$3,309)	\$93,073	\$131,601	(\$38,528)	\$88,474	\$126,665	(\$38,191)

C. Total Over/Under Recovery

2022 FAC True Up Amount

A. Summary - Automatic Adjustment Charges:

Ref. No.	Revenue/Accounting Month Cost of Fuel	Jun-22			Jul-22			Aug-22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
1	Company's Generating Stations	\$5,329,501	\$6,739,433	\$1,409,932	\$9,362,954	\$13,098,444	\$3,735,490	\$8,171,135	\$12,213,427	\$4,042,292
	Thermal	\$5,329,501	\$6,739,433	\$1,409,932	\$9,362,954	\$13,098,444	\$3,735,490	\$8,171,135	\$12,213,427	\$4,042,292
	Wind	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Hydro	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Plus: Purchased Energy	\$18,768,990	\$28,166,593	\$9,397,603	\$19,044,584	\$20,657,860	\$1,613,276	\$18,230,390	\$22,627,946	\$4,397,556
	Market	\$12,919,592	\$23,243,084	\$10,323,492	\$13,368,383	\$16,345,075	\$2,976,691	\$12,522,191	\$17,709,595	\$5,187,405
	Wind	\$2,168,998	\$2,215,046	\$46,048	\$1,860,150	\$1,577,905	(\$282,245)	\$1,885,199	\$1,837,869	(\$47,330)
	Solar	\$0	\$25,495	\$25,495	\$0	\$19,371	\$19,371	\$0	\$21,691	\$21,691
	Square Butte	\$3,680,400	\$2,682,968	(\$997,432)	\$3,816,050	\$2,715,509	(\$1,100,541)	\$3,823,000	\$3,058,790	(\$764,210)
3	Plus: MISO Charges 1/	\$1,104,244	\$9,704,174	\$8,599,930	\$3,251,054	\$5,001,109	\$1,750,055	\$1,963,623	\$5,324,723	\$3,361,100
4	Less: MISO Schedules 16 &17 & 24 1/	(\$7,731)	(\$69,081)	(\$61,350)	(\$16,291)	(\$46,429)	(\$30,138)	(\$10,486)	(\$47,728)	(\$37,242)
	Schedule 16	\$108,274	\$106,997	(\$1,278)	\$99,451	\$142,976	\$43,524	\$104,734	\$127,238	\$22,504
	Schedule 17	\$20,995	\$3,641	(\$17,354)	\$21,258	\$4,064	(\$17,193)	\$21,781	\$3,692	(\$18,089)
	Schedule 24	(\$137,000)	(\$179,718)	(\$42,718)	(\$137,000)	(\$193,469)	(\$56,469)	(\$137,000)	(\$178,657)	(\$41,657)
5	Less: Fuel Cost Recovered Through Inter System Sales	\$7,398,190	\$11,559,574	\$4,161,384	\$9,750,520	\$15,644,271	\$5,893,751	\$8,470,975	\$15,998,313	\$7,527,338
	Customer Inter-System Sales	\$1,961,915	\$3,600,824	\$1,638,909	\$1,981,352	\$2,378,716	\$397,364	\$1,978,174	\$2,529,244	\$551,070
	Market Sales	\$5,292,250	\$6,463,135	\$1,170,886	\$6,851,834	\$9,199,885	\$2,348,051	\$5,516,670	\$8,798,267	\$3,281,597
	Station Service	\$2,191	\$103,564	\$101,374	\$2,191	\$19,697	\$17,506	\$2,191	\$41,556	\$39,366
	MISO Costs 1/	\$123,207	\$465,010	\$341,803	\$561,113	\$693,564	\$132,451	\$256,340	\$621,566	\$365,227
	Sales due to Retail and Resale Loss of Load	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Asset Based Margins	\$18,628	\$927,042	\$908,414	\$354,032	\$3,352,410	\$2,998,378	\$717,601	\$4,007,679	\$3,290,078
6	Less: Costs Related to Solar	\$0	(\$0)	(\$0)	\$0	(\$0)	(\$0)	\$0	\$41	\$41
	Plus: Time of Generation and Solar Energy Adjustment	\$39,886	\$47,762	\$7,876	\$49,906	\$45,991	(\$3,915)	\$43,996	\$39,919	(\$4,077)
8	Plus: Significant Events Filing Under Collection	\$0	\$0	\$0	\$0	\$0	\$0	\$7,210,577	\$0	(\$7,210,577)
9	Total Monthly Cost of Fuel	\$17,852,162	\$33,167,469	\$15,315,307	\$21,974,268	\$23,205,561	\$1,231,293	\$27,159,232	\$24,255,390	\$4,306,735

MWh Sales										
10	Total Sales of Electricity	948,285	958,571	10,286	1,084,998	1,131,409	46,411	1,013,009	1,116,241	103,232
	Residential	66,839	67,291	452	81,140	79,588	(1,552)	76,762	81,527	4,765
	Commercial	97,833	90,150	(7,683)	104,043	98,990	(5,053)	109,602	106,885	(2,717)
	LP Taconite	322,199	339,882	17,683	334,389	363,143	28,754	320,661	372,180	51,519
	LP Paper and Pulp	39,890	40,455	565	41,090	43,394	2,304	41,370	39,869	(1,501)
	LP Pipeline	24,088	24,186	98	24,416	23,693	(723)	23,515	22,836	(679)
	Other Misc.	27,536	28,321	785	27,370	27,239	(131)	28,060	27,284	(776)
	Municipals	114,323	102,907	(11,416)	133,558	110,098	(23,460)	127,369	111,508	(15,861)
	Inter System Sales	255,577	265,380	9,802	338,992	385,265	46,272	285,670	354,151	68,482
11	Less: Inter System Sales	255,577	265,380	9,802	338,992	385,265	46,272	285,670	354,151	68,482
	Customer Inter-System Sales	79,572	52,210	(27,362)	79,059	58,043	(21,016)	80,261	53,745	(26,516)
	Market Sales	175,873	211,321	35,448	259,801	326,934	67,133	205,276	299,731	94,455
	Station Service	133	1,849	1,716	133	288	156	133	676	543
	Sales due to Retail and Resale Loss of Load	0	0	0	0	0	0	0	0	0
12	Less: Solar Generation and Purchased MWh	1,777	2,031	253	1,926	1,839	(87)	1,772	1,691	(81)
13	Total Monthly MWh Sales	690,931	691,161	230	744,080	744,306	226	725,567	760,398	34,831
Fuel Adjustment Charge Fuel Clause (¢/kWh)										
14	1-Month Average Cost of Fuel (¢/kWh)	2.584	4.799	2.215	2.953	3.118	0.165	3.743	3.190	(0.553)
		Jun 22			Jul 22			Aug 22		

1 Month Average Cost of Fuel by Energy Type (¢/kWh)										
Billing Month:										
		Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
15	Generation - Coal	0.517	0.576	0.059	0.747	1.233	0.486	0.791	1.139	0.348
16	Generation - Gas	0.000	0.018	0.018	0.019	0.003	(0.016)	0.000	0.001	0.001
17	Generation - BioFuel	0.009	0.101	0.092	0.023	0.076	0.054	0.019	0.131	0.112
18	Purchased Power - Coal	0.085	0.103	0.019	0.073	0.035	(0.038)	0.099	0.052	(0.048)
19	Purchased Power - Biomass	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	Purchased Power - Hydro	1.297	1.385	0.088	1.266	1.150	(0.116)	1.110	1.211	0.102
21	Purchased Power - Gas	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	Purchased Power - Wind	0.314	0.320	0.007	0.250	0.212	(0.038)	0.260	0.242	(0.018)
23	Purchased Power - Diesel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	Purchased Power - Solar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	Purchased Power - Unknown	0.362	2.295	1.933	0.576	0.409	(0.167)	0.470	0.413	(0.057)
26	Significant Event Adjustment	0.000	0.000	0.000	0.000	0.000	0.000	0.994	0.000	(0.994)
27	Total One-Month Average Cost 2/	2.584	4.799	2.215	2.953	3.118	0.165	3.743	3.190	(0.553)

B. Summary - Over/Under Recovery- 2022

B. Summary - Over/Under Recovery- 2022		Jun 22			Jul 22			Aug 22		
				Difference Over/(Under)			Difference Over/(Under)			Difference Over/(Under)
		Collected	Actual		Collected	Actual		Collected	Actual	
1	Revenue Class Over/Under Recovery	\$15,250,333	\$28,321,404	(\$13,071,071)	\$18,766,953	\$19,818,302	(\$1,051,349)	\$24,340,781	\$20,745,786	\$3,594,995
	Residential	\$1,762,756	\$3,273,882	(\$1,511,126)	\$2,383,379	\$2,516,276	(\$132,897)	\$3,094,422	\$2,637,106	\$457,316
	Commercial	\$2,382,391	\$4,424,814	(\$2,042,423)	\$2,977,508	\$3,144,187	(\$166,679)	\$4,079,447	\$3,476,185	\$603,262
	Industrial	\$10,992,857	\$20,414,077	(\$9,421,220)	\$13,278,574	\$14,023,207	(\$744,633)	\$17,006,238	\$14,495,581	\$2,510,657
	Lighting	\$11,661	\$21,656	(\$9,995)	\$12,850	\$13,572	(\$722)	\$16,475	\$14,039	\$2,436
	Municipal Pumping	\$100,668	\$186,975	(\$86,307)	\$114,642	\$121,060	(\$6,418)	\$144,199	\$122,875	\$21,324

C. Total Over/Under Recovery

2022 FAC True Up Amount

A. Summary - Automatic Adjustment Charges:

Ref. No.	Revenue/Accounting Month Cost of Fuel	Sep-22			Oct-22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
1	Company's Generating Stations	\$5,992,991	\$10,253,212	\$4,260,221	\$5,795,763	\$10,274,614	\$4,478,851
	Thermal	\$5,992,991	\$10,253,212	\$4,260,221	\$5,795,763	\$10,274,614	\$4,478,851
	Wind	\$0	\$0	\$0	\$0	\$0	\$0
	Hydro	\$0	\$0	\$0	\$0	\$0	\$0
2	Plus: Purchased Energy	\$15,420,970	\$21,887,052	\$6,466,082	\$15,388,398	\$21,136,112	\$5,747,715
	Market	\$11,889,339	\$17,279,845	\$5,390,505	\$12,356,104	\$16,992,086	\$4,635,982
	Wind	\$2,501,980	\$2,304,848	(\$197,132)	\$2,855,594	\$2,797,641	(\$57,953)
	Solar	\$0	\$21,557	\$21,557	\$0	\$14,129	\$14,129
	Square Butte	\$1,029,650	\$2,280,802	\$1,251,152	\$176,700	\$1,332,256	\$1,155,556
3	Plus: MISO Charges 1/	\$809,441	\$3,608,639	\$2,799,198	\$1,504,952	\$4,492,715	\$2,987,763
4	Less: MISO Schedules 16 & 17 & 24 1/	(\$3,936)	(\$60,189)	(\$56,253)	(\$6,853)	(\$51,487)	(\$44,634)
	Schedule 16	\$111,508	\$132,619	\$21,111	\$107,375	\$114,567	\$7,192
	Schedule 17	\$21,556	\$2,415	(\$19,141)	\$22,772	\$2,872	(\$19,900)
	Schedule 24	(\$137,000)	(\$195,222)	(\$58,222)	(\$137,000)	(\$168,925)	(\$31,925)
5	Less: Fuel Cost Recovered Through Inter System Sales	\$4,515,307	\$13,995,997	\$9,480,690	\$4,422,731	\$13,745,904	\$9,323,173
	Customer Inter-System Sales	\$2,006,291	\$5,038,880	\$3,032,589	\$1,895,077	\$3,084,391	\$1,189,314
	Market Sales	\$2,231,896	\$6,301,418	\$4,069,522	\$2,309,705	\$6,851,548	\$4,541,843
	Station Service	\$2,191	\$1,427	(\$764)	\$8,796	\$16,262	\$7,466
	MISO Costs 1/	\$67,983	\$296,513	\$228,530	\$164,773	\$564,878	\$400,105
	Sales due to Retail and Resale Loss of Load	\$0	\$0	\$0	\$0	\$0	\$0
	Asset Based Margins	\$206,946	\$2,357,760	\$2,150,814	\$44,381	\$3,228,825	\$3,184,444
6	Less: Costs Related to Solar	\$0	(\$0)	(\$0)	\$0	\$0	\$0
7	Plus: Time of Generation and Solar Energy Adjustment	\$41,500	\$47,519	\$6,019	\$34,650	\$42,742	\$8,092
8	Plus: Significant Events Filing Under Collection	\$7,210,577	\$0	(\$7,210,577)	\$7,210,577	\$0	(\$7,210,577)
9	Total Monthly Cost of Fuel	\$24,964,107	\$21,860,613	\$4,107,082	\$25,518,462	\$22,251,766	\$3,943,880

MWh Sales							
10	Total Sales of Electricity	871,665	924,822	53,157	894,815	995,523	100,708
	Residential	73,707	75,463	1,756	74,994	68,552	(6,442)
	Commercial	100,818	102,796	1,978	90,821	92,933	2,112
	LP Taconite	324,069	324,630	561	329,014	361,515	32,501
	LP Paper and Pulp	39,792	43,651	3,859	40,343	41,668	1,325
	LP Pipeline	23,097	24,950	1,853	25,170	26,180	1,010
	Other Misc.	26,490	28,077	1,587	27,694	27,846	152
	Municipals	115,929	102,733	(13,196)	127,100	103,432	(23,668)
	Inter System Sales	167,763	222,522	54,759	179,679	273,397	93,718
11	Less: Inter System Sales	167,763	222,522	54,759	179,679	273,397	93,718
	Customer Inter-System Sales	81,693	81,479	(214)	75,810	75,776	(34)
	Market Sales	85,937	141,009	55,072	103,328	197,302	93,974
	Station Service	133	33	(100)	542	319	(222)
	Sales due to Retail and Resale Loss of Load	0	0	0	0	0	0
12	Less: Solar Generation and Purchased MWh	1,408	1,690	282	1,385	1,318	(67)
13	Total Monthly MWh Sales	702,494	700,610	(1,884)	713,751	720,808	7,057
Fuel Adjustment Charge Fuel Clause (¢/kWh)							
14	1-Month Average Cost of Fuel (¢/kWh)	3.554	3.120	(0.433)	3.575	3.087	(0.488)
Sep 22				Oct 22			

1 Month Average Cost of Fuel by Energy Type (¢/kWh)							
Billing Month:							
		Sep 22			Oct 22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
15	Generation - Coal	0.627	0.791	0.164	0.484	0.858	0.374
16	Generation - Gas	0.000	0.022	0.022	0.000	0.001	0.001
17	Generation - BioFuel	0.009	0.106	0.097	0.013	0.024	0.011
18	Purchased Power - Coal	0.032	0.018	(0.014)	0.000	0.000	0.000
19	Purchased Power - Biomass	0.000	0.000	0.000	0.000	0.000	0.000
20	Purchased Power - Hydro	1.038	1.295	0.257	0.976	1.201	0.224
21	Purchased Power - Gas	0.000	0.000	0.000	0.000	0.000	0.000
22	Purchased Power - Wind	0.356	0.329	(0.027)	0.400	0.388	(0.012)
23	Purchased Power - Diesel	0.000	0.000	0.000	0.000	0.000	0.000
24	Purchased Power - Solar	0.000	0.000	0.000	0.000	0.000	0.000
25	Purchased Power - Unknown	0.465	0.559	0.094	0.692	0.615	(0.076)
26	Significant Event Adjustment	1.026	0.000	(1.026)	1.010	0.000	(1.010)
27	Total One-Month Average Cost 2/	3.554	3.120	(0.433)	3.575	3.087	(0.488)

B. Summary - Over/Under Recovery- 2022

B. Summary - Over/Under Recovery- 2022		Sep 22			Oct 22		
		Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)
1	Revenue Class Over/Under Recovery	\$21,318,990	\$18,718,743	\$2,600,247	\$22,104,412	\$19,087,697	\$3,016,715
	Residential	\$2,719,364	\$2,387,366	\$331,998	\$2,484,615	\$2,145,336	\$339,279
	Commercial	\$3,732,753	\$3,277,200	\$455,553	\$3,393,601	\$2,930,341	\$463,260
	Industrial	\$14,714,429	\$12,920,343	\$1,794,086	\$16,074,885	\$13,881,367	\$2,193,518
	Lighting	\$18,200	\$15,974	\$2,226	\$20,663	\$17,842	\$2,821
	Municipal Pumping	\$134,244	\$117,860	\$16,384	\$130,648	\$112,811	\$17,837

C. Total Over/Under Recovery

2022 FAC True Up Amount

A. Summary - Automatic Adjustment Charges:

Ref. No.	Revenue/Accounting Month Cost of Fuel	Nov-22			Dec-22		
		Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
1	Company's Generating Stations	\$6,810,133	\$9,022,269	\$2,212,136	\$9,064,937	\$11,183,259	\$2,118,322
	Thermal	\$6,810,133	\$9,022,269	\$2,212,136	\$9,064,937	\$11,183,259	\$2,118,322
	Wind	\$0	\$0	\$0	\$0	\$0	\$0
	Hydro	\$0	\$0	\$0	\$0	\$0	\$0
2	Plus: Purchased Energy	\$14,960,870	\$16,824,159	\$1,863,289	\$18,056,157	\$23,511,721	\$5,455,564
	Market	\$11,942,411	\$12,107,276	\$164,866	\$12,173,910	\$17,104,022	\$4,930,113
	Wind	\$2,878,709	\$3,237,751	\$359,041	\$2,778,097	\$2,753,272	(\$24,824)
	Solar	\$0	\$6,287	\$6,287	\$0	\$3,598	\$3,598
	Square Butte	\$139,750	\$1,472,845	\$1,333,095	\$3,104,150	\$3,650,828	\$546,678
3	Plus: MISO Charges 1/	\$840,231	\$4,449,470	\$3,609,238	\$973,954	\$3,349,185	\$2,375,231
4	Less: MISO Schedules 16 & 17 & 24 1/	(\$3,590)	(\$31,207)	(\$27,617)	(\$7,740)	(\$72,362)	(\$64,622)
	Schedule 16	\$109,816	\$154,257	\$44,442	\$106,495	\$123,188	\$16,694
	Schedule 17	\$23,595	\$3,272	(\$20,323)	\$22,766	\$3,124	(\$19,642)
	Schedule 24	(\$137,000)	(\$188,736)	(\$51,736)	(\$137,000)	(\$198,674)	(\$61,674)
5	Less: Fuel Cost Recovered Through Inter System Sales	\$4,707,386	\$10,255,503	\$5,548,117	\$7,916,235	\$14,491,043	\$6,574,809
	Customer Inter-System Sales	\$1,614,841	\$1,658,757	\$43,916	\$1,870,516	\$2,101,878	\$231,362
	Market Sales	\$2,426,694	\$5,718,851	\$3,292,157	\$5,348,191	\$7,279,618	\$1,931,427
	Station Service	\$2,191	\$5,728	\$3,538	\$2,191	\$37,988	\$35,797
	MISO Costs 1/	\$89,997	\$490,110	\$400,113	\$129,330	\$343,552	\$214,221
	Sales due to Retail and Resale Loss of Load	\$0	\$0	\$0	\$0	\$0	\$0
	Asset Based Margins	\$573,663	\$2,382,057	\$1,808,393	\$566,007	\$4,728,008	\$4,162,001
6	Less: Costs Related to Solar	\$0	\$42	\$42	\$0	\$0	\$0
7	Plus: Time of Generation and Solar Energy Adjustment	\$14,776	\$19,411	\$4,635	\$16,176	\$10,798	(\$5,378)
8	Plus: Significant Events Filing Under Collection	\$7,210,577	\$0	(\$7,210,577)	\$7,210,577	\$0	(\$7,210,577)
9	Total Monthly Cost of Fuel	\$25,132,791	\$20,090,970	\$2,168,755	\$27,413,305	\$23,636,280	\$3,433,552

MWh Sales						
10	Total Sales of Electricity	901,606	968,086	66,480	1,076,333	1,049,265 (27,068)
	Residential	86,576	75,798	(10,778)	112,027	97,528 (14,499)
	Commercial	92,846	91,541	(1,305)	111,986	96,696 (15,290)
	LP Taconite	332,601	368,752	36,151	337,046	367,774 30,728
	LP Paper and Pulp	39,966	41,704	1,738	41,006	37,703 (3,303)
	LP Pipeline	25,462	26,676	1,214	27,595	27,377 (218)
	Other Misc.	26,566	28,033	1,467	27,392	28,417 1,025
	Municipals	132,355	103,843	(28,512)	143,590	114,122 (29,468)
	Inter System Sales	165,234	231,739	66,505	275,691	279,648 3,956
11	Less: Inter System Sales	165,234	231,739	66,505	275,691	279,648 3,956
	Customer Inter-System Sales	65,433	53,428	(12,005)	75,032	50,871 (24,161)
	Market Sales	99,668	178,173	78,505	200,527	228,221 27,694
	Station Service	133	138	5	133	556 424
	Sales due to Retail and Resale Loss of Load	0	0	0	0	0 0
12	Less: Solar Generation and Purchased MWh	752	746	(6)	683	409 (274)
13	Total Monthly MWh Sales	735,620	735,601	(19)	799,959	769,209 (30,750)
	Fuel Adjustment Charge Fuel Clause (¢/kWh)					
14	1-Month Average Cost of Fuel (¢/kWh)	3.417	2.731	(0.685)	3.427	3.073 (0.354)

1 Month Average Cost of Fuel by Energy Type (¢/kWh)						
Billing Month:						
	Nov 22			Dec 22		
	Forecast	Actual	Difference Over/(Under)	Forecast	Actual	Difference Over/(Under)
15	Generation - Coal	0.635	0.801	0.166	0.810	1.080 0.270
16	Generation - Gas	0.000	0.000	0.000	0.001	0.000 (0.001)
17	Generation - BioFuel	0.015	0.043	0.029	0.021	0.067 0.046
18	Purchased Power - Coal	0.000	0.000	0.000	0.054	0.087 0.033
19	Purchased Power - Biomass	0.000	0.000	0.000	0.000	0.000 0.000
20	Purchased Power - Hydro	1.039	1.108	0.070	0.984	1.113 0.129
21	Purchased Power - Gas	0.000	0.000	0.000	0.000	0.000 0.000
22	Purchased Power - Wind	0.391	0.440	0.049	0.347	0.358 0.011
23	Purchased Power - Diesel	0.000	0.000	0.000	0.000	0.000 0.000
24	Purchased Power - Solar	0.000	0.000	0.000	0.000	0.000 0.000
25	Purchased Power - Unknown	0.357	0.338	(0.019)	0.308	0.368 0.060
26	Significant Event Adjustment	0.980	0.000	(0.980)	0.901	0.000 (0.901)
27	Total One-Month Average Cost 2/	3.417	2.731	(0.685)	3.427	3.073 (0.354)

B. Summary - Over/Under Recovery- 2022

B. Summary - Over/Under Recovery- 2022		Nov 22			Dec 22		
		Collected	Actual	Difference Over/(Under)	Collected	Actual	Difference Over/(Under)
1	Revenue Class Over/Under Recovery	\$21,605,497	\$17,265,036	\$4,340,461	\$22,475,636	\$20,151,501	\$2,324,135
	Residential	\$2,625,972	\$2,098,506	\$527,466	\$3,388,569	\$3,038,497	\$350,072
	Commercial	\$3,198,564	\$2,556,383	\$642,181	\$3,390,303	\$3,039,614	\$350,689
	Industrial	\$15,636,942	\$12,495,042	\$3,141,900	\$15,551,968	\$13,943,574	\$1,608,394
	Lighting	\$21,937	\$17,536	\$4,401	\$24,440	\$21,910	\$2,530
	Municipal Pumping	\$122,082	\$97,569	\$24,513	\$120,356	\$107,906	\$12,450

C. Total Over/Under Recovery

2022 FAC True Up Amount

Thermal Generation																
		YTD 2022			Jan-22			Feb-22			Mar-22			Apr-22		
Generation - Coal		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 3		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$ 30,014,639	\$ 52,242,979	\$22,228,340	\$ 4,009,061	\$ 6,332,312	\$2,323,251	\$ 3,676,430	\$ 4,680,768	\$1,004,338	\$ 3,767,414	\$ 4,340,440	\$573,026	\$ 2,009,754	\$ 4,985,808	\$2,976,054
Boswell 4		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$ 55,063,244	\$57,234,785	\$2,171,541	\$6,104,874	\$8,619,779	\$2,514,905	\$5,398,666	\$6,337,203	\$938,537	\$3,545,299	\$4,318,729	\$773,430	\$2,142,554	\$1,665,648	(\$476,906)
Total Generation Coal \$		\$ 85,077,883	\$109,477,764	\$24,399,881	\$10,113,935	\$14,952,091	\$4,838,156	\$9,075,096	\$11,017,971	\$1,942,875	\$7,312,713	\$8,659,169	\$1,346,456	\$4,152,308	\$6,651,456	\$2,499,148
Generation - Gas		TRADE SECRET DATA BEGINS														
Laskin 1		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$ 436,043	\$6,306,886	\$5,870,843	\$68,977	\$1,456,005	\$1,387,028	\$0	\$1,397,797	\$1,397,797	\$0	\$611,134	\$611,134	\$36,300	\$1,066,509	\$1,030,209
Laskin 2		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$ 407,752	\$6,961,890	\$6,554,138	\$68,977	\$1,318,090	\$1,249,113	\$0	\$1,136,502	\$1,136,502	\$0	\$356,590	\$356,590	\$36,300	\$150,300	\$114,001
Total Generation Gas \$		\$843,795	\$13,268,776	\$12,424,981	\$137,954	\$2,774,095	\$2,636,141	\$0	\$2,534,299	\$2,534,299	\$0	\$967,724	\$967,724	\$72,599	\$1,216,809	\$1,144,210
Generation - Biofuel		TRADE SECRET DATA BEGINS														
Hibbard		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$ 1,575,818	\$7,522,542	\$5,946,724	\$264,030	\$676,348	\$412,318	\$227,988	\$681,030	\$453,042	\$152,128	\$292,250	\$140,122	\$77,492	\$527,420	\$449,928
Total Generation Biofuel \$		\$1,575,818	\$7,522,542	\$5,946,724	\$264,030	\$676,348	\$412,318	\$227,988	\$681,030	\$453,042	\$152,128	\$292,250	\$140,122	\$77,492	\$527,420	\$449,928
Total Thermal Generation \$		\$87,497,496	\$130,269,082	\$42,771,585	\$10,515,919	\$18,402,534	\$7,886,615	\$9,303,084	\$14,233,300	\$4,930,216	\$7,464,840	\$9,919,143	\$2,454,303	\$4,302,399	\$8,395,685	\$4,093,286
			% Difference	49%												
Wind Generation																
		YTD 2022			Jan-22			Feb-22			Mar-22			Apr-22		
Generation - Wind		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Bison		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tac Ridge		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Wind Generation \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hydro Generation																
		YTD 2022			Jan-22			Feb-22			Mar-22			Apr-22		
Generation - Hydro		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Hydro		TRADE SECRET DATA BEGINS														
Average Co																
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Hydro Generation \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		YTD 2022			Jan-22			Feb-22			Mar-22			Apr-22		
Total Company Generation		\$87,497,496	\$130,269,082	\$42,771,585	\$10,515,919	\$18,402,534	\$7,886,615	\$9,303,084	\$14,233,300	\$4,930,216	\$7,464,840	\$9,919,143	\$2,454,303	\$4,302,399	\$8,395,685	\$4,093,286
			% Difference	49%												

Thermal Generation																
		May-22			Jun-22			Jul-22			Aug-22			Sep-22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Generation - Coal																
Boswell 3	MWh															
	Average Cos															
Total Cost		\$ 629,659	\$ 4,249,535	\$3,619,876	\$ 935,925	\$ 3,929,256	\$2,993,331	\$ 3,441,312	\$ 5,358,798	\$1,917,486	\$ 2,953,476	\$ 5,311,704	\$2,358,228	\$ 1,578,655	\$ 574,744	(\$1,003,911)
Boswell 4																
	MWh															
	Average Cos															
Total Cost		\$4,706,632	\$15,272	(\$4,691,360)	\$4,330,126	\$794,629	(\$3,535,497)	\$5,284,092	\$6,360,177	\$1,076,085	\$5,078,853	\$5,374,203	\$295,350	\$4,349,345	\$6,994,405	\$2,645,060
Total Generation Coal \$		\$5,336,291	\$4,264,807	(\$1,071,484)	\$5,266,051	\$4,723,885	(\$542,166)	\$8,725,405	\$11,718,975	\$2,993,570	\$8,032,329	\$10,685,907	\$2,653,578	\$5,928,000	\$7,569,149	\$1,641,149
Generation - Gas																
Laskin 1	MWh															
	Average Cost															
Total Cost		\$0	\$0	\$0	\$0	\$208,076	\$208,076	\$248,557	\$343,357	\$94,800	\$0	\$166,428	\$166,428	\$0	\$952,038	\$952,038
Laskin 2																
	MWh															
	Average Cos															
Total Cost		\$0	\$1,547,408	\$1,547,408	\$0	\$884,730	\$884,730	\$220,266	\$347,719	\$127,453	\$0	\$150,068	\$150,068	\$0	\$972,852	\$972,852
Total Generation Gas \$		\$0	\$1,547,408	\$1,547,408	\$0	\$1,092,806	\$1,092,806	\$468,823	\$691,076	\$222,253	\$0	\$316,496	\$316,496	\$0	\$1,924,890	\$1,924,890
Generation - Biofuel																
Hibbard	MWh															
	Average Cos															
Total Cost		\$47,548	\$721,546	\$673,998	\$63,450	\$922,742	\$859,292	\$168,727	\$688,393	\$519,667	\$138,806	\$1,211,024	\$1,072,219	\$64,991	\$759,173	\$694,182
Total Generation Biofuel \$		\$47,548	\$721,546	\$673,998	\$63,450	\$922,742	\$859,292	\$168,727	\$688,393	\$519,667	\$138,806	\$1,211,024	\$1,072,219	\$64,991	\$759,173	\$694,182
Total Thermal Generation \$		\$5,383,839	\$6,533,761	\$1,149,922	\$5,329,501	\$6,739,433	\$1,409,932	\$9,362,954	\$13,098,444	\$3,735,490	\$8,171,135	\$12,213,427	\$4,042,292	\$5,992,991	\$10,253,212	\$4,260,221
Wind Generation																

Thermal Generation											
		Oct-22		Difference:	Nov-22		Difference:	Dec-22		Difference:	
		Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	
Generation - Coal											
Boswell 3	MWh										
Average Cost											
Total Cost		\$ 1,741,667	\$ 3,642,343	\$1,900,676	\$ 2,066,066	\$ 3,738,261	\$1,672,195	\$ 3,205,219	\$ 5,099,010	\$1,893,791	
Boswell 4		MWh									
Average Cost											
Total Cost		\$3,961,906	\$6,249,286	\$2,287,380	\$4,635,768	\$4,954,231	\$318,463	\$5,525,129	\$5,551,223	\$26,094	
Total Generation Coal \$		\$5,703,573	\$9,891,629	\$4,188,056	\$6,701,833	\$8,692,492	\$1,990,659	\$8,730,349	\$10,650,233	\$1,919,884	
Generation - Gas											
Laskin 1	MWh										
Average Cost											
Total Cost		\$0	\$99,582	\$99,582	\$0	\$5,397	\$5,397	\$82,210	\$564	(\$81,646)	
Laskin 2		MWh									
Average Cost											
Total Cost		\$0	\$97,630	\$97,630	\$0	\$0	\$0	\$82,210	\$0	(\$82,210)	
Total Generation Gas \$		\$0	\$197,212	\$197,212	\$0	\$5,397	\$5,397	\$164,419	\$564	(\$163,855)	
Generation - Biofuel											
Hibbard	MWh										
Average Cost											
Total Cost		\$92,191	\$185,773	\$93,582	\$108,300	\$324,380	\$216,080	\$170,169	\$532,462	\$362,293	
Total Generation Biofuel \$		\$92,191	\$185,773	\$93,582	\$108,300	\$324,380	\$216,080	\$170,169	\$532,462	\$362,293	
Total Thermal Generation \$		\$5,795,763	\$10,274,614	\$4,478,851	\$6,810,133	\$9,022,269	\$2,212,136	\$9,064,937	\$11,183,259	\$2,118,322	
Wind Generation											
		Oct-22		Difference:	Nov-22		Difference:	Dec-22		Difference:	
		Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	
Bison	MWh										
Average Cost											
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Tac Ridge		MWh									
Average Cost											
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Wind Generation \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Hydro Generation											
		Oct-22		Difference:	Nov-22		Difference:	Dec-22		Difference:	
		Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	
Hydro	MWh										
Average Cost											
Total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Hydro Generation \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Company Generation											
		Oct-22		Difference:	Nov-22		Difference:	Dec-22		Difference:	
		Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	Forecast	Actual	Over/(Under)	
Total Company Generation		\$5,795,763	\$10,274,614	\$4,478,851	\$6,810,133	\$9,022,269	\$2,212,136	\$9,064,937	\$11,183,259	\$2,118,322	

Purchase Power Market													
		YTD 2022			Jan 22			Feb 22			Mar 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Manitoba Hydro	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$99,074,420	\$115,956,880	\$16,882,460	\$7,979,595	\$8,058,881	\$79,286	\$7,256,213	\$7,272,485	\$16,273	\$8,074,925	\$8,453,399	\$378,475
MacQuarie Energy	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$1,765,300	\$1,765,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Market Purchase	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$28,672,500	\$58,340,567	\$29,668,066	\$2,403,966	\$2,364,840	(\$39,126)	\$1,801,096	\$2,532,646	\$731,549	\$3,099,739	\$3,717,366	\$617,627
Minnkota Power Station Service	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$264,000	\$553,127	\$289,127	\$22,000	\$63,077	\$41,077	\$22,000	\$63,977	\$41,977	\$22,000	\$67,339	\$45,339
Purchase to Serve Non Firm Retail Customer	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$18,547,491	\$0	(\$18,547,491)	\$1,416,818	\$0	(\$1,416,818)	\$1,412,676	\$0	(\$1,412,676)	\$1,577,124	\$0	(\$1,577,124)
IMO (Ontario Market Operator)	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$134,144	\$134,144	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23,414	\$23,414
AEP Energy Partners	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$200,700	\$200,700	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shell Energy North America	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$13,701,400	\$13,701,400	\$0	\$3,398,220	\$3,398,220	\$0	\$3,069,360	\$3,069,360	\$0	\$3,398,220	\$3,398,220
NextEra Energy	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$2,077,260	\$2,077,260	\$0	\$9,525	\$9,525	\$0	\$9,525	\$9,525	\$0	\$9,525	\$9,525
Other Purchases	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$7,384,043	\$7,384,043	\$0	\$234,450	\$234,450	\$0	\$183,458	\$183,458	\$0	\$84,433	\$84,433
Total Purchase Power Market \$		\$146,558,411	\$200,113,421	\$53,555,010	\$11,822,379	\$14,128,993	\$2,306,613	\$10,491,985	\$13,131,451	\$2,639,465	\$12,773,787	\$15,753,696	\$2,979,909
		% Difference		37%									
Purchase Power Wind													
		YTD 2022			Jan 22			Feb 22			Mar 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Oliver 1	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$4,137,941	\$3,963,874	(\$174,067)	\$427,672	\$369,573	(\$58,100)	\$310,449	\$399,252	\$88,803	\$376,180	\$414,118	\$37,938
Oliver 2	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$6,816,422	\$7,010,084	\$193,662	\$725,812	\$731,274	\$5,462	\$518,013	\$737,646	\$219,633	\$631,018	\$688,421	\$57,403
Wing River	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$245,124	\$142,646	(\$102,478)	\$22,455	\$0	(\$22,455)	\$19,498	\$0	(\$19,498)	\$21,640	\$18,625	(\$3,015)
Nobles	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$19,772,648	\$21,419,518	\$1,646,870	\$1,827,526	\$2,081,342	\$253,815	\$1,629,418	\$2,040,878	\$411,460	\$1,814,649	\$2,096,320	\$281,672
Total Purchase Power Wind \$		\$30,972,135	\$32,536,121	\$1,563,987	\$3,003,466	\$3,182,188	\$178,722	\$2,477,378	\$3,177,776	\$700,398	\$2,843,487	\$3,217,485	\$373,997
		% Difference		5%									
Purchase Power Solar													
		YTD 2022			Jan 22			Feb 22			Mar 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Solar Subscription Cancellations	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$83	\$83	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase to Serve Municipal Solar Energy	MW	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$0	\$137,267	\$137,267	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Purchase Power Solar \$		\$0	\$137,350	\$137,350	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		% Difference		13735041%									
Purchase Power- Square Butte													
		YTD 2022			Jan 22			Feb 22			Mar 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Square Butte	MWh	TRADE SECRET - DATA BEGINS											
	Average Cost												
	Total Cost	\$33,380,600	\$30,080,957	(\$3,299,643)	\$3,816,900	\$2,534,581	(\$1,282,309)	\$2,994,150	\$2,532,482	(\$461,668)	\$3,766,250	\$2,670,286	(\$1,095,964)
Total Purchase Power Coal \$		\$33,380,600	\$30,080,957	(\$3,299,643)	\$3,816,900	\$2,534,581	(\$1,282,309)	\$2,994,150	\$2,532,482	(\$461,668)	\$3,766,250	\$2,670,286	(\$1,095,964)
		% Difference		10%									
		YTD 2022			Jan 22			Feb 22			Mar 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Total Company Purchase Power		\$210,911,146	\$262,867,849	\$51,956,703	\$18,642,745	\$19,845,772	\$1,203,026	\$15,963,513	\$18,841,708	\$2,878,195	\$19,383,524	\$21,641,466	\$2,257,942

Purchase Power Market													
		Apr 22		Difference: Over/(Under)	May 22		Difference: Over/(Under)	Jun 22		Difference: Over/(Under)	Jul 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Manitoba Hydro	MWh Average Cost												
	Total Cost	\$7,753,877	\$8,577,157	\$823,281	\$9,652,860	\$11,125,150	\$1,472,290	\$9,272,902	\$11,128,075	\$1,855,172	\$9,555,342	\$10,885,681	\$1,330,338
MacQuarie Energy	MW Average Cos												
	Total Cost	\$0	\$0	\$0	\$0	\$202,800	\$202,800	\$0	\$1,246,900	\$1,246,900	\$0	\$182,400	\$182,400
Market Purchase	MWh Average Cos												
	Total Cost	\$2,828,033	\$4,530,676	\$1,702,642	\$1,282,443	\$5,850,621	\$4,568,178	\$1,927,299	\$9,637,842	\$7,710,543	\$2,112,553	\$4,278,593	\$2,166,041
Minnkota Power Station Service	MWh Average Cost												
	Total Cost	\$22,000	\$35,085	\$13,085	\$22,000	\$47,946	\$25,946	\$22,000	\$46,145	\$24,145	\$22,000	\$43,500	\$21,500
Purchase to Serve Non Firm Retail Customer	MWh Average Cost												
	Total Cost	\$1,481,458	\$0	(\$1,481,458)	\$1,255,659	\$0	(\$1,255,659)	\$1,697,391	\$0	(\$1,697,391)	\$1,678,488	\$0	(\$1,678,488)
IMO (Ontario Market Operator)	MWh Average Cost												
	Total Cost	\$0	\$15,120	\$15,120	\$0	\$0	\$0	\$0	\$76,089	\$76,089	\$0	\$6,669	\$6,669
AEP Energy Partners	MWh Average Cost												
	Total Cost	\$0	\$0	\$0	\$0	\$102,000	\$102,000	\$0	\$0	\$0	\$0	\$0	\$0
Shell Energy North America	MWh Average Cost												
	Total Cost	\$0	\$3,384,600	\$3,384,600	\$0	\$0	\$0	\$0	\$181,200	\$181,200	\$0	\$0	\$0
NextEra Energy	MWh Average Cost												
	Total Cost	\$0	\$9,525	\$9,525	\$0	\$1,491,285	\$1,491,285	\$0	\$9,525	\$9,525	\$0	\$9,525	\$9,525
Other Purchases	MWh Average Cost												
	Total Cost	\$0	\$107,904	\$107,904	\$0	\$838,430	\$838,430	\$0	\$917,308	\$917,308	\$0	\$938,707	\$938,707
Total Purchase Power Market \$		\$12,085,367	\$16,660,066	\$4,574,699	\$12,212,963	\$19,658,232	\$7,445,270	\$12,919,592	\$23,243,084	\$10,323,492	\$13,368,383	\$16,345,075	\$2,976,691
Purchase Power Wind													
		Apr 22		Difference: Over/(Under)	May 22		Difference: Over/(Under)	Jun 22		Difference: Over/(Under)	Jul 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Oliver 1	MWh Average Cost												
	Total Cost	\$362,294	\$439,659	\$77,364	\$362,335	\$398,348	\$36,013	\$283,067	\$259,007	(\$24,060)	\$260,407	\$159,296	(\$101,110)
Oliver 2	MWh Average Cost												
	Total Cost	\$607,556	\$719,284	\$111,728	\$592,537	\$637,559	\$45,023	\$449,059	\$464,505	\$15,446	\$401,212	\$311,695	(\$89,517)
Wing River	MWh Average Cost												
	Total Cost	\$23,946	\$18,212	(\$5,735)	\$22,564	\$8,052	(\$14,512)	\$16,731	\$10,580	(\$6,151)	\$14,494	\$7,887	(\$6,607)
Nobles	MWh Average Cost												
	Total Cost	\$1,922,792	\$2,327,520	\$404,727	\$1,825,051	\$1,685,708	(\$139,343)	\$1,420,141	\$1,480,953	\$60,812	\$1,184,038	\$1,099,027	(\$85,011)
Total Purchase Power Wind \$		\$2,916,589	\$3,504,674	\$588,085	\$2,802,487	\$2,729,667	(\$72,820)	\$2,168,998	\$2,215,046	\$46,048	\$1,860,150	\$1,577,905	(\$282,245)
Purchase Power Solar													
		Apr 22		Difference: Over/(Under)	May 22		Difference: Over/(Under)	Jun 22		Difference: Over/(Under)	Jul 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Solar Subscription Cancellations	MWh Average Cost												
	Total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase to Serve Municipal Solar Energy	MWh Average Cos												
	Total Cost	\$0	\$4,689	\$4,689	\$0	\$20,533	\$20,533	\$0	\$25,495	\$25,495	\$0	\$19,371	\$19,371
Total Purchase Power Solar \$		\$0	\$4,689	\$4,689	\$0	\$20,533	\$20,533	\$0	\$25,495	\$25,495	\$0	\$19,371	\$19,371
Purchase Power- Square Butte													
		Apr 22		Difference: Over/(Under)	May 22		Difference: Over/(Under)	Jun 22		Difference: Over/(Under)	Jul 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Square Butte	MWh Average Cost												
	Total Cost	\$3,711,100	\$2,435,352	(\$1,275,748)	\$3,322,500	\$2,714,247	(\$608,253)	\$3,680,400	\$2,682,968	(\$997,432)	\$3,816,050	\$2,715,509	(\$1,100,541)
Total Purchase Power Coal \$		\$3,711,100	\$2,435,352	(\$1,275,748)	\$3,322,500	\$2,714,247	(\$608,253)	\$3,680,400	\$2,682,968	(\$997,432)	\$3,816,050	\$2,715,509	(\$1,100,541)
		Apr 22		Difference: Over/(Under)	May 22		Difference: Over/(Under)	Jun 22		Difference: Over/(Under)	Jul 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Total Company Purchase Power		\$18,713,057	\$22,604,782	\$3,891,725	\$18,337,950	\$25,122,679	\$6,784,730	\$18,768,990	\$28,166,593	\$9,397,603	\$19,044,584	\$20,657,860	\$1,613,276

Purchase Power Market										
		Aug 22		Difference: Over/(Under)	Sep 22		Difference: Over/(Under)	Oct 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Manitoba Hydro	MWh									
	Average Cost									
	Total Cost	\$8,072,647	\$11,683,822	\$3,611,175	\$7,751,671	\$10,538,278	\$2,786,607	\$7,976,359	\$9,964,006	\$1,987,647
MacQuarie Energy	MWh									
	Average Cost									
	Total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Market Purchase	MWh									
	Average Cost									
	Total Cost	\$2,754,628	\$4,069,390	\$1,314,762	\$2,420,361	\$5,825,870	\$3,405,509	\$2,723,914	\$6,204,275	\$3,480,361
Minnkota Power Station Service	MWh									
	Average Cost									
	Total Cost	\$22,000	\$43,053	\$21,053	\$22,000	\$32,099	\$10,099	\$22,000	\$55,121	\$33,121
Purchase to Serve Non Firm Retail Customer	MWh									
	Average Cost									
	Total Cost	\$1,672,916	\$0	(\$1,672,916)	\$1,695,307	\$0	(\$1,695,307)	\$1,633,831	\$0	(\$1,633,831)
IMO (Ontario Market Operator)	MWh									
	Average Cost									
	Total Cost	\$0	\$2,986	\$2,986	\$0	\$5,325	\$5,325	\$0	\$1,131	\$1,131
AEP Energy Partners	MWh									
	Average Cost									
	Total Cost	\$0	\$98,700	\$98,700	\$0	\$0	\$0	\$0	\$0	\$0
Shell Energy North America	MW									
	Average Cost									
	Total Cost	\$0	\$208,200	\$208,200	\$0	\$0	\$0	\$0	\$0	\$0
NextEra Energy	MWh									
	Average Cost									
	Total Cost	\$0	\$490,725	\$490,725	\$0	\$9,525	\$9,525	\$0	\$9,525	\$9,525
Other Purchases	MW									
	Average Cost									
	Total Cost	\$0	\$1,112,719	\$1,112,719	\$0	\$868,747	\$868,747	\$0	\$758,029	\$758,029
Total Purchase Power Market \$		\$12,522,191	\$17,709,595	\$5,187,405	\$11,889,339	\$17,279,845	\$5,390,505	\$12,356,104	\$16,992,086	\$4,635,982
Purchase Power Wind										
		Aug 22		Difference: Over/(Under)	Sep 22		Difference: Over/(Under)	Oct 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Oliver 1	MW									
	Average Cost									
	Total Cost	\$271,831	\$261,968	(\$9,863)	\$343,157	\$338,126	(\$5,031)	\$386,693	\$320,861	(\$65,832)
Oliver 2	MWh									
	Average Cost									
	Total Cost	\$431,574	\$410,388	(\$21,187)	\$556,436	\$522,639	(\$33,797)	\$652,331	\$567,682	(\$84,649)
Wing River	MW									
	Average Cost									
	Total Cost	\$13,795	\$10,132	(\$3,663)	\$20,108	\$14,134	(\$5,975)	\$22,762	\$19,373	(\$3,388)
Nobles	MWh									
	Average Cost									
	Total Cost	\$1,167,998	\$1,155,381	(\$12,617)	\$1,582,279	\$1,429,950	(\$152,329)	\$1,793,808	\$1,889,724	\$95,916
Total Purchase Power Wind \$		\$1,885,199	\$1,837,869	(\$47,330)	\$2,501,980	\$2,304,848	(\$197,132)	\$2,855,594	\$2,797,641	(\$57,953)
Purchase Power Solar										
		Aug 22		Difference: Over/(Under)	Sep 22		Difference: Over/(Under)	Oct 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Solar Subscription Cancellations	MWh									
	Average Cost									
	Total Cost	\$0	\$41	\$41	\$0	\$0	\$0	\$0	\$0	\$0
Purchase to Serve Municipal Solar Energy	MWh									
	Average Cost									
	Total Cost	\$0	\$21,650	\$21,650	\$0	\$21,557	\$21,557	\$0	\$14,129	\$14,129
Total Purchase Power Solar \$		\$0	\$21,691	\$21,691	\$0	\$21,557	\$21,557	\$0	\$14,129	\$14,129
Purchase Power- Square Butte										
		Aug 22		Difference: Over/(Under)	Sep 22		Difference: Over/(Under)	Oct 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Square Butte	MWh									
	Average Cost									
	Total Cost	\$3,823,000	\$3,058,790	(\$764,210)	\$1,029,650	\$2,280,802	\$1,251,152	\$176,700	\$1,332,256	\$1,155,556
Total Purchase Power Coal \$		\$3,823,000	\$3,058,790	(\$764,210)	\$1,029,650	\$2,280,802	\$1,251,152	\$176,700	\$1,332,256	\$1,155,556
Total Company Purchase Power										
		Aug 22		Difference: Over/(Under)	Sep 22		Difference: Over/(Under)	Oct 22		Difference: Over/(Under)
		Forecast	Actual		Forecast	Actual		Forecast	Actual	
Total Company Purchase Power		\$18,230,390	\$22,627,946	\$4,397,556	\$15,420,970	\$21,887,052	\$6,466,082	\$15,388,398	\$21,136,112	\$5,747,715

Purchase Power Market						
		Nov 22			Dec 22	
		Forecast	Actual	Difference: Over/(Under)	Forecast	Difference: Over/(Under)
Manitoba Hydro	MW Average Cos					
	Total Cost	\$7,751,671	\$8,804,778	\$1,053,107	\$7,976,359	\$9,465,168
						\$1,488,809
MacQuarie Energy	MWh Average Cos					
	Total Cost	\$0	\$0	\$0	\$0	\$133,200
						\$133,200
Market Purchase	MW Average Cos					
	Total Cost	\$2,769,317	\$2,752,004	(\$17,313)	\$2,549,150	\$6,576,444
						\$4,027,293
Minnkota Power Station Service	MWh Average Cos					
	Total Cost	\$22,000	\$28,725	\$6,725	\$22,000	\$27,062
						\$5,062
Purchase to Serve Non Firm Retail Customer	MW Average Cos					
	Total Cost	\$1,399,422	\$0	(\$1,399,422)	\$1,626,400	\$0
						(\$1,626,400)
IMO (Ontario Market Operator)	MW Average Cos					
	Total Cost	\$0	\$3,027	\$3,027	\$0	\$382
						\$382
AEP Energy Partners	MWh Average Cos					
	Total Cost	\$0	\$0	\$0	\$0	\$0
Shell Energy North America	MW Average Cos					
	Total Cost	\$0	\$0	\$0	\$0	\$61,600
						\$61,600
NextEra Energy	MWh Average Cos					
	Total Cost	\$0	\$9,525	\$9,525	\$0	\$9,525
						\$9,525
Other Purchases	MW Average Cos					
	Total Cost	\$0	\$509,217	\$509,217	\$0	\$830,642
						\$830,642
Total Purchase Power Market \$		\$11,942,411	\$12,107,276	\$164,866	\$12,173,910	\$17,104,022
						\$4,930,113
Purchase Power Wind						
		Nov 22			Dec 22	
		Forecast	Actual	Difference: Over/(Under)	Forecast	Difference: Over/(Under)
Oliver 1	MWh Average Cos					
	Total Cost	\$398,457	\$385,687	(\$12,770)	\$355,398	\$217,978
						(\$137,420)
Oliver 2	MW Average Cos					
	Total Cost	\$636,449	\$647,474	\$11,025	\$614,426	\$571,518
						(\$42,908)
Wing River	MWh Average Cos					
	Total Cost	\$24,250	\$19,070	(\$5,180)	\$22,879	\$16,581
						(\$6,298)
Nobles	MW Average Cos					
	Total Cost	\$1,819,554	\$2,185,520	\$365,966	\$1,785,393	\$1,947,196
						\$161,802
Total Purchase Power Wind \$		\$2,878,709	\$3,237,751	\$359,041	\$2,778,097	\$2,753,272
						(\$24,824)
Purchase Power Solar						
		Nov 22			Dec 22	
		Forecast	Actual	Difference: Over/(Under)	Forecast	Difference: Over/(Under)
Solar Subscription Cancellations	MWh Average Cos					
	Total Cost	\$0	\$42	\$42	\$0	\$0
						\$0
Purchase to Serve Municipal Solar Energy	MWh Average Cos					
	Total Cost	\$0	\$6,245	\$6,245	\$0	\$3,598
						\$3,598
Total Purchase Power Solar \$		\$0	\$6,287	\$6,287	\$0	\$3,598
						\$3,598
Purchase Power- Square Butte						
		Nov 22			Dec 22	
		Forecast	Actual	Difference: Over/(Under)	Forecast	Difference: Over/(Under)
Square Butte	MWh Average Cos					
	Total Cost	\$139,750	\$1,472,845	\$1,333,095	\$3,104,150	\$3,650,828
						\$546,678
Total Purchase Power Coal \$		\$139,750	\$1,472,845	\$1,333,095	\$3,104,150	\$3,650,828
						\$546,678
Total Company Purchase Power						
		Nov 22			Dec 22	
		Forecast	Actual	Difference: Over/(Under)	Forecast	Difference: Over/(Under)
		\$14,960,870	\$16,824,159	\$1,863,289	\$18,056,157	\$23,511,721
						\$5,455,564

Purchase Power Coal																
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
Square Butte	MWh Average Cost															
total Cost		\$33 380 600	\$30 080 957	(\$3 299 643)	\$3 816 900	\$2 534 591	(\$1 282 309)	\$2 994 150	\$2 532 482	(\$461 668)	\$3 766 250	\$2 670 286	(\$1 095 964)	\$3 711 100	\$2 435 352	(\$1 275 748)
total Purchase Power Coal \$		\$33 380 600	\$30 080 957	(\$3 299 643)	\$3 816 900	\$2 534 591	(\$1 282 309)	\$2 994 150	\$2 532 482	(\$461 668)	\$3 766 250	\$2 670 286	(\$1 095 964)	\$3 711 100	\$2 435 352	(\$1 275 748)
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MWh Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Biomass \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MWh Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Biomass \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MWh Average Cost															
total Cost		\$99 074 420	\$115 956 880	\$16 882 460	\$7 979 595	\$8 058 881	\$79 286	\$7 256 213	\$7 272 485	\$16 273	\$8 074 925	\$8 453 399	\$378 475	\$7 753 877	\$8 577 157	\$823 281
total Purchase Power Hydro \$		\$99 074 420	\$115 956 880	\$16 882 460	\$7 979 595	\$8 058 881	\$79 286	\$7 256 213	\$7 272 485	\$16 273	\$8 074 925	\$8 453 399	\$378 475	\$7 753 877	\$8 577 157	\$823 281
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Gas \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Gas \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
Oliver 1	MW Average Cost															
total Cost		\$4 137 941	\$3 963 874	(\$174 067)	\$427 672	\$369 573	(\$58 100)	\$310 449	\$399 252	\$88 803	\$376 180	\$414 118	\$37 938	\$362 294	\$439 659	\$77 364
Oliver 2	MWh Average Cost															
total Cost		\$6 816 422	\$7 010 084	\$193 662	\$725 812	\$731 274	\$5 462	\$518 013	\$737 646	\$219 633	\$631 018	\$688 421	\$57 403	\$607 556	\$719 284	\$111 728
Wing River	MW Average Cost															
total Cost		\$245 124	\$142 646	(\$102 478)	\$22 455	\$0	(\$22 455)	\$19 498	\$0	(\$19 498)	\$21 640	\$18 625	(\$3 015)	\$23 946	\$18 212	(\$5 735)
Nob es	MWh Average Cost															
total Cost		\$19 772 648	\$21 419 518	\$1 646 870	\$1 827 526	\$2 081 342	\$253 815	\$1 629 418	\$2 040 878	\$411 460	\$1 814 649	\$2 096 320	\$281 672	\$1 922 792	\$2 327 520	\$404 727
total Purchase Power Wind \$		\$30 972 135	\$32 536 121	\$1 563 987	\$3 003 466	\$3 182 188	\$178 722	\$2 477 378	\$3 177 776	\$700 398	\$2 843 487	\$3 217 485	\$373 997	\$2 918 589	\$3 504 674	\$586 085
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Diesel \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
total Cost		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Diesel \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
Solar Subscription Cancellations	MWh Average Cost															
total Cost		\$0	\$83	\$83	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase to Serve Municipal Solar Energy	MW Average Cost															
total Cost		\$0	\$137 267	\$137 267	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4 689	\$4 689
total Purchase Power Solar \$		\$0	\$137 350	\$137 350	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4 689	\$4 689
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW Average Cost															
Market Purchase	MW Average Cost															
total Cost		\$28 672 500	\$58 348 567	\$29 686 066	\$2 403 966	\$2 364 840	(\$39 126)	\$1 801 096	\$2 532 646	\$731 549	\$3 099 739	\$3 717 366	\$617 627	\$2 828 033	\$4 530 676	\$1 702 642
MacQuarie Energov	MWh Average Cost															
total Cost		\$0	\$1 765 300	\$1 765 300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Minnesota Power Station Service	MW Average Cost															
total Cost		\$264 000	\$553 127	\$289 127	\$22 000	\$63 077	\$41 077	\$22 000	\$63 977	\$41 977	\$22 000	\$67 339	\$45 339	\$22 000	\$35 085	\$13 085
Purchase to Serve Non Retail FAC Customer	MW Average Cost															
total Cost		\$18 547 491	\$0	(\$18 547 491)	\$1 416 818	\$0	(\$1 416 818)	\$1 412 676	\$0	(\$1 412 676)	\$1 577 124	\$0	(\$1 577 124)	\$1 481 498	\$0	(\$1 481 498)
IMO (Ontario Market Operator)	MW Average Cost															
total Cost		\$0	\$134 144	\$134 144	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23 414	\$23 414	\$0	\$15 120	\$15 120
AEP Energy Partners	MW Average Cost															
total Cost		\$0	\$200 700	\$200 700	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shell Energy North America	MW Average Cost															
total Cost		\$0	\$13 701 400	\$13 701 400	\$0	\$3 398 220	\$3 398 220	\$0	\$3 069 360	\$3 069 360	\$0	\$3 398 220	\$3 398 220	\$0	\$3 384 600	\$3 384 600
NextEra Energy	MWh Average Cost															
total Cost		\$0	\$2 077 260	\$2 077 260	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525
Other Purchases	MW Average Cost															
total Cost		\$0	\$7 384 043	\$7 384 043	\$0	\$234 450	\$234 450	\$0	\$183 458	\$183 458	\$0	\$84 433	\$84 433	\$0	\$307 904	\$307 904
total Purchase Power Unknown \$		\$47 483 991	\$84 156 541	\$36 672 550	\$3 842 784	\$6 070 112	\$2 227 328	\$3 235 773	\$5 858 966	\$2 623 193	\$4 698 863	\$7 500 297	\$2 601 434	\$4 331 491	\$8 082 909	\$3 751 418
		Y D 2022			an 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
total Company Purchase Power		\$210 911 146	\$202 907 849	\$8 003 297	\$18 642 745	\$19 845 772	\$1 203 026	\$15 963 813	\$18 841 708	\$2 878 195	\$19 383 524	\$21 641 466	\$2 257 942	\$18 713 057	\$22 604 782	\$3 891 725

Purchase Power Coal													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
Square Butte	MWh												
	Average Cost												
	total Cost	\$3 322 500	\$2 714 247	(\$608 253)	\$3 680 400	\$2 682 968	(\$997 432)	\$3 816 050	\$2 715 509	(\$1 100 541)	\$3 823 000	\$3 058 790	(\$764 210)
total Purchase Power Coal \$		\$3 322 500	\$2 714 247	(\$608 253)	\$3 680 400	\$2 682 968	(\$997 432)	\$3 816 050	\$2 715 509	(\$1 100 541)	\$3 823 000	\$3 058 790	(\$764 210)
Purchase Power Biomass													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MWh												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Biomass \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase Power Hydro													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
MHEB	MWh												
	Average Cost												
	total Cost	\$9 652 860	\$11 125 150	\$1 472 290	\$9 272 902	\$11 128 075	\$1 855 172	\$9 555 342	\$10 885 681	\$1 330 338	\$8 072 647	\$11 683 822	\$3 611 175
total Purchase Power Hydro \$		\$9 652 860	\$11 125 150	\$1 472 290	\$9 272 902	\$11 128 075	\$1 855 172	\$9 555 342	\$10 885 681	\$1 330 338	\$8 072 647	\$11 683 822	\$3 611 175
Purchase Power Gas													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MWh												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Gas \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase Power Wind													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
Oliver 1	MW												
	Average Cost												
	total Cost	\$362 335	\$398 348	\$36 013	\$283 067	\$259 007	(\$24 060)	\$260 407	\$159 296	(\$101 110)	\$271 831	\$261 968	(\$9 863)
Oliver 2	MWh												
	Average Cost												
	total Cost	\$592 537	\$637 558	\$45 023	\$449 058	\$464 505	\$15 446	\$401 212	\$311 695	(\$89 517)	\$431 574	\$410 388	(\$21 187)
Wing River	MW												
	Average Cost												
	total Cost	\$22 564	\$8 052	(\$14 512)	\$16 731	\$10 580	(\$6 151)	\$14 494	\$7 887	(\$6 607)	\$13 795	\$10 132	(\$3 663)
Nob es	MW												
	Average Cost												
	total Cost	\$1 825 051	\$1 685 708	(\$139 343)	\$1 420 141	\$1 489 953	\$69 812	\$1 184 038	\$1 099 027	(\$85 011)	\$1 167 998	\$1 155 381	(\$12 617)
total Purchase Power Wind \$		\$2 802 487	\$2 729 667	(\$72 820)	\$2 168 998	\$2 215 046	\$46 048	\$1 860 150	\$1 577 905	(\$282 245)	\$1 885 199	\$1 837 869	(\$47 330)
Purchase Power Diesel													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
	MW												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Purchase Power Diesel \$		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Purchase Power Solar													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
Solar Subscription Cancellations	MWh												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$41	\$41
Purchase to Serve Municipal Solar Energy	MWh												
	Average Cost												
	total Cost	\$0	\$20 533	\$20 533	\$0	\$25 495	\$25 495	\$0	\$19 371	\$19 371	\$0	\$21 650	\$21 650
total Purchase Power Solar \$		\$0	\$20 533	\$20 533	\$0	\$25 495	\$25 495	\$0	\$19 371	\$19 371	\$0	\$21 651	\$21 651
Purchase Power Unknown													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
Market Purchase	MWh												
	Average Cost												
	total Cost	\$1 282 443	\$5 850 621	\$4 568 178	\$1 927 299	\$9 637 842	\$7 710 543	\$2 112 553	\$4 278 593	\$2 166 041	\$2 754 628	\$4 089 390	\$1 314 762
MacQuarie Enerov	MW												
	Average Cost												
	total Cost	\$0	\$202 800	\$202 800	\$0	\$1 246 900	\$1 246 900	\$0	\$182 400	\$182 400	\$0	\$0	\$0
Minnesota Power Station Service	MW												
	Average Cost												
	total Cost	\$22 000	\$47 946	\$25 946	\$22 000	\$46 145	\$24 145	\$22 000	\$43 500	\$21 500	\$22 000	\$43 053	\$21 053
Purchase to Serve Non Retail FAC Customer	MWh												
	Average Cost												
	total Cost	\$1 255 659	\$0	(\$1 255 659)	\$1 697 391	\$0	(\$1 697 391)	\$1 678 488	\$0	(\$1 678 488)	\$1 672 916	\$0	(\$1 672 916)
IMO (Ontario Market Operator)	MW												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$76 089	\$76 089	\$0	\$6 669	\$6 669	\$0	\$2 886	\$2 886
AEP Energy Partners	MW												
	Average Cost												
	total Cost	\$0	\$102 000	\$102 000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$98 700	\$98 700
Shell Energy North America	MW												
	Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$181 200	\$181 200	\$0	\$0	\$0	\$0	\$208 200	\$208 200
NextEra Energy	MW												
	Average Cost												
	total Cost	\$0	\$1 491 285	\$1 491 285	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$490 725	\$490 725
Other Purchases	MWh												
	Average Cost												
	total Cost	\$0	\$838 430	\$838 430	\$0	\$917 308	\$917 308	\$0	\$938 707	\$938 707	\$0	\$1 112 719	\$1 112 719
total Purchase Power Unknown \$		\$2 560 102	\$8 533 082	\$5 972 980	\$3 646 690	\$12 115 010	\$8 468 320	\$3 813 041	\$5 459 394	\$1 646 353	\$4 449 544	\$6 025 773	\$1 576 229
total Company Purchase Power		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)	Forecast	Actual	Difference: Over(Under)
		\$18 337 950	\$25 122 679	\$6 784 730	\$18 768 950	\$28 166 583	\$9 397 633	\$19 044 864	\$20 657 860	\$1 613 276	\$18 230 390	\$22 627 946	\$4 397 556

Purchase by Fuel Type

Inter System Sales Customer Sales																
J/		Y D 2022			Jan 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Incremental Production Service (BPS) and Replacement Firm Power Service (RFPs)	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$627 865	\$7 107 849	\$6 479 984	\$63 446	\$363 534	\$320 088	\$45 968	\$235 680	\$189 711	\$62 795	\$330 270	\$267 475	\$48 218	\$262 010	\$213 792
Economy and Non Firm Energy	MWh															
	Average Cost															
	total Cost	\$21 095 035	\$25 650 272	\$4 555 237	\$1 585 456	\$3 560 278	\$1 974 822	\$1 658 145	\$3 112 462	\$1 454 317	\$1 765 195	\$3 593 912	\$1 828 717	\$1 694 046	\$2 401 344	\$707 298
Excessive Energy	MWh															
	Average Cost															
	total Cost	\$0	\$212 921	\$212 921	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$536	\$536	\$0	\$31 152	\$31 152
Incremental and Price Recall	MWh															
	Average Cost															
	total Cost	\$0	\$321 792	\$321 792	\$0	\$12 234	\$12 234	\$0	\$3 246	\$3 246	\$0	\$0	\$0	\$0	\$18 055	\$18 055
NEMMPA Incremental	MWh															
	Average Cost															
	total Cost	\$0	\$6 383 071	\$6 383 071	\$0	\$753 570	\$753 570	\$0	\$668 586	\$668 586	\$0	\$487 276	\$487 276	\$0	\$588 606	\$588 606
Municipal Solar Energy	MWh															
	Average Cost															
	total Cost	\$0	\$137 267	\$137 267	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4 689	\$4 689
total Inter System Sales Customer (MWh's)		872 711	820 924	(\$1 787)	65 027	97 232	\$32 205	66 931	87 200	20 269	72 967	96 715	23 748	70 158	62 351	(7 807)
total Inter System Sales Customer (Dollars)		\$21 722 900	\$39 613 172	\$18 090 272	\$1 648 902	\$4 509 615	\$2 860 713	\$1 704 113	\$4 019 974	\$2 315 860	\$1 827 990	\$4 411 994	\$2 584 004	\$1 742 264	\$3 305 857	\$1 563 593
		MWhs														
		\$														
		% Diff Variance			85%											
Inter System Sales Market Sales																
J/		Y D 2022			Jan 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Hibbing Public Utilities L F	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$0	\$417 275	\$417 275	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Oconto L F	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$2 709 355	\$3 232 965	\$523 611	\$268 920	\$268 422	\$19 503	\$237 254	\$261 358	\$24 103	\$230 178	\$258 842	\$28 664	\$199 297	\$212 072	\$12 775
Asset Based Sales (Non M SO)	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$5 142 495	\$4 528 812	(\$613 683)	\$533 712	\$781 121	\$247 409	\$616 064	\$757 373	\$141 309	\$468 656	\$557 593	\$88 938	\$468 511	\$425 783	(\$42 728)
Minnesota Power Liquidation	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$21 437 472	\$19 504 961	(\$1 932 511)	\$2 474 725	\$1 645 220	(\$829 505)	\$1 941 287	\$1 641 940	(\$299 347)	\$2 441 886	\$1 731 285	(\$710 601)	\$2 405 129	\$1 578 966	(\$827 163)
Liquidated Sales	MWh															
	Average Cost															
	total Cost	\$1 315 273	\$3 644 626	\$2 329 353	\$317 691	\$425 017	\$107 327	\$166 588	\$374 756	\$208 169	\$435 334	\$204 292	(\$231 042)	\$85 553	\$133 766	\$48 214
MISO Market Sales	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$28 569 895	\$63 713 147	\$35 143 252	\$3 509 422	\$7 248 723	\$3 739 301	\$2 129 569	\$6 649 658	\$4 520 088	\$2 282 023	\$4 325 030	\$2 043 007	\$2 008 692	\$7 307 442	\$5 298 750
Renewable Source Program	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$0	\$114 300	\$114 300	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525
total Inter System Sales Market (MWh's)		2 260 131	3 140 614	880 483	277 525	377 725	100 200	215 172	310 521	95 349	220 081	291 472	71 390	170 958	325 523	154 565
total Inter System Sales Market (Dollars)		\$59 174 490	\$95 156 087	\$35 981 598	\$7 104 470	\$10 398 029	\$3 293 559	\$5 090 763	\$9 694 610	\$4 603 847	\$5 858 076	\$7 086 568	\$1 228 492	\$5 168 182	\$9 667 555	\$4 499 373
		MWhs														
		\$														
		% Diff Variance			61%											
Inter System Sales Station Service																
J/		Y D 2022			Jan 22			Feb 22			Mar 22			Apr 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Oliver County 1	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$3 729	\$16 981	\$13 252	\$311	\$2 373	\$2 063	\$311	\$978	\$668	\$311	\$640	\$329	\$311	\$489	\$178
Oliver County 2	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$4 760	\$14 442	\$9 681	\$397	\$1 588	\$1 191	\$397	\$1 077	\$680	\$397	\$752	\$355	\$397	\$540	\$143
WPPI Energy	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$62 715	\$408 003	\$345 287	\$1 483	\$0	(\$1 483)	\$1 483	\$9 165	\$7 682	\$16 015	\$27 899	\$11 884	\$25 263	\$68 952	\$43 689
Wino River Station Service	MWh	BPS EXCISE - DA AVERAGE														
	Average Cost															
	total Cost	\$0	\$357	\$357	\$0	\$0	\$0	\$0	\$357	\$357	\$0	\$0	\$0	\$0	\$0	\$0
total Inter System Sales Station Service (MWh's)		4 369	9 390	4 021	133	63	169	133	291	158	1 032	803	229	1 604	1 453	150
total Inter System Sales Station Service (Dollars)		\$71 205	\$439 793	\$368 578	\$2 191	\$3 961	\$1 771	\$2 191	\$11 577	\$9 387	\$16 723	\$29 291	\$12 568	\$25 971	\$69 981	\$44 010
		MWhs														
		\$														

Inter System Sales Customer Sales		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Incremental Production Service (IPS) and Replacement Firm Power Service (RPPS)	MWh Average Cost												
	total Cost	\$42 074	\$452 332	\$410 258	\$51 951	\$401 460	\$349 509	\$57 215	\$207 019	\$149 804	\$47 584	\$365 863	\$318 279
Economy and Non Firm Energy	MWh Average Cost												
	total Cost	\$1 449 390	\$2 186 552	\$737 162	\$1 909 964	\$2 363 249	\$453 285	\$1 924 137	\$1 708 405	(\$215 731)	\$1 930 590	\$1 652 854	(\$277 737)
Excessive Energy	MWh Average Cost												
	total Cost	\$0	\$961	\$961	\$0	\$46 928	\$46 928	\$0	\$23 439	\$23 439	\$0	\$22 403	\$22 403
Incremental and Price Recall	MWh Average Cost												
	total Cost	\$0	\$109 847	\$109 847	\$0	\$104 860	\$104 860	\$0	\$9 944	\$9 944	\$0	\$26 981	\$26 981
NEMMPA Incremental	MWh Average Cost												
	total Cost	\$0	\$402 817	\$402 817	\$0	\$658 832	\$658 832	\$0	\$410 537	\$410 537	\$0	\$439 493	\$439 493
Municipal Solar Energy	MWh Average Cost												
	total Cost	\$0	\$20 533	\$20 533	\$0	\$25 495	\$25 495	\$0	\$19 371	\$19 371	\$0	\$21 650	\$21 650
total Inter System Sales Customer (MWh's)		60 768	\$1 876	(\$ 892)	79 572	\$2 210	(\$27 362)	79 059	\$8 043	(\$21 016)	80 261	\$3 745	(\$26 516)
total Inter System Sales Customer (Dollars)		\$1 491 465	\$3 173 043	\$1 681 578	\$1 961 915	\$3 600 824	\$1 638 909	\$1 981 352	\$2 378 716	\$397 364	\$1 978 174	\$2 529 244	\$551 070
Inter System Sales Market Sales													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Hibbing Public Utilities L F	MWh Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Oconto L F	MWh Average Cost												
	total Cost	\$189 918	\$261 828	\$71 910	\$203 849	\$351 365	\$147 516	\$241 212	\$269 708	\$28 496	\$229 738	\$263 264	\$33 526
Asset Based Sales (Non M SO)	MWh Average Cost												
	total Cost	\$484 726	\$145 234	(\$349 492)	\$454 436	\$103 565	(\$350 871)	\$593 109	\$592 549	(\$560)	\$637 768	\$482 622	(\$155 146)
Minnkota Power Liquidation	MWh Average Cost												
	total Cost	\$2 154 176	\$1 759 788	(\$394 388)	\$2 386 224	\$1 739 508	(\$646 717)	\$2 474 174	\$1 760 606	(\$713 569)	\$2 478 680	\$1 983 173	(\$495 507)
Liquidated Sales	MWh Average Cost												
	total Cost	(\$261 612)	\$729 740	\$991 352	\$423 671	\$769 208	\$345 538	\$181 120	(\$269 489)	(\$450 609)	\$309 006	\$36 060	(\$272 946)
MISO Market Sales	MWh Average Cost												
	total Cost	\$3 398 552	\$4 790 489	\$1 391 937	\$1 824 070	\$3 489 965	\$1 665 895	\$3 362 218	\$6 836 986	\$3 474 768	\$1 861 477	\$6 023 622	\$4 162 145
Renewable Source Program	MWh Average Cost												
	total Cost	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525
total Inter System Sales Market (MWh's)		245 985	\$252 682	\$ 6 697	175 873	\$211 321	\$5 448	259 801	\$326 934	\$7 133	205 276	\$299 731	\$4 455
total Inter System Sales Market (Dollars)		\$5 975 760	\$7 696 604	\$1 720 843	\$5 292 250	\$6 463 135	\$1 170 886	\$6 851 834	\$9 199 885	\$2 348 051	\$5 516 670	\$8 798 267	\$3 281 597
Inter System Sales Station Service													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Oliver County 1	MWh Average Cost												
	total Cost	\$311	\$341	\$30	\$311	\$869	\$558	\$311	\$1 297	\$987	\$311	\$2 042	\$1 731
Oliver County 2	MWh Average Cost												
	total Cost	\$397	\$359	(\$38)	\$397	\$866	\$470	\$397	\$1 319	\$922	\$397	\$1 768	\$1 371
WPPI Energy	MWh Average Cost												
	total Cost	\$1 483	\$98 051	\$96 568	\$1 483	\$101 829	\$100 346	\$1 483	\$17 081	\$15 598	\$1 483	\$37 747	\$36 264
Wino River Station Service	MWh Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Inter System Sales Station Service (MWh's)		133	\$1 920	\$ 1 787	133	\$1 849	\$ 1 716	133	\$288	\$ 156	133	\$676	\$ 543
total Inter System Sales Station Service (Dollars)		\$2 191	\$98 750	\$96 560	\$2 191	\$103 564	\$101 374	\$2 191	\$19 097	\$17 506	\$2 191	\$41 556	\$39 366
Inter System Sales MISO Costs													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
MISO Recovered thru Market Sales	total Cost	\$134 142	\$397 179	\$263 036	\$123 207	\$465 010	\$341 803	\$561 113	\$693 564	\$132 451	\$256 340	\$621 566	\$365 227
total Inter System Sales MISO Costs (Dollars)		\$134 142	\$397 179	\$263 036	\$123 207	\$465 010	\$341 803	\$561 113	\$693 564	\$132 451	\$256 340	\$621 566	\$365 227
Inter System Sales Sales due to Retail and Resale Loss of Load													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Sales due to Retail and Resale Loss of Load	MWh Average Cost												
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MISO Recovered thru Sales due to Retail and Resale Loss of Load	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Liquidation for Sales due to Retail and Resale Loss of Load	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
total Inter System Sales Sales due to Retail and Resale Loss of Load (MWh's)		0	0	0	0	0	0	0	0	0	0	0	0
total Inter System Sales Sales due to Retail and Resale Loss of Load (Dollars)		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Inter System Sales Asset Based Margins													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Asset Based Margins	total Cost	(\$102 535)	\$87 330	\$189 865	\$18 628	\$927 042	\$908 414	\$354 032	\$3 352 410	\$2 998 378	\$717 601	\$4 007 679	\$3 290 078
total Inter System Sales MISO Costs (Dollars)		(\$102 535)	\$87 330	\$189 865	\$18 628	\$927 042	\$908 414	\$354 032	\$3 352 410	\$2 998 378	\$717 601	\$4 007 679	\$3 290 078
Inter System Sales Sales due to Retail and Resale Loss of Load													
		May 22			Jun 22			Jul 22			Aug 22		
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
total Company Inter System Sales MWh's		306 885	\$306 478	(\$408)	255 577	\$265 380	\$ 9 802	338 992	\$385 265	\$46 272	285 670	\$354 151	\$68 482
total Company Inter System Sales Dollars		\$7 501 023	\$11 452 905	\$3 951 883	\$7 398 190	\$11 559 574	\$4 161 384	\$9 750 520	\$15 644 271	\$5 893 751	\$8 470 975	\$15 998 313	\$7 527 338

J/ For Inter System Sales Customer Sales MISO Costs are Included in the total Cost

Inter System Sales Customer Sales														
J/		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
Incremental Production Service (IPS) and Replacement Firm Power Service (RPPS)	MWh													
	Average Cost													
	total Cost	\$47 611	\$2 852 470	\$2 804 859	\$56 665	\$1 413 497	\$1 356 831	\$42 247	\$281 192	\$238 945	\$62 091	\$122 523	RADE SECRE DA A ENDS) \$60 431	
Economy and Non Firm Energy	MWh													
	Average Cost													
	total Cost	\$1 958 680	\$1 695 019	(\$263 661)	\$1 838 411	\$1 261 872	(\$576 540)	\$1 572 595	\$939 587	(\$633 007)	\$1 808 425	\$1 174 738	(\$633 686)	
Excessive Energy	MWh													
	Average Cost													
	total Cost	\$0	\$2 271	\$2 271	\$0	\$35 765	\$35 765	\$0	\$27 894	\$27 894	\$0	\$21 571	RADE SECRE DA A ENDS) \$21 571	
Incremental and Price Recall	MWh													
	Average Cost													
	total Cost	\$0	\$35 971	\$35 971	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$654	\$654	
NEMMPA Incremental	MWh													
	Average Cost													
	total Cost	\$0	\$431 591	\$431 591	\$0	\$359 129	\$359 129	\$0	\$403 840	\$403 840	\$0	\$778 794	RADE SECRE DA A ENDS) \$778 794	
Municipal Solar Energy	MWh													
	Average Cost													
	total Cost	\$0	\$21 557	\$21 557	\$0	\$14 129	\$14 129	\$0	\$6 245	\$6 245	\$0	\$3 598	RADE SECRE DA A ENDS) \$3 598	
total Inter System Sales Customer (MWh's)		81 693	81 479	(\$214)	75 810	75 776	(\$34)	65 433	53 428	(\$12 005)	75 032	50 871	(\$24 161)	
total Inter System Sales Customer (Dollars)		\$2 006 291	\$5 038 880	\$3 032 589	\$1 895 077	\$3 084 391	\$1 189 314	\$1 614 841	\$1 658 757	\$43 916	\$1 870 516	\$2 101 878	\$231 362	
Inter System Sales Market Sales														
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
Hibbing Public Utilities L F	MWh													
	Average Cost													
	total Cost	\$0	\$104 037	\$104 037	\$0	\$101 174	\$101 174	\$0	\$106 070	\$106 070	\$0	\$105 994	RADE SECRE DA A ENDS) \$105 994	
Oconto L F	MWh													
	Average Cost													
	total Cost	\$196 314	\$230 936	\$34 623	\$204 968	\$272 225	\$67 257	\$235 634	\$256 187	\$20 553	\$271 872	\$306 757	RADE SECRE DA A ENDS) \$34 885	
Asset Based Sales (Non M SO)	MWh													
	Average Cost													
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$398 461	\$396 835	(\$1 626)	\$477 051	\$286 136	RADE SECRE DA A ENDS) (\$190 915)	
Minnesota Power Liquidation	MWh													
	Average Cost													
	total Cost	\$667 584	\$1 478 762	\$811 179	\$0	\$863 771	\$863 771	\$0	\$954 922	\$954 922	\$2 012 607	\$2 367 022	RADE SECRE DA A ENDS) \$354 415	
Liquidated Sales	MWh													
	Average Cost													
	total Cost	(\$359 476)	(\$110 393)	\$249 083	(\$774 630)	\$34 505	\$809 135	\$435 928	\$701 865	\$265 937	\$356 101	\$615 297	RADE SECRE DA A ENDS) \$259 196	
MISO Market Sales	MWh													
	Average Cost													
	total Cost	\$1 727 475	\$4 588 550	\$2 861 075	\$2 879 366	\$5 570 348	\$2 690 982	\$1 356 470	\$3 293 447	\$1 936 977	\$2 230 560	\$3 588 887	RADE SECRE DA A ENDS) \$1 358 327	
Renewable Source Program	MWh													
	Average Cost													
	total Cost	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	\$9 525	\$0	\$9 525	RADE SECRE DA A ENDS) \$9 525	
total Inter System Sales Market (MWh's)		85 937	141 009	55 072	103 328	197 302	93 974	99 668	178 173	78 505	200 527	228 221	27 694	
total Inter System Sales Market (Dollars)		\$2 231 896	\$6 301 418	\$4 069 522	\$2 309 705	\$6 851 548	\$4 541 843	\$2 426 694	\$5 718 051	\$3 292 157	\$5 348 191	\$7 279 618	\$1 931 427	
Inter System Sales Station Service														
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
Oliver County 1	MWh													
	Average Cost													
	total Cost	\$311	\$718	\$407	\$311	\$306	(\$5)	\$311	\$2 914	\$2 603	\$311	\$4 014	RADE SECRE DA A ENDS) \$3 703	
Oliver County 2	MWh													
	Average Cost													
	total Cost	\$397	\$709	\$312	\$397	\$319	(\$78)	\$397	\$1 689	\$1 292	\$397	\$3 457	RADE SECRE DA A ENDS) \$3 061	
WPPI Energy	MWh													
	Average Cost													
	total Cost	\$1 483	\$0	(\$1 483)	\$8 089	\$15 637	\$7 548	\$1 483	\$1 125	(\$358)	\$1 483	\$30 516	RADE SECRE DA A ENDS) \$29 033	
Wino River Station Service	MWh													
	Average Cost													
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	RADE SECRE DA A ENDS) \$0	
total Inter System Sales Station Service (MWh's)		133	33	(100)	542	319	(223)	133	138	5	133	556	424	
total Inter System Sales Station Service (Dollars)		\$2 191	\$1 427	(\$764)	\$8 796	\$16 262	\$7 466	\$2 191	\$5 728	\$3 538	\$2 191	\$37 988	\$35 797	
Inter System Sales MISO Costs														
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
MISO Recovered thru Market Sales		total Cost	\$67 983	\$296 513	\$228 530	\$164 773	\$564 878	\$400 105	\$89 997	\$490 110	\$400 113	\$129 330	\$343 552	\$214 221
total Inter System Sales MISO Costs (Dollars)		\$67 983	\$296 513	\$228 530	\$164 773	\$564 878	\$400 105	\$89 997	\$490 110	\$400 113	\$129 330	\$343 552	\$214 221	
Inter System Sales Sales due to Retail and Resale Loss of Load														
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
Sales due to Retail and Resale Loss of Load	MWh													
	Average Cost													
	total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
MISO Recovered thru Sales due to Retail and Resale Loss of Load		total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Liquidation for Sales due to Retail and Resale Loss of Load		total Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
total Inter System Sales Sales due to Retail and Resale Loss of Load (MWh's)		0	0	0	0	0	0	0	0	0	0	0	0	
total Inter System Sales Sales due to Retail and Resale Loss of Load (Dollars)		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Inter System Sales Asset Based Margins														
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
Asset Based Margins		total Cost	\$206 946	\$2 357 760	\$2 150 814	\$44 381	\$3 228 825	\$3 184 444	\$573 663	\$2 382 057	\$1 808 393	\$566 007	\$4 728 008	\$4 162 001
total Inter System Sales MISO Costs (Dollars)		\$206 946	\$2 357 760	\$2 150 814	\$44 381	\$3 228 825	\$3 184 444	\$573 663	\$2 382 057	\$1 808 393	\$566 007	\$4 728 008	\$4 162 001	
		Sep 22			Oct 22			Nov 22			Dec 22			
		Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	
total Company Inter System Sales MWh's		167 763	222 522	\$4 759	179 479	273 397	\$93 718	165 234	231 739	\$6 505	275 691	279 648	\$3 956	
total Company Inter System Sales Dollars		\$4 515 307	\$13 995 997	\$9 480 690	\$4 422 731	\$13 745 904	\$9 323 173	\$4 707 386	\$10 255 503	\$5 548 117	\$7 916 235	\$14 491 043	\$6 574 809	

J/ For Inter System Sales Customer Sales MISO Costs are included in the total Cost

SOLAR ENERGY ADJUSTMENT
Docket No. E015/M-15-773

	YTD 2022			January 2022			February 2022			March 2022		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
FUEL COST												
Total Monthly Fuel Cost	228,681,529	285,545,553	56,864,024	20,900,464	23,531,191	2,630,727	19,930,490	20,718,354	787,864	20,063,904	21,725,256	1,661,352
Less: Costs related to Solar	0	83	83	0	0	0	0	0	0	0	0	0
Total Non-Solar FAC Costs	228,681,529	285,545,470	56,863,941	20,900,464	23,531,191	2,630,727	19,930,490	20,718,354	787,864	20,063,904	21,725,256	1,661,352
Current 2-Month Total Fuel Cost	456,565,410	577,237,036	120,671,627	40,289,368	53,302,770	13,013,402	40,830,954	44,249,545	3,418,591	39,994,394	42,443,610	2,449,216
KWH SALES												
Total Monthly KWH Sales	8,780,102,000	8,978,352,366	198,250,366	796,164,000	828,251,263	32,087,263	720,207,000	758,203,176	37,996,176	765,978,000	803,949,284	37,971,284
Less: Solar Generation and Purchases	16,240,030	16,112,333	(127,697)	855,911	614,506	(241,405)	1,101,616	1,206,077	104,461	1,256,275	1,735,343	479,068
Total Non-Solar FAC KWH Sales	8,763,861,970	8,962,240,033	198,378,064	795,308,089	827,636,757	32,328,668	719,105,384	756,997,099	37,891,715	764,721,725	802,213,942	37,492,216
Current 2-Month Total KWH Sales	17,472,023,020	17,967,549,758	495,526,739	1,539,566,069	1,639,914,969	100,348,900	1,514,413,472	1,584,633,856	70,220,384	1,483,827,109	1,559,211,041	75,383,932
Fuel Cost - cents/kWh	2.613	3.213	0.600	2.617	3.250	0.633	2.696	2.792	0.096	2.695	2.722	0.027
TOGA Percentage	90.16%	87.60%	-2.55%	93.92%	104.37%	10.46%	86.89%	88.66%	1.77%	81.22%	119.77%	38.55%
Fuel Cost Credit to the SEA - cents/kWh	2.356	2.815	0.459	2.458	3.392	0.934	2.343	2.475	0.133	2.189	3.260	1.071
BILLING MONTH:				March 2022			April 2022			May 2022		
	YTD 2022			January 2022			February 2022			March 2022		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
TIME OF GENERATION ADJUSTMENT (TOGA)												
TOGA Percentage	90.16%	87.60%	-2.55%	93.92%	104.37%	10.46%	86.89%	88.66%	1.77%	81.22%	119.77%	38.55%
Less: 100 Percent	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	0.00%
Total TOGA Percentage to the FAC	-9.84%	-12.40%	-2.55%	-6.08%	4.37%	10.46%	-13.11%	-11.34%	1.77%	-18.78%	19.77%	38.55%
TOGA to the FAC (Dollars)	(41,900.19)	(92,660.71)	(50,760.52)	\$ (1,362.92)	\$873.04	\$2,235.96	\$ (3,892.86)	(\$3,819.15)	\$73.70	\$ (6,357.94)	\$9,338.71	\$15,696.66
	YTD 2022			January 2022			February 2022			March 2022		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
SOLAR COSTS												
Costs Related to Solar	\$0.00	\$83.06	\$83.06	\$ -	\$0.03	\$0.03	\$ -	\$0.01	\$0.01	\$ -	\$0.01	\$0.01
Less: Credit from FAC / TOGA	\$384,405.50	\$440,269.62	\$55,864.12	\$ 21,036.27	\$20,844.48	(\$191.79)	\$ 25,806.72	\$29,854.52	\$4,047.79	\$ 27,498.66	\$56,574.74	\$29,076.08
Net Costs Related to Solar	(\$384,405.50)	(\$440,186.56)	(\$55,781.06)	(\$21,036.27)	(\$20,844.45)	\$191.82	(\$25,806.72)	(\$29,854.51)	(\$4,047.78)	(\$27,498.66)	(\$56,574.73)	(\$29,076.07)
Current 2-Month Net Costs Related to Solar	(\$770,660.60)	(\$877,880.46)	(\$107,219.86)	\$ (39,061.61)	(\$29,149.52)	\$9,912.09	\$ (46,842.99)	(\$50,698.96)	(\$3,855.97)	\$ (53,305.38)	(\$86,429.23)	(\$33,123.85)
KWH SALES												
Total Monthly kWh Sales	8,780,102,000	8,979,785,742	199,683,742	796,164,000	828,251,263	32,087,263	720,207,000	758,203,176	37,996,176	765,978,000	803,949,284	37,971,284
Less: Retail SES Exempt	4,358,279,153	4,737,916,302	379,637,149	376,568,596	418,061,172	41,492,576	339,752,596	357,020,205	17,267,609	376,321,596	421,820,460	45,498,864
Less: Municipal SES Exempt	1,498,638,000	1,372,806,451	(125,831,549)	136,265,000	144,295,366	8,030,366	122,990,000	126,075,025	3,085,025	125,869,000	126,496,632	627,632
Total Non-Exempt kWh Sales	2,923,184,847	2,869,062,989	(54,121,858)	283,330,404	265,894,725	(17,435,679)	257,464,404	275,107,946	17,643,542	263,787,404	255,632,192	(8,155,212)
Current 2-Month Total Non-Exempt kWh Sales	5,843,328,361	5,732,697,339	(110,631,022)	563,477,475	515,211,845	(48,265,630)	540,794,808	541,002,671	207,863	521,251,808	530,740,138	9,488,330
SEA ADJUSTMENT												
SEA Adjustment - Dollars per KWH	(\$0.00013)	(\$0.00015)	(\$0.00002)	(\$0.00007)	(\$0.00006)	\$0.00001	(\$0.00009)	(\$0.00009)	(\$0.00001)	(\$0.00010)	(\$0.00016)	(\$0.00006)
SEA Adjustment - cents per KWH	(\$0.01319)	(\$0.01531)	(\$0.00212)	(\$0.00693)	(\$0.00566)	\$0.00127	(\$0.00866)	(\$0.00937)	(\$0.00071)	(\$0.01023)	(\$0.01628)	(\$0.00606)
BILLING MONTH:				March 2022			April 2022			May 2022		

	April 2022			May 2022			June 2022			July 2022		
FUEL COST	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Total Monthly Fuel Cost	17,030,966	25,374,482	8,343,516	17,035,152	25,982,281	8,947,129	17,812,276	33,119,707	15,307,431	21,924,362	23,159,570	1,235,208
Less: Costs related to Solar	0	(0)	(0)	0	0	0	0	(0)	(0)	0	(0)	(0)
Total Non-Solar FAC Costs	17,030,966	25,374,482	8,343,516	17,035,152	25,982,281	8,947,129	17,812,276	33,119,707	15,307,431	21,924,362	23,159,570	1,235,208
Current 2-Month Total Fuel Cost	37,094,870	47,099,738	10,004,868	34,066,118	51,356,763	17,290,645	34,847,428	59,101,988	24,254,560	39,736,638	56,279,277	16,542,639
KWH SALES												
Total Monthly KWH Sales	682,854,000	718,387,437	35,533,437	692,794,000	737,744,442	44,950,442	692,708,000	693,191,748	483,748	746,006,000	746,144,587	138,587
Less: Solar Generation and Purchases	1,560,867	1,168,751	(392,116)	1,761,797	1,662,901	(98,896)	1,777,405	2,030,750	253,345	1,926,067	1,839,031	(87,036)
Total Non-Solar FAC KWH Sales	681,293,133	717,218,686	35,925,553	691,032,203	736,081,541	45,049,338	690,930,595	691,160,998	230,403	744,079,933	744,305,556	225,623
Current 2-Month Total KWH Sales	1,446,014,858	1,519,432,628	73,417,770	1,372,325,335	1,453,300,227	80,974,892	1,381,962,798	1,427,242,539	45,279,741	1,435,010,528	1,435,466,554	456,026
Fuel Cost - cents/kWh	2.565	3.100	0.535	2.482	3.534	1.052	2.522	4.141	1.619	2.769	3.921	1.152
TOGA Percentage	87.30%	89.40%	2.10%	78.26%	79.06%	0.80%	88.98%	56.80%	-32.18%	93.58%	63.78%	-29.80%
Fuel Cost Credit to the SEA - cents/kWh	2.239	2.771	0.532	1.942	2.794	0.852	2.244	2.352	0.108	2.591	2.501	(0.090)
BILLING MONTH:	June 2022			July 2022			August 2022			September 2022		
TIME OF GENERATION ADJUSTMENT (TOGA)												
TOGA Percentage	87.30%	89.40%	2.10%	78.26%	79.06%	0.80%	88.98%	56.80%	-32.18%	93.58%	63.78%	-29.80%
Less: 100 Percent	100.00%	100.00%		100.00%	100.00%		100.00%	100.00%		100.00%	100.00%	
Total TOGA Percentage to the FAC	-12.70%	-10.60%	2.10%	-21.74%	-20.94%	0.80%	-11.02%	-43.20%	-32.18%	-6.42%	-36.22%	-29.80%
TOGA to the FAC (Dollars)	\$ (5,084.43)	\$ (3,840.84)	\$ 1,243.60	\$ (9,505.68)	\$ (12,302.92)	\$ (2,797.23)	\$ (4,940.00)	\$ (36,331.02)	\$ (31,391.02)	\$ (3,426.53)	\$ (26,117.56)	\$ (22,691.03)
SOLAR COSTS												
Costs Related to Solar	\$ -	\$ (0.04)	\$ (0.04)	\$ -	\$ 0.05	\$ 0.05	\$ -	\$ (0.02)	\$ (0.02)	\$ -	\$ (0.04)	\$ (0.04)
Less: Credit from FAC / TOGA	\$ 34,951.81	\$ 32,390.44	\$ (2,561.37)	\$ 34,222.13	\$ 46,464.00	\$ 12,241.87	\$ 39,886.15	\$ 47,762.34	\$ 7,876.18	\$ 49,906.25	\$ 45,990.84	\$ (3,915.41)
Net Costs Related to Solar	\$ (34,951.81)	\$ (32,390.48)	\$ 2,561.33	\$ (34,222.13)	\$ (46,463.95)	\$ (12,241.82)	\$ (39,886.15)	\$ (47,762.36)	\$ (7,876.20)	\$ (49,906.25)	\$ (45,990.88)	\$ 3,915.37
Current 2-Month Net Costs Related to Solar	\$ (62,450.47)	\$ (88,965.21)	\$ (26,514.73)	\$ (69,173.94)	\$ (78,854.44)	\$ (9,680.49)	\$ (74,108.28)	\$ (94,226.31)	\$ (20,118.03)	\$ (89,792.41)	\$ (93,753.24)	\$ (3,960.83)
KWH SALES												
Total Monthly kWh Sales	682,854,000	718,387,437	35,533,437	692,794,000	737,744,442	44,950,442	692,708,000	693,391,390	683,390	746,006,000	746,372,070	366,070
Less: Retail SES Exempt	346,797,596	373,808,401	27,010,805	365,536,596	410,665,003	45,128,407	357,932,596	376,300,546	18,367,950	371,185,596	402,218,761	31,033,165
Less: Municipal SES Exempt	109,401,000	116,244,017	6,843,017	109,889,000	111,053,315	1,164,315	114,323,000	102,906,562	(11,416,438)	133,558,000	110,097,647	(23,460,353)
Total Non-Exempt kWh Sales	226,655,404	228,335,019	1,679,615	217,368,404	216,026,124	(1,342,280)	220,452,404	214,184,282	(6,268,122)	241,262,404	234,055,662	(7,206,742)
Current 2-Month Total Non-Exempt kWh Sales	490,442,808	483,967,211	(6,475,597)	444,023,808	444,361,143	337,335	437,820,808	430,210,406	(7,610,402)	461,714,808	448,239,944	(13,474,864)
SEA ADJUSTMENT												
SEA Adjustment - Dollars per KWH	(\$0.00013)	(\$0.00018)	(\$0.00006)	(\$0.00016)	(\$0.00018)	(\$0.00002)	(\$0.00017)	(\$0.00022)	(\$0.00005)	(\$0.00019)	(\$0.00021)	(\$0.00001)
SEA Adjustment - cents per KWH	(\$0.01273)	(\$0.01838)	(\$0.00565)	(\$0.01558)	(\$0.01775)	(\$0.00217)	(\$0.01693)	(\$0.02190)	(\$0.00498)	(\$0.01945)	(\$0.02092)	(\$0.00147)
BILLING MONTH:	June 2022			July 2022			August 2022			September 2022		

Solar Energy Adjustment

Solar Energy Adjustment

2022 FAC Forecast vs. Actuals Explanations

Customer Sales

Residential:

Residential came in within 2 percent of the 2022 forecast.

Commercial:

Commercial came in roughly 1 percent less than forecast.

Large Power Taconite:

Large Power Taconites came in roughly 9 percent more than forecast. Taconite customers ran above forecasted production levels in 2022

Large Power Paper and Pulp:

Paper and Pulp came in roughly 1 percent more than forecast.

Large Power Pipelines:

Pipelines came in roughly 4 percent lower than forecast due to lower loads than forecasted for pipeline customers

Other Misc.:

Other Misc. came in roughly 3 percent more than forecast.

Municipals:

Municipals came in 13 percent lower than forecast due to the new NEMMPA contracts. In addition, effective September 1, 2022, Hibbing Public Utilities is no longer a municipal customer of Minnesota Power.

Intersystem Sales:

Overall, Intersystem Sales came in about 832,000 MWhs above forecast. Intersystem sales are removed from the Total Sales of Electricity as they are Non FAC MWh's. Removing more Intersystem Sales decreases the Total Monthly MWh Sales for the calculation of the 1 Month Average Cost of Fuel Rate. Please see the Inter System Sales section below for additional information.

Generation Costs

Boswell:

Boswell total costs came in roughly 29 percent above forecast. As stated in the Attachment 2 customer sales explanation, sales were up in 2022 compared to the forecast which increased Minnesota Power generation to serve load. Also, Minnesota Power saw actual market prices

come in significantly higher (close to 90 percent higher) than forecast which increased the output of Boswell 3 and 4. With Boswell 3 being economic and market prices high in 2022, Boswell 3 was cleared by MISO more often than expected in 2022 which increased their generation by about 67 percent compared to forecast.

Hibbard:

With the higher market prices seen in 2022, Hibbard was called on and ran more than forecast. Minnesota Power forecasted Hibbard to run all 12 months in 2022 which was true for actuals too, but the actual generation was significantly more than forecast by about 115 percent. Hibbard's \$/MWh was 122 percent above forecast due to a significant rise in biomass fuel costs throughout 2022 due to higher production costs related to diesel, labor, and inflation.

Laskin:

Like Hibbard, the higher market prices seen in 2022 contributed to the increased generation at Laskin compared to forecast. Minnesota Power forecasted Laskin to run 4 months out of the year but in reality, Laskin ran 10 months in 2022 which increased their generation close to 500 percent compared to forecast. Also, natural gas prices experienced a 66 percent increase from 2022 over 2021 when the forecast was prepared which caused a rise in the \$/MWh of the unit in 2022.

Wind:

Wind generation came in very close to forecast coming in 0.21 percent below forecast with Bison coming in about 1 percent below forecast but Tac Ridge coming in 29 percent above forecast. Wind generation owned by Minnesota Power has a \$0 Fuel Cost so this increased generation helped reduce FAC Costs.

Hydro:

Minnesota Power saw lower hydro generation in 2022 by about 11 percent compared to forecast due to a drier spring and fall. With low snowfall totals in the winter of 2021/2022, there was a lower than forecasted 2022 spring runoff. In the fall, drier conditions led to low flows which lowered the Hydro generation in September and October 2022. Hydro generation owned by Minnesota Power has a \$0 Fuel Cost.

Purchase Costs

Manitoba Hydro:

The MHEB contract has a variable energy piece (133 Purchase Power Agreement) and throughout 2022, Minnesota Power procured more energy from Manitoba Hydro than was forecasted at a slightly higher cost.

Market Purchase:

With higher market prices than forecast in 2022, Minnesota Power had increased company generation to offset market purchases. The increase in company generation lowered the MWhs purchased from the market.

Market purchase price per MWh came in 141 percent above forecast due to higher than forecasted MISO Market prices in 2022.

Minnkota Power Station Service:

Costs came in higher than forecasted. The forecast is based on prior year monthly average.

Purchase to serve Non-Firm Retail Customer

When the forecast was prepared, there was no purchase made so this section was a placeholder. The purchases to cover this Non-Firm Retail Customer were contracted with different counter parties and are included in the purchase by counterparty.

Counter Party Purchases:

IMO/MacQuarie/AEP/Shell/NextEra

Purchases that were not known or under contract at the time of the forecast filing but were procured during times when Minnesota Power was short and needed to purchase energy to cover load. This can happen when generation is lower than expected, load is high, or Minnesota Power has generating units off for outage.

This section also includes the purchases that were procured to serve a Non-Firm Retail Customer.

Other Purchases:

The other purchases section includes all customer owned generation purchases that are not forecasted.

Oliver County 1:

Oliver 1 costs came in 4 percent lower than forecast. This lower cost was due to credits received on the Oliver 1 invoices that were not forecasted and lowered the \$/MWh.

Oliver County 2:

Oliver 2 costs came in 3 percent more than forecast. This higher cost was due to more generation than forecasted at Oliver 2. There were credits received on the Oliver 2 invoices that were not forecasted which lowered the \$/MWh but with the higher generation, total costs at Oliver 2 came in higher than forecast.

Wing River:

Generation and costs came in roughly 42 percent lower than forecast. Wing River was slightly below forecast almost every month and did have an outage in January and February 2022.

Nobles:

Nobles generation came in 8 percent more than forecasted in 2022 and the \$/MWh was slightly higher than forecasted. Minnesota Power saw strong winds in southern MN throughout 2022 which increased Nobles generation. The slightly higher \$/MWh was due to compensated curtailments which are not forecasted.

Solar Subscription Cancellations:

We do not forecast as it is very small. Any customers that have a rolling balance of kWh due to solar garden generation is purchased back by Minnesota Power when they leave the program and are paid out for their unused solar generation.

Purchase to serve Municipal Solar Energy:

When the forecast was prepared, there was no purchase to serve municipal solar energy as this was a contract that was signed after the forecast was filed. The contract to serve municipal solar energy started in April 2022. The offsetting sale is in the Inter-System-Customer Sales section.

Square Butte:

Based on generation at Square Butte which was higher in 2022 compared to forecast. Fuel costs came in slightly lower than forecast which reduced the overall costs of Square Butte even though the generation was up.

Inter-System Sales

IPS and RFPS:

Since Large Power sales were above forecast, IPS and RFPS MWhs were also greater than forecast. The increased \$/MWh was due to the market prices being higher in 2022 than what were forecasted.

Economy and Non Firm:

Economy and Non Firm MWhs were lower than forecast in 2022 due to Silver Bay Power- North Shore Mining being idle from April - December 2022. The increased \$/MWh was due to the market prices being higher in 2022 than what were forecasted.

Excess Energy:

Excess Energy is not forecasted as it is usually a small amount. With loads higher than forecasted in 2022, we saw more excess energy.

Incremental and Price Recall:

Incremental and Price Recall are not forecasted as it is usually a small amount. With loads higher than forecasted in 2022, we saw more Incremental and Price Recall energy.

NEMMPA Incremental:

Starting January 1, 2022, all Minnesota Power municipal customers except for SWL&P, Nashwauk, and Hibbing Public Utilities. This was not known at the time the forecast was prepared.

Municipal Solar Energy:

When the forecast was prepared, there was no solar energy sale to a municipal customer as this was a contract that was signed after the forecast was filed. The contract to serve municipal solar energy started in April 2022.

Hibbing Public Utilities:

In April 2022, Hibbing Public Utilities signed a Purchase Power Agreement with Minnesota Power. Part of this new contract includes a long term firm sale. Effective September 1, 2022, Hibbing Public Utilities is no longer a municipal customer of Minnesota Power. This was not known at the time the forecast was prepared. See Minnesota Power's compliance filing on May 11, 2022, disclosing the pertinent details of the bilateral contract per Order Point 5 of the Commission's October 29, 2021 Order in Docket No. E015/M-21-28.

Oconto:

Loads came in stronger than forecasted in 2022

Asset Based Sales (Non MISO):

Since load was higher in 2022, more Minnesota Power generation was used to serve load and not available to serve Asset Based Sales thus creating less Asset Based sales and more Liquidation sales

Minnkota Power Liquidation:

There was more generation output and a lower fuel cost at Square Butte in 2022 (See Attachment 2.2- Purchases) which would increase the MWhs and lower the costs of the Minnkota Power Liquidation which is based on the output and costs of Square Butte.

Liquidated Sales:

See Asset Based Sales (Non MISO) above. Less Asset Based sales resulted in more Liquidated sales.

MISO Market Sales:

Variable - Minnesota Power uses the RTSim production cost model to determine the volume and cost for MISO market sales. When excess energy is available and it's economical, the model will sell the excess energy into the MISO market. With the increase in purchase and generation, we saw increased MISO Market sales in 2022.

Renewable Source Program (Was Green Pricing):

It is a small amount and is not forecasted

Oliver County 1 Station Service:

The forecast assumption used last year's average and the current year came in slightly higher.

Oliver County 2 Station Service:

The forecast assumption used last year's average and the current year came in slightly lower.

WPPI Energy:

WPPI station service is calculated when Boswell 4 is offline. Boswell 4 was offline around 62 more days than forecast and costs are based off on DA LMPs and with the market prices higher in 2022, Minnesota Power saw higher WPPI station service costs.

Wing River Station Service:

Wing River was offline in January and February 2022 and there was station service which was not forecasted.

MISO Costs:

See Attachment 3 for MISO Costs breakdown and assumptions.

MISO Costs recovered thru Customer Sales is part of their fuel cost and is reflected in the average cost price in the "Inter-System Sales- Customer Sales" section.

MISO Costs recovered thru Market Sales were more than forecasted due to increased Market MISO sales in 2022 compared to forecast

Sales due to Retail Loss of Load:

None in forecast and actuals

Asset Based Margins:

The Asset Based Margin Credit came in 458 percent higher than forecast. This increase in the credit is mainly due to higher than forecasted MISO market prices which increased the sales price for Asset Bases Sales. This increase in sales price increased the margins back to customers. Also, with the signed NEMMPA and Hibbing Public Utilities contracts some of the sales margins flow to the customers in the "Asset Based Margins" section.

Monthly MISO Day 2 Charges and Allocation
Docket No. E999/AA-07-1130

2022 FAC Forecast vs. Actuals - MISO Costs

Day Ahead/Real Time Asset, Non Asset, Excessive, and Non Excessive Energy:

Asset Energy is reflected in MISO market purchases and sales and because of this, Minnesota Power did not include amounts on Attachment 3 of the 2022 forecast. For actuals, Minnesota Power is able break out the Asset Energy between the various charge types and are included on Attachment 3 of the 2022 True Up.

Day Ahead/Real Time Losses and Congestion:

DA/RT Losses and Congestion are Minnesota Power's repurchased energy costs. When the forecast is prepared, all of the repurchased energy costs are reflected in Day Ahead Loss category. Actual costs are split out between DA Losses, RT Losses, DA Congestion, and RT Congestion.

Various Financial Transmission and Auction Revenue Amounts:

Day Ahead Financial Bilateral Transaction Congestion, Auction Revenue Rights Transaction Amount, Financial Transmission Rights Annual Transaction Amount, and Financial Transmission Rights Hourly Allocation are charges that are based on market prices. Minnesota Power saw a difference in prices between forecast and actuals which caused a difference in these various charges.

Real Time Revenue Sufficiency Guarantee Make Whole Payment Amount:

The Real Time Revenue Sufficiency Guarantee Make Whole Payment difference is mainly due to the fact that some of Minnesota Power's generating units were called on for reliability purposes more than what was anticipated in the 2022 FAC Forecast. This resulted in more Real Time Revenue Sufficiency Guarantee Make Whole Payments to Minnesota Power.

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1/ All Administration Charges reflected in the Retail column are now in the base rates (not recovered in the FPE)
2/ Accounts 55600 0051 through 55600 0053 are not recovered through the FPE
3/ Accounts 55600 0076 are not recovered through FPE for Resource Adequacy since it relates to capacity

NOTE:

DA and RT Asset Energy amounts have been reduced by the generation on load LMP differences (RE) which are then shown in the Day Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-

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2/ Accounts 55500 0051 through 55500 0053 are not recovered through the FPE

DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Day Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-

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1/ All Administration Charges reflected in the Retail column are now n the base rates (not recovered in the FPE)
2/ Accounts 95500 0051 through 95500 0053 are not recovered through the FPE

2/ Accounts 55500 0051 through 55500 0053 are not recovered through the FPE

NOTE:

DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-

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MINNESOTA POWER		Account Number	SEP 2022	FPE Retail				FAC Resale				Subtotal FPE and FAC		MISO Non Liquidation				MISO Liquidation				Others Liquidation				Others Non Liquidation				Contract Sales			
MISO MON HLY ALLOCA ION		Number		Month	Cost	Month	Revenue	Month	Cost	Month	Revenue	Cost/Revenue	Month	Cost	Month	Revenue	Month	Cost	Month	Revenue	Month	Cost	Month	Revenue	Month	Cost	Month	Revenue	Month	Cost	Month	Revenue	
Day Ahead and Real Time Energy																																	
16	Day - end Asset E a	700-0000 of 55500-0000 of 55500-0050	11,252.757									-																					
5	Day Ahead Non-Asset Energy	55500-0057	(11,899.77)									-																					
Real Time Asset Energy																																	
13	Real Time Asset Energy	700-0000 of 55500-0000 of 55500-0050	5,595.17									-																					
Excessive Energy Amount																																	
22	Excessive Energy Amount	55500-0066	(5,600.29)									-																					
No E excess E a o t																																	
Real Time Non-Asset Energy																																	
50,533.53																																	
Subtotal																																	
506,661.28 597,877 2,532,455.78 102,733 446,903.96 2,979,359.7 51,160 57,258 83,203 32,591																																	
Day Ahead and Real Time Energy Loss																																	
16	Day Ahead Loss	700-0000 of 55500-0000 of 55500-0050	2,695,850.97			1,935,895.60	-		3,1628.6		-	2,277,52.2					159,282.00								259,073.78			-	-	-	-		
5	Day - end Asset E a at B later at T a s a c t i o n - Loss	55500-0052	50,286.66			35,877.5	-		6,331.33		-	2,208.87					3,061.23								978.56			-	-	-	-		
Real Time Loss																																	
13	Real Time Loss	700-0000 of 55500-0000 of 55500-0050	2,988.9			2.16.0	-		378.71		-	2,52.78					176.57								287.16			-	-	-	-		
Real Time Distribution of Losses																																	
22	Real Time Distribution of Losses	55500-0057	(69,788.7)			(96,079.15)	-		(87.53.38)		-	(585,627.52)					(2,327.62)								(68,838.58)			-	-	-	-		
Real Time Financial Transaction Loss																																	
55500-0038																																	
Subtotal																																	
2,054,299.40 597,877 1,973,919.18 597,877 (496,079.15) 102,733 348,338.68 102,733 (87,543.38) 1,738,635.34 51,160 162,519.80 51,160 (42,327.62) 57,258 57,258 83,203 264,310.46 83,203 (68,838.58) 32,591 32,591																																	
Virtual Energy																																	
12	Day - end V1 at E a	55500-0030	-			-	-		-		-	-					-							-									
17	Real Time Virtual Energy	55500-0039	-			-	-		-		-	-					-							-									
Subtotal																																	
597,877 597,877 102,733 102,733 51,160 51,160 57,258 57,258 83,203 32,591 32,591																																	
Schedule 16 & 17 1/																																	
16	Day - end Market d i s a s i o n (S c e d u l e 17)	55500-0020	1,203.57			101,12.88	-		17,896.36		-	119,309.0					8,652.97								1,072.56			-	-	-	-		
19	Real Time Market Administration (Schedule 17)	55500-0021	15.73			11,313.1	-		1,996		-	13,309.57					965.29								1,969.87			-	-	-	-		
29	Day - end Market d i s a s i o n (S c e d u l e 17)	55500-0031	2,875.20			-	-		362.28		-	362.28					956.82								1,556.10			-	-	-	-		
Subtotal																																	
160,754.50 597,877 112,725.82 597,877 102,733 20,255.07 102,733 132,980.89 51,160 10,575.08 51,160 57,258 57,258 83,203 17,198.54 83,203 32,591 32,591																																	
Congestion Fees and ARRs																																	
16	Day - end Congestion	700-0000 of 55500-0000 of 55500-0050	3,07,936.06			2,208,117.31	-		389,667.76		-	2,587,785.07					181,679.91								295,71.08			-	-	-	-		
13	Real Time Congestion	700-0000 of 55500-0000 of 55500-0050	72,826.79			52,297.05	-		9,228.89		-	61,325.9					302.91								6,997.9			-	-	-	-		
16	Day - end Asset E a at B later at T a s a c t i o n - Congestion	55500-0051	(67,53.18)			(8,161.57)	-		(8,99.10)		-	(56,660.67)					(1,109.35)								(6,683.18)			-	-	-	-		
10	Real Time Financial Transaction Congestion	55500-0037					-				-																	-	-	-	-		
10	Auction Revenue Rights Transaction Amount	55500-0051	92,060			(660,050.58)	-		(116,79.52)		-	(776,530.10)					(56,318.37)								(91,592.13)			-	-	-	-		
13	Financial Transaction Rights Annual Transaction Amount	55500-0052	1,066,127.1			761.21.78	-		13,332.02		-	895.56.80					6,950.1								105,630.21			-	-	-	-		
28	Auction Revenue Rights Intra-day Up-Bid Amount	55500-0050	6,761.91			33,367.38	-		5,891.89		-	59,279.27					2,88.76								633.01			-	-	-	-		
30	Day - end Asset E a at B later at T a s a c t i o n - Congestion	55500-0051	(127,331.88)			(90,915.02)	-		(16.03.83)		-	(106,958.88)					(7,787.26)								(12,615.85)			-	-	-	-		
29	Financial Transaction Rights Hourly Allocation	55500-0032	(889,031.93)			(706,188.81)	-		(12,618.03)		-	(830,786.81)					(60,253.38)								(97,991.7)			-	-	-	-		
31	Financial Transaction Rights Monthly Allocation	55500-0033	(1,931.77)			(32,081.28)	-		(5,661.0)		-	(27,737.31)					(2,737.31)								(31,671.97)			-	-	-	-		
31	Financial Transaction Rights Yearly Allocation	55500-0034					-				-																	-	-	-	-		
31	Financial Transaction Rights Fuel Funding Guarantee Amount	55500-0066	33,55.06			23,888.91	-		215.3		-	28,102.25					2,098.13								3,31.67			-	-	-	-		
21	CR Guarantees Held Amount	55500-0065	(33,55.06)			(23,888.91)	-		(215.3)		-	(28,102.25)					(2,098.13)								(3,31.67)			-	-	-	-		
31	Financial Transaction Rights Monthly Transaction Amount	55500-0056	(127,312.96)			(90,901.5)	-		(16.01.3)		-	(106,958.88)					(7,786.10)								(12,613.97)			-	-	-	-		
31	Financial Transaction Rights Transaction	55500-003					-				-																	-	-	-	-		
Subtotal																																	
1,980,148.61 597,877 3,078,903.43 597,877 (1,652,165.64) 102,733 543,335.90 102,733 (291,558.64) 1,678,515.05 51,160 255,819.85 51,160 (140,969.92) 57,258 57,258 83,203 416,046.91 83,203 (229,632.28) 32,591 32,591																																	
RSG & Make Whole Payments																																	
10	Day Ahead Revenue Sufficient to Cover Anticipation Distribution	55500-0028	28,988.5			19,268.39	-		3,00.30		-	22,688.69					1,608								2,673.78			-	-	-	-		
13	Day - end Revenue Sufficient to Cover Anticipation Distribution	55500-0029	(1,799.7)			(105,650.20)	-		(18.615)		-	(12,293.35)					9,01.53								(1,660.58)			-	-	-	-		
13	Real Time P ice Volatile to Make Whole Payment	55500-0067	(3,318.92)			(2,369.71)	-		(18.18)		-	(2,787.89)					(202.19)								(328.83)			-	-	-	-		
26	Real Time Revenue Sufficient to Cover Anticipation Distribution	55500-0036	207,089.3			1,786.17	-		26,093.26		-	171,956.08					12,616.21								20,518.09			-	-	-	-		
26	Real Time Revenue Sufficient to Cover Anticipation Distribution	55500-007	(695,853.06)			-	-		(87,677.9)		-	(58,516.57)					(2,392.0)								(68.903)			-	-	-	-		
Subtotal																																	
613,065.57 597,877 167,130.18 597,877 (604,859.00) 102,733 249,556 102,733 (106,739.82) (514,975.08) 51,160 14,260.27 51,160 (51,609.18) 57,258 57,258 83,203 23,191.87 83,203 (83,933.48) 32,591 32,591																																	
RNU & Misc Charges																																	
20	Real Time Miscellaneous	55500-002	750.52			3,391.87	-		598.57		-	3,990.					289.1								70.67			-	-	-	-		
20	Real Time Net Investment Distribution	55500-006	8,100.5			6,97.79	-		11,6.67		-	7.615					9.11.9								901.67			-	-	-	-		
21	Real Time Revenue Net Investment Distribution	55500-005	15,838			110,901.86	-		19,65.03		-	129,766.88					9,11.9								15,96.07			-	-	-	-		
27	Real Time Uninsured Distribution	55500-008					-				-																	-	-	-	-		
27	Day - end P ice s e l l o c a t i o n U B o t	55500-0077	8,277.01			5,909.79	-		1,02.90		-	6,952.69					50.25								820.07			-	-	-	-		
30	Day Ahead Range Credibility Amount	55500-0078	(1,065.71)			(1,065.71)	-				-						(1,065.71)								(59.93)			-	-	-	-		
3	Real Time Range Credibility Amount	55500-0080	(1,192.21)			(851.21)	-				-	(1,001.61)					(72.63)								(118.12)			-	-	-	-		
3	Real Time Schedule 9 Cost Distribution Amount	55500-0080	37,650.21			27,625.05	-		(769.13)		-	31,79.18					2,309.89								3,750.14			-	-	-	-		
Subtotal																																	
212,204.74 597,877 153,126.34 597,877 (851.24) 102,733 27,022.30 102,733 (150.22) 179,147.18 51,160 13,065.40 51,160 (478.41) 57,258 57,258 83,203 21,248.62 83,203 (778.05) 32,591 32,591																																	
Grandfathered Charge - ypes																																	
6	Day Ahead Congestion Debit on Carve-Out Grandfathered	55500-0023					-				-																						
7	Day Ahead Losses Debit on Carve-Out Grandfathered	55500-002					-				-																						
6	Day Ahead Congestion Debit on Option B Grandfathered	55500-0020																															

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2/ Accounts 55500 0051 through 55500 0053 are not recovered through the FPE

DA and RT Asset Energy amounts have been reduced by the generation to load LMP differences (RE) which are then shown in the Other Asset Backed Sales includes liquidation sales which are not assessed MISO charges as all margins from liquidation sales are DA and RT Asset Energy and DA and RT Non-Asset Energy is not allocated to MISO Non-Liquidation, MISO Liquidation, Others-

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(D) Systems y

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MINNESOTA POWER MISO NORTH WYALUCA ION		Account Number	Y 2022			Jan 22			Feb 22			Mar 22			Apr 22			May 22		
			Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference
Day Ahead and Real Time Energy																				
16	Day Ahead Asset Energy	7000-0000 or 55500-0000 or 55500-0050	-	81,828,756.52	81,828,756.52	-	(5,393,688.66)	(5,393,688.66)	-	(996,660.97)	(996,660.97)	-	63,913,722.99	63,913,722.99	-	7,513,717.1	7,513,717.1	-	13,985,86.27	13,985,86.27
	Day Ahead Non-Asset Energy	55500-0007	-	(105.7 25.67)	(105.7 25.67)	-	(1,253,660.12)	(1,253,660.12)	-	3,523.0 1.26	(3,523.0 1.26)	-	(7,621,516.12)	(7,621,516.12)	-	(10,171,032.59)	(10,171,032.59)	-	(11,925,218.53)	(11,925,218.53)
13a	Real Time Asset Energy	7000-0000 or 55500-0000 or 55500-0050	-	1,388,579.88	1,388,579.88	-	70.9 8.93	70.9 8.93	-	92,313.38	92,313.38	-	619.3 5.16	619.3 5.16	-	337.6 1.97	337.6 1.97	-	262.81.1	262.81.1
	Real Time Non-Asset Energy	55500-0007	-	(5.72 722.76)	(5.72 722.76)	-	(231,805.89)	(231,805.89)	-	(70,301.78)	(70,301.78)	-	(838,155.55)	(838,155.55)	-	(8,301.98)	(8,301.98)	-	(68,155.72)	(68,155.72)
22	Excessive Error Amount	55500-0059	-	7.35 12.1	7.35 12.1	-	(768.95)	(768.95)	-	(236.81)	(236.81)	-	(687,025.0)	(687,025.0)	-	(68,155.72)	(68,155.72)	-	(68,155.72)	(68,155.72)
	Non-Excessive Error Amount	55500-0059	-	(1,199.0 1.07)	(1,199.0 1.07)	-	129,193.60	129,193.60	-	(5.8 8.96 .05)	(5.8 8.96 .05)	-	(715,967.88)	(715,967.88)	-	(60.8 0.02)	(60.8 0.02)	-	(66,957.13)	(66,957.13)
Subtotal				(17,993,781.46)	(17,993,781.46)		(6,279,781.09)	(6,279,781.09)		(5,280,891.29)	(5,280,891.29)		(682,403.62)	(682,403.62)		(3,222,550.75)	(3,222,550.75)		1,240,377.41	1,240,377.41
Day Ahead and Real Time Energy Losses																				
16	Day Ahead Loss	7000-0000 or 55500-0000 or 55500-0050	-	19,980,908.10	30,082.7158	10,101,965.93	1,790.5 5.82	2,773,870.19	1,010,282.37	3,100.1 3.23	(506,236.6)	1,638,600.79	2,138,063.2	502,080.63	1,238,167.21	2,621.0 8.53	1,382,881.92	86.85 0.6	2,651,322.23	1,600.6 7.17
	Day Ahead Financial B Internal Transaction Loss	55500-0056	-	1.8 282.25	2,806.53 76	1,358,171.1	115,629.81	81,660.3	(66,666.7)	356.1 7.09	2,813.56	158,518.50	200,676.0	2,158.20	1,682.88	2,158.20	1,650.1 68	2,363.21	97,132.53	
13a	Real Time Loss	7000-0000 or 55500-0000 or 55500-0050	-	(3.6 609.32)	(3.6 609.32)	-	(131.3 0.50)	(131.3 0.50)	-	(12.9 90.07)	(12.9 90.07)	-	(77,521.73)	(77,521.73)	-	(10,720.79)	(10,720.79)	-	5,391.37	5,391.37
	Real Time Financial B Internal Transaction Loss	55500-0056	-	(3.2 0.000.00)	(7,178,650.11)	3,938,650.11	(270,000.00)	(82.23 85)	(55.23 85)	(270,000.00)	(803,629.21)	(533,629.21)	(270,000.00)	(589,588.67)	(270,000.00)	(773.1 7.8)	603.1 7.8	(270,000.00)	(365,628.31)	(95,628.31)
Subtotal				17,799,190.35	25,343,764.61	7,544,574.26	1,576,775.63	2,015,596.09	438,829.45	2,763,476.76	2,081,834.58	1,525,121.29	1,672,249.72	147,128.43	1,109,850.09	2,157,810.78	1,047,960.69	740,986.74	2,388,529.40	1,647,542.66
Virtual Energy																				
12	Day Ahead Virtual Energy	55500-0030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Real Time Virtual Energy	55500-0030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schedule 16.6.1.1																				
16	Day Ahead Asset Energy	55500-0020	-	1,728,000.00	1,081,655.16	(636,344.84)	1,000.00	15,963.55	10,963.55	1,000.00	99,97.15	(1,025.85)	1,000.00	181.256	37.256	1,000.00	151,707.3	7,707.3	1,000.00	13,723.21
	Day Ahead Non-Asset Energy	55500-0021	-	(1,728,000.00)	(1,081,655.16)	(636,344.84)	(1,000.00)	(15,963.55)	(10,963.55)	(1,000.00)	(99,97.15)	(1,025.85)	(1,000.00)	(181.256)	(37.256)	(1,000.00)	(151,707.3)	(7,707.3)	(1,000.00)	(13,723.21)
29	Financial Transmission Rights Market Administration (Schedule 16.6.1.1)	55500-0031	-	36,000.00	9,000.72	(26,999.28)	3,000.00	3.69	1.3 69	3,000.00	2.3 79	(556.21)	3,000.00	2,737.92	(282.08)	3,000.00	3,215.97	21.97	3,000.00	2,821.53
	Subtotal			1,920,000.00	1,918,017.29	(1,982.71)	160,000.00	177,839.51	17,839.51	160,000.00	115,957.57	(44,042.43)	160,000.00	203,395.26	43,395.26	160,000.00	173,076.32	13,076.32	160,000.00	156,561.68
Connection Fees and ARRs																				
16	Day Ahead Congestion	7000-0000 or 55500-0000 or 55500-0050	-	33,857,817.67	33,857,817.67	-	1,87,698.96	1,87,698.96	-	2,100,062.71	2,100,062.71	-	2,18,077.69	2,18,077.69	-	5,521.95	5,521.95	-	2,899,997.66	2,899,997.66
	Real Time Congestion	7000-0000 or 55500-0000 or 55500-0050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13a	Day Ahead Financial B Internal Transaction Congestion	55500-0056	-	1.8 282.25	382,311.38	382,311.38	115,629.81	(5,686.62)	(13,737.16)	(5,686.62)	(322,383.63)	(322,383.63)	158,518.50	(388,93.80)	(388,93.80)	1,682.88	128,560.76	128,560.76	1,650.1 68	(2,878,577.57)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
28	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587.60)	(269,512.71)
	Auction Revenue Rights Transaction Amount	55500-0056	-	(2,563,051.16)	(7,521,217.12)	(4,958,165.96)	(213,587.60)	(269,512.71)	(55,925.11)	(213,587										

Minnesota Power
Docket No. E015/AA-21-312

MINNESOTA POWER MISO NON-HV ALL-CA ION		Account Number	Jan 22			Jul 22			Aug 22			Sep 22			Oct 22			Nov 22			Dec 22		
			Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference	Forecast	Actual	Difference			
Day Ahead and Real-time Energy																							
Day Ahead Asset Energy		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Non-Asset Energy		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Asset Energy		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Surplus Energy Amount		55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Non-Surplus Energy Amount		55500 0069	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Non-Asset Energy		55500 00 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal			6 268 597 74	6 268 599 74		(3 821 086 96)	(3 821 086 96)		(3 925 443 69)	(3 925 443 69)		506 661 28	506 661 28		(1 421 720 53)	(1 421 720 53)		(1 479 966 29)	(1 479 966 29)		104 464 33		
Day Ahead and Real-time Financials																							
Day Ahead Loss		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Financial Balance Transaction on Loss		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Loss		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Distribution of Losses		55500 00 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Financial Balance Transaction on Loss		55500 0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal			1 004 333 22	2 379 991 38	1 375 258 16	3 173 327 67	1 965 947 58	(1 207 380 09)	1 882 287 52	2 975 681 34	1 093 393 82	825 526 00	2 094 299 40	1 228 773 40	1 482 205 28	1 722 444 03	230 238 75	770 260 19	1 868 315 33	1 098 055 14	935 039 96	2 141 464 99	
Virtual Energy																							
Day Ahead Virtual Energy		55500 0030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Virtual Energy		55500 00 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Schedule 16 & 17 - 1/																							
Day Ahead Loss		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Financial Balance Transaction on Loss		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Loss		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Distribution of Losses		55500 00 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Financial Balance Transaction on Loss		55500 0008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal			1 004 333 22	2 379 991 38	1 375 258 16	3 173 327 67	1 965 947 58	(1 207 380 09)	1 882 287 52	2 975 681 34	1 093 393 82	825 526 00	2 094 299 40	1 228 773 40	1 482 205 28	1 722 444 03	230 238 75	770 260 19	1 868 315 33	1 098 055 14	935 039 96	2 141 464 99	
Connection - F. Rs & ARRs																							
Day Ahead Congestion		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Congestion		700 0000 or 55500 0000 or 55500 0059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Financial Balance Transaction on Congestion		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Financial Balance Transaction on Congestion		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Real Time Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Day Ahead Revenue Losses		55500 0067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

Treatment of Auction Revenue Rights (ARRs)

Docket No. E015/M-05-277

[TRADE SECRET DATA BEGINS

[illegible]

Monthly FTR Purchases						
Source	Sink	Class Period	Month	Awarded FTRs	Clearing (\$/MW-Month)	Total Monthly Cost
[TRADE SECRET DATA BEGINS]						
[REDACTED DATA]						
[TRADE SECRET DATA ENDS]						

Annual FTR Purchases						
+ Source	Sink	Class Period	Season	Awarded FTRs	Clearing (\$/MW-Month)	Total Monthly Cost
[TRADE SECRET DATA BEGINS]						
						[TRADE SECRET DATA ENDS]

Minnesota Power's Total ARR/FTR revenues and costs for the requested time period:

Total ARR / FTR Revenues and Costs		
	Cost to hold FTRS	Revenue Generated from ARR/FTRs
Jan-22	\$284,196.80	(\$23,732.73)
Feb-22	\$305,344.08	(\$660,855.24)
Mar-22	\$400,878.43	(\$898,283.15)
Apr-22	\$401,566.99	(\$206,910.06)
May-22	\$340,533.99	\$155,242.50
Jun-22	\$973,599.28	(\$644,722.19)
Jul-22	\$997,953.27	(\$2,772,113.96)
Aug-22	\$1,403,009.03	(\$3,421,407.86)
Sep-22	\$988,459.10	(\$2,068,717.81)
Oct-22	\$1,168,800.40	(\$923,445.87)
Nov-22	\$1,548,796.49	(\$1,513,433.70)
Dec-22	\$833,173.87	(\$534,969.28)

Below is monthly detail of different MISO charge type costs included in the ARR/FTR Revenue and Cost Table. Charge types labeled "Cost" are included in the Cost to Hold FTRs calculation and charge types labeled "Revenue" are included in the Revenues Generated from ARRs/FTRs calculation.

Note: Charges/Credits are shown in the month in which they were recorded in Account 55500 of the General Ledger and included in the FAC recovery.

Plant Outages:

Identification of Forced Outages, Lessons Learned and Mechanism for Information Sharing

Docket No. E999/AA-10-884

Plant Outage Contingency Plans

Docket No. E999/AA-08-995

Annual Identification of Forced Outages and Lessons Learned

Our maintenance practices and reliability programs are constantly being evaluated to ensure continuous improvement of our employees' skills and work processes to improve equipment reliability. All of our craftspeople are required to be trained on precision maintenance as part of their apprenticeship. We also require classroom training for all of the operating staff for asset care and preservation. Those individuals are taught operational best practices for operating pumps, motors, valves etc. Since January 2011, over 60 employees at the leadership level – maintenance leads, operations and maintenance superintendents, maintenance planners, and engineers – have participated in Reliability University. Reliability University is a program that teaches students the best practices of equipment maintenance along with the tools needed to be proactive rather than reactive to ensure equipment reliability. Elements of Reliability University include condition monitoring, vibration analysis, system and components, troubleshooting, precision equipment installation and assembly, instrument and process variability and root cause failure analysis. Additionally, we have increased our expectations and requirements around specifications of new and rebuilt equipment and parts with enhanced use of overhaul specifications and visits to repair shops by engineers and technicians.

Our Outage Planning process continues to be a focal area. A systematic approach to outage planning with improved tools has resulted in projects safely and efficiently executed while ensuring equipment reliability. Outage duration is set based on project scope with project milestones identified, resources allocated, materials ordered, and safety plans in place. Automated reports allow for better coordination, communication, budget management, and analysis of work required. For example, inspection activities that can only be performed with the unit offline are identified so they can be scheduled as early as possible in an outage to allow time to complete work within the outage window.

We continue to implement a program called Operational Excellence. The focus of Operational Excellence is to teach Human Performance tools to employees (3 way communication, Peer Checking, Labeling, Procedure Use and Adherence etc.) resulting in increased elimination of potential errors occurring in the field. In addition to the Human Performance tool usage, a “lessons learned” process is completed when an event does occur and those learnings are shared throughout the facilities.

Tube Leaks

Tube leaks are statistically the most common cause of outages in coal fired power plants. The most common causes of tube leaks:

- thermal fatigue
- soot blower erosion
- fly ash erosion
- chemical attack

Thermal fatigue manifests itself as cracking of the boiler tubes - sometimes as very small "micro" cracks and sometimes as large cracks. This occurs as a result of changing boiler temperatures, usually when the boiler swings up or down to follow load and when the boilers start up and shut down. This is a similar effect to bending a paper clip back and forth - after so many cycles it eventually breaks. Minimizing boiler "swings" (base loading) helps minimize the impact of thermal fatigue. However, with the energy markets being what they are with the ever increasing impacts of intermittent wind generation, we are seeing more and more swings in output.

Soot blower erosion occurs in areas where soot blowers are used to 'blow off' ash or slag which accumulates on boiler tubes. Soot blowers use high pressure steam or high pressure air to do the cleaning. The ash removal is necessary to improve heat transfer which improves boiler thermal efficiency. Common practices to mitigate soot blower erosion are to add a weld overlay (commonly called "pad welding") to existing tubes, add tube shields which are essential sacrificial attachments to the tubes, changing soot blower media pressure (usually not an option) and tube replacement in the affected areas. The use of the soot blowers is essential in keeping the units on line. Coal composition can differ from mine to mine or even within the same mine. As we look to find the best low cost fuel blend for our customers, certain coals may cause more fouling than others. The increased potential of this fouling requires both the frequency and duration of soot blowing to increase, which minimizes the buildup on the boiler tubes. We are increasing using higher alloy weld overlay to provide increased tube longevity.

Fly ash erosion occurs when fly ash and combustion gases pass rapidly across superheated boiler tube surfaces. Because of the abrasiveness of fly ash, the surface of boiler tubes in the high flow areas slowly erode. Many things contribute to the amount of erosion, such a gas path restrictions (plugging - see reasons for soot blowing above), variations in coal quality (higher ash content), other additives which are added to the fuel mix typically for emission control, etc.

Chemical attack is becoming a common source of tube failures due to the corrosiveness of many of the additives being used to control emissions. When these chemicals come in contact with very hot boiler tubes, their normal corrosiveness is significantly increased. Since there tend to be few options for using alternate less corrosive additives, a common solution is to look at tube materials which perform better in the corrosive environment. This is usually a very expensive fix and can have environmental compliance implications.

Minnesota Power has a boiler reliability program which is very effective in proactively identifying areas of the boilers where tube leaks are likely to occur and minimizing that risk with proactive maintenance practices. The program uses a combination of visual inspections, non-destructive testing methods (NDT), tube sample analysis, tube failure history, and industry experiences to avoid forced outages due to unexpected tube leaks. Minnesota Power also has its own Boiler Weld Repair Program that ensures all applicable codes and standards are met when boiler repairs are performed.

To give some perspective on the challenges with any boiler reliability program, consider the following:

- Boswell-3 boiler has 473,891 ft (89.7 miles) of varying diameter boiler tubes
- Boswell-4 boiler has 779,905 ft (147.6 miles) of varying diameter boiler tubes

The boiler tube surface area where a leak can occur is several hundred thousand square feet in either boiler.

A tube leak usually begins as a very small hole (0.10 inch or less) in the tube wall which can expand rapidly due to high temperatures and pressure. Considering the huge surface area in a boiler and the very small size of the hole or microscopic crack which results in a tube leak, it is very difficult to effectively screen the entire boiler to prevent all tube leaks. As part of our boiler reliability program, whenever there is an opportunity to get into the boiler to do an inspection – a forced or schedule outage – critical areas are inspected to evaluate erosion rates and to determine if repairs are needed. This information is used to plan for future capital expenditures to help minimize future tube leaks. During these inspection opportunities, small leaks are sometimes found and repaired. Similar proactive maintenance practices are routinely followed at the other Minnesota Power thermal facilities.

Non Boiler related outages

Minnesota Power has a Generation Reliability Group that is dedicated to monitoring and improving the reliability of not only the boiler but also the rotating equipment. The group is comprised of boiler, turbine and pulverizer engineers/specialists as well as specialists in predictive maintenance technologies. They work on a daily basis with the operating and maintenance groups at all facilities to improve the daily operating practices, planning for work and repairs to occur in future outages and establishing 5 and 10 year maintenance plans.

Rotating equipment that is monitored through various predictive technologies is summarized in a monthly reliability meeting with the specific plant. The manager is provided with a monthly scorecard as to their performance as well as identifying concerns and upcoming needs.

Mechanism for Some Level of Information Sharing

Minnesota Power is open to sharing lessons learned on a generic basis with the other utilities on an annual basis.

However, the concept of sharing lessons learned is more attractive in theory than in practice. Each utility's generating units are unique (manufacturer, date of installation, fuel type and mixture, base loaded vs. cyclic loading etc.), as is each company's operation and maintenance practices. Furthermore, sharing best practices regarding planned outages over and above what companies have already described in public filings borders on releasing confidential information about outage planning and energy marketing. This could work to harm that utility's customers if it were made available to other parties, since those practices provide the utility its best protection in acquiring replacement energy at the lowest cost possible.

Minnesota Power will continue to provide information on forced outages and what steps, if any, could have helped in avoiding or alleviating outages.

Plant Outage Contingency Plans to address the following for the period of January 2022 through December 2022:

1. Identification for the period of January 2022 through December 2022 any and all contractors (and associated contracts) that increased replacement energy costs due to an extension of the plant outage days as a result of delays and/or lack of performance.

During this period, there were no delays or lack of performance by contractors identified which impacted the length of the outages and/or the replacement energy costs.

2. Please provide a narrative fully explaining the reasons for the delays and/or lack of performance for each of the contracts identified above.

Not applicable.

3. Please describe the lessons learned and the contingency plans developed by the Company to mitigate against future risk of delays or lack of performance, when contractors perform poorly and increase costs during plant outages.

Not applicable.

	YTD 2022			Jan-22			Feb-22			Mar-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 3	350	350		350	350		350	350		350	350	
Forced Days	24.0	27.7	3.7	2.0	2.0	(0.0)	2.0	2.2	0.2	2.0	7.1	5.1
Forced MWh's	189,141	214,213	25,072	16,064	16,447	383	14,509	16,287	1,778	16,064	54,786	38,722
Replacement MWh's	163,091	74,831	(88,260)	16,064	3,796	(12,268)	14,509	5,362	(9,147)	8,959	13,131	4,172
TRADE SECRET DATA BEGINS												
Purchase Price												
Total Forced Cost												
Unit Cost												
Incremental Cost	(\$490,104.78)	\$2,304,808.03	\$2,794,912.81	\$169,718.48	\$79,199.57	(\$90,518.92)	\$15,820.63	\$127,081.05	\$111,260.42	(\$15,756.82)	\$91,090.04	\$106,846.86
Planned Days	34.0	28.0	(6.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Planned MWh's	285,600	215,923	(69,677)	0	0	0	0	0	0	0	0	0
Replacement MWh's	146,481	55,988	(90,493)	0	0	0	0	0	0	0	0	0
TRADE SECRET DATA BEGINS												
Purchase Price												
Total Planned Cost												
Unit Cost												
Incremental Cost	(\$867,254.50)	\$1,526,577.24	\$2,393,831.74	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TRADE SECRET DATA BEGINS												
Total Outage Costs												
Total Incremental Costs	(\$1,357,359.28)	\$3,831,385.27	\$5,188,744.55	\$169,718.48	\$79,199.57	(\$90,518.92)	\$15,820.63	\$127,081.05	\$111,260.42	(\$15,756.82)	\$91,090.04	\$106,846.86
	YTD 2022			Jan-22			Feb-22			Mar-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 4	464	464		464	464		464	464		464	464	
Forced Days	12.0	71.4	59.4	1.0	0.0	(1.0)	1.0	2.0	1.0	1.0	0.0	(1.0)
Forced MWh's	141,890	728,101	586,211	12,051	0	(12,051)	10,885	21,095	10,210	12,051	0	(12,051)
Replacement MWh's	122,348	221,828	99,480	12,051	0	(12,051)	10,885	4,325	(6,560)	6,721	0	(6,721)
TRADE SECRET DATA BEGINS												
Purchase Price												
Total Cost												
Unit Cost												
Incremental Cost	(\$352,332.73)	\$7,293,309.86	\$7,645,642.58	\$130,556.40	\$0.00	(\$130,556.40)	\$15,263.35	\$71,805.17	\$56,541.82	(\$9,298.80)	\$0.00	\$9,298.80
Planned Days	34.0	36.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	12.1	1.1
Planned MWh's	378,624	394,159	15,535	0	0	0	0	0	0	122,496	128,103	5,607
Replacement MWh's	194,213	58,726	(135,488)	0	0	0	0	0	0	68,319	27,806	(40,513)
TRADE SECRET DATA BEGINS												
Purchase Price												
Total Cost												
Unit Cost												
Incremental Cost	(\$767,983.54)	\$1,170,694.14	\$1,938,677.68	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	(\$94,520.45)	\$234,274.09	\$328,794.54
TRADE SECRET DATA BEGINS												
Total Outage Costs												
Total Incremental Costs	(\$1,120,316.26)	\$8,464,004.00	\$9,584,320.26	\$130,556.40	\$0.00	(\$130,556.40)	\$15,263.35	\$71,805.17	\$56,541.82	(\$103,819.25)	\$234,274.09	\$338,093.34
TRADE SECRET DATA BEGINS												
Total Outage Costs												
Total Incremental Costs	(\$2,477,675.54)	\$12,295,389.27	\$14,773,064.81	\$300,274.89	\$79,199.57	(\$221,075.32)	\$31,083.98	\$198,886.22	\$167,802.23	(\$119,576.07)	\$325,364.13	\$444,940.20

	Apr-22			May-22			Jun-22			Jul-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 3	350	350		350	350		350	350		350	350	
Forced Days	2.0	1.7	(0.3)	2.0	3.1	1.1	2.0	4.5	2.5	2.0	0.0	(2.0)
Forced MWh's	15,546	14,237	(1,309)	16,064	21,966	5,902	15,546	37,137	21,591	16,064	0	(16,064)
Replacement MWh's	5,446	6,373	928	7,219	9,476	2,257	15,546	17,280	1,734	16,064	0	
Purchase Price												
Total Forced Cost												
Unit Cost												
Incremental Cost	(\$31,386.34)	\$234,418.27	\$265,804.61	(\$38,344.83)	\$607,311.13	\$645,655.96	(\$103,697.37)	\$677,734.59	\$781,431.96	(\$47,318.64)	\$0.00	\$47,318.64
Planned Days	6.0	0.0	(6.0)	23.0	0.0	(23.0)	0.0	0.0	0.0	0.0	0.0	0.0
Planned MWh's	50,400	0	(50,400)	193,200	0	(193,200)	0	0	0	0	0	0
Replacement MWh's	17,655	0	(17,655)	86,827	0	(86,827)	0	0	0	0	0	
Purchase Price												
Total Planned Cost												
Unit Cost												
Incremental Cost	(\$101,754.24)	\$0.00	\$101,754.24	(\$461,169.13)	\$0.00	\$461,169.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Outage Costs												
Total Incremental Costs	(\$133,140.58)	\$234,418.27	\$367,558.85	(\$499,513.96)	\$607,311.13	\$1,106,825.10	(\$103,697.37)	\$677,734.59	\$781,431.96	(\$47,318.64)	\$0.00	\$47,318.64
	Apr-22			May-22			Jun-22			Jul-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 4	464	464		464	464		464	464		464	464	
Forced Days	1.0	2.0	1.0	1.0	31.0	30.0	1.0	26.5	25.5	1.0	1.8	0.8
Forced MWh's	11,662	21,842	10,180	12,051	310,158	298,107	11,662	270,554	258,892	12,051	19,343	7,292
Replacement MWh's	4,085	3,898	(187)	5,416	56,041	50,625	11,662	97,047	85,385	12,051	10,054	
Purchase Price												
Total Cost												
Unit Cost												
Incremental Cost	(\$21,638.57)	\$99,388.80	\$121,027.37	(\$24,832.80)	\$1,591,164.81	\$1,615,997.61	(\$81,678.64)	\$2,764,055.65	\$2,845,734.29	(\$32,705.45)	\$491,469.70	\$524,175.15
Planned Days	18.0	19.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Planned MWh's	200,448	221,249	20,801	0	0	0	0	0	0	0	0	0
Replacement MWh's	70,215	15,966	(54,249)	0	0	0	0	0	0	0	0	
Purchase Price												
Total Cost												
Unit Cost												
Incremental Cost	(\$371,926.68)	\$369,891.96	\$741,818.64	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Outage Costs												
Total Incremental Costs	(\$393,565.25)	\$469,280.76	\$862,846.01	(\$24,832.80)	\$1,591,164.81	\$1,615,997.61	(\$81,678.64)	\$2,764,055.65	\$2,845,734.29	(\$32,705.45)	\$491,469.70	\$524,175.15
Total Outage Costs												
Total Incremental Costs	(\$526,705.83)	\$703,699.03	\$1,230,404.86	(\$524,346.76)	\$2,198,475.95	\$2,722,822.71	(\$185,376.02)	\$3,441,790.24	\$3,627,166.25	(\$80,024.10)	\$491,469.70	\$571,493.79

	Aug-22			Sep-22			Oct-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 3	350	350		350	350		350	350	
Forced Days	2.0	0.0	(2.0)	2.0	1.0	(1.0)	2.0	4.8	2.8
Forced MWh's	16,064	0	(16,064)	15,546	8,647	(6,899)	16,064	38,266	22,202
Replacement MWh's	16,064	0	(16,064)	15,546	2,294	(13,252)	16,064	14,995	(1,069)
Purchase Price									
Total Forced Cost									
Unit Cost									
Incremental Cost	(\$110,071.45)	\$0.00	\$110,071.45	(\$112,645.99)	\$39,345.98	\$151,991.98	(\$88,226.61)	\$474,350.35	\$562,576.96
Planned Days	0.0	0.0	0.0	5.0	24.1	19.1	0.0	3.8	3.8
Planned MWh's	0	0	0	42,000	187,929	145,929	0	27,994	27,994
Replacement MWh's	0	0	0	42,000	45,591		0	10,398	
Purchase Price									
Total Planned Cost									
Unit Cost									
Incremental Cost	\$0.00	\$0.00	\$0.00	(\$304,331.13)	\$1,380,196.66	\$1,684,527.78	\$0.00	\$146,380.59	\$146,380.59
Total Outage Costs									
Total Incremental Costs	(\$110,071.45)	\$0.00	\$110,071.45	(\$416,977.12)	\$1,419,542.64	\$1,836,519.76	(\$88,226.61)	\$620,730.93	\$708,957.54
	Aug-22			Sep-22			Oct-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 4	464	464		464	464		464	464	
Forced Days	1.0	1.3	0.3	1.0	0.0	(1.0)	1.0	2.7	1.7
Forced MWh's	12,051	10,700	(1,351)	11,662	0	(11,662)	12,051	29,323	17,272
Replacement MWh's	12,051	2,974	(9,077)	11,662	0	(11,662)	12,051	15,313	3,262
Purchase Price									
Total Cost									
Unit Cost									
Incremental Cost	(\$79,400.20)	\$73,512.98	\$152,913.18	(\$83,038.10)	\$0.00	\$83,038.10	(\$65,262.49)	\$630,670.98	\$695,933.47
Planned Days	0.0	4.0	4.0	0.0	0.0	0.0	5.0	0.0	(5.0)
Planned MWh's	0	44,808	44,808	0	0	0	55,680	0	(55,680)
Replacement MWh's	0	14,954	14,954	0	0	0	55,680	0	
Purchase Price									
Total Cost									
Unit Cost									
Incremental Cost	\$0.00	\$566,528.09	\$566,528.09	\$0.00	\$0.00	\$0.00	(\$301,536.41)	\$0.00	\$301,536.41
Total Outage Costs									
Total Incremental Costs	(\$79,400.20)	\$640,041.07	\$719,441.27	(\$83,038.10)	\$0.00	\$83,038.10	(\$366,798.89)	\$630,670.98	\$997,469.88
Total Outage Costs									
Total Incremental Costs	(\$189,471.65)	\$640,041.07	\$829,512.72	(\$500,015.22)	\$1,419,542.64	\$1,919,557.86	(\$455,025.50)	\$1,251,401.92	\$1,706,427.42

	Nov-22			Dec-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 3	350	350		350	350	
Forced Days	2.0	1.3	(0.7)	2.0	0.0	(2.0)
Forced MWh's	15,546	6,441	(9,105)	16,064	0	(16,064)
Replacement MWh's	15,546	2,123	(13,423)	16,064	0	(16,064)
Purchase Price						
Total Forced Cost						
Unit Cost						
Incremental Cost	(\$71,062.12)	(\$25,722.96)	\$45,339.16	(\$57,133.72)	TRADE SECRET DATA ENDS \$0.00	\$57,133.72
Planned Days	0.0	0.0	0.0	0.0	0.0	0.0
Planned MWh's	0	0	0	0	0	0
Replacement MWh's	0	0		0	0	
Purchase Price						
Total Planned Cost						
Unit Cost						
Incremental Cost	\$0.00	\$0.00	\$0.00	\$0.00	TRADE SECRET DATA ENDS \$0.00	\$0.00
Total Outage Costs						
Total Incremental Costs	(\$71,062.12)	(\$25,722.96)	\$45,339.16	(\$57,133.72)	\$0.00	\$57,133.72
	Nov-22			Dec-22		
	Forecast	Actual	Difference: Over/(Under)	Forecast	Actual	Difference: Over/(Under)
Boswell 4	464	464		464	464	
Forced Days	1.0	0.0	(1.0)	1.0	4.2	3.2
Forced MWh's	11,662	0	(11,662)	12,051	45,087	33,036
Replacement MWh's	11,662	0	(11,662)	12,051	32,175	20,124
Purchase Price						
Total Cost						
Unit Cost						
Incremental Cost	(\$58,247.88)	\$0.00	\$58,247.88	(\$42,049.55)	TRADE SECRET DATA ENDS \$1,571,241.77	\$1,613,291.33
Planned Days	0.0	0.0	0.0	0.0	0.0	0.0
Planned MWh's	0	0	0	0	0	0
Replacement MWh's	0	0		0	0	
Purchase Price						
Total Cost						
Unit Cost						
Incremental Cost	\$0.00	\$0.00	\$0.00	\$0.00	TRADE SECRET DATA ENDS \$0.00	\$0.00
Total Outage Costs						
Total Incremental Costs	(\$58,247.88)	\$0.00	\$58,247.88	(\$42,049.55)	TRADE SECRET DATA ENDS \$1,571,241.77	\$1,613,291.33
Total Outage Costs						
Total Incremental Costs	(\$129,310.00)	(\$25,722.96)	\$103,587.04	(\$99,183.27)	\$1,571,241.77	\$1,670,425.04

Unit	Event Type	Primary Reason for the Outage	Equivalent MWh lost (MP Only)	Start Date/Time of Actual Outage	End Date/Time of Actual Outage	Equipment or Condition that Resulted in the Outage	Description of Equipment Failure (including identified root cause)	Steps Taken to Alleviate Reoccurrence	Change in Energy
BEC 3	Unplanned Outage	Boiler Tube Leak	16,228	1/12/22 22:09	1/14/22 20:31	Waterwall tube leak	Corrosion fatigue	Three repairs made. During the fall of 2022, Non-Destructive Examination (NDE) testing was conducted along the tube membrane, where one defect was found and repaired.	\$ 79,200
BEC 4	Unplanned Outage	SH Spray Valve 4B Repair	21,769	2/8/22 23:05	2/10/22 22:00	Leak of Boiler Pressure Feedwater from 4B Superheat Spray Valve	Superheat Spray Valve Packing failure	Packing was replaced. The valve was rebuilt during the 2022 spring outage. New procedure/PM's in place for inspecting, replacing and repairing valve packing. We now stock packing as a kit to ensure OEM standards are met.	\$ 71,805
BEC 3	Unplanned Outage	Boiler Tube Leak	18,188	2/10/22 7:02	2/12/22 11:00	Waterwall tube leak	Corrosion fatigue failure occurred along the tube membrane.	Three leaks were repaired. The immediate area was inspected for similar defects in 2019. During the fall of 2022, NDE testing was conducted along the tube membrane, where one defect was found and repaired.	\$ 127,081
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	15,948	3/10/22 19:49	3/12/22 17:23	Waterwall tube leak	Corrosion fatigue. A second waterwall leak was found via air test. A third leak was found in the penthouse on a tube to header weld.	Leaks were repaired. MP will continue to inspect these areas during planned outages. During the fall 2022 outage the penthouse headers were inspected and repaired (98 damaged tubes).	\$ 26,681
BEC 3	Unplanned Outage	Boiler RH Tube Leak	12,950	3/14/22 21:42	3/16/22 10:42	Reheater tube leak	Corrosion fatigue failure where the weld overlay ends	Two leaks repaired. During the fall 2022 outage, all 63 weld overlay locations were replaced.	\$ 7,534

Unit	Event Type	Primary Reason for the Outage	Equivalent MWh lost (MP Only)	Start Date/Time of Actual Outage	End Date/Time of Actual Outage	Equipment or Condition that Resulted in the Outage	Description of Equipment Failure (including identified root cause)	Steps Taken to Alleviate Reoccurrence	Change in Energy
BEC 3	Unplanned Outage	Boiler SH Tube Leak	18,183	3/23/22 7:12	3/25/22 11:09	Superheat tube leak	DMW failure. This failure caused more damage that also needed to be repaired.	DMW was cut out and replaced. During the fall outage, all the DMW's in the Platen Pendants were inspected and 63 repairs completed.	\$ 29,897
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	11,288	3/29/22 16:37	3/31/22 0:52	Waterwall tube leak	Corrosion fatigue failure occurred along the tube membrane.	Leak repaired. Inspected the area, and will continue to monitor for trends.	\$ 26,978
BEC 4	Unplanned Outage	Economizer Hoppers Plugged	13,394	4/24/22 11:56	4/25/22 16:48	Asset protection due to plugged Boiler Ash removal system	11th Floor Economizer Hoppers were plugged due to insufficient expansion joint clearance on the new CCR required dry bottom ash system.	Expansion joints were temporarily modified to improve ash removal. A newly designed permanent joint was installed in May of 2022.	\$ 99,389
BEC 3	Unplanned Outage	Generator Ground Fault Alarm - Fault Found in Voltage Regulator Cabinet	13,831	4/25/22 0:32	4/26/22 16:03	Generator voltage regulator	The unit needed to be taken offline to diagnose and avoid additional unit damage. Foreign material was found which resulted in a ground between two resistor banks in the voltage regulator cabinet.	The foreign material was removed. Signage to be added to prevent recurrence.	\$ 234,418
BEC 4	Unplanned Outage	Turbine Generator Bearing Repair	647,713	4/30/22 6:11	6/27/22 10:07	Turbine/Generator tripped due to high vibration	See Supplemental information	See Supplemental information.	\$ 4,355,220
BEC 3	Unplanned Outage	Condenser Tube Leak Repair	8,068	5/2/22 22:14	5/3/22 21:17	Boiler Water Chemistry required immediate action to prevent Boiler/Turbine Damage	See Supplemental information	See Supplemental information.	\$ 372,471
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	17,273	5/27/22 0:23	5/29/22 1:44	Waterwall tube leak	Corrosion fatigue failure occurred along the tube membrane.	Leak repaired. Inspected the area and will continue to monitor for trends.	\$ 234,840

Unit	Event Type	Primary Reason for the Outage	Equivalent MWh lost (MP Only)	Start Date/Time of Actual Outage	End Date/Time of Actual Outage	Equipment or Condition that Resulted in the Outage	Description of Equipment Failure (including identified root cause)	Steps Taken to Alleviate Reoccurrence	Change in Energy
BEC 3	Unplanned Outage	Boiler Tube Leak	18,538	6/1/22 22:13	6/4/22 3:11	Superheat tube leak	See Supplemental information	See Supplemental information	\$ 346,703
BEC 3	Unplanned Outage	Outage for Aux Cooling Tower Tie-in	7,881	6/11/22 0:09	6/11/22 22:40	Cooling Tower storm damage required installation of isolation valve to allow for supplemental Cooling Towers to be tied into or Circ Water System.	An F-0 tornado on 5/30/2022 destroyed cooling tower stacks, resulting in unit derates. An isolation valve was installed to allow for tie-in of portable towers.	This new isolation valve will help to limit the need for any future outages that would be related to similar storm damage	\$ 147,927
BEC 3	Unplanned Outage	Boiler RH Tube Leak	10,698	6/21/22 14:03	6/22/22 20:37	Reheater tube leak	Sootblower erosion	Failure was cut out and replaced, area was inspected, and the area was reinspected during the fall outage.	\$ 183,105
BEC 4	Unplanned Outage	BFP 4A Recirc Line Repair	19,612	7/15/22 5:04	7/16/22 23:20	A hole in 4A BFP Recirc Line filled the Deaerator room, leaving an unsafe operating condition.	See Supplemental information	See Supplemental information.	\$ 491,470
BEC 4	Unplanned Outage	Boiler Tube Leak	14,786	8/26/22 20:02	8/28/22 3:54	Rear Wall Steam Cooled Tube leak	Fireside erosion	Tube was sectioned out and replaced. Ultrasonic Thickness (UT) testing was completed on surrounding tubes to verify there was no additional thinning of tubes in these areas.	\$ 73,513
BEC 3	Unplanned Outage	Tube Leak	8,400	9/4/22 20:46	9/5/22 20:46	High Temp Superheat (HTSH) Tube Failure	Long-term overheating and external corrosion	The tube was cut out and replaced. Inspections will be scheduled for a future outage. Tube samples taken for analysis.	\$ 39,346
BEC 4	Unplanned Outage	Boiler RH Tube Leak	29,356	10/7/22 14:42	10/10/22 5:58	Reheater tube leak	See Supplemental information	See Supplemental information.	\$ 630,671

Unit	Event Type	Primary Reason for the Outage	Equivalent MWh lost (MP Only)	Start Date/Time of Actual Outage	End Date/Time of Actual Outage	Equipment or Condition that Resulted in the Outage	Description of Equipment Failure (including identified root cause)	Steps Taken to Alleviate Reoccurrence	Change in Energy
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	16,818	10/8/22 13:57	10/10/22 14:00	Waterwall tube leak	See Supplemental information	See Supplemental information.	\$ 449,627
BEC 3	Unplanned Outage	Boiler Waterwall Tube Leak	12,553	10/14/22 20:39	10/16/22 8:31	Waterwall tube leak	Fireside erosion	Repaired damaged tube. Continue routine boiler inspections and non-destructive testing as deemed necessary by engineering best practices.	\$ 30,404
BEC 3	Unplanned Outage	Injection Water Strainer Leak	10,168	10/28/22 21:52	10/30/22 2:55	Injection Water Strainer Leak	High pressure seal failed from thermal fatigue.	Replaced seal. Changed Control Logic to reduce pressure swing magnitude associated with load swings and low load operation.	\$ (5,681)
BEC 3	Unplanned Outage	Boiler Tube Leak	18,923	11/2/22 0:08	11/4/22 6:12	Reheater tube leak	Thermal fatigue	Five tube sections were repaired/replaced. Continue routine boiler inspections and non-destructive testing as deemed necessary by engineering best practices.	\$ (25,723)
BEC 4	Unplanned Outage	Boiler SH Tube Leak	46,323	12/18/22 7:01	12/22/22 10:51	Superheat tube leak	See Supplemental information	See Supplemental information.	\$ 1,571,242

Supplemental Information 2022 Unplanned Outages

Boswell Unit 4 Turbine Generator Bearing Repair
Outage Date: 4/30/2022

Equipment or Condition that Resulted in the Outage

Turbine/Generator tripped due to high vibration.

Description of Equipment Failure (including identified root cause)

BEC4's boiler tripped. The boiler was restarted and it tripped again. On the second trip the Turbine/Generator tripped due to high vibration. As the turbine began to roll down and the RPM's decreased, the main shaft-driven lube oil pump could not supply adequate lube oil pressure. The backup lube oil pumps did not start because a control room operator, after performing a weekly preventative maintenance check on the pumps, inadvertently left them in a status where they were unavailable for automatic startup. During this routine preventative maintenance check there was increased work demand on the control room operator due to the installation of a new system which caused a high volume of added alarms.

All of the turbine and generator bearings were damaged which required an outage to repair.

Actions to Prevent Reoccurrence

System changes completed to prevent recurrence

- The turbine lube oil pump system control logic was enhanced. The controls were modified to allow routine testing of pumps and automatically return to a ready state for operation.
- As a secondary defense, an alarm was created to alert Operations if one of the backup lube oil pumps is unavailable for automatic startup.
- The Operator's control screen was improved to provide clearer indication of backup lube oil pump's status.

In addition to the above changes, the Control Room Operator's control screens were reviewed to identify whether similar control configurations could lead to other critical equipment being unavailable for service, but no such configurations were found.

Change in Energy

\$4,355,221

Boswell Unit 3 Condenser Tube Leak
Outage Date: 5/2/2022

Equipment or Condition that Resulted in the Outage

The Boiler water chemistry required immediate action to prevent boiler/turbine damage.

Description of Equipment Failure (including identified root cause)

Condenser tube leaks caused a water chemistry issue. The condenser isolation valve on the north half would not fully isolate and the unit had to come offline to complete repairs.

Actions to Prevent Reoccurrence

Two leaks were repaired in the condenser. The north condenser outlet isolation valve had to be inspected and repaired during the fall 2022 outage.

Repair History

Minnesota Power replaced the seats for the isolation valves and these lasted for two years. The valve bodies were damaged from 44 years of service, therefore a valve on the north half of the condenser started to leak. MP plans to replace the valves in the spring of 2023 so half the condenser can be isolated online to fix tube leaks.

The tubes were replaced in 2010, whereas the typical tube life for a boiler is 30 years.

Minnesota Power is currently requesting funding to relocate the chlorination for the circ water from just before the north half of the condenser to the cooling tower so it is mixed and diluted before coming into contact with the condenser yellow metal. We also plan to go to continuous feed verses shock feeding to further reduce exposure of the tubes to chlorination in the circ water. These changes should mitigate tube damage from chlorination and should extend tube life.

System Modifications to Support Reliability

To enhance tube life Minnesota Power has completed the following in the last few years:

- Weekly data based reports and quarterly circ water chemistry reviews to protect the tubes, reduce foam, and chlorination to control biological growth.
- Daily performance monitoring by the supplier.
- Enhanced chemistry reporting including water chemistry scorecards, DCS faceplate control room data, and DCS configured alarms.

Minnesota Power is using EPRI Guidelines for Boiler Water and Condenser Leak AVT(O) standards including utilization of curves for critical parameters to determine chemistry impacts and response with action limits and readings for critical parameters based off of EPRI guidelines.

Acid is used to control pH. In the past year Minnesota Power added a second pH probe that is used to compare values to the original pH probe. Operator alerts occur when there is a deviation or unusual readings for either probe, reducing corrosion of the condenser tubes due to overfeed of acid in the loop.

Change in Energy

\$372,471

Boswell Unit 3 Boiler Tube Leak
Outage Date: 6/1/2022

Equipment or Condition that Resulted in the Outage

Boiler Tube Leak

Description of Equipment Failure (including identified root cause)

A DMW (Dissimilar Metal Weld) failure on the superheat (SH) outlet header in the boiler penthouse.

Actions to Prevent Reoccurrence

The failed DMW was replaced. A DMW inspection for the fall 2022 outage was scheduled.

During the fall 2022 outage, all 340 DMW's just below the SH outlet header were sandblasted clean and inspected using UTPA (Ultrasonic Thickness Phased Array). The DMW's were sandblasted and inspected and a third party performed the UTPA inspection. The inspection found four DMW's with cracks. All four DMW's were repaired, which likely prevented four tube leaks. Future re-inspection of DMW's will be determined based on operating hours and anticipated cycling of the unit.

Change in Energy

\$346,703

Boswell Unit 4 BFP 4A Recirc Line Repair
Outage Date: 7/15/2022

Equipment or Condition that Resulted in the Outage

A hole in 4A Boiler Feed Pump ("BFP") Recirculation Line. This created an unsafe operating condition due to steam filling the Deaerator Room.

Description of Equipment Failure (including identified root cause)

The 4A BFP failed in a transition zone prior to the Deaerator Tank due to Flow Accelerated Corrosion ("FAC"). The failure occurred in the recirculation line from the 4A Main BFP to the DA storage tank. An elbow downstream from a restriction orifice plate had thinned due to flow accelerated corrosion ("FAC"). The hole in the piping was a few feet above the storage tank.

Immediate Actions to Prevent Reoccurrence

The area was ultrasonically tested, the thinning area was cut out and replaced with a new section on both 4A and 4B Recirculating Lines.

Further Actions to Prevent Reoccurrence

Following the incident, the location of the failure area was ultrasonically tested. The thinned material was replaced with an alloy material which is much less susceptible to FAC. The corresponding fittings on the 4B Main BFP recirc line were also replaced as a precaution. During a planned outage several months later, a consultant was brought onsite to perform a more thorough inspection of a larger area upstream and downstream of the failure.

In May of 2021, other locations of the same 4A and 4B Main BFP recirc lines had been inspected for FAC. These particular areas were downstream of the flowmeter orifices, located on the level below the pumps. There was no unexpected thinning. Some of the corresponding locations on the Unit 3 Main BFP recirc line had been inspected in 2016, with no FAC being found. Likely failure locations on this recirculation line were inspected but good utility practice would not demand 100% inspection of the line, therefore this particular section had not been inspected.

Boswell Units 3 and 4 have thousands of feet of high energy piping. Main and reheat steam, feedwater, condensate, desuperheat and drips/drain piping are all subject to service related damage. There are different damage mechanisms to be inspected for, and different potentials for plant outages should piping failures occur. Every year, inspections are coordinated on the plant's high energy piping with the goal of preventing failures.

Change in Energy

\$491,470

Boswell Unit 4 Boiler RH Leak
Outage Date: 10/7/2022

Equipment or Condition that Resulted in the Outage

Reheat Tube Leak

Description of Equipment Failure (including identified root cause)

Reheat tube leak that caused collateral damage. Five repairs needed in total.

Actions to Prevent Reoccurrence

Sectioned out four tubes to replace damaged areas. Inspections and non-destructive testing as needed per best engineering practices.

Background and Further Actions to Prevent Reoccurrence

The leaks are caused by condensation in the tubes that forms as the unit cools down for an outage. The condensation then collects in the bottom of the loops and corrosion happens where the water meets the atmosphere. This is called oxygen pitting. The leaks that develop are small pinhole leaks that happen in random areas of the tube depending on how much condensation accumulates.

Prior to 2012, BEC4 started to experience multiple tube leaks in this same area of the boiler. During the spring of 2012 a work order was created to replace the lower loops of the front RH to prevent these leaks from happening. During this outage, the lower loops were cut off and replaced on all 48 Front RH pendants. This is our first leak due to the same failure mode since 2012.

In 2019 BEC3 began use of chemical called Anodamine. This chemical additive is injected into the boiler water and it coats the steel tubes to help prevent oxygen pitting. Follow up inspections confirmed its effectiveness in helping to prevent oxygen pitting.

In 2020, an Anodamine trial began on BEC4 and Minnesota Power consistently began injecting it after the Planned 2022 spring outage. It is Minnesota Power's belief that in the long-term, Anodamine will provide meaningful protection against future leaks of this nature. Minnesota Power will continue to monitor for any signs of concern.

Change in Energy

\$630,671

Boswell Unit 3 Waterwall Tube Leak
Outage Date: 10/8/2022

Equipment or Condition that Resulted in the Outage

Boiler Waterwall Tube Leak

Description of Equipment Failure (including identified root cause)

Waterwall tube leak at Coutant Bottom, Fireside Erosion

Actions to Prevent Reoccurrence

Tube repaired. Routine inspections and non-destructive testing as deemed necessary by best engineering practices.

Background and Further Actions to Prevent Reoccurrence

The tube was worn thin by fireside erosion. Minnesota Power inspects for this routinely. Even if Minnesota Power had performed a more detailed inspection, there is no guarantee this particular thin spot would have been found.

Continue routine boiler inspections and non-destructive testing as deemed necessary by engineering best practices.

Change in Energy

\$449,627

Boswell Unit 4 Superheat Tube Leak
Outage Date: 12/18/2022

Equipment or Condition that Resulted in the Outage

Superheat tube leak

Description of Equipment Failure (including identified root cause)

DMW Failure, SH Platen Pendant

Actions to Prevent Reoccurrence

Tube repaired. Routine inspections and non-destructive testing as deemed necessary by best engineering practices. Consideration given to DMW or full pendant replacement.

Background and Further Actions to Prevent Reoccurrence

Minnesota Power started to see a pattern of DMW failures in this section of the boiler back in 2012. These particular DMW's have a unique construction because they are fusion welded. This type of DMW was only used during the late 1970's and later discontinued due to their unpredictable failure rates. Due to the construction of a fusion welded DMW, they are inherently difficult to inspect using Non-Destructive Examination ("NDE") methods.

DMW's were inspected during the 2013 planned outage and repairs completed. DMW failures continued to happen, so in 2015 inspections and repairs were completed again.

During the 2021 spring outage 100% of the DMW's were inspected and some repairs completed. Shortly after this outage, another DMW failure occurred.

During this outage, Minnesota Power replaced a failed DMW and all damaged tubing. Nine welds were performed and 70 ft of tube was replaced. All DMW's were inspected during the spring of 2021; however, due to the construction of fusion welded DMW's it is difficult to get accurate inspection results. Minnesota Power is currently looking into options to replace all the DMW's or all the platen pendants. A condition assessment of the SH Platen Pendant tubes is pending to ensure they are in good operating condition. If the SH Platen Pendant tubes are found to be at end of life, the entire panel, not just the DMW will need to be replaced.

Change in Energy

\$ 1,571,242

**Annual and Daily Ancillary Services Market
Charges and Summary**
January 2022 through December 2022

Overview

Minnesota Power has been participating in Midcontinent ISO's (MISO) Ancillary Service Market (ASM) since it started on January 6, 2009. Since market start, Minnesota Power has not seen any major changes to operation or clearing our units for energy in the market. We have had some additional opportunities in the ASM to optimize generation portfolio revenues by providing regulation and spinning reserve without creating a negative impact on available energy necessary to meet customer needs.

Spinning Reserves

Currently, Minnesota Power has 7 generating resources that are qualified to supply energy, regulation, and spinning reserves service for MISO. Under normal operating conditions Minnesota Power has the potential of carrying approximately 92 MW of spinning reserves above the cruise operating level on these generation facilities without reducing energy available for customers. Prior to the ASM, Minnesota Power's share of the spinning reserves obligation was 21 MW. Under ASM, Minnesota Power can currently clear up to approximately 10 MW of spinning reserves on thermal generation without impacting energy availability. The additional ancillary service revenues reduce overall customer costs because the spinning reserve revenues are allocated to the FAC through our MISO allocation process.

The ASM has also added value for customers when generating units have backed down to minimum generation levels due to low energy prices. The generators can be backed down and still provide spinning reserves at the lower operating levels. MISO could also back down generation to acquire the market's required spinning reserves, however to date Minnesota Power's thermal generators have been almost exclusively selected to supply energy and have not been backed down to supply spinning reserves.

Including ASM charge type impact only, MISO's Spinning Reserves process had a net gain of \$283,822.08 for January 2022 through December 2022. The Spinning Reserve costs and revenues are provided in Table 6-A.

Supplemental Reserves

Minnesota Power's cost allocation for supplemental reserves was \$9,832.68 for January 2022 through December 2022. Prior to the ASM, Minnesota Power utilized interruptible

loads at our large power customers to cover our supplemental reserves requirements. Due to low prices for this product under ASM, Minnesota Power has elected not to offer MISO supplemental reserves from our large industrial customers because the benefit is too small for the risk it provides to our customers. The impact to our customers due to lost production if interrupted for deployment of supplemental reserves greatly exceeds the cost of purchasing supplemental reserves from MISO. Minnesota Power will continue to monitor prices and work with customers as conditions change to see if supplying additional supplemental reserves is appropriate in the future. The Supplemental Reserve costs and revenues are provided in Table 6-A.

Regulation

Prior to ASM, Minnesota Power scheduled approximately 8 MW of regulation on our system on an hourly basis to meet Balancing Authority control performance criteria requirements. Under ASM, Minnesota Power units are only selected by MISO for regulation when it is cost effective. Most of the time our units are cleared for energy instead of being held back to provide the 8 MW we used to reserve for regulation. Under ASM, due to regulation clearing and our ability to purchase affordable regulation service, we have more economic energy available from our low cost generation facilities to serve our customers. Including ASM charge type impact only, MISO's Regulation process had a net gain of \$229,993.84 for January 2022 through December 2022. The Regulation costs and revenues are provided in Table 6-A.

ASM Charge Summary

Operation in the ASM market has been smooth and there continues to be a positive economic benefit for Minnesota Power's customers. We are now able to maximize the capabilities of our units to a greater extent, which ultimately has led to greater operational efficiencies for Minnesota Power. We have developed many tools and reports to track the benefit of the ASM on a unit by unit and day by day basis. Our overall strategy is to continue to develop strategies in the ASM that have a positive impact for our customers.

Minnesota Power reviews all MISO charges and credits including ASM charge types on a daily basis. Table 6-A provides the January 2022 through December 2022 summary of ASM hourly charges which had a net gain of \$175,825.40. Minnesota Power allocates all

ASM charges in the same manner as it has allocated MISO Day 2 charge types – on a per MWh approach netting costs and benefits of the various charges. During January 2022 through December 2022, a net loss of \$17,158.11 was allocated to the Retail FCA.

Table 6-B provides a summary of January 2022 through December 2022 hourly MWh related to ASM products. The table provides Minnesota Power's net position for each of the three ASM products which indicate that Minnesota Power was a net buyer of Regulation Service and Supplemental Reserves and a net seller of Spin for January 2022 through December 2022.

Schedule 17 Costs

MISO took on additional responsibilities with the start of the ASM and related to this increased systems responsibilities and analysis; additional costs were incurred at MISO. These costs were recovered from Market Participants including Minnesota Power through increased Schedule 17 charges. Table 6-C provides a summary of the Schedule 17 costs before and after the start of ASM. Prior to the start of ASM, Schedule 17 rates averaged \$0.07223 for an average monthly billing of \$140,922.50 per month. For January 2022 through December 2022, the Schedule 17 rate averaged \$0.08014 for an average monthly billing of \$156,249.71.

Daily Detail

Table 6-D provides the daily details supporting the monthly and quarterly benefits shown in Table 6-A. For the reporting period, 254 days or 70 percent show a net cost. With the exception of 82 days, the cost was not caused by Contingency Reserve Deployment Failure Charges (CRDFC) or Real Time Excessive Deficient Energy Deployment Charges (EDED). The cost appears to be caused by a reduction in cleared ASM products. Fewer MWh of Regulation, Spinning and Supplemental reserves were supplied by Minnesota Power during the current reporting period as compared to the prior reporting period.

Net costs can be caused by various factors, including but not limited to: the amount of energy cleared at each unit, the amount of reserves cleared, reserve clearing price, reserve distribution costs, and load ratio share. Most of these factors are out of Minnesota Power's control.

Contingency Reserve Deployment Failure Charge (CRDFC)

For the period of January 2022 through December 2022, Minnesota Power incurred \$2,657.62 of CRDFC. This charge occurred on two operating days as shown in Table 6-E. The shortfall MWh totaled of 58.6 for an average cost of \$45.35 per MWh of shortfall.

During all other CRD events, Minnesota Power's generating units responded to the reserve deployments; however, in this instance Minnesota Power fell short of delivering 100 percent of the energy requested.

Real Time Excessive Deficient Energy Deployment Charge Amount (EEDC)

For the period of January 2022 through December 2022, Minnesota Power incurred \$298,693.32 in EEDC as shown in Table 6-D. The majority of the instances when EEDC occurs are from Failure Mileage Charge and Flag instances which are when a unit fails a Regulation Mileage Performance Test for 4 consecutive intervals within one hour.

Table 6-A: Summary of ASM Charge Types

	Jan-22	Feb-22	Mar-22	1st Quarter 2022 Total	Apr-22	May-22	Jun-22	2nd Quarter 2022 Total	Jul-22	Aug-22	Sep-22	3rd Quarter 2022 Total	Oct-22	Nov-22	Dec-22	4th Quarter 2022 Total	2022 Total
Day Ahead Regulation Amount	(63,520.91)	(53,198.58)	(53,805.94)	\$ (170,525.43)	(80,777.59)	(75,642.08)	(34,689.31)	\$ (191,108.98)	(48,811.29)	(45,965.78)	(29,467.22)	\$ (124,244.29)	(59,106.65)	(84,769.84)	(84,674.63)	\$ (228,551.12)	\$ (714,429.82)
Real Time Regulation Amount	(17,181.33)	(2,467.73)	2,371.44	\$ (17,277.62)	5,242.20	(1,348.14)	(8,832.03)	\$ (4,937.97)	(25,572.98)	(4,608.71)	8,963.21	\$ (21,218.48)	14,753.97	32,376.62	(33,050.13)	\$ 14,080.46	\$ (29,353.61)
Regulation Cost Distribution Amount	39,676.18	35,702.52	41,530.35	\$ 116,909.05	58,645.26	61,421.96	39,120.15	\$ 159,187.37	35,753.31	35,734.03	37,830.44	\$ 109,317.78	43,989.54	41,605.97	42,779.88	\$ 128,375.39	\$ 513,789.59
Regulation SubTotal	\$ (41,026.06)	\$ (19,963.79)	\$ (9,904.15)	\$ (70,894.00)	\$ (16,890.13)	\$ (15,568.26)	\$ (4,401.19)	\$ (36,859.58)	\$ (38,630.96)	\$ (14,840.46)	\$ 17,326.43	\$ (36,144.99)	\$ (363.14)	\$ (10,787.25)	\$ (74,944.88)	\$ (86,095.27)	\$ (229,993.84)
Day Ahead Spinning Reserve Amount	(35,705.51)	(50,736.14)	(46,698.82)	\$ (133,140.47)	(69,492.77)	(83,772.63)	(48,511.45)	\$ (201,776.85)	(48,759.50)	(64,269.47)	(34,864.62)	\$ (147,893.59)	(35,116.63)	(61,527.61)	(53,540.69)	\$ (150,184.93)	\$ (632,995.84)
Real Time Spinning Reserve Amount	(29,112.97)	(15,717.47)	(29,544.00)	\$ (74,374.44)	(39,367.59)	(13,725.71)	(10,611.54)	\$ (63,704.84)	12,148.86	39,791.05	(22,891.48)	\$ 29,048.43	(8,382.97)	1,842.73	9,198.57	\$ 2,658.33	\$ (106,372.52)
Spinning Reserve Cost Distribution Amount	25,952.46	29,721.71	42,112.97	\$ 97,787.14	60,053.47	56,433.52	39,094.52	\$ 155,581.51	14,499.13	20,210.11	25,464.28	\$ 60,163.52	50,163.61	50,355.47	41,495.03	\$ 142,014.11	\$ 455,546.28
Spinning Reserve SubTotal	\$ (38,866.02)	\$ (36,731.90)	\$ (34,129.85)	\$ (109,727.77)	\$ (48,806.89)	\$ (41,064.82)	\$ (20,028.47)	\$ (109,900.18)	\$ (22,121.51)	\$ (4,268.31)	\$ (32,291.82)	\$ (58,681.64)	\$ 6,664.01	\$ (9,329.41)	\$ (2,847.09)	\$ (5,512.49)	\$ (283,822.08)
Day Ahead Supplemental Reserve Amount	-	-	(0.77)	\$ (0.77)	(45.80)	(183.63)	(592.64)	\$ (822.07)	(1,246.08)	(142.89)	(845.19)	\$ (2,234.16)	-	-	(10,999.98)	\$ (10,999.98)	\$ (14,056.98)
Real Time Supplemental Reserve Amount	(687.61)	(20.31)	(3.50)	\$ (711.42)	(40.02)	(1,755.57)	(617.76)	\$ (2,413.35)	(6,434.10)	(1,844.37)	(113.39)	\$ (8,191.86)	(12.91)	(208.66)	(40,515.23)	\$ (40,736.80)	\$ (52,053.43)
Supplemental Reserve Cost Distribution Amount	6,126.49	2,729.68	3,142.31	\$ 11,998.48	5,378.06	4,212.50	8,630.79	\$ 18,221.35	23,774.39	8,841.29	4,382.18	\$ 36,997.86	5,832.30	2,552.52	340.58	\$ 8,725.40	\$ 75,943.09
Supplemental Reserve SubTotal	\$ 5,438.88	\$ 2,709.37	\$ 3,138.04	\$ 11,286.29	\$ 5,292.24	\$ 2,273.30	\$ 7,420.39	\$ 14,885.93	\$ 16,094.21	\$ 7,054.03	\$ 3,423.60	\$ 26,571.84	\$ 5,819.39	\$ 2,343.86	\$ (51,174.63)	\$ (43,011.38)	\$ 9,832.68
Contingency Reserve Deployment Failure Charge Amount	2,657.62	-	-	\$ 2,657.62	-	-	-	\$ -	-	-	-	\$ -	-	-	-	\$ -	\$ 2,657.62
Real Time Excessive Deficient Energy Deployment Charge Amount	34,294.46	21,583.88	27,880.88	\$ 83,759.22	33,756.81	24,095.20	16,564.66	\$ 74,416.67	19,719.28	15,915.48	7,683.84	\$ 43,318.60	19,477.22	19,671.58	58,050.03	\$ 97,198.83	\$ 298,693.32
Net Regulation Adjustment Amount	4,142.79	3,149.08	1,799.79	\$ 9,091.66	929.95	(466.85)	(789.35)	\$ (326.25)	11,786.08	3,426.93	167.17	\$ 15,380.18	2,282.27	553.64	(174.60)	\$ 2,661.31	\$ 26,806.90
Other Charge SubTotal	\$ 41,094.87	\$ 24,732.96	\$ 29,680.67	\$ 95,508.50	\$ 34,686.76	\$ 23,628.35	\$ 15,775.31	\$ 74,090.42	\$ 31,505.36	\$ 19,342.41	\$ 7,851.01	\$ 58,698.78	\$ 21,759.49	\$ 20,225.22	\$ 57,875.43	\$ 99,860.14	\$ 328,157.84
Total	\$ (33,358.33)	\$ (29,253.36)	\$ (11,215.29)	\$ (73,826.98)	\$ (25,718.02)	\$ (30,731.43)	\$ (1,233.96)	\$ (57,683.41)	\$ (13,152.90)	\$ 7,287.67	\$ (3,690.78)	\$ (9,556.01)	\$ 33,879.75	\$ 2,452.42	\$ (71,091.17)	\$ (34,759.00)	\$ (175,825.40)

Table 6-B: Summary of MWh of ASM products Purchased and Supplied

	Jan-22	Feb-22	Mar-22	1st Quarter 2022 Total	Apr-22	May-22	Jun-22	2nd Quarter 2022 Total	Jul-22	Aug-22	Sep-22	3rd Quarter 2022 Total	Oct-22	Nov-22	Dec-22	4th Quarter 2022 Total	2022 Total
Total MISO Reg Procured (MWh)	-	237,577.50	295,146.40	532,723.90	285,252.60	294,883.64	285,564.93	865,701.17	295,084.28	295,147.49	285,585.32	875,817.09	294,524.77	285,580.85	294,690.46	874,796.08	3,149,038.24
MP Share of Reg Procured by MISO	-	3,947.47	5,511.16	9,458.63	4,984.02	4,617.02	3,935.31	13,536.35	3,925.49	4,076.72	4,375.46	12,377.67	5,045.76	4,796.85	4,665.67	14,508.28	49,880.93
MP Supplied Reg Volume	-	4,538.30	4,568.20	9,106.50	4,173.70	3,476.90	2,662.20	10,312.80	4,668.30	4,628.20	2,819.90	12,116.40	4,224.40	6,342.30	5,823.20	16,389.90	47,925.60
MP Net Buyer or (Seller) of Regulation	(590.83)	942.96	352.13	704.22	810.32	1,140.12	1,273.11	3,223.55	(742.81)	(551.48)	1,555.56	261.27	821.36	(1,545.45)	(1,157.53)	(1,881.62)	1,955.33
Total MISO Spin Procured (MWh)	-	551,626.32	680,097.86	1,231,724.18	661,134.76	683,419.06	672,762.94	2,017,316.76	705,450.96	697,226.84	658,996.93	2,061,674.73	673,652.93	652,146.08	732,155.50	2,057,954.51	7,368,670.18
MP Share of Spin Procured by MISO	-	9,172.23	12,724.34	21,896.57	11,580.59	10,719.31	9,236.17	31,536.07	9,400.22	9,640.37	10,129.35	29,169.94	11,573.99	10,969.71	11,475.03	34,018.73	116,621.31
MP Supplied Spin Volume	13,366.70	19,106.70	15,585.70	48,059.10	12,431.40	12,711.20	11,356.60	36,499.20	17,233.50	21,416.80	11,937.10	50,587.40	8,895.40	13,199.20	12,502.40	34,597.00	169,742.70
MP Net Buyer or (Seller) of Spinning Reserves	(13,366.70)	(9,934.47)	(2,861.36)	(26,162.53)	(850.81)	(1,991.89)	(2,120.43)	(4,963.13)	(7,833.28)	(11,776.43)	(1,807.75)	(21,417.46)	2,678.59	(2,229.49)	(1,027.37)	(578.27)	(53,121.39)
Total MISO Supp Procured (MWh)	-	663,453.62	825,359.86	1,488,813.48	799,269.03	818,615.11	775,315.31	2,393,199.45	800,429.43	807,864.80	793,252.79	2,401,547.02	826,060.13	798,265.38	776,813.35	2,401,138.86	8,684,697.81
MP Share of Supp Procured by MISO	-	11,033.88	15,448.39	26,482.27	14,006.87	12,894.59	10,799.09	37,700.55	10,704.08	11,218.50	12,201.09	34,123.67	14,215.05	13,437.04	12,440.23	40,092.32	138,398.81
MP Supplied Supp Volume	-	-	3.50	3.50	4.00	-	7.00	11.00	24.00	152.20	61.50	237.70	-	-	1,844.30	1,844.30	2,096.50
MP Net Buyer or (Seller) of Supplemental Reserves	11,033.88	15,444.89	26,478.77	52,957.54	14,002.87	12,894.59	10,792.09	37,689.55	10,680.08	11,066.30	12,139.59	33,885.97	14,215.05	13,437.04	10,595.93	38,248.02	136,302.31

Negative numbers indicate a payment from MISO
Positive numbers indicate a charge from MISO

Table 6-C: Comparison of MISO Schedule 17 Rates and Amounts before and after the start of the ASM Market

Monthly Average Schedule 17	Amount	Rate per MWh
April 2005 through December 2008	\$ 140,922.50	\$ 0.07223
January 2022 through December 2022	\$ 156,249.71	\$ 0.08014
Average Monthly Increase	\$ 15,327.21	\$ 0.00791

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
1/1/2022	(955.35)	(1,876.67)	1,574.85	\$ (1,257.17)	(441.76)	(797.77)	951.22	\$ (288.31)	-	(4.25)	117.31	\$ 113.06	-	1,646.89	(80.15)	\$ 1,566.74	\$ 134.32
1/2/2022	(735.42)	(1,124.32)	1,567.27	\$ (292.47)	(1,705.76)	(1,101.95)	1,086.85	\$ (1,720.86)	-	(0.76)	123.75	\$ 122.99	-	1,072.65	34.03	\$ 1,106.68	\$ (783.66)
1/3/2022	(2,360.14)	(760.03)	1,473.71	\$ (1,646.46)	(1,664.15)	(1,664.93)	1,674.33	\$ (1,654.75)	-	(1.08)	118.47	\$ 117.39	-	2,170.98	83.69	\$ 2,254.67	\$ (929.15)
1/4/2022	(5,077.50)	1,794.54	1,320.17	\$ (1,962.79)	(888.72)	(1,833.65)	738.80	\$ (1,983.57)	-	(1.45)	79.89	\$ 78.44	-	1,430.55	(133.81)	\$ 1,296.74	\$ (2,571.18)
1/5/2022	(4,974.44)	861.14	1,309.16	\$ (2,804.14)	(1,273.97)	(2,874.48)	865.28	\$ (3,283.17)	-	(11.84)	91.98	\$ 80.14	-	1,715.67	277.31	\$ 1,992.98	\$ (4,014.19)
1/6/2022	(255.14)	(1,216.22)	(177.69)	\$ (1,649.05)	(1,763.44)	2,895.75	1.71	\$ 1,134.02	-	(9.67)	516.16	\$ 506.49	-	305.71	120.00	\$ 425.71	\$ 417.17
1/7/2022	(1,735.34)	(611.81)	1,639.63	\$ (707.52)	(2,374.93)	(1,767.62)	1,189.20	\$ (2,953.35)	-	(572.34)	466.55	\$ (105.79)	2,612.44	460.48	177.33	\$ 3,250.25	\$ (516.41)
1/8/2022	(3,745.33)	(129.59)	1,136.39	\$ (2,738.53)	(1,681.79)	(1,376.41)	1,068.33	\$ (1,989.87)	-	(1.30)	131.21	\$ 129.91	-	1,622.66	709.99	\$ 2,332.65	\$ (2,265.84)
1/9/2022	(758.59)	(1,026.00)	1,232.65	\$ (551.94)	(1,073.80)	(1,631.16)	758.82	\$ (1,946.14)	-	(0.32)	201.22	\$ 200.90	-	656.95	(13.54)	\$ 643.41	\$ (1,653.77)
1/10/2022	(219.00)	(1,062.16)	1,915.03	\$ 633.87	(1,803.13)	(2,104.30)	1,570.28	\$ (2,337.15)	-	(6.77)	199.37	\$ 192.60	-	271.33	64.90	\$ 336.23	\$ (1,174.45)
1/11/2022	(8,072.24)	1,841.01	1,615.04	\$ (4,616.19)	(1,339.99)	(1,240.47)	933.26	\$ (1,647.20)	-	(18.04)	147.08	\$ 129.04	-	1,655.74	58.73	\$ 1,714.47	\$ (4,419.88)
1/12/2022	(2,058.00)	(1,188.67)	1,469.80	\$ (1,776.87)	(1,162.76)	(590.19)	1,023.26	\$ (729.69)	-	(2.36)	113.48	\$ 111.12	-	2,101.82	71.88	\$ 2,173.70	\$ (221.74)
1/13/2022	(1,482.60)	(1,281.14)	1,287.47	\$ (1,476.27)	(863.31)	(1,721.73)	857.25	\$ (1,727.79)	-	-	96.42	\$ 96.42	-	1,182.71	180.50	\$ 1,363.21	\$ (1,744.43)
1/14/2022	(1,893.41)	(206.34)	1,390.16	\$ (709.59)	(793.10)	(2,433.09)	900.54	\$ (2,325.65)	-	-	96.27	\$ 96.27	-	1,647.01	242.22	\$ 1,889.23	\$ (1,049.74)
1/15/2022	(1,630.75)	72.33	799.62	\$ (758.80)	(1,080.79)	(849.33)	340.74	\$ (1,589.38)	-	(0.73)	309.91	\$ 309.18	-	634.73	12.81	\$ 647.54	\$ (1,391.46)
1/16/2022	(1,167.94)	(777.80)	1,092.09	\$ (853.65)	(889.80)	(961.87)	770.03	\$ (1,081.64)	-	(0.09)	94.01	\$ 93.92	-	908.85	21.00	\$ 929.85	\$ (911.52)
1/17/2022	(575.28)	(694.30)	1,355.77	\$ 86.19	(1,172.23)	(1,008.79)	1,059.38	\$ (1,121.64)	-	(4.14)	125.97	\$ 121.83	-	491.07	70.05	\$ 561.12	\$ (352.50)
1/18/2022	(1,330.70)	(1,599.24)	863.54	\$ (2,066.40)	(638.68)	(176.76)	520.13	\$ (295.31)	-	(15.50)	97.80	\$ 82.30	-	1,437.03	62.67	\$ 1,499.70	\$ (779.71)
1/19/2022	(858.30)	157.83	1,171.17	\$ 470.70	(842.91)	(83.80)	828.04	\$ (850.67)	-	(0.07)	109.52	\$ 109.45	-	119.69	111.68	\$ 231.37	\$ (39.15)
1/20/2022	(623.40)	(600.69)	1,445.21	\$ 221.12	(2,219.46)	(658.29)	1,051.28	\$ (1,826.47)	-	(10.06)	184.72	\$ 174.66	-	407.35	41.65	\$ 449.00	\$ (981.69)
1/21/2022	(1,850.85)	(1,136.70)	1,240.47	\$ (1,747.08)	(1,456.17)	(853.91)	1,167.97	\$ (1,142.11)	-	(0.03)	148.97	\$ 148.94	45.18	1,929.31	(417.17)	\$ 1,557.32	\$ (1,182.93)
1/22/2022	(1,186.59)	(1,038.74)	1,056.98	\$ (1,168.35)	(705.87)	(162.45)	628.47	\$ (239.85)	-	(15.45)	115.38	\$ 99.93	-	1,163.89	1.99	\$ 1,165.88	\$ (142.39)
1/23/2022	(2,197.49)	(22.38)	988.21	\$ (1,231.66)	(746.25)	(557.06)	614.72	\$ (688.59)	-	(4.23)	118.61	\$ 114.38	-	940.63	53.95	\$ 994.58	\$ (811.29)
1/24/2022	(1,814.60)	220.97	1,084.75	\$ (508.88)	(793.02)	(414.41)	724.12	\$ (483.31)	-	(0.17)	105.06	\$ 104.89	-	1,178.35	(114.60)	\$ 1,063.75	\$ 176.45
1/25/2022	(392.70)	(362.71)	1,248.17	\$ 492.76	(974.73)	(603.02)	833.54	\$ (744.21)	-	(0.74)	197.81	\$ 197.07	-	142.25	158.45	\$ 300.70	\$ 246.32
1/26/2022	(1,246.94)	(1,017.40)	1,275.93	\$ (988.41)	(994.53)	(304.30)	1,127.08	\$ (171.75)	-	(3.10)	167.48	\$ 164.38	-	1,117.05	(416.19)	\$ 700.86	\$ (294.92)
1/27/2022	(1,839.08)	(578.40)	910.47	\$ (1,507.01)	(831.52)	(922.99)	799.50	\$ (955.01)	-	(0.08)	144.12	\$ 144.04	-	547.51	102.87	\$ 650.38	\$ (1,667.60)
1/28/2022	(850.45)	(1,604.56)	1,513.58	\$ (941.43)	(946.97)	(548.66)	1,218.19	\$ (277.44)	-	(2.88)	196.18	\$ 193.30	-	849.72	210.24	\$ 1,059.96	\$ 34.39
1/29/2022	(5,365.27)	(307.38)	1,098.39	\$ (4,574.26)	(946.47)	(2,066.40)	910.68	\$ (2,102.19)	-	(0.01)	96.75	\$ 96.74	-	2,654.85	565.43	\$ 3,220.28	\$ (3,359.43)
1/30/2022	(2,054.43)	(1,732.81)	1,555.76	\$ (2,231.48)	(770.28)	(1,704.64)	1,137.98	\$ (1,336.94)	-	(0.04)	111.03	\$ 110.99	-	599.06	522.59	\$ 1,121.65	\$ (2,335.78)
1/31/2022	(4,213.64)	(173.09)	2,222.43	\$ (2,164.30)	(865.22)	1,757.71	(1,398.52)	\$ (506.03)	-	(0.11)	1,304.01	\$ 1,303.90	-	1,231.97	1,362.29	\$ 2,594.26	\$ 1,227.83
Jan Total	\$ (63,520.91)	\$ (17,181.33)	\$ 39,676.18	\$ (41,026.06)	\$ (35,705.51)	\$ (29,112.97)	\$ 25,952.46	\$ (38,866.02)	\$ -	\$ (687.61)	\$ 6,126.49	\$ 5,438.88	\$ 2,657.62	\$ 34,294.46	\$ 4,142.79	\$ 41,094.87	\$ (33,358.33)
2/1/2022	(3,909.42)	(62.00)	1,469.47	\$ (2,501.95)	(1,125.43)	(942.05)	1,297.25	\$ (770.23)	-	-	91.89	\$ 91.89	-	1,947.34	(122.87)	\$ 1,824.47	\$ (1,355.82)
2/2/2022	(440.50)	(2,397.58)	1,400.70	\$ (1,437.38)	(1,108.58)	(1,058.79)	1,476.66	\$ (690.71)	-	-	114.85	\$ 114.85	-	960.12	135.17	\$ 1,095.29	\$ (917.95)
2/3/2022	(1,166.12)	(1,286.78)	1,394.61	\$ (1,058.29)	(1,442.67)	(1,519.48)	1,379.43	\$ (1,582.72)	-	-	133.64	\$ 133.64	-	871.04	177.85	\$ 1,048.89	\$ (1,458.48)
2/4/2022	(465.95)	(2,284.26)	1,178.44	\$ (1,571.77)	(1,720.71)	(379.70)	1,265.16	\$ (835.25)	-	(0.43)	137.91	\$ 137.48	-	826.47	(148.11)	\$ 678.36	\$ (1,591.18)
2/5/2022	(1,782.93)	(836.44)	1,318.45	\$ (1,300.92)	(935.98)	(271.86)	746.70	\$ (461.14)	-	(3.84)	109.33	\$ 105.49	-	740.34	126.14	\$ 866.48	\$ (790.09)
2/6/2022	(984.35)	(1,140.88)	1,259.65	\$ (865.58)	(1,024.37)	(241.55)	811.13	\$ (454.79)	-	(0.54)	93.38	\$ 92.84	-	625.44	51.11	\$ 676.55	\$ (550.98)
2/7/2022	(554.66)	(1,067.86)	1,822.19	\$ 199.67	(1,201.77)	(358.95)	1,109.00	\$ (451.72)	-	(10.37)	125.43	\$ 115.06	-	416.89	116.94	\$ 533.83	\$ 396.84
2/8/2022	(3,480.63)	306.41	1,452.61	\$ (1,721.61)	(1,126.54)	(1,114.38)	908.50	\$ (1,332.42)	-	-	101.15	\$ 101.15	-	474.83	97.21	\$ 572.04	\$ (2,380.84)
2/9/2022	(2,940.24)	1,691.72	1,255.36	\$ 6.84	(1,837.84)	(383.55)	823.48	\$ (1,397.91)	-	-	90.62	\$ 90.62	-	145.25	(2.53)	\$ 142.72	\$ (1,157.73)
2/10/2022	(909.00)	193.61	1,458.39	\$ 743.00	(1,013.80)	(242.19)	1,414.10	\$ 158.11	-	-	110.53	\$ 110.53	-	59.79	25.18	\$ 84.97	\$ 1,096.61
2/11/2022	(1,681.30)	1,265.84	963.91	\$ 548.45	(1,546.17)	(10.74)	766.32	\$ (790.59)	-	-	87.01	\$ 87.01	-	300.51	(14.46)	\$ 286.05	\$ 130.92
2/12/2022	(871.25)	61.44	1,322.11	\$ 512.30	(871.09)	(1,168.95)	928.05	\$ (1,111.99)	-	-	105.02	\$ 105.02	-	259.33	17.35	\$ 276.68	\$ (217.99)
2/13/2022	(1,681.07)	353.22	1,231.90	\$ (95.95)	(1,905.68)	(150.48)	998.34	\$ (1,057.82)	-	(0.81)	108.71	\$ 107.90	-	331.02	(39.32)	\$ 291.70	\$ (754.17)
2/14/2022	(743.05)	(288.56)	1,677.51	\$ 645.90	(2,963.04)	(9.15)	1,385.08	\$ (1,587.11)	-	(2.13)	150.29	\$ 148.16	-	109.43	23.37	\$ 132.80	\$ (660.25)
2/15/2022	(2,033.90)	616.02	1,150.29	\$ (267.59)	(1,866.28)	(99.18)	824.34	\$ (1,141.12)	-	(0.90)	85.17	\$ 84.27	-	196.72	(19.19)	\$ 177.53	\$ (1,146.91)
2/16/2022	(3,160.72)	431.83	969.08	\$ (1,759.81)	(1,640.08)	(363.71)	727.82	\$ (1,275.97)	-	-	78.41	\$ 78.41	-	1,534.53	179.30	\$ 1,713.83	\$ (1,243.54)
2/17/2022	(717.45)	(524.72)	1,102.43	\$ (139.74)	(2,372.24)	(573.57)	1,148.84	\$ (1,796.97)	-	-	82.80	\$ 82.80	-	379.20	174.89	\$ 554.09	\$ (1,299.82)
2/18/2022	(3,386.73)	209.49	736.68	\$ (2,440.56)	(2,587.62)	(965.07)	985.75	\$ (2,566.94)	-	-	78.62	\$ 78.62	-	1,415.31	323.97	\$ 1,739.28	\$ (3,189.60)
2/19/2022	(3,122.42)	1,257.93	1,147.90	\$ (716.59)	(2,085.71)	147.87	1,061.29	\$ (876.55)	-	(0.19)	91.89	\$ 91.70	-	782.62	57.08	\$ 839.70	\$ (661.74)
2/20/2022	(2,864.77)	1,055.77	848.49	\$ (960.51)	(1,791.13)	281.39	631.03	\$ (878.71)	-	-	80.95	\$ 80.95	-	954.31	67.87	\$ 1,022.18	\$ (736.09)
2/21/2022	(2,047.72)	(106.18)	1,178.61	\$ (975.29)	(1,272.88)	(25.05)	649.87	\$ (648.06)	-	-	82.13	\$ 82.13	-	1,000.61	1.51	\$ 1,002.12	\$ (539.10)
2/22/2022	(2,522.48)	1,321.35	1,062.49	\$ (138.64)	(1,444.89)	(883.33)	657.86	\$ (1,670.36)	-	-	79.76	\$ 79.76	-	1,252.02	274.25	\$ 1,526.27	\$ (202.97)
2/23/2022	-	(668.12)	1,171.25	\$ 503.13	(1,682.09)	(2,055.71)	1,157.10	\$ (2,580.70)	-	(0.02)	82.89	\$ 82.87	-	159.87	162.91	\$ 322.78	\$ (1,671.92)
2/24/2022	-	(781.90)	1,521.51	\$ 739.61	(3,057.68)	(1,219.65)	1,575.54	\$ (2,701.79)	-	-	90.66	\$ 90.66	-	460.50	152.28	\$ 612.78	\$ (1,258.74)
2/25/2022	(1,072.93)	(863.87)	1,513.76	\$ (423.04)	(2,898.98)	(717.20)	1,210.58	\$ (2,405.60)	-	(0.21)	85.50	\$ 85.29	-	1,399.63	167.00	\$ 1,566.63	\$ (1,176.72)
2/26/2022	(5,796.14)	2,666.88	1,200.18	\$ (1,929.08)	(2,969.29)	(370.95)	1,201.07	\$ (2,139.17)	-	-	77.66	\$ 77.66	-	768.62	20.43	\$ 789.05	\$ (3,201.54)
2/27/2022	(1																

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
3/1/2022	(1,568.90)	(170.25)	1,736.80	\$ (2.35)	(2,354.32)	(425.11)	1,275.31	\$ (1,504.12)	-	-	86.76	\$ 86.76	-	497.48	60.34	\$ 557.82	\$ (861.89)
3/2/2022	(2,246.51)	190.60	1,093.31	\$ (962.60)	(2,389.93)	(785.84)	738.46	\$ (2,437.31)	-	-	89.79	\$ 89.79	-	715.53	394.06	\$ 1,109.59	\$ (2,200.53)
3/3/2022	(1,526.36)	(1,393.76)	1,656.11	\$ (1,264.01)	(3,709.15)	(492.70)	1,635.43	\$ (2,566.42)	-	-	87.64	\$ 87.64	-	1,242.77	232.40	\$ 1,475.17	\$ (2,267.62)
3/4/2022	(3,812.30)	145.46	1,367.67	\$ (2,299.17)	(3,688.61)	(348.77)	1,400.89	\$ (2,636.49)	-	-	87.00	\$ 87.00	-	1,668.91	84.11	\$ 1,753.02	\$ (3,095.64)
3/5/2022	(2,339.14)	668.51	1,167.09	\$ (503.54)	(2,228.67)	210.20	1,049.13	\$ (969.34)	-	-	91.41	\$ 91.41	-	480.68	124.92	\$ 605.60	\$ (775.87)
3/6/2022	(922.76)	(2,039.52)	1,259.83	\$ (1,702.45)	(3,234.10)	157.70	1,684.64	\$ (1,391.76)	-	-	92.68	\$ 92.68	-	1,329.91	161.67	\$ 1,491.58	\$ (1,509.95)
3/7/2022	(1,842.52)	18.50	1,620.34	\$ (203.68)	(3,888.35)	429.21	1,651.01	\$ (1,808.13)	-	-	92.31	\$ 92.31	-	1,252.57	60.57	\$ 1,313.14	\$ (606.36)
3/8/2022	(4,967.14)	788.00	1,222.88	\$ (2,956.26)	(3,875.77)	4.95	1,534.81	\$ (2,336.01)	-	-	88.11	\$ 88.11	-	2,662.84	154.40	\$ 2,817.24	\$ (2,386.92)
3/9/2022	(2,368.20)	(396.15)	1,125.80	\$ (1,638.55)	(4,386.98)	(389.47)	1,758.12	\$ (3,018.33)	-	-	87.40	\$ 87.40	-	1,305.02	185.76	\$ 1,490.78	\$ (3,078.70)
3/10/2022	(2,782.85)	359.75	1,335.93	\$ (1,087.17)	(1,261.34)	(582.90)	1,295.64	\$ (548.60)	-	-	118.99	\$ 118.99	-	1,307.60	35.11	\$ 1,342.71	\$ (174.07)
3/11/2022	(3,407.31)	1,487.17	747.55	\$ (1,172.59)	(1,481.87)	(173.92)	991.06	\$ (664.73)	-	-	101.24	\$ 101.24	-	1,496.22	(15.27)	\$ 1,480.95	\$ (255.13)
3/12/2022	(2,710.00)	860.11	1,266.60	\$ (583.29)	(1,022.29)	(1,130.27)	1,174.28	\$ (978.28)	-	(0.39)	112.44	\$ 112.05	-	1,155.63	50.24	\$ 1,205.87	\$ (243.65)
3/13/2022	(790.44)	79.48	1,381.33	\$ 670.37	(1,233.03)	(317.41)	1,212.70	\$ (337.74)	(0.77)	0.15	105.53	\$ 104.91	-	870.63	(99.71)	\$ 770.92	\$ 1,208.46
3/14/2022	(1,411.47)	(761.54)	1,589.98	\$ (583.03)	(1,231.45)	(319.29)	1,571.38	\$ 20.64	-	(0.96)	118.22	\$ 117.26	-	1,625.93	(27.88)	\$ 1,598.05	\$ 1,152.92
3/15/2022	(2,682.20)	229.69	1,635.34	\$ (817.17)	(907.90)	(788.71)	1,380.40	\$ (316.21)	-	(1.70)	127.09	\$ 125.39	-	899.67	10.57	\$ 910.24	\$ (97.75)
3/16/2022	(2,219.54)	1,594.05	1,469.10	\$ 843.61	(896.97)	(49.25)	1,206.78	\$ 260.56	-	(0.20)	118.67	\$ 118.47	-	510.40	(46.87)	\$ 463.53	\$ 1,686.17
3/17/2022	(1,956.06)	147.27	1,185.26	\$ (623.53)	(1,017.75)	19.43	1,215.03	\$ 216.71	-	(0.24)	113.83	\$ 113.59	-	1,224.12	12.72	\$ 1,236.84	\$ 943.61
3/18/2022	(2,455.82)	(1,032.35)	1,193.33	\$ (2,294.84)	(617.82)	(201.44)	993.24	\$ 173.98	-	-	91.27	\$ 91.27	-	1,270.99	277.01	\$ 1,548.00	\$ (481.59)
3/19/2022	(408.32)	(2,782.82)	1,653.38	\$ (1,537.76)	(326.25)	(250.71)	1,013.30	\$ 436.34	-	-	97.18	\$ 97.18	-	2,843.53	8.31	\$ 2,851.84	\$ 1,847.60
3/20/2022	(1,405.83)	187.38	1,218.29	\$ (0.16)	(305.44)	(217.81)	941.28	\$ 418.03	-	-	100.87	\$ 100.87	-	729.75	6.16	\$ 735.91	\$ 1,254.65
3/21/2022	(1,682.32)	1,137.97	1,542.44	\$ 988.09	(558.10)	(1,705.45)	1,275.46	\$ (988.09)	-	-	115.48	\$ 115.48	-	960.20	87.71	\$ 1,047.91	\$ 1,173.39
3/22/2022	(2,205.88)	1,308.58	1,334.86	\$ 437.56	(1,086.01)	(1,150.33)	1,257.12	\$ (979.22)	-	-	99.05	\$ 99.05	-	424.79	(12.78)	\$ 412.01	\$ (30.60)
3/23/2022	(1,292.92)	1,051.94	1,152.37	\$ 911.39	(512.08)	(1,364.64)	1,200.37	\$ (676.35)	-	-	97.91	\$ 97.91	-	267.57	(0.05)	\$ 267.52	\$ 600.47
3/24/2022	-	(59.44)	1,279.67	\$ 1,220.23	(453.09)	(1,893.27)	2,209.16	\$ (137.20)	-	-	135.71	\$ 135.71	-	2.09	(3.30)	\$ (1.21)	\$ 1,217.53
3/25/2022	(419.98)	47.21	1,558.27	\$ 1,185.50	(394.02)	(1,615.34)	1,651.69	\$ (357.67)	-	-	109.42	\$ 109.42	-	244.89	(41.57)	\$ 203.32	\$ 1,140.57
3/26/2022	(721.18)	(641.77)	1,286.50	\$ (76.45)	(504.28)	(1,091.33)	1,641.95	\$ 46.34	-	-	96.59	\$ 96.59	-	226.58	16.20	\$ 242.78	\$ 309.26
3/27/2022	-	(22.37)	1,580.64	\$ 1,558.27	(554.19)	(1,281.47)	1,614.34	\$ (221.32)	-	-	114.22	\$ 114.22	-	0.72	2.22	\$ 2.94	\$ 1,454.11
3/28/2022	(837.54)	(901.80)	1,388.77	\$ (350.57)	(673.92)	(2,586.30)	1,955.80	\$ (1,304.42)	-	-	111.91	\$ 111.91	-	408.60	34.83	\$ 443.43	\$ (1,099.65)
3/29/2022	(605.70)	(115.88)	1,050.18	\$ 328.60	(347.35)	(1,817.04)	921.48	\$ (1,242.91)	-	-	82.82	\$ 82.82	-	5.84	45.11	\$ 50.95	\$ (780.54)
3/30/2022	(1,247.70)	1,561.30	1,113.28	\$ 1,426.88	(504.17)	(2,120.12)	1,234.05	\$ (1,390.24)	(0.16)	81.44	\$ 81.28	\$ 81.28	-	25.83	1.53	\$ 27.36	\$ 145.28
3/31/2022	(969.05)	826.12	1,317.45	\$ 1,174.52	(1,053.62)	(7,266.60)	1,428.66	\$ (6,891.56)	-	-	89.33	\$ 89.33	-	223.59	1.27	\$ 224.86	\$ (5,402.85)
Mar Total	\$ (53,805.94)	\$ 2,371.44	\$ 41,530.35	\$ (9,904.15)	\$ (46,698.82)	\$ (29,544.00)	\$ 42,112.97	\$ (34,129.85)	\$ (0.77)	\$ (3.50)	\$ 3,142.31	\$ 3,138.04	\$ -	\$ 27,880.88	\$ 1,799.79	\$ 29,680.67	\$ (11,215.29)
4/1/2022	(1,626.65)	806.96	1,725.20	\$ 905.51	(1,644.56)	(5,915.56)	2,310.56	\$ (5,249.56)	-	-	122.87	\$ 122.87	-	573.96	88.23	\$ 662.19	\$ (3,558.99)
4/2/2022	(1,504.88)	256.85	1,744.85	\$ 496.82	(1,304.18)	(1,615.85)	2,017.16	\$ (902.87)	-	(0.19)	97.49	\$ 97.30	-	504.23	13.81	\$ 518.04	\$ 209.29
4/3/2022	(1,667.75)	596.24	1,429.08	\$ 357.57	(812.03)	(1,155.08)	1,262.02	\$ (705.09)	-	(0.34)	96.25	\$ 95.91	-	522.13	7.38	\$ 529.51	\$ 277.90
4/4/2022	(2,534.15)	(538.79)	1,646.85	\$ (1,426.09)	(3,409.61)	(3,902.83)	2,813.01	\$ (4,499.43)	-	(0.14)	141.15	\$ 141.01	-	1,095.00	93.09	\$ 1,188.09	\$ (4,596.42)
4/5/2022	(2,172.11)	885.27	1,397.61	\$ 110.77	(2,106.87)	(1,838.76)	2,033.43	\$ (1,912.20)	-	(0.06)	131.93	\$ 131.87	-	505.87	(24.42)	\$ 481.45	\$ (1,188.11)
4/6/2022	(488.48)	(3,588.77)	1,021.80	\$ (3,055.45)	(371.60)	(11,539.66)	443.14	\$ (11,468.12)	-	(0.24)	847.77	\$ 847.53	-	781.29	(93.95)	\$ 687.34	\$ (12,988.70)
4/7/2022	(1,760.50)	(829.52)	1,580.42	\$ (1,009.60)	(3,267.08)	(591.98)	1,675.94	\$ (2,183.12)	-	-	90.24	\$ 90.24	-	554.24	130.29	\$ 684.53	\$ (2,417.95)
4/8/2022	(2,213.60)	(518.79)	1,643.06	\$ (1,089.33)	(2,671.26)	(968.14)	1,927.09	\$ (1,712.31)	-	-	99.84	\$ 99.84	-	1,005.18	116.77	\$ 1,121.95	\$ (1,579.85)
4/9/2022	(3,354.34)	(674.63)	1,721.64	\$ (2,307.33)	(3,824.50)	(853.82)	2,076.77	\$ (2,601.55)	-	-	98.11	\$ 98.11	-	1,889.58	584.57	\$ 2,474.15	\$ (2,336.62)
4/10/2022	(1,989.37)	(469.16)	1,650.80	\$ (807.73)	(2,767.89)	(1,259.66)	1,917.86	\$ (2,109.69)	-	-	102.61	\$ 102.61	-	1,131.99	94.09	\$ 1,226.08	\$ (1,588.73)
4/11/2022	(1,811.45)	646.09	1,741.68	\$ 576.32	(4,106.89)	(6.23)	2,267.21	\$ (1,845.91)	(45.00)	(35.64)	883.29	\$ 802.65	-	1,291.80	(129.57)	\$ 1,162.23	\$ 695.29
4/12/2022	(5,166.66)	2,299.12	2,082.32	\$ (785.22)	(2,995.81)	(64.60)	2,513.71	\$ (546.70)	-	-	91.32	\$ 91.32	-	1,269.69	(22.57)	\$ 1,247.12	\$ 6.52
4/13/2022	(2,621.88)	1,924.34	1,750.62	\$ 1,053.08	(2,003.51)	(491.82)	2,168.81	\$ (326.52)	-	-	92.85	\$ 92.85	-	315.31	76.69	\$ 392.00	\$ 1,211.41
4/14/2022	(1,274.37)	(326.86)	1,320.80	\$ (280.43)	(916.22)	(841.70)	1,648.58	\$ (109.34)	-	-	94.09	\$ 94.09	-	1,269.35	(30.98)	\$ 1,238.37	\$ 942.69
4/15/2022	(2,121.50)	(160.20)	2,447.44	\$ 165.74	(985.40)	(1,207.80)	1,852.25	\$ (340.95)	-	-	101.71	\$ 101.71	-	978.23	13.74	\$ 991.97	\$ 918.47
4/16/2022	-	(608.93)	1,957.57	\$ 1,348.64	(1,062.05)	(758.77)	1,872.27	\$ 51.45	-	-	99.83	\$ 99.83	-	155.49	(19.25)	\$ 136.24	\$ 1,636.16
4/17/2022	(407.13)	(907.43)	2,177.56	\$ 863.00	(1,043.93)	(1,546.51)	1,823.81	\$ (766.63)	-	-	100.89	\$ 100.89	-	637.47	(93.66)	\$ 543.81	\$ 741.07
4/18/2022	(1,124.36)	628.15	2,098.31	\$ 1,602.10	(1,484.60)	(1,602.29)	1,710.59	\$ (1,376.30)	(0.80)	(1.32)	756.31	\$ 754.19	-	12.43	23.92	\$ 36.35	\$ 1,016.34
4/19/2022	(567.42)	(243.90)	2,205.30	\$ 1,393.98	(1,187.84)	(623.40)	1,907.73	\$ 96.49	-	-	103.76	\$ 103.76	-	243.79	25.27	\$ 269.06	\$ 1,863.29
4/20/2022	(810.56)	208.25	2,113.85	\$ 1,511.54	(1,911.65)	(170.17)	1,949.60	\$ (132.22)	-	(0.65)	97.44	\$ 96.79	-	132.92	0.90	\$ 133.82	\$ 1,609.93
4/21/2022	(268.23)	(1,849.79)	1,741.06	\$ (376.96)	(1,242.86)	(890.40)	1,903.04	\$ (230.22)	-	(0.33)	121.63	\$ 121.30	-	1,172.60	23.36	\$ 1,195.96	\$ 710.08
4/22/2022	(9,081.91)	1,100.36	2,448.39	\$ (5,533.16)	(2,332.63)	(2,721.32)	2,412.00	\$ (2,641.95)	-	-	96.92	\$ 96.92	-	4,494.99	93.72	\$ 4,588.71	\$ (3,489.48)
4/23/2022	(8,085.30)	4,397.11	2,243.61	\$ (1,444.58)	(5,113.36)	1,528.09	2,403.15	\$ (1,182.12)	-	-	99.87	\$ 99.87	-	2,071.24	(15.00)	\$ 2,056.24	\$ (470.59)
4/24/2022	(10,085.52)	8,749.84	2,384.92	\$ 1,049.24	(5,349.60)	2,061.83	2,774.68	\$ (513.09)	-	-	96.49	\$ 96.49	-	709.54	147.89	\$ 857.43	\$ 1,490.07
4/25/2022	(2,388.91)	552.49	2,955.09	\$ 1,118.67	(1,634.31)	(579.93)	2,581.65	\$ 367.41	(0.25)	128.28	\$ 128.03	\$ 128.03	-	1,011.62	(74.63)	\$ 936.99	\$ 2,551.10
4/26/2022	(302.40)	(921.16)	2,594.13	\$ 1,370.57	(986.93)	(694.69)	2,269.99	\$ 588.37	(0.86)	209.55	\$ 208.69	\$ 208.69	-	560.77	(48.58)	\$ 512.19	\$ 2,679.82
4/27/2022	(2,978.53)	(4,41															

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
5/1/2022	(696.38)	(1,988.75)	2,810.50	\$ 125.37	(705.24)	(1,479.72)	2,075.53	\$ (109.43)	-	-	86.55	\$ 86.55	-	949.47	54.15	\$ 1,003.62	\$ 1,106.11
5/2/2022	(591.60)	79.83	2,323.84	\$ 1,812.07	(4,268.86)	(354.50)	3,108.77	\$ (1,514.59)	-	(0.04)	140.54	\$ 140.50	-	168.30	(4.34)	\$ 163.96	\$ 601.94
5/3/2022	(627.15)	(440.46)	1,999.51	\$ 931.90	(3,257.72)	749.99	2,121.09	\$ (386.64)	-	-	121.71	\$ 121.71	-	311.77	(169.68)	\$ 142.09	\$ 809.06
5/4/2022	(305.25)	(667.49)	2,177.91	\$ 1,205.17	(2,639.60)	(2,419.95)	1,941.85	\$ (3,117.70)	-	-	104.37	\$ 104.37	-	-	(129.09)	\$ (129.09)	\$ (1,937.25)
5/5/2022	(308.57)	292.02	2,250.18	\$ 2,233.63	(3,157.71)	(975.87)	1,383.43	\$ (2,750.15)	-	-	85.84	\$ 85.84	-	0.33	(4.75)	\$ (4.42)	\$ (435.10)
5/6/2022	-	(663.04)	2,605.80	\$ 1,942.76	(3,626.50)	(375.77)	1,806.06	\$ (2,196.21)	-	-	87.37	\$ 87.37	-	362.08	134.01	\$ 496.09	\$ 330.01
5/7/2022	(8,006.70)	744.06	3,577.91	\$ (3,684.73)	(3,764.67)	602.87	2,128.19	\$ (1,033.61)	-	-	91.82	\$ 91.82	-	1,122.22	269.14	\$ 1,391.36	\$ (3,235.16)
5/8/2022	(5,109.18)	2,797.10	2,272.22	\$ (39.86)	(2,353.40)	5.81	1,491.78	\$ (855.81)	-	-	81.94	\$ 81.94	-	278.36	31.10	\$ 309.46	\$ (504.27)
5/9/2022	(1,598.85)	(3,796.06)	1,067.75	\$ (4,327.16)	(1,287.06)	(1,440.29)	1,801.15	\$ (926.20)	-	-	84.30	\$ 84.30	-	689.00	372.36	\$ 1,061.36	\$ (4,107.70)
5/10/2022	(1,844.70)	(731.92)	2,065.99	\$ (510.63)	(5,596.10)	1,331.91	2,233.90	\$ (2,030.29)	(103.50)	(124.33)	753.46	\$ 525.63	-	1,193.20	16.98	\$ 1,210.18	\$ (805.11)
5/11/2022	(3,423.46)	1,199.55	1,803.23	\$ (420.68)	(4,154.40)	524.01	1,443.72	\$ (2,186.67)	-	(100.21)	99.19	\$ (1.02)	-	963.30	131.80	\$ 1,095.10	\$ (1,513.27)
5/12/2022	(2,613.80)	(629.45)	1,661.86	\$ (1,581.39)	(4,871.49)	2,470.38	1,641.90	\$ (759.21)	-	(928.41)	121.60	\$ (806.81)	-	1,719.52	(18.32)	\$ 1,701.20	\$ (1,446.21)
5/13/2022	(2,500.59)	(1,121.49)	1,919.19	\$ (1,702.89)	(2,381.29)	(420.66)	1,717.63	\$ (1,084.32)	(80.13)	(601.91)	900.05	\$ 218.01	-	2,096.20	(1,117.23)	\$ 978.97	\$ (1,590.23)
5/14/2022	(420.69)	(2,007.72)	1,911.15	\$ (517.26)	(1,247.90)	(1,090.20)	1,940.71	\$ (397.39)	-	-	84.79	\$ 84.79	-	851.07	11.54	\$ 862.61	\$ 32.75
5/15/2022	(4,712.53)	369.22	2,057.72	\$ (2,285.59)	(3,190.54)	(271.15)	2,494.67	\$ (967.02)	-	-	85.69	\$ 85.69	-	439.92	113.63	\$ 553.55	\$ (2,613.37)
5/16/2022	(615.15)	(382.40)	1,953.93	\$ 956.38	(4,705.06)	(499.97)	1,638.16	\$ 663.13	-	(0.67)	102.09	\$ 101.42	-	558.53	24.40	\$ 582.93	\$ 2,303.86
5/17/2022	(1,176.90)	(1,464.89)	1,611.12	\$ (1,030.67)	(751.63)	(1,343.85)	1,257.76	\$ (837.72)	-	-	79.71	\$ 79.71	-	1,277.33	(38.64)	\$ 1,238.69	\$ (549.99)
5/18/2022	(1,799.13)	457.00	1,724.35	\$ 382.22	(1,290.21)	(1,720.96)	2,007.49	\$ (1,003.68)	-	-	79.21	\$ 79.21	-	533.58	(88.49)	\$ 445.09	\$ (97.16)
5/19/2022	(9,229.14)	2,841.84	2,385.81	\$ (4,001.49)	(9,974.16)	(169.26)	3,444.82	\$ (6,698.60)	-	-	102.20	\$ 102.20	-	2,015.74	(61.62)	\$ 1,954.12	\$ (8,643.77)
5/20/2022	(10,514.52)	1,896.55	2,562.56	\$ (6,055.41)	(11,681.46)	(225.02)	3,487.65	\$ (8,418.83)	-	-	80.84	\$ 80.84	-	2,539.67	125.98	\$ 2,665.65	\$ (11,727.75)
5/21/2022	(2,932.25)	(136.18)	2,049.47	\$ (1,018.96)	(1,909.22)	(749.59)	1,819.38	\$ (839.43)	-	-	85.50	\$ 85.50	-	1,206.25	(81.09)	\$ 1,125.16	\$ (647.73)
5/22/2022	(2,206.77)	(1,432.83)	1,682.45	\$ (1,957.15)	(1,040.55)	(658.17)	1,243.33	\$ (455.39)	-	-	85.30	\$ 85.30	-	556.84	(68.73)	\$ 488.11	\$ (1,838.13)
5/23/2022	(2,154.70)	291.95	2,075.58	\$ 212.83	(1,002.80)	(835.43)	1,270.50	\$ (567.73)	-	-	83.12	\$ 83.12	-	539.62	(28.39)	\$ 511.23	\$ 239.45
5/24/2022	(1,721.32)	(889.29)	1,988.72	\$ (621.89)	(292.90)	(1,142.37)	948.51	\$ (1,486.76)	-	-	81.32	\$ 81.32	-	1,229.20	(39.83)	\$ 1,189.37	\$ 162.04
5/25/2022	(3,880.01)	1,404.56	1,881.24	\$ (594.21)	(1,528.21)	(918.60)	1,088.47	\$ (1,358.34)	-	-	71.61	\$ 71.61	-	810.13	101.24	\$ 911.37	\$ (969.57)
5/26/2022	(604.86)	(625.73)	1,562.68	\$ 332.09	(2,021.95)	(346.13)	1,581.98	\$ (786.10)	-	-	74.69	\$ 74.69	-	825.83	51.78	\$ 877.61	\$ 498.29
5/27/2022	(1,076.04)	470.18	1,761.95	\$ 1,156.09	(996.12)	(824.99)	1,450.58	\$ (370.53)	-	-	75.57	\$ 75.57	-	489.84	13.98	\$ 503.82	\$ 1,364.95
5/28/2022	(182.54)	91.89	1,115.62	\$ 1,024.97	(271.17)	(388.83)	1,095.47	\$ 435.47	-	-	77.24	\$ 77.24	-	28.52	2.58	\$ 31.10	\$ 1,568.78
5/29/2022	(294.88)	(153.90)	1,389.95	\$ 941.17	(386.96)	(511.92)	1,501.12	\$ 602.24	-	-	72.53	\$ 72.53	-	7.70	(78.57)	\$ (70.87)	\$ 1,545.07
5/30/2022	(994.14)	(472.04)	1,373.62	\$ (92.56)	(555.26)	(586.79)	1,280.16	\$ 138.11	-	-	68.42	\$ 68.42	-	323.75	68.87	\$ 392.62	\$ 506.59
5/31/2022	(3,500.28)	3,319.75	1,798.15	\$ 1,617.62	(3,092.49)	339.31	1,987.76	\$ (765.42)	-	-	63.93	\$ 63.93	-	7.93	(61.62)	\$ (53.69)	\$ 862.44
May Total	\$ (75,642.08)	\$ (1,348.14)	\$ 61,421.96	\$ (15,568.26)	\$ (83,772.63)	\$ (13,725.71)	\$ 56,433.52	\$ (41,064.82)	\$ (183.63)	\$ (1,755.57)	\$ 4,212.50	\$ 2,273.30	\$	\$ 24,095.20	\$ (466.85)	\$ 23,628.35	\$ (30,731.43)
6/1/2022	(296.50)	(2,365.64)	1,606.72	\$ (1,055.42)	(2,608.77)	(587.56)	2,014.77	\$ (1,181.56)	-	(0.58)	95.82	\$ 95.24	-	600.88	(15.41)	\$ 585.47	\$ (1,556.27)
6/2/2022	(1,439.43)	(484.65)	1,203.16	\$ (720.92)	(1,320.57)	(1,148.03)	1,186.84	\$ (1,281.76)	-	-	73.86	\$ 73.86	-	961.72	106.72	\$ 1,068.44	\$ (860.38)
6/3/2022	(2,068.35)	1,254.21	1,340.38	\$ 526.24	(1,041.24)	(786.40)	859.59	\$ (968.05)	-	-	71.44	\$ 71.44	-	485.10	60.53	\$ 545.63	\$ 175.26
6/4/2022	(1,240.30)	720.35	1,284.59	\$ 764.64	(816.92)	(572.92)	1,273.91	\$ (115.93)	-	-	74.60	\$ 74.60	-	511.50	(36.00)	\$ 475.50	\$ 1,198.81
6/5/2022	(1,262.79)	(264.89)	1,186.13	\$ (341.55)	(265.26)	(685.64)	1,096.62	\$ 145.72	-	-	75.52	\$ 75.52	-	236.96	65.44	\$ 302.40	\$ 182.09
6/6/2022	(1,245.63)	542.30	1,536.84	\$ 833.51	(451.80)	(2,239.54)	1,813.40	\$ (877.94)	-	-	71.52	\$ 71.52	-	411.21	39.09	\$ 450.30	\$ 477.39
6/7/2022	(570.36)	(506.75)	1,650.78	\$ 573.67	(1,526.66)	(847.09)	2,107.13	\$ (266.62)	-	-	74.71	\$ 74.71	-	84.12	227.09	\$ 311.21	\$ 692.97
6/8/2022	-	(3,052.45)	1,532.52	\$ (1,519.93)	(1,346.88)	(493.23)	1,942.17	\$ 156.06	-	-	69.73	\$ 69.73	-	737.65	41.90	\$ 779.55	\$ (514.59)
6/9/2022	(613.10)	154.52	1,676.25	\$ 1,217.67	(1,973.37)	(861.33)	1,856.23	\$ (978.47)	-	-	73.51	\$ 73.51	-	243.72	(72.77)	\$ 170.95	\$ 483.66
6/10/2022	(1,018.35)	300.22	1,525.07	\$ 806.94	(1,067.76)	(156.00)	1,002.42	\$ (221.34)	-	(0.03)	80.23	\$ 80.20	-	47.06	29.23	\$ 76.29	\$ 742.09
6/11/2022	-	(89.16)	1,298.78	\$ 1,209.62	(538.35)	(205.09)	1,260.41	\$ 516.97	-	-	73.67	\$ 73.67	-	40.67	(12.98)	\$ 27.69	\$ 1,827.95
6/12/2022	(128.30)	(154.65)	1,214.23	\$ 931.28	(394.72)	(2,656.93)	722.24	\$ (2,329.41)	-	-	416.92	\$ 416.92	-	32.79	(16.36)	\$ 16.43	\$ (964.78)
6/13/2022	(1,292.02)	(2,000.92)	1,195.62	\$ (2,097.32)	(1,938.23)	(410.12)	1,416.28	\$ (932.07)	-	(78.24)	59.49	\$ (18.75)	-	1,264.00	62.09	\$ 1,326.09	\$ (1,722.05)
6/14/2022	(1,734.13)	1.17	1,588.80	\$ (144.16)	(2,985.81)	(88.07)	1,850.40	\$ (1,223.48)	(78.02)	(10.16)	1,552.61	\$ 1,464.43	-	774.65	(224.88)	\$ 549.77	\$ 646.56
6/15/2022	(723.47)	(3,638.31)	1,286.09	\$ (3,075.69)	(2,674.46)	(139.88)	1,024.27	\$ (1,790.07)	-	(45.66)	91.40	\$ 45.74	-	2,037.24	191.27	\$ 2,228.51	\$ (2,591.51)
6/16/2022	(3,087.16)	1,860.25	1,418.72	\$ 191.61	(1,390.24)	(741.27)	1,045.96	\$ (1,085.55)	-	(9.76)	85.05	\$ 75.29	-	125.46	(187.55)	\$ (62.09)	\$ (880.54)
6/17/2022	(1,524.65)	1,241.20	1,455.75	\$ 1,172.30	(1,782.20)	(274.19)	1,778.68	\$ (277.71)	-	(0.87)	143.25	\$ 142.38	-	49.27	(28.56)	\$ 20.71	\$ 1,057.68
6/18/2022	(1,304.70)	187.95	1,134.11	\$ 17.36	(318.20)	125.13	899.52	\$ 706.45	-	-	64.06	\$ 64.06	-	4.29	(57.18)	\$ (52.89)	\$ 734.98
6/19/2022	(689.20)	350.39	848.57	\$ 509.76	(165.60)	88.44	792.31	\$ 715.15	-	-	68.70	\$ 68.70	-	102.31	10.60	\$ 112.91	\$ 1,406.52
6/20/2022	(1,567.45)	509.04	1,243.11	\$ 184.70	(1,208.75)	88.82	1,294.58	\$ 174.65	-	(7.77)	139.34	\$ 131.57	-	462.28	(336.33)	\$ 125.95	\$ 618.87
6/21/2022	(1,265.16)	13.37	1,224.00	\$ (27.79)	(2,107.44)	(111.51)	1,522.94	\$ (696.01)	(117.60)	(71.19)	1,277.95	\$ 1,089.16	-	749.89	129.37	\$ 879.26	\$ 1,244.62
6/22/2022	(809.95)	(101.66)	1,566.18	\$ 654.57	(4,933.65)	(222.12)	1,710.78	\$ (3,444.99)	(258.87)	(385.67)	1,757.72	\$ 1,113.18	-	667.14	(11.79)	\$ 655.35	\$ (1,021.89)
6/23/2022	(634.72)	(304.82)	1,137.85	\$ 198.31	(873.78)	(632.20)	1,052.29	\$ (453.69)	(9.50)	(25.32)	697.80	\$ 662.98	-	698.92	(4.64)	\$ 694.28	\$ 1,101.88
6/24/2022	(1,292.49)	567.24	1,293.02	\$ 567.77	(2,193.89)	607.23	973.81	\$ (612.85)	-	(4.64)	154.24	\$ 149.60	-	161.00	32.15	\$ 193.15	\$ 297.67
6/25/2022	(1,461.44)	(95.34)	1,245.58	\$ (311.20)	(1,691.06)	284.76	1,239.67	\$ (166.63)	-	-	111.56	\$ 111.56	-	375.33	(1.27)	\$ 374.06	\$ 7.79
6/26/2022	(924.96)	(44.46)	1,265.65	\$ 296.23	(1,078.07)	290.26	822.84	\$ 35.03	-	(0.14)	76.79	\$ 76.65	-	19.05	(47.73)	\$ (28.68)	\$ 379.23
6/27/2022	(524.65)	(1,826.33)	1,076.02	\$ (1,274.96)	(2,337.52)	90.91	1,224.92	\$ (1,021.69)	-	(2.39)	111.22</						

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
7/1/2022	(978.48)	(276.10)	1,388.30	\$ 133.72	(2,345.33)	(187.35)	1,131.61	\$ (1,401.07)	(26.69)	(53.98)	714.46	\$ 633.79	-	301.80	(10.64)	\$ 291.16	\$ (342.40)
7/2/2022	(1,616.06)	(1,052.66)	940.16	\$ (1,728.56)	(582.00)	(219.77)	439.62	\$ (362.15)	-	(2.46)	113.45	\$ 110.99	-	459.41	(122.64)	\$ 336.77	\$ (1,642.95)
7/3/2022	(2,291.72)	(4,007.69)	641.11	\$ (5,658.30)	(470.77)	1,465.97	(714.55)	\$ 280.65	(0.80)	0.60	561.32	\$ 561.12	-	3,563.16	1,256.10	\$ 4,819.26	\$ 2.73
7/4/2022	(1,893.46)	1,792.70	918.16	\$ 817.40	(533.08)	409.09	440.92	\$ 316.93	-	(0.04)	99.96	\$ 99.92	-	167.31	182.11	\$ 349.42	\$ 1,583.67
7/5/2022	(822.83)	(60.33)	1,232.57	\$ 349.41	(1,669.54)	(383.55)	1,175.07	\$ (878.02)	(148.76)	(131.32)	1,069.65	\$ 789.57	-	193.91	(52.40)	\$ 141.51	\$ 402.47
7/6/2022	(975.48)	(409.89)	1,766.84	\$ 381.47	(3,484.45)	(1,303.31)	1,276.93	\$ (3,510.83)	(123.34)	(135.14)	1,023.76	\$ 765.28	-	182.64	204.02	\$ 386.66	\$ (1,977.42)
7/7/2022	(554.99)	(3,066.21)	1,549.25	\$ (2,071.95)	(2,374.72)	(4,917.56)	1,630.80	\$ (5,661.48)	(168.05)	(1,214.52)	1,798.13	\$ 415.56	-	194.16	495.47	\$ 689.63	\$ (6,628.24)
7/8/2022	(601.94)	(324.67)	1,398.01	\$ 471.40	(1,076.60)	94.14	1,014.57	\$ 32.11	-	(0.83)	126.38	\$ 125.55	-	345.97	(62.98)	\$ 282.99	\$ 912.05
7/9/2022	(1,450.34)	(9,759.27)	(603.17)	\$ (11,812.78)	(445.28)	3,387.40	(4,626.46)	\$ (1,684.34)	-	(0.03)	2,289.46	\$ 2,289.43	-	438.18	2,982.32	\$ 3,420.50	\$ (7,787.19)
7/10/2022	(2,807.70)	(10,401.92)	(1,835.85)	\$ (15,045.47)	(477.43)	4,459.72	(6,746.55)	\$ (2,764.26)	-	-	4,848.88	\$ 4,848.88	-	4,098.29	3,395.38	\$ 7,493.67	\$ (5,467.18)
7/11/2022	(5,161.26)	2,334.19	1,357.20	\$ (1,469.87)	(1,759.91)	181.55	958.58	\$ (619.78)	-	(1.80)	107.69	\$ 105.89	-	567.50	238.48	\$ 805.98	\$ (1,177.78)
7/12/2022	(1,006.72)	211.75	1,574.56	\$ 779.59	(760.17)	1,046.56	1,080.82	\$ 1,367.21	(20.14)	(191.84)	749.63	\$ 537.65	-	234.92	(225.56)	\$ 9.36	\$ 2,693.81
7/13/2022	(326.56)	(305.98)	1,364.21	\$ 731.67	(1,012.12)	(473.46)	1,632.54	\$ 146.96	(27.92)	(61.19)	1,531.71	\$ 1,442.60	-	178.30	(98.12)	\$ 80.18	\$ 2,401.41
7/14/2022	(2,139.90)	622.86	1,386.28	\$ (130.76)	(2,406.96)	184.97	978.93	\$ (1,243.06)	-	(1.81)	154.53	\$ 152.72	-	686.82	19.74	\$ 706.56	\$ (514.54)
7/15/2022	(880.66)	437.06	1,503.24	\$ 1,059.64	(3,328.50)	1,037.64	1,222.88	\$ (1,067.98)	(38.30)	(17.76)	895.31	\$ 839.25	-	45.92	(123.79)	\$ (77.87)	\$ 753.04
7/16/2022	-	(37.99)	1,538.68	\$ 1,500.69	(3,381.36)	3,545.12	882.97	\$ 1,046.73	(137.64)	35.72	806.93	\$ 705.01	-	1.54	(28.32)	\$ (26.78)	\$ 3,225.65
7/17/2022	-	(372.90)	1,468.34	\$ 1,095.44	(336.93)	(1,709.58)	754.33	\$ (1,292.18)	(4.81)	(3.11)	762.15	\$ 754.23	-	693.64	(20.77)	\$ 672.87	\$ 1,230.36
7/18/2022	(1,493.77)	277.56	1,711.09	\$ 494.88	(2,335.98)	4,210.33	695.66	\$ 2,570.01	(193.31)	(45.53)	1,380.66	\$ 1,141.82	-	262.11	68.34	\$ 330.45	\$ 4,537.16
7/19/2022	(3,259.37)	(12.11)	1,238.67	\$ (2,032.81)	(2,241.97)	363.81	713.26	\$ (1,164.90)	(30.42)	46.38	732.01	\$ 747.97	-	319.60	1,386.30	\$ 1,705.90	\$ (743.84)
7/20/2022	(1,096.03)	(465.32)	1,388.13	\$ (173.22)	(2,319.45)	572.53	951.70	\$ (795.22)	(15.98)	(4.66)	618.27	\$ 597.63	-	607.23	(1.29)	\$ 605.94	\$ 235.13
7/21/2022	(1,469.31)	517.27	1,767.59	\$ 815.55	(3,577.21)	(318.30)	1,800.42	\$ (2,095.09)	(165.40)	(54.24)	1,744.94	\$ 1,525.30	-	382.15	102.43	\$ 484.58	\$ 730.34
7/22/2022	(1,283.39)	316.35	1,552.43	\$ 585.39	(2,378.66)	2,892.77	253.87	\$ 767.98	(144.52)	(212.58)	1,169.40	\$ 812.30	-	413.78	332.55	\$ 746.33	\$ 2,912.00
7/23/2022	(2,002.21)	(83.99)	1,416.27	\$ (669.93)	(1,085.88)	(2.15)	1,117.96	\$ 29.93	-	(0.35)	111.65	\$ 111.30	-	694.05	(128.26)	\$ 565.79	\$ 37.09
7/24/2022	(1,467.31)	(629.81)	1,552.43	\$ (544.69)	(881.92)	82.48	895.18	\$ 95.74	-	(0.17)	465.69	\$ 465.52	-	676.72	81.08	\$ 757.80	\$ 774.37
7/25/2022	(2,252.19)	(756.81)	1,403.66	\$ (1,605.34)	(1,069.08)	0.49	971.76	\$ (96.83)	-	(1.92)	120.31	\$ 118.39	-	1,360.40	(102.67)	\$ 1,257.73	\$ (326.05)
7/26/2022	(2,066.04)	960.14	1,056.13	\$ (49.77)	(1,220.05)	60.66	866.86	\$ (292.53)	-	(0.74)	119.89	\$ 119.15	-	281.22	6.89	\$ 288.11	\$ 64.96
7/27/2022	(3,228.24)	(2,489.22)	812.43	\$ (4,905.03)	(1,516.74)	(3,363.94)	703.20	\$ (4,177.48)	-	(4,377.63)	(733.49)	\$ (5,111.12)	-	1,274.72	2,175.63	\$ 3,450.35	\$ (10,743.28)
7/28/2022	(1,810.49)	1,293.44	1,098.46	\$ 581.41	(1,250.28)	705.92	758.99	\$ 214.63	-	-	71.12	\$ 71.12	-	104.39	(35.88)	\$ 68.51	\$ 935.67
7/29/2022	(195.20)	(338.45)	1,193.40	\$ 659.75	(1,121.51)	(129.72)	935.87	\$ (315.36)	-	(1.83)	133.05	\$ 131.22	-	48.85	37.88	\$ 86.73	\$ 562.34
7/30/2022	(1,273.50)	(153.92)	987.19	\$ (440.23)	(514.23)	188.46	518.61	\$ 192.84	-	(1.32)	100.60	\$ 99.28	-	815.46	(17.70)	\$ 797.76	\$ 649.65
7/31/2022	(2,406.14)	668.94	987.54	\$ (749.66)	(801.39)	267.94	772.78	\$ 239.33	-	-	86.89	\$ 86.89	-	125.13	(147.62)	\$ (22.49)	\$ (445.93)
July Total	\$ (48,811.29)	\$ (25,572.98)	\$ 35,753.31	\$ (38,630.96)	\$ (48,759.50)	\$ 12,148.86	\$ 14,489.13	\$ (22,121.51)	\$ (1,246.08)	\$ (6,434.10)	\$ 23,774.39	\$ 16,094.21	\$ -	\$ 19,719.28	\$ 11,786.08	\$ 31,505.36	\$ (13,152.90)
8/1/2022	(1,799.04)	995.92	1,328.61	\$ 525.49	(1,799.58)	945.87	1,010.43	\$ 156.72	-	(615.79)	133.68	\$ (482.11)	-	356.47	(122.86)	\$ 233.61	\$ 433.71
8/2/2022	(1,582.94)	638.48	1,573.52	\$ 629.06	(4,298.72)	1,580.50	1,451.56	\$ (1,266.66)	(5.17)	(2.49)	124.88	\$ 117.22	-	265.69	(113.61)	\$ 152.08	\$ (368.30)
8/3/2022	(2,060.73)	575.49	1,739.60	\$ 254.36	(8,713.28)	2,817.94	1,462.02	\$ (4,433.32)	(64.88)	(18.94)	1,076.20	\$ 992.38	-	458.05	(144.02)	\$ 314.03	\$ (2,872.55)
8/4/2022	(2,010.22)	(1,418.65)	1,265.25	\$ (2,163.62)	(3,499.91)	794.89	1,365.17	\$ (1,339.85)	(44.32)	(276.12)	948.94	\$ 628.50	-	502.83	367.44	\$ 870.27	\$ (2,004.70)
8/5/2022	(1,499.80)	(2,099.75)	1,161.89	\$ (2,437.66)	(3,095.92)	147.88	1,246.16	\$ (1,701.88)	-	(592.66)	110.29	\$ (482.37)	-	734.57	(126.54)	\$ 608.03	\$ (4,013.88)
8/6/2022	(1,484.46)	(2,753.03)	1,173.50	\$ (3,063.99)	(4,275.87)	737.36	1,201.71	\$ (2,336.80)	-	(9.25)	106.38	\$ 97.13	-	1,971.63	32.38	\$ 2,004.01	\$ (3,299.65)
8/7/2022	(1,423.62)	(672.10)	1,548.72	\$ (547.00)	(588.27)	(183.31)	1,609.91	\$ 838.33	-	(21.57)	107.49	\$ 85.92	-	895.56	(180.76)	\$ 714.80	\$ 1,092.05
8/8/2022	(1,857.18)	(5,336.26)	1,252.93	\$ (5,940.51)	(1,437.32)	(1,798.87)	755.39	\$ (2,480.80)	-	(19.24)	340.77	\$ 321.53	-	1,007.01	3,094.90	\$ 4,101.91	\$ (3,997.87)
8/9/2022	(1,544.39)	785.38	1,595.88	\$ 836.87	(2,620.33)	635.67	1,123.01	\$ (861.65)	(23.79)	(10.79)	662.74	\$ 628.16	-	271.85	(72.87)	\$ 198.98	\$ 802.36
8/10/2022	(2,514.23)	2,065.53	1,407.41	\$ 958.71	(1,810.11)	334.38	1,328.67	\$ (147.06)	-	(38.66)	157.93	\$ 119.27	-	128.57	(43.44)	\$ 85.13	\$ 1,016.05
8/11/2022	(2,356.23)	641.96	1,048.49	\$ (665.78)	(1,462.50)	56.16	981.43	\$ (424.91)	-	(2.17)	91.47	\$ 89.30	-	232.89	(80.11)	\$ 152.78	\$ (848.61)
8/12/2022	(2,791.30)	728.27	707.43	\$ (1,355.60)	(357.50)	(52.08)	488.41	\$ 78.63	-	-	68.77	\$ 68.77	-	2,483.77	(83.38)	\$ 2,400.39	\$ 1,192.39
8/13/2022	(2,255.50)	1,482.66	323.44	\$ (449.40)	(533.19)	148.02	587.94	\$ 202.77	-	-	75.01	\$ 75.01	-	404.19	(161.59)	\$ 242.60	\$ 70.98
8/14/2022	(2,227.79)	1,528.95	710.67	\$ 11.83	(618.54)	99.03	637.13	\$ 117.62	-	-	76.72	\$ 76.72	-	377.02	(0.29)	\$ 376.73	\$ 582.90
8/15/2022	(1,492.77)	578.41	913.71	\$ (0.65)	(1,341.08)	970.74	575.25	\$ 204.91	-	(0.03)	92.91	\$ 92.88	-	551.14	27.98	\$ 579.12	\$ 876.26
8/16/2022	(1,709.43)	1,635.56	996.01	\$ 922.14	(1,256.55)	742.07	915.03	\$ 400.55	-	-	87.41	\$ 87.41	-	260.60	(15.13)	\$ 245.47	\$ 1,655.57
8/17/2022	(834.03)	367.19	1,246.27	\$ 779.43	(1,521.60)	68.93	1,254.41	\$ (198.26)	-	-	96.71	\$ 96.71	-	317.14	55.17	\$ 372.31	\$ 1,050.19
8/18/2022	(814.35)	432.55	1,206.25	\$ 824.45	(1,428.88)	99.08	814.74	\$ (515.06)	-	(0.55)	102.01	\$ 101.46	-	190.49	(40.98)	\$ 149.51	\$ 506.36
8/19/2022	(972.40)	59.52	1,246.33	\$ 333.45	(1,512.04)	117.38	907.39	\$ (487.27)	-	(2.01)	99.23	\$ 97.22	-	210.24	(13.57)	\$ 196.67	\$ 140.07
8/20/2022	(982.55)	188.52	1,245.26	\$ 451.23	(1,482.20)	(134.20)	813.16	\$ (803.24)	-	-	95.41	\$ 95.41	-	78.72	(32.18)	\$ 46.54	\$ (210.06)
8/21/2022	(991.35)	415.54	1,008.25	\$ 432.44	(1,084.86)	691.42	83.56	\$ (309.88)	-	-	936.91	\$ 936.91	-	359.87	(15.75)	\$ 344.12	\$ 1,403.59
8/22/2022	(525.41)	(490.71)	1,111.01	\$ 94.89	(1,329.39)	644.15	603.63	\$ (81.61)	-	(0.12)	110.59	\$ 110.47	-	539.48	(136.95)	\$ 402.53	\$ 526.28
8/23/2022	(333.57)	(630.70)	908.77	\$ (55.50)	(1,528.10)	2,696.61	244.61	\$ 1,413.12	-	(0.46)	380.49	\$ 380.03	-	383.81	(167.47)	\$ 216.34	\$ 1,953.99
8/24/2022	(758.41)	(216.05)	988.54	\$ 14.08	(1,492.46)	110.57	599.88	\$ (782.01)	-	-	86.89	\$ 86.89	-	480.89	5.82	\$ 486.71	\$ (194.33)
8/25/2022	(478.53)	(403.01)	1,119.77	\$ 238.23	(2,113.43)	685.18	806.58	\$ (621.67)	-	-	88.71	\$ 88.71	-	179.37	(45.42)	\$ 133.95	\$ (160.78)
8/26/2022	(762.26)	258.00	1,352.14	\$ 847.88	(2,235.26)	217.21	831.65	\$ (1,186.40)	-	(0.58)	88.06						

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
9/1/2022	(1,540.44)	509.33	1,526.40	\$ 495.29	(2,972.05)	279.59	1,253.99	(1,438.47)	(1.39)	(1.33)	113.20	\$ 110.48	-	349.07	(107.25)	\$ 241.82	\$ (590.88)
9/2/2022	(1,907.49)	1,296.91	1,598.50	\$ 987.92	(2,853.88)	68.48	1,196.76	(1,588.64)	-	-	126.95	\$ 126.95	-	171.29	(0.85)	\$ 170.44	\$ (303.33)
9/3/2022	(1,245.21)	605.35	1,084.71	\$ 444.85	(824.91)	65.98	613.75	(145.18)	-	(0.05)	75.99	\$ 75.94	-	128.01	(34.55)	\$ 93.46	\$ 469.07
9/4/2022	(1,749.68)	1,698.21	1,048.11	\$ 996.64	(274.41)	(279.36)	534.03	(19.74)	-	(0.01)	82.77	\$ 82.76	-	166.24	(4.64)	\$ 161.60	\$ 1,221.26
9/5/2022	(899.31)	(18.44)	1,328.60	\$ 410.85	(674.54)	(685.63)	604.72	(755.45)	-	(0.17)	111.05	\$ 110.88	-	432.33	2.53	\$ 434.86	\$ 201.14
9/6/2022	(529.93)	177.23	1,562.21	\$ 1,209.51	(2,910.54)	(380.99)	1,224.10	(2,067.43)	-	(55.68)	141.28	\$ 85.60	-	236.74	(40.19)	\$ 196.55	\$ (575.77)
9/7/2022	(1,172.05)	995.54	1,704.95	\$ 1,528.44	(3,815.90)	709.74	1,202.15	(1,904.01)	-	(0.84)	123.84	\$ 123.00	-	85.61	(27.90)	\$ 57.71	\$ (194.86)
9/8/2022	(904.19)	(136.19)	1,148.15	\$ 107.77	(1,374.40)	(288.96)	(182.70)	(1,846.06)	-	(1.16)	104.09	\$ 102.93	-	265.32	(111.68)	\$ 153.64	\$ (1,481.72)
9/9/2022	(593.34)	(541.19)	1,251.63	\$ 117.10	(1,821.61)	(1,529.46)	364.98	(2,986.09)	-	(78.17)	387.68	\$ 309.51	-	130.98	21.74	\$ 152.72	\$ (2,406.76)
9/10/2022	-	(117.06)	1,344.26	\$ 1,227.20	(199.20)	(1,408.71)	659.95	(947.96)	-	(0.12)	78.29	\$ 78.17	-	2.94	(1.43)	\$ 1.51	\$ 358.92
9/11/2022	-	(95.92)	1,368.99	\$ 1,273.07	(131.04)	(1,467.42)	472.26	(1,126.20)	-	(4.12)	79.30	\$ 75.18	-	29.64	(0.80)	\$ 28.84	\$ 250.89
9/12/2022	-	(207.85)	1,108.21	\$ 900.36	(264.84)	(1,249.45)	801.02	(713.27)	-	(0.99)	75.46	\$ 74.47	-	0.65	(13.34)	\$ (12.69)	\$ 248.87
9/13/2022	(306.88)	(237.66)	1,138.81	\$ 594.27	(275.32)	(977.02)	809.77	(442.57)	-	(6.94)	107.72	\$ 100.78	-	216.02	(7.14)	\$ 208.88	\$ 461.36
9/14/2022	(1,017.81)	(41.37)	1,020.45	\$ (38.73)	(602.44)	(1,067.69)	702.13	(968.00)	-	(3.95)	69.80	\$ 65.85	-	600.10	46.53	\$ 646.63	\$ (294.25)
9/15/2022	(615.15)	(529.77)	951.48	\$ (193.44)	(715.06)	(2,098.53)	668.83	(2,144.76)	-	-	92.14	\$ 92.14	-	234.31	220.96	\$ 455.27	\$ (1,790.79)
9/16/2022	(435.72)	(0.46)	1,157.72	\$ 721.54	(2,126.20)	(805.09)	1,062.95	(1,868.34)	-	(3.87)	103.73	\$ 99.86	-	197.20	(1.80)	\$ 195.40	\$ (851.54)
9/17/2022	(437.90)	(667.10)	1,177.47	\$ 72.47	(785.08)	(214.72)	1,018.35	(18.55)	-	(0.98)	251.26	\$ 250.28	-	670.35	26.11	\$ 696.46	\$ 1,037.76
9/18/2022	(613.48)	(553.36)	1,324.26	\$ 157.42	(1,037.84)	(883.63)	1,160.09	(761.38)	-	(0.55)	223.29	\$ 222.74	-	517.59	8.22	\$ 525.81	\$ 144.59
9/19/2022	(650.54)	(496.11)	1,767.40	\$ 620.75	(1,602.29)	(2,092.55)	1,851.22	(1,843.62)	-	(2.95)	118.41	\$ 115.46	-	226.41	429.13	\$ 655.54	\$ (451.87)
9/20/2022	(897.95)	622.28	1,314.28	\$ 1,038.61	(3,202.74)	(320.78)	1,424.18	(2,099.34)	(843.80)	59.00	1,029.89	\$ 245.09	-	274.53	53.00	\$ 327.53	\$ (488.11)
9/21/2022	(2,600.30)	1,328.28	1,310.33	\$ 38.31	(1,533.73)	(1,425.91)	1,269.51	(1,690.13)	-	-	103.67	\$ 103.67	-	537.52	(152.21)	\$ 385.31	\$ (1,162.84)
9/22/2022	(820.92)	9.03	1,207.52	\$ 395.63	(581.17)	(1,168.12)	651.18	(1,098.11)	-	-	74.26	\$ 74.26	-	100.02	(41.21)	\$ 58.81	\$ (569.41)
9/23/2022	(1,315.52)	669.50	1,154.48	\$ 508.46	(311.52)	(1,291.99)	726.64	(876.87)	-	-	80.20	\$ 80.20	-	383.91	(21.16)	\$ 362.75	\$ 74.54
9/24/2022	(3,227.28)	2,079.00	1,204.52	\$ 56.24	(914.75)	(1,191.77)	766.27	(1,340.25)	-	-	85.71	\$ 85.71	-	839.76	(14.89)	\$ 824.87	\$ (373.43)
9/25/2022	(1,317.20)	1,027.25	1,206.01	\$ 916.06	(461.05)	(617.42)	792.36	(286.11)	-	-	87.17	\$ 87.17	-	6.08	(122.18)	\$ (116.10)	\$ 601.02
9/26/2022	(1,117.28)	220.54	1,059.89	\$ 163.15	(283.56)	(1,035.40)	770.75	(548.21)	-	(0.14)	91.88	\$ 91.74	-	386.96	(61.61)	\$ 325.35	\$ 32.03
9/27/2022	(736.08)	107.96	1,280.03	\$ 651.91	(722.94)	(457.23)	613.75	(566.42)	-	(3.41)	95.71	\$ 92.30	-	6.90	(3.03)	\$ 3.87	\$ 181.66
9/28/2022	(991.09)	174.85	1,286.74	\$ 470.50	(451.13)	(650.84)	633.89	(468.08)	-	(6.96)	90.12	\$ 83.16	-	324.29	114.92	\$ 439.21	\$ 524.79
9/29/2022	(752.48)	429.28	1,152.26	\$ 829.06	(576.00)	(317.13)	894.82	(1.69)	-	-	90.01	\$ 90.01	-	45.84	17.92	\$ 63.76	\$ 984.52
9/30/2022	(1,072.00)	655.15	1,042.07	\$ 625.22	(564.48)	(109.47)	902.58	(228.63)	-	-	87.31	\$ 87.31	-	117.23	(6.03)	\$ 111.20	\$ 1,052.36
September Total	\$ (29,467.22)	\$ 8,963.21	\$ 37,830.44	\$ 17,326.43	\$ (34,864.62)	\$ (22,891.48)	\$ 25,464.28	\$ (32,291.82)	\$ (845.19)	\$ (113.39)	\$ 4,382.18	\$ 3,423.60	\$ -	\$ 7,683.84	\$ 167.17	\$ 7,851.01	\$ (3,690.78)
10/1/2022	(2,646.24)	2,145.64	1,470.19	\$ 969.59	(751.20)	(605.13)	1,340.54	(15.79)	-	-	92.58	\$ 92.58	-	50.04	(20.57)	\$ 29.47	\$ 1,075.85
10/2/2022	(1,083.04)	625.43	606.35	\$ 148.74	(625.68)	(287.12)	1,117.03	(204.23)	-	-	91.43	\$ 91.43	-	598.98	(72.16)	\$ 526.82	\$ 971.22
10/3/2022	(702.00)	308.28	1,307.76	\$ 914.04	(1,083.52)	912.46	1,080.82	\$ 909.76	-	(0.02)	735.40	\$ 735.38	-	90.95	54.44	\$ 145.39	\$ 2,704.57
10/4/2022	(1,343.69)	304.71	1,610.43	\$ 571.45	(749.28)	(1,109.99)	1,954.61	\$ 95.34	-	-	139.33	\$ 139.33	-	435.40	75.44	\$ 510.84	\$ 1,316.96
10/5/2022	(1,280.78)	(181.84)	1,446.26	\$ (16.36)	(1,159.64)	(442.56)	1,178.59	(423.61)	-	(0.07)	126.74	\$ 126.67	-	328.66	5.60	\$ 334.26	\$ 20.96
10/6/2022	(1,566.24)	842.00	1,392.86	\$ 668.62	(1,123.36)	(85.27)	1,300.30	\$ 91.67	-	-	84.15	\$ 84.15	-	836.19	(7.93)	\$ 828.26	\$ 1,672.70
10/7/2022	(1,429.08)	195.67	1,858.39	\$ 624.98	(1,590.40)	673.19	1,575.81	\$ 658.60	-	-	88.21	\$ 88.21	-	650.11	105.36	\$ 755.47	\$ 2,127.26
10/8/2022	(296.00)	42.06	627.59	\$ 373.65	(402.54)	(12.21)	1,753.25	\$ 1,338.50	-	-	84.69	\$ 84.69	-	157.32	33.31	\$ 190.63	\$ 1,987.47
10/9/2022	(605.20)	(406.26)	1,759.35	\$ 747.89	(707.04)	1,537.67	(893.12)	\$ (62.49)	-	-	1,810.65	\$ 1,810.65	-	340.92	6.22	\$ 347.14	\$ 2,843.19
10/10/2022	(1,314.90)	(233.83)	1,956.87	\$ 408.14	(1,055.10)	(1,808.53)	2,077.05	\$ (786.58)	-	(0.11)	447.42	\$ 447.31	-	615.43	550.89	\$ 1,166.32	\$ 1,235.19
10/11/2022	(3,989.68)	327.96	1,705.83	\$ (1,955.89)	(1,028.48)	(2,499.76)	1,329.78	\$ (2,198.46)	-	-	81.32	\$ 81.32	-	1,874.50	89.69	\$ 1,964.19	\$ (2,108.84)
10/12/2022	(5,157.91)	2,744.64	1,682.66	\$ (730.61)	(2,080.16)	31.76	1,140.48	\$ (907.92)	-	-	80.01	\$ 80.01	-	1,232.25	63.67	\$ 1,295.92	\$ (262.60)
10/13/2022	(3,941.14)	1,989.20	537.37	\$ (1,414.57)	(1,222.26)	(193.07)	1,170.89	\$ (244.44)	-	-	80.42	\$ 80.42	-	1,357.29	12.58	\$ 1,369.87	\$ (208.72)
10/14/2022	(1,973.50)	(672.01)	1,731.98	\$ (913.53)	(840.90)	(728.57)	1,975.88	\$ 406.41	-	-	85.85	\$ 85.85	-	1,091.39	74.98	\$ 1,166.37	\$ 745.10
10/15/2022	(3,603.12)	1,759.97	1,361.73	\$ (481.42)	(836.12)	(945.95)	2,236.72	\$ 454.65	-	-	88.08	\$ 88.08	-	843.72	(41.96)	\$ 801.76	\$ 863.07
10/16/2022	(1,921.60)	(256.38)	1,638.37	\$ (539.61)	(630.75)	(603.51)	2,153.08	\$ 918.82	-	-	88.29	\$ 88.29	-	470.78	(55.76)	\$ 415.02	\$ 882.52
10/17/2022	(831.94)	(1,515.46)	1,632.75	\$ (714.65)	(486.72)	(226.54)	1,727.44	\$ 1,014.18	-	(0.22)	95.36	\$ 95.14	-	1,600.79	122.40	\$ 1,723.19	\$ 2,117.86
10/18/2022	(2,161.07)	304.64	1,551.99	\$ (304.44)	(1,293.14)	(284.06)	1,955.22	\$ 378.02	-	-	93.99	\$ 93.99	-	982.52	279.87	\$ 1,262.39	\$ 1,429.96
10/19/2022	(1,199.06)	157.50	1,655.56	\$ 614.00	(1,391.25)	(836.37)	2,195.24	\$ (32.38)	-	(7.71)	137.47	\$ 129.76	-	155.79	281.23	\$ 437.02	\$ 1,148.40
10/20/2022	(2,271.54)	612.93	1,426.67	\$ (231.94)	(2,548.78)	(124.31)	1,727.91	\$ (945.18)	-	(0.06)	117.83	\$ 117.77	-	312.51	16.82	\$ 329.33	\$ (730.02)
10/21/2022	(1,295.82)	750.82	1,519.80	\$ 974.80	(1,055.84)	491.60	1,602.26	\$ 1,038.02	-	(0.02)	104.01	\$ 103.99	-	200.88	46.29	\$ 247.17	\$ 2,363.98
10/22/2022	(3,424.77)	1,832.25	1,171.64	\$ (420.88)	(1,488.69)	389.26	1,440.70	\$ 341.27	-	-	86.49	\$ 86.49	-	619.42	76.42	\$ 695.84	\$ 702.72
10/23/2022	(1,187.84)	663.66	1,403.16	\$ 878.98	(1,449.80)	152.02	1,865.78	\$ 568.00	-	-	82.44	\$ 82.44	-	-	-	\$ -	\$ 1,529.42
10/24/2022	(3,622.40)	1,448.57	1,549.59	\$ (624.24)	(1,757.50)	137.78	2,207.79	\$ 588.07	-	-	95.53	\$ 95.53	-	792.58	647.46	\$ 1,440.04	\$ 1,499.40
10/25/2022	(1,456.66)	(40.00)	1,262.14	\$ (234.52)	(854.84)	(138.56)	1,589.09	\$ 595.69	-	-	136.61	\$ 136.61	-	386.80	46.13	\$ 432.93	\$ 930.71
10/26/2022	(1,687.79)	929.63	1,402.15	\$ 643.99	(1,387.35)	(405.84)	1,853.77	\$ 60.58	-	(4.52)	136.52	\$ 132.00	-	371.92	(2.92)	\$ 369.00	\$ 1,205.57
10/27/2022	(2,789.60)	(214.13)	1,260.38	\$ (1,743.35)	(1,410.53)	(272.54)	1,581.03	\$ (102.04)	-	-	127.10	\$ 127.10	-	652.50	134.37	\$ 786.87	\$ (931.42)
10/28/2022	(1,788.64)	106.27	1,164.86	\$ (517.51)	(1,112.10)	(3.45)	1,603.76	\$ 488.21	-	-	122.55	\$ 122.55	-	689.91	(83.42)	\$ 606.49	\$ 699.74
10/29/2022	(1,044.30)	203.36	1,281.78	\$ 440.84	(1,078.90)	36.34	1,684.26	\$ 641.70	-	-	94.34	\$ 94.34	-	550.03	(26.29)	\$ 5	

Table 6-D: ASM Charge Daily Detail / CRDFC / EDEDC

Date	Day Ahead Regulation Amount	Real Time Regulation Amount	Regulation Cost Distribution Amount	Regulation SubTotal	Day Ahead Spinning Reserve Amount	Real Time Spinning Reserve Amount	Spinning Reserve Cost Distribution Amount	Spinning Reserve SubTotal	Day Ahead Supplemental Reserve Amount	Real Time Supplemental Reserve Amount	Supplemental Reserve Cost Distribution Amount	Supplemental Reserve SubTotal	Contingency Reserve Deployment Failure Charge Amount	Real Time Excessive Deficient Energy Deployment Charge Amount	Net Regulation Adjustment Amount	Other Charge SubTotal	Net Benefit
11/1/2022	(2,495.00)	512.16	1,662.18	\$ (320.66)	(1,242.10)	(170.83)	1,987.42	\$ 574.49	-	-	88.49	\$ 88.49	-	602.25	(40.33)	\$ 561.92	\$ 904.24
11/2/2022	(4,795.43)	2,971.08	1,686.36	\$ (137.99)	(2,894.22)	599.05	2,170.59	\$ (124.58)	-	-	88.01	\$ 88.01	-	357.07	13.65	\$ 370.72	\$ 196.16
11/3/2022	(1,593.52)	1,043.81	1,342.43	\$ 792.72	(745.32)	(209.29)	1,162.16	\$ 207.55	-	-	79.03	\$ 79.03	-	-	-	\$ 1,079.30	\$ 1,079.30
11/4/2022	(1,468.28)	1,320.25	1,257.09	\$ 1,109.06	(754.20)	(801.45)	1,525.63	\$ (30.02)	-	-	79.62	\$ 79.62	-	213.05	27.30	\$ 240.35	\$ 1,399.01
11/5/2022	(1,133.44)	(345.84)	1,133.02	\$ (346.26)	(802.88)	(1,544.67)	1,303.88	\$ (1,043.67)	-	-	81.82	\$ 81.82	-	913.73	63.48	\$ 977.21	\$ (330.90)
11/6/2022	(1,120.80)	1,262.14	1,336.06	\$ 1,477.40	(1,197.36)	(7.41)	1,602.13	\$ 397.36	-	-	82.82	\$ 82.82	-	-	-	\$ 1,957.58	\$ 1,957.58
11/7/2022	(1,587.48)	1,052.16	1,638.10	\$ 1,102.78	(2,028.45)	(320.21)	2,307.98	\$ (40.68)	(2.06)	-	80.69	\$ 80.69	-	44.32	67.81	\$ 112.13	\$ 1,254.92
11/8/2022	(3,416.94)	989.79	1,416.96	\$ (1,010.19)	(3,239.76)	530.61	1,768.68	\$ (940.47)	-	-	79.50	\$ 79.50	-	1,322.06	(104.63)	\$ 1,217.43	\$ (653.73)
11/9/2022	(3,108.93)	2,559.30	1,221.31	\$ 671.68	(1,652.34)	607.16	1,540.94	\$ 495.76	-	-	79.67	\$ 79.67	-	129.53	24.93	\$ 127.10	\$ 1,374.21
11/10/2022	(4,142.48)	1,721.73	1,270.73	\$ (1,150.02)	(1,555.44)	152.70	1,239.50	\$ (163.24)	-	-	81.03	\$ 81.03	-	986.41	(157.44)	\$ 828.97	\$ (403.26)
11/11/2022	(1,660.80)	(53.64)	1,113.72	\$ (600.72)	(1,854.25)	281.12	1,275.72	\$ (297.41)	-	-	80.53	\$ 80.53	-	738.92	144.91	\$ 883.83	\$ 66.23
11/12/2022	(1,748.10)	(552.51)	1,520.11	\$ (780.50)	(1,899.02)	(698.12)	2,138.32	\$ (458.82)	-	-	83.99	\$ 83.99	-	725.76	(10.38)	\$ 715.38	\$ (438.95)
11/13/2022	(1,596.35)	209.97	1,712.13	\$ 325.75	(1,973.64)	(373.90)	2,326.91	\$ (20.63)	(0.04)	-	82.31	\$ 82.31	-	728.75	24.93	\$ 753.68	\$ 1,141.07
11/14/2022	(843.03)	(258.04)	1,640.85	\$ 539.78	(1,889.26)	49.83	2,251.08	\$ 411.65	(89.99)	-	97.06	\$ 7.07	-	682.74	35.21	\$ 717.95	\$ 1,676.45
11/15/2022	(1,013.37)	207.13	1,628.33	\$ 822.09	(1,136.08)	(105.02)	2,085.73	\$ 844.63	(1.93)	-	109.53	\$ 107.60	-	606.71	44.10	\$ 650.81	\$ 2,425.13
11/16/2022	(2,689.38)	(443.72)	1,513.09	\$ (1,620.01)	(2,174.53)	(349.79)	1,828.41	\$ (695.91)	(113.30)	-	141.22	\$ 27.92	-	568.16	809.52	\$ 1,377.68	\$ (910.32)
11/17/2022	(5,781.64)	4,173.21	1,545.25	\$ (63.18)	(5,427.53)	1,034.47	2,306.11	\$ (2,086.95)	(1.34)	-	73.99	\$ 72.65	-	196.42	42.02	\$ 238.44	\$ (1,839.04)
11/18/2022	(5,858.47)	3,161.17	1,709.51	\$ (987.79)	(6,697.56)	1,382.52	2,425.45	\$ (2,889.59)	-	-	77.72	\$ 77.72	-	616.72	(52.82)	\$ 563.90	\$ (3,235.76)
11/19/2022	(2,715.30)	806.36	1,260.37	\$ (648.57)	(2,519.73)	831.40	1,421.25	\$ (267.08)	-	-	74.62	\$ 74.62	-	889.47	(32.07)	\$ 857.40	\$ 16.37
11/20/2022	(4,209.23)	2,047.51	1,327.20	\$ (924.52)	(2,270.50)	779.49	1,099.72	\$ (391.29)	-	-	75.17	\$ 75.17	-	519.81	(115.16)	\$ 404.65	\$ (835.99)
11/21/2022	(1,499.20)	758.64	1,265.45	\$ 524.89	(2,410.71)	415.55	1,632.62	\$ (362.54)	-	-	96.07	\$ 96.07	-	252.72	(6.63)	\$ 246.09	\$ 504.51
11/22/2022	(2,334.77)	224.13	1,251.50	\$ (859.14)	(2,021.51)	(734.04)	1,623.90	\$ (1,131.65)	-	-	78.08	\$ 78.08	-	560.17	140.32	\$ 700.49	\$ (1,212.22)
11/23/2022	(2,067.84)	164.91	1,252.98	\$ (649.95)	(1,476.15)	(172.96)	1,359.35	\$ (289.76)	-	-	79.46	\$ 79.46	-	430.97	(63.25)	\$ 367.72	\$ (492.53)
11/24/2022	(4,276.35)	875.51	1,139.75	\$ (2,261.09)	(1,997.18)	455.02	1,219.60	\$ (322.56)	-	-	84.54	\$ 84.54	-	927.75	(111.98)	\$ 815.77	\$ (1,683.34)
11/25/2022	(3,501.22)	836.53	1,036.67	\$ (1,628.02)	(1,454.52)	619.20	1,363.13	\$ 527.81	-	-	87.09	\$ 87.09	-	2,035.06	19.87	\$ 2,054.93	\$ 1,041.81
11/26/2022	(1,304.84)	706.90	899.86	\$ 301.92	(1,110.24)	(416.82)	1,261.89	\$ (265.17)	-	-	82.76	\$ 82.76	-	650.40	(77.50)	\$ 572.90	\$ 692.41
11/27/2022	(2,067.54)	965.71	1,329.43	\$ 227.60	(1,078.32)	579.24	1,377.36	\$ 878.28	-	-	84.01	\$ 84.01	-	911.21	173.34	\$ 1,084.55	\$ 2,274.44
11/28/2022	(5,536.38)	2,461.20	1,591.80	\$ (1,483.38)	(1,858.62)	(279.66)	1,853.02	\$ (285.26)	-	-	83.70	\$ 83.70	-	1,117.30	(182.47)	\$ 934.83	\$ (750.11)
11/29/2022	(6,188.12)	2,050.25	1,419.94	\$ (2,717.93)	(2,507.93)	84.67	1,467.93	\$ (955.33)	-	-	80.39	\$ 80.39	-	867.04	(137.97)	\$ 729.07	\$ (2,863.80)
11/30/2022	(2,925.61)	948.82	1,483.79	\$ (493.00)	(1,658.26)	(375.13)	1,429.06	\$ (604.33)	-	-	77.54	\$ 77.54	-	1,077.08	42.24	\$ 1,119.32	\$ 99.53
November Total	\$ (84,769.84)	\$ 32,376.62	\$ 41,605.97	\$ (10,787.25)	\$ (61,527.61)	\$ 1,842.73	\$ 50,355.47	\$ (9,329.41)	\$ (208.66)	\$ 2,552.52	\$ 2,343.86	\$ 19,671.58	\$ 553.64	\$ 20,225.22	\$ 2,452.42	\$ 2,452.42	
12/1/2022	(7,048.35)	2,738.93	1,001.54	\$ (3,307.88)	(4,500.84)	(3,566.39)	1,802.20	\$ (6,265.03)	-	-	90.24	\$ 90.24	-	1,775.96	(654.66)	\$ 1,121.30	\$ (8,361.37)
12/2/2022	(593.36)	(288.63)	1,021.59	\$ 139.60	(2,160.69)	(282.70)	1,228.77	\$ (1,214.62)	-	-	71.11	\$ 71.11	-	529.44	4.78	\$ 534.22	\$ (469.69)
12/3/2022	(4,459.84)	2,720.03	1,547.37	\$ (192.44)	(2,790.69)	476.31	1,467.14	\$ (847.24)	-	-	84.18	\$ 84.18	-	2,038.08	12.85	\$ 2,050.93	\$ 1,095.43
12/4/2022	(4,465.84)	1,532.14	1,448.74	\$ (1,484.96)	(2,730.35)	21.24	1,440.03	\$ (1,269.08)	-	-	79.56	\$ 79.56	-	1,710.18	(18.60)	\$ 1,691.58	\$ (982.90)
12/5/2022	(1,532.23)	992.25	1,265.18	\$ 725.20	(2,055.55)	(616.71)	1,606.56	\$ (1,065.70)	-	-	81.20	\$ 81.20	-	203.63	63.16	\$ 266.79	\$ 7.49
12/6/2022	(1,408.90)	216.53	1,537.47	\$ 345.10	(1,280.17)	(383.71)	1,525.77	\$ (138.11)	-	-	100.70	\$ 100.70	-	500.54	0.03	\$ 500.57	\$ 808.26
12/7/2022	(946.35)	(1,066.09)	1,754.75	\$ (257.69)	(1,036.82)	(661.46)	1,269.00	\$ (429.28)	-	-	86.52	\$ 86.52	-	985.71	(147.08)	\$ 838.63	\$ 238.18
12/8/2022	(2,559.18)	421.43	1,588.49	\$ (549.26)	(1,501.84)	(290.61)	1,192.87	\$ (599.58)	(0.34)	-	81.68	\$ 81.34	-	1,536.71	(9.71)	\$ 1,527.00	\$ 459.50
12/9/2022	(2,750.37)	1,003.34	1,189.86	\$ (567.17)	(1,370.49)	(224.82)	1,074.21	\$ (521.10)	(0.57)	-	80.47	\$ 79.90	-	1,150.16	116.28	\$ 1,266.44	\$ 268.07
12/10/2022	(708.08)	189.83	1,536.56	\$ 1,018.31	(994.49)	374.85	1,270.98	\$ 651.34	-	-	80.15	\$ 80.15	-	114.07	(12.24)	\$ 101.83	\$ 1,851.63
12/11/2022	(1,921.06)	(1,930.31)	1,267.69	\$ (2,583.68)	(972.56)	(57.34)	1,194.94	\$ 165.04	-	-	79.44	\$ 79.44	-	1,627.38	(266.68)	\$ 1,360.70	\$ (978.50)
12/12/2022	(4,493.40)	2,419.20	1,151.38	\$ (922.82)	(1,147.00)	371.31	1,198.02	\$ 422.33	-	-	74.72	\$ 74.72	-	955.72	(304.09)	\$ 651.63	\$ 225.86
12/13/2022	(5,373.96)	3,447.84	1,262.08	\$ (664.04)	(879.94)	(406.32)	1,539.44	\$ 253.18	-	-	72.72	\$ 72.72	-	1,291.71	(223.96)	\$ 1,067.75	\$ 729.61
12/14/2022	(1,478.66)	153.15	1,768.53	\$ 443.02	(1,000.36)	(4.00)	1,540.81	\$ 536.45	-	-	78.38	\$ 78.38	-	495.83	(96.75)	\$ 399.08	\$ 1,456.93
12/15/2022	(5,254.52)	3,098.08	1,116.90	\$ (1,039.54)	(457.60)	(324.80)	1,145.35	\$ 362.95	-	-	69.83	\$ 69.83	-	637.39	(16.33)	\$ 621.06	\$ 14.30
12/16/2022	(4,971.89)	3,185.62	1,285.49	\$ (500.78)	(1,561.51)	24.89	1,094.36	\$ (442.26)	-	-	70.70	\$ 70.70	-	490.80	13.94	\$ 504.74	\$ (367.60)
12/17/2022	(3,630.83)	1,792.96	1,000.00	\$ (837.87)	(1,675.21)	(218.66)	1,081.93	\$ (811.94)	-	-	70.27	\$ 70.27	-	168.56	48.90	\$ 217.46	\$ (1,362.08)
12/18/2022	(1,248.94)	256.84	1,232.53	\$ 240.43	(960.47)	(153.88)	1,223.68	\$ 109.33	-	-	77.98	\$ 77.98	-	517.15	32.63	\$ 549.78	\$ 977.52
12/19/2022	(308.25)	(16.98)	1,250.01	\$ 924.78	(517.05)	65.00	1,413.96	\$ 961.91	(4.05)	-	125.21	\$ 121.16	-	51.13	4.48	\$ 55.61	\$ 2,063.46
12/20/2022	(312.55)	(183.14)	1,032.09	\$ 536.40	(772.24)	(165.24)	1,001.40	\$ 63.92	-	-	99.63	\$ 99.63	-	258.44	(7.93)	\$ 250.51	\$ 950.46
12/21/2022	(192.70)	16.49	1,471.85	\$ 1,295.64	(1,148.62)	315.24	1,039.90	\$ 206.52	(0.65)	-	95.49	\$ 94.84	-	73.41	3.85	\$ 77.26	\$ 1,674.26
12/22/2022	(1,394.10)	397.65	1,253.42	\$ 256.97	(983.31)	(19.02)	725.53	\$ (276.80)	(0.12)	-	77.62	\$ 77.50	-	682.17	30.73	\$ 712.90	\$ 770.57
12/23/2022	(3,530.07)	(49,127.34)	7,635.73	\$ (45,021.68)	(2,543.07)	14,109.07	1,753.93	\$ 13,319.93	(40,843.64)	-	(8,942.58)	\$ (49,786.22)	-	16,910.18	4,412.06	\$ 21,322.24	\$ (60,165.73)
12/24/2022	(8,839.34)	(1,213.27)	880.12	\$ (9,172.49)	(10,980.81)	2,164.84	3,707.89	\$ (5,108.08)	(606.25)	-	(3,490.51)	\$ 2,216.01	-	8,896.30	(1,889.24)	\$ 7,007.06	\$ (9,154.26)
12/25/2022	(1,911.78)	(942.74)	764.34	\$ (2,090.18)	(2,039.33)	(425.66)	2,350.31	\$ (114.68)	(6,694.13)	-	1,726.99	\$ 2,857.62	-	1,099.49	(449.87)	\$ 649.62	\$ (3,664.76)
12/26/2022	(80.18)	(1,418.55)	(550.46)	\$ (2,049.19)	(496.36)	(493.31)	918.38	\$ (71.29)	(2,165.28)	-	1,046.21	\$ 1,007.63	-	1,701.44	(15.18)	\$ 1,686.26	\$ (545.66)
12/27/2022	(3,260.59)	(940.08)	663.01	\$ (3,537.66)	(1,451.02)	(491.64)	1,148.78	\$ (793.88)	(1,534.32)	-	1,064.97	\$ 951.35	-	5,245.23	(557.05)	\$ 4,688.18	\$ 838.64
12/28/2022	(3,709.35)	1,576.84	1,205.85	\$ (926.66)	(1,501.95)	108.82	938.42	\$ (454.71)	(13.38)	-	138.25	\$ 124					

Table 6-E: Contingency Reserve Deployment Events

Date	Day of Week	Node	Contingency Reserve Deployment Failure Charge Amount	HE	Shortfall MW	Event MW Provided	Event MW Requested
1/7/2022	Friday	MP.Thomson	\$ 2,525.78	14	55.1	6.9	62.0
1/7/2022	Friday	MP.HIBBAR3	\$ 86.66	14	1.9	13.1	15.0
1/21/2022	Friday	MP.Thomson	\$ 45.18	18	1.6	6.0	7.6
Total			\$ 2,657.62	58.6			

**Report Addressing the
Purchase Power Agreement with Manitoba Hydro**
Docket No. E015/M-10-961, dated March 11, 2011

On March 11, 2011, the Commission issued an Order in Docket No. E-015/M-10-961 approving Minnesota Power's Purchase Power Agreement with Manitoba Hydro for the period of May 2011 through April 2022. Order Point 4 required Minnesota Power to provide the following information in future annual automatic adjustment reports.

a) the number of times Manitoba Hydro offered Product B and/or C to Minnesota Power

See table below.

b) whether or not Minnesota Power accepted the power

See table below.

c) Minnesota Power's efforts to determine whether lower cost energy exists.

The short-term bilateral energy market in Minnesota is thinly traded. In the short-term markets, Minnesota Power has undertaken efforts to procure energy from sources in the bilateral market when there are not sufficient Minnesota Power resources available to meet customer load. To date, however, Minnesota Power has utilized the MISO market for most of its short-term energy needs.

d) the prices of alternative energy

Prices for alternative energy (MISO purchases) are equivalent to Product B and C energy purchased from Manitoba Hydro.

e) the cost comparison of energy under Product B and/or Product C and the alternative energy sources

The price paid for Product B and C energy is defined as the **[TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]**. This **[TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]** price is equivalent to the **[TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]**. Since most energy purchased is transacted with MISO, the price for Product B and C is the same as the alternate energy sources.

2022 MHEB Product B & C
Minnesota Power - Short-term Non-firm Energy Sale Agreement

	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Offered (MWh)	[TRADE SECRET DATA BEGINS]											
Product B												
Product C												
Total												
Accepted (MWh)												
Product B												
Product C												
Total												
Curtailement (MWh)												
Product B												
Product C												
Total												
Accepted less Curtailement (MWh)												
Product B												
Product C												
Total												
Number of Instances Offered												
Product B												
Product C												
Total												
Number of Instances Accepted												
Product B												
Product C												
Total												

TRADE SECRET DATA ENDS]

Wind Curtailment Reporting:

Oliver I and II

Docket No. E015/M-05-975

Bison Wind Energy

Docket No. E015/M-11-234

Docket No. E015/M-11-626

Nobles 2 Wind Energy

Docket No. E015/M-18-545

Oliver County I			
FPL Wind Energy in FAC (MWh)	Curtailements of Wind Energy MWh	Curtailement Payments by MP	Reason Codes
[TRADE SECRET DATA BEGINS]			
Januray 2022			2
February 2022			2
March 2022			2
April 2022			2
May 2022			2
June 2022			2
July 2022			2
August 2022			2
September 2022			2
October 2022			2
November 2022			2
December 2022			2
Total			

TRADE SECRET DATA ENDS]

Oliver County II			
FPL Wind Energy in FAC (MWh)	Curtailements of Wind Energy MWh	Curtailement Payments by MP	Reason Codes
[TRADE SECRET DATA BEGINS]			
Januray 2022			2
February 2022			2
March 2022			2
April 2022			2
May 2022			2
June 2022			2
July 2022			2
August 2022			2
September 2022			2
October 2022			2
November 2022			2
December 2022			2
Total			

TRADE SECRET DATA ENDS]

Reason Codes:

1. Minnesota Power's refusal to accept Contract Energy at the Point of Delivery as a result of low load conditions that justify not accepting Contract Energy; or
2. The availability of less expensive energy from another source; or
3. Minnesota Power's election to use non-firm transmission services to deliver Contract Energy.

Bison Wind Energy	
Delivered MWh	Lost MWh
[TRADE SECRET DATA BEGINS]	
Januray 2022	
February 2022	
March 2022	
April 2022	
May 2022	
June 2022	
July 2022	
August 2022	
September 2022	
October 2022	
November 2022	
December 2022	
Total	

TRADE SECRET DATA ENDS]

Nobles 2		
Nobles Wind Energy in FAC (MWh)	Curtailements of Wind Energy MWh	Curtailement Payments by MP
[TRADE SECRET DATA BEGINS]		
Januray 2022		
February 2022		
March 2022		
April 2022		
May 2022		
June 2022		
July 2022		
August 2022		
September 2022		
October 2022		
November 2022		
December 2022		
Total		

TRADE SECRET DATA ENDS]

**Offsetting Revenues and/or Compensation
Received by Investor-Owned Utilities (IOUs)**
Docket No. E999/AA-10-884

**For the Reporting Period of
January 1, 2022 through December 31, 2022**

[illegible]

/1 The costs associated with the Contract MWh used to support the sales shown above were included in the “Less Fuel Costs Recovered through Inter System Sales” line in the Fuel Clause calculation. The revenues associated with all purchased power contracts except for Wing River, Oliver County I, and Oliver County II, are for the sale of purchases that were no longer needed to cover load. The margins from these sales were passed through to the ratepayers in the Fuel Clause.

Generation Facilities Maintenance Expense
Docket No. E999/AA-06-1208, dated February 6, 2008

Minnesota Power
AAA Compliance Filing
Summary of Generation Maintenance Expenses

Summary of Generation Maintenance Expenses		Final Rates		
		Test Year 2017	2022	2022
Steam Power Generation Maintenance	FERC Acct	Docket No. E015/GR-16-664 [1]	Planned Expenses	Actual Expenses [2]
Maintenance Supervision and Engineering	510	\$4,913,827	\$3,506,625	\$3,188,136
Maintenance of Structures	511	\$582,993	\$621,679	\$969,713
Maintenance of Boiler Plant	512	\$16,051,910	\$5,218,525	\$5,121,939
Maintenance of Electric Plant	513	\$2,143,926	\$1,232,262	\$2,178,344
Maintenance of Misc. Steam Plant	514	\$5,109,261	\$2,297,991	\$3,977,236
Sub-Total Steam Power		\$28,801,917	\$12,877,082	\$15,435,368
Hydraulic Power Generation Maintenance				
Maintenance Supervision and Engineering	541	\$514,969	\$385,085	\$473,322
Maintenance of Structures	542	\$73,962	\$42,993	\$12,495
Maintenance of Reservoirs, Dams and Waterways	543	\$604,374	\$859,941	\$1,025,378
Maintenance of Electric Plant	544	\$1,581,601	\$1,188,851	\$710,968
Maintenance of Misc. Hydraulic Plant	545	\$1,058,911	\$635,202	\$924,774
Sub-Total Hydraulic Power		\$3,833,817	\$3,112,072	\$3,146,936
Other Power Generation - Wind Maintenance				
Maintenance Supervision and Engineering	551	\$19,855	\$85,000	\$0
Maintenance of Structures	552	\$15,000	\$0	\$0
Maintenance of Generating and Electric Plant	553	\$9,116,984	\$10,344,482	\$10,475,621
Maintenance of Misc. Other Pwr Generation Plt.	554	\$211,331	\$1,803,372	\$1,659,006
Sub-Total Other Power - Wind		\$9,363,170	\$12,232,854	\$12,134,627
TOTAL		\$41,998,904	\$28,222,008	\$30,716,931

[1] Docket E015/GR-16-664 Compliance Filing dated 6-28-18, Section VIII, Compliance Schedule 16, CCOSS, column Total Company
[2] 2022 report run 01/17/2022 by Accounting

Minnesota Power
Docket GR-16-664, Compliance Filing dated 6-28-18, Section VIII, CCROSS,
FINAL 2017 General Rates

<u>Utility Operating Expense</u>	<u>FERC</u>	<u>Total</u>	<u>Final</u>	<u>Total Company</u>	<u>Total Company</u>
<u>Operations & Maintenance Exp.</u>	<u>Acct No.</u>	<u>Amounts</u>	<u>Adjustments</u>	<u>Compliance 2017</u>	<u>Planned 2022</u>
				<u>Cost of</u>	<u>Cost of</u>
				<u>Service Model</u>	<u>Service Model</u>
Steam Production Demand					
Supervision & Engineering	500	9,929,976	(2,721,120)	7,208,856	\$5,009,395
Steam Expenses	502	11,420,955	(987,888)	10,433,067	\$4,295,187
Steam from other sources	503	-		-	
Electric Expenses	505	1,269,686		1,269,686	\$1,567,840
Miscellaneous	506	910,628		910,628	\$372,533
Maint. Structures	511	582,993		582,993	\$621,679
Misc Maint Plant	514	5,109,261		5,109,261	\$2,297,991
Total Demand Steam Production		29,223,499	(3,709,008)	25,514,491	\$14,164,625
Steam Production Energy:					
Maint. Supervision & Engineering	510	5,403,455	(489,628)	4,913,827	\$3,506,625
Maint. Boiler Plant	512	16,051,910		16,051,910	\$5,218,525
Main. Electric Plant	513	2,143,926		2,143,926	\$1,232,262
Total Steam Energy		23,599,291	(489,628)	23,109,663	\$9,957,412
MP Compliance Filing, Section VIII, pg 19 of 46		52,822,790	(4,198,636)	48,624,154	\$24,122,037
Hydro Production:					
Demand					
Operations Supervision & Engineering	535	2,412,823	(1,196,209)	1,216,614	\$1,103,965
Hydraulic Expenses	537	1,148,580	284,933	1,433,513	\$668,463
Electric Expenses	538	-		-	
Miscellaneous	539	294,953		294,953	\$58,030
Maintenance Supervision & Engineering	541	626,777	(111,808)	514,969	\$385,085
Maint. Structures	542	73,962		73,962	\$42,993
Total Demand Hydro		4,557,095	(1,023,084)	3,534,011	\$2,258,536
Energy					
Maintenance of Reservoirs, Dams, and Waterways	543	604,374		604,374	\$859,941
Electric Plant	544	1,581,601		1,581,601	\$1,188,851
Maintenance of Misc Hydro Plant	545	1,058,911		1,058,911	\$635,202
MP Compliance Filing, Section VIII, pg 19 of 46		7,801,981	(1,023,084)	6,778,897	\$4,942,530
Other Power Generation (Wind Production)					
Operation & Engineering	546	3,031,660	(2,779,749)	251,911	\$445,320
Generation Expenses	548	481,200		481,200	\$350,000
Misc. Other Power Generation Expenses	549	258,931		258,931	\$1,334,096
Rents	550	3,203,516		3,203,516	\$3,173,172
Maintenance Supervision & Engineering	551	-	19,855	19,855	\$85,000
Maintenance of Structures	552	15,000		15,000	
Maintenance of Generating and Electric Plant	553	9,116,984		9,116,984	\$10,344,482
Maintenance of Misc. Other Power Generation Plt.	554	211,331		211,331	\$1,803,372
MP Compliance Filing, Section VIII, pg 19 of 46		16,318,622	(2,759,894)	13,558,728	\$17,535,442
Other Power Supply- Demand					
System Control & Load Dispatching	556	761,740		761,740	\$654,508
Other Expenses	557	1,443,364		1,443,364	\$1,158,580
Total		2,205,104	-	2,205,104	\$1,813,088

<u>Utility Operating Expense</u>	<u>FERC Acct No.</u>	<u>Total Amounts</u>	<u>Final Adjustments</u>	<u>Total Company Compliance 2017 Cost of Service Model</u>	<u>Total Company Planned 2022 Cost of Service Model</u>
Operations & Maintenance Exp. MP Compliance Filing, Section VIII, pg 19 of 46					
Purchased Power					
Demand	555	56,837,152		56,837,152	\$80,767,873
Energy	555	185,835,391		185,835,391	\$232,393,674
Total Purchased Power		242,672,543	-	242,672,543	\$313,161,547
MP Compliance Filing, Section VIII, pg 19 of 46					
Fuel	501	144,986,433		144,986,433	\$94,465,966
MP Compliance Filing, Section VIII, pg 19 of 46					
Note: Classification of expenses between demand and energy are based on FERC methodology used in prior rate cases. Accounts 501,510,512,513, & 544 are energy related, all others are demand.					
Transmission					
Operation Supervision & Engineering	560	4,260,432	1,847,901	6,108,333	\$2,498,189
Load Dispatching	561	-		-	
Load Dispatching -Reliability	561.1	2,747,008		2,747,008	\$1,718,092
Load Disp.-monitoring/operate trans sys.	561.2	2,978,604		2,978,604	\$3,682,536
Scheduling, system control & dispatch	561.4	1,453,260		1,453,260	\$2,269,207
Reliability, Planning & Stds. Develop.	561.5	836,934		836,934	\$689,362
Transmission Service Studies	561.6	-		-	
Generation Interconnection Studies	561.7	46,840		46,840	
Reliability, Planning & Stds. Develop.	561.8	104,495		104,495	\$163,161
Station Expenses	562	-		-	\$105,978
Overhead Line Expenses	563	-		-	
Transmission of Electricity by Others	565	70,410,144	(39,479,943)	30,930,201	\$33,302,200
Miscellaneous Transmission Expenses	566	791,934		791,934	\$677,569
Rents	567	1,809,998		1,809,998	\$2,566,925
Total Operation		85,439,649	(37,632,042)	47,807,607	\$47,673,219
Maintenance					
Supervision & Engineering	568	-		-	\$3,494
Maint Computer Hardware	569.1	-		-	
Maint Computer Software	569.2	-		-	
Maint Communications Equip.	569.3	2,735,764		2,735,764	\$1,971,429
Station Equipment	570	2,991,552		2,991,552	\$3,882,459
Overhead Lines	571	3,564,854		3,564,854	\$2,246,908
Maintenance of Misc. Transmission Plt.	573	140,594		140,594	
Total Maintenance		9,432,764	-	9,432,764	\$8,104,290
Total Transmission Exp.		94,872,413	(37,632,042)	57,240,371	\$55,777,509
MP Compliance Filing, Section VIII, pg 19 of 46					
Regional Market Expenses	575.7	-			
Distribution					
Meters	586	1,067,176	(650,105)	417,071	\$1,601,868
Bulk Delivery					
Other Distribution					
Supervision & Engineering	580	1,388,711		1,388,711	\$975,790
Load Dispatching	581	-		-	\$628,870
Overhead Line Expenses	583	155,344		155,344	\$243,444
Underground Line Expenses	584	40,974		40,974	\$63,632
Street Lighting & Signal Systems	585	185,897		185,897	\$138,220
Customer Installations Expenses	587	-		-	
Miscellaneous	588	8,109,378		8,109,378	\$6,392,045
Rents	589	-		-	\$78,664
Total Operation		10,947,480	(650,105)	10,297,375	\$10,122,533

<u>Utility Operating Expense</u>	<u>FERC Acct No.</u>	<u>Total Amounts</u>	<u>Final Adjustments</u>	<u>Total Company Compliance 2017 Cost of Service Model</u>	<u>Total Company Planned 2022 Cost of Service Model</u>
Operations & Maintenance Exp.					
Distribution Maintenance:				-	
Supervision & Engineering	590	805,544		805,544	\$850,059
Station Equipment	592	-		-	\$73,864
Overhead Lines	593	11,045,737		11,045,737	\$7,296,243
Underground Lines	594	1,256,834		1,256,834	\$1,701,681
Maintenance of Line Transformers	595	-		-	
Street Lighting& Signal Systems	596	-		-	\$49,430
Meter Expenses	597	21,580		21,580	\$11,824
Miscellaneous	598	1,265,330		1,265,330	\$899,207
Total Maintenance		14,395,025		14,395,025	\$10,882,308
Total Distribution		25,342,505	(650,105)	24,692,400	\$21,004,841
Maintenance Supervision & Engineering					
MP Compliance Filing, Section VIII, pg 19 of 46					
Customer Accounts Expenses					
Meter Reading Expenses	902	1,138,982		1,138,982	\$350,830
Customer Records & Collection Exp	903	4,570,409		4,570,409	\$4,776,878
Customer Accts -Credit Cards	903	350,000	-	350,000	\$294,188
Uncollectible Accounts	904	750,996		750,996	\$1,255,612
Total Customer Accting COSS, Vol I		6,810,387	-	6,810,387	\$6,677,508
Customer Service & Info					
Operation					
Supervision	907	-		-	
Customer Assistance Expenses	908	3,359,758		3,359,758	\$1,533,432
Misc Customer Service & Informational Exp	910	-		-	
Conserv Improve Prog-energy	908.06	10,572,615	(125,000)	10,447,625	\$10,714,344
Total Customer Service & Info Expenses		13,932,373	(125,000)	13,807,383	\$12,247,776
Maintenance Supervision & Engineering					
Sales	913	43,321		43,321	\$1,856
MP Compliance Filing, Section VIII, pg 19		43,321	-	43,321	\$1,856
Administration & General					
Property Insurance	924	8,002,236		8,002,236	\$7,509,468
Regulatory Expenses- see note below at 1	928	1,251,193		1,251,193	\$2,953,988
Regulatory Expenses- see note below at 2.	928	1,084,000		1,084,000	\$1,490,186
Advertising	930.1	131,608		131,608	\$40,062
Miscellaneous General Expenses	930.2	173,414		173,414	\$180,018
Franchise Requirement Duluth Ordinance Assessmt	927	-	-	-	\$23,641
General Plant	935	4,757,908		4,757,908	\$16,833,228
Other A&G 920, 921, 925, 926		48,151,117	(7,750,412)	40,400,705	\$38,769,905
Total A&G		63,551,476	(7,750,412)	55,801,064	\$67,800,496
Retail Interest Expense for Customer Deposits	431.0-1002	1,071,000		1,071,000	\$1,248,000
Charitable Contributions	426.10	453,128		453,128	\$271,905
Total Operations & Maintenance Exp.		672,884,076	(54,139,173)	618,744,913	621,070,501

**Fuel & Energy Source Procurement and
Energy Dispatching Policies**
Minn. Rule 7825.2800

I. Fuel Source Procurement Policies

Fuel Cost Minimization Activities

Minnesota Power's fuel procurement practices are aimed at strategically minimizing our customers' current energy costs while complying with current environmental regulations and, simultaneously, taking action to assure cost-effective compliance with future environmental requirements. Attaining these objectives requires that purchases and sales of energy, applicable coal and rail contract provisions, current and projected emissions, mine plans of our suppliers, requirements of customers, fuel delivery schedules, fuel inventory, fuel and rail costs, etc., be continuously evaluated. Balancing these parameters requires superimposing long- and short-term planning objectives on near-term operations.

In addition, Minnesota Power uses a multi-discipline fuels procurement and strategy team to achieve fuel cost minimization and environmental compliance objectives. The team meets regularly to coordinate all activities related to fuel procurement. Objectives include:

- Implement strategies for short- and long-term fuel procurement which provide a high-quality, flexible, and reliable fuel supply to Minnesota Power facilities to achieve the lowest attainable electric rates.
- Optimize fuel costs and quality through developing, implementing and managing the short-term strategy for fuel scheduling and deliveries within operating and contract parameters.
- Environmental compliance planning efforts focus on the formulation, implementation and minimization of short- and long-term corporate strategies for fuel quality issues and the impact of fuel on plant performance and compliance with existing and emerging environmental regulations.

Energy Source Procurement and Dispatching Policies

Short Term Activities

The Midcontinent Independent System Operator (“MISO”) is a fully integrated regional transmission organization that operates a Day-Ahead Energy and Ancillary Services Market, a Real-Time Energy and Ancillary Services Market, a Financial Transmission Rights (“FTR”) Market, and a Planning Resource Auction for capacity.

Minnesota Power’s generation resources, load, and transmission assets are located within the MISO footprint and are part of the MISO market. The MISO markets are used to balance generation with load and to hedge congestion between generation and load. There are a variety of tools that Minnesota Power uses to help with analysis and participation in the MISO market. Minnesota Power offers to sell energy and ancillary services sourced from its supply resources and bids to buy energy to serve load in the MISO market each day. MISO procures enough market ancillary service products to meet the needs of the entire footprint and the Company is allocated its load ratio share of the costs to procure the needed ancillary services. If market clearing prices are above Minnesota Power’s generator offer prices, Minnesota Power generation will be selected to serve load. If market prices are below the generator offers, other lower cost resources will be selected to serve Minnesota Power’s load, and the Company’s generation will be backed down. The Company also looks to buy energy in the short term bilateral market when there is an energy need and purchases can be made below expected MISO day-ahead costs.

Medium Term Activities

Minnesota Power uses a production cost model to determine its forward monthly energy position. Model inputs include forecasted customer loads, generator capabilities, contract energy purchases and sales, forward energy prices, planned generator outages, and forced and maintenance outage rates. Inputs are updated and the model is run periodically to determine Minnesota Power’s forward energy position.

Planned generator outages are usually known about a year or more in advance. When a significant energy deficit is identified, the Company monitors the wholesale market for

least cost supply opportunities and enters into bilateral purchases to maintain volumetric position limits as outlined in Minnesota Power's Power Marketing Risk Management Policy. If forward energy prices drop below forecasted spot market prices the entire short position could be covered with a bilateral purchase prior to the start of the outage. If lower cost energy is available in the areas that border the MISO north region, Minnesota Power may choose to use bilateral purchases from those border areas to cover a generator outage.

II. Summary of Fuel Contracts

Coal Contracts

Kennecott Coal Sales LLC, an Oregon LLC (currently known as Navajo Transitional Energy Company, and formerly known as both Cloud Peak Energy and Rio Tinto Energy), Spring Creek Mine, Decker, Montana.

- Master Coal Purchase Agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] provides general terms and definitions governing purchases and sales of coal.
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal and a maximum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]

Arch Coal Sales, Black Thunder Mine, Wright, Wyoming

- Master Coal Purchase Agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] provides general terms and definitions governing purchases and sales of coal.
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]

- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal and a maximum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]

Peabody CoalSales, LLC., St. Louis, Missouri, Caballo Mine, Campbell County, Wyoming

- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]
- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] also provides for purchases of a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons of coal for the period of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS]

Biomass Contracts

Currently Minnesota Power purchases wood fuel under purchase orders with 10 separate suppliers for use at the Hibbard Renewable Energy Center with varying expiration dates.

Rail Contracts

Burlington Northern Santa Fe (currently known as BNSF Railway)

- An agreement signed on [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] provides for the transportation of coal from [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] for a minimum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons per year and a maximum of [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] tons per year.

Supplemental Fuels

Minnesota Power uses natural gas for start-up and flame stabilization at the Boswell Station. Minnesota Power gets daily gas pricing from a supplier for natural gas at the Boswell Station. Minnesota Power also purchases natural gas for start-up, flame stabilization, as well as generation at the Hibbard Station. Minnesota Power purchases natural gas for the Hibbard Station from the City of Duluth Comfort Systems. At the Laskin Station, gas is purchased from BP as part of a gas management service contract. This agreement provides services from [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] through [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS].



30 West Superior Street
Duluth, MN 55802-2093
www.mnpower.com



Notice of Reports Availability

To: All Intervenors in Minnesota Power
Retail Rate Proceedings
Docket Nos. E015/GR-19-442 and E015/GR-21-335

The Minnesota Public Utilities Commission requires Minnesota Power and other Minnesota public utilities to file various forecast reports concerning utility operations with the Commission as specified in Docket No. E999/CI-03-802. The subject matter of the report filed includes the following:

- 1) Independent Auditor's Report
- 2) Automatic Fuel Adjustment Clause Forecast to Actual Comparison
- 3) MISO Day 2 Charges and Allocations
- 4) ARR Information and Process
- 5) Plant Outage Reporting
- 6) Annual and Daily ASM Charges and Summary
- 7) Report Addressing the Purchase Power Agreement with Manitoba Hydro
- 8) Wind Curtailment Reporting
- 9) Offsetting Revenues and/or Compensation Received by Investor-Owned Utilities (IOUs)
- 10) Generation Facilities Maintenance Expense Report
- 11) Fuel and Energy Source Procurement and Energy Dispatching Policies

Minnesota Rule 7825.2840 requires Minnesota Power to provide this notice of availability of such reports to all Intervenors in the previous two general rate cases. A copy of the above report is available for public inspection at the MPUC offices, 121 East 7th Place, Suite 350, St. Paul, MN 55101-2147, on the Minnesota Department of Commerce edockets website (<https://www.edockets.state.mn.us/EFiling>), or upon written request to the following:

Minnesota Power
Hillary A. Creurer
Regulatory Compliance Administrator
30 West Superior Street
Duluth, MN 55802

Please note that certain information contained in these reports is considered trade secret and is unavailable to the public.

Certificate of Service

It is hereby certified that the foregoing Notice of Report Availability, along with a copy of the report, was delivered to the Minnesota Department of Commerce and the Office of the Attorney General, and the interveners in Minnesota Power's previous two general rate cases.

Minnesota Power

By:

/s/ Hillary A. Creurer

Hillary A. Creurer

Regulatory Compliance Administrator

Dated: March 1, 2023

Attachment 12

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jorge	Alonso	jorge.alonso@state.mn.us	Public Utilities Commission	121 7 h Place East Suite 350 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Lori	Andresen	info@sosbluewaters.org	Save Our Sky Blue Waters	P.O. Box 3661 Duluth, Minnesota 55803	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jessica L	Bayles	Jessica.Bayles@stoel.com	Stoel Rives LLP	1150 18th St NW Ste 325 Washington, DC 20036	Electronic Service	Yes	OFF_SL_19-442_Official CC Service List
Sara	Bergan	sebergan@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Kristin	Berkland	kristin.berkland@ag.state.mn.us	Office of the Attorney General-RUD	445 Minnesota Street Bremer Tower, Suite 1400 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
David F.	Boehm	dboehm@bklawfirm.com	Boehm, Kurtz & Lowry	36 E 7th St Ste 1510 Cincinnati, OH 45202	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jason	Bonnett	jason.bonnett@state.mn.us	Public Utilities Commission	121 East 7th Place suite 350 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Elizabeth	Brama	ebrama@taftlaw.com	Taft Stettinius & Hollister LLP	2200 IDS Center 80 South 8th Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jon	Brekke	jbrekke@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
David	Cartella	David.Cartella@cliffsnr.com	Cliffs Natural Resources Inc.	200 Public Square Ste 3300 Cleveland, OH 44114-2315	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Greg	Chandler	greg.chandler@upm.com	UPM Blandin Paper	115 SW First St Grand Rapids, MN 55744	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Steve W.	Chriss	Stephen.chriss@walmart.com	Wal-Mart	2001 SE 10th St. Bentonville, AR 72716-5530	Electronic Service	No	OFF_SL_19-442_Official CC Service List
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_19-442_Official CC Service List
Riley	Conlin	riley.conlin@stoel.com	Stoel Rives LLP	33 S. 6th Street Suite 4200 Minneapolis, MN 55402	Electronic Service	Yes	OFF_SL_19-442_Official CC Service List
Brooke	Cooper	bcooper@allte.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Sean	Copeland	seancopeland@fdlrez.com	Fond du Lac Band of Lake Superior Chippewa	1720 Big Lake Rd Cloquet, MN 55720	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Hillary	Creurer	hcreurer@allte.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Lisa	Daniels	lisadaniels@windustry.org	Windustry	201 Ridgewood Ave Minneapolis, MN 55403	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Richard	Dornfeld	Richard.Dornfeld@ag.state.mn.us	Office of the Attorney General-DOC	Minnesota Attorney General's Office 445 Minnesota Street, Suite 1800 Saint Paul, Minnesota 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
J.	Drake Hamilton	hamilton@fresh-energy.org	Fresh Energy	408 St Peter St Ste 350 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Brian	Edstrom	briane@cubminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota St Ste W1360 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Ron	Elwood	relwood@mnlisap.org	Legal Services Advocacy Project	970 Raymond Avenue Suite G-40 Saint Paul, MN 55114	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Catherine	Fair	catherine@energycents.org	Energy CENTS Coalition	823 E 7th St St Paul, MN 55106	Electronic Service	No	OFF_SL_19-442_Official CC Service List
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_19-442_Official CC Service List
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_19-442_Official CC Service List
John R.	Gasele	kgasele@fryberger.com	Fryberger Buchanan Smith & Frederick PA	700 Lonsdale Building 302 W Superior St Ste 700 Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
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_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Barbara	Gervais	toftemn@boreal.org	Town of Tofte	P O Box 2293 7240 Tofte Park Road Tofte, MN 55615	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jerome	Hall	hallj@s.louiscountymn.gov	Saint Louis County Property Mgmt Dept	Duluth Courthouse 100 N 5th Ave W Rm 515 Duluth, MN 55802-1209	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Adam	Heinen	aheinen@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Kimberly	Hellwig	kimberly.hellwig@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	Yes	OFF_SL_19-442_Official CC Service List
Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors	413 Wacouta Street #230 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Valerie	Herring	vherring@taftlaw.com	Taft Stettinius & Hollister LLP	2200 IDS Center 80 S. Eighth Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Katherine	Hinderlie	katherine.hinderlie@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota St Suite 1400 St. Paul, MN 55101-2134	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
James	Jarvi	N/A	Minnesota Ore Operations - U S Steel	P O Box 417 Mountain Iron, MN 55768	Paper Service	No	OFF_SL_19-442_Official CC Service List
Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law	2950 Yellowtail Ave. Marathon, FL 33050	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Sarah	Johnson Phillips	sarah.phillips@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Nick	Kaneski	nick.kaneski@enbridge.com	Enbridge Energy Company, Inc.	11 East Superior St Ste 125 Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Nicolas	Kaylor	nkaylor@mojlaw.com		120 South 6th St Ste 2400 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Travis	Kolari	N/A	Keetac	PO Box 217 Keewatin, MN 55753	Paper Service	No	OFF_SL_19-442_Official CC Service List
Michael	Krikava	mkrikava@taftlaw.com	Taft Stettinius & Hollister LLP	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Becky	Lammi	cityclerk@ci.aurora.mn.us	City of Aurora	16 W 2nd Ave N PO Box 160 Aurora, MN 55705	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Carmel	Laney	carmel.laney@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
David	Langmo	david.langmo@sappi.com	Sappi North America	P O Box 511 2201 Avenue B Cloquet, MN 55720	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Emily	Larson	eLarson@duluthmn.gov	City of Duluth	411 W 1st St Rm 403 Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
James D.	Larson	james.larson@avantenergy.com	Avant Energy Services	220 S 6th St Ste 1300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Annie	Levenson Falk	annief@cupminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota Street, Suite W1360 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
LeRoger	Lind	llind@yahoo.com	Save Lake Superior Association	P.O. Box 101 Two Harbors, MN 55616	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Eric	Lindberg	elindberg@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Avenue West Suite 515 Saint Paul, MN 55104-3435	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Eric	Lipman	eric.lipman@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 551640620	Electronic Service	Yes	OFF_SL_19-442_Official CC Service List
Patrick	Loupin	PatrickLoupin@Packaging Corp.com	Packaging Corporation of America	PO Box 990050 Boise, ID 83799-0050	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Susan	Ludwig	sludwig@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Kavita	Maini	kmmaini@wi.rr.com	KM Energy Consulting, LLC	961 N Lost Woods Rd Oconomowoc, WI 53066	Paper Service	No	OFF_SL_19-442_Official CC Service List
Sarah	Manchester	sarah.manchester@sappi.com	Sappi North American	255 State Street Floor 4 Boston, MA 02109-2617	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Emily	Marshall	emarshall@mojlaw.com	Miller O'Brien Jensen, PA	120 S. 6th Street Suite 2400 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Keith	Matzdorf	keith.matzdorf@sappi.com	Sappi Fine Paper North America	PO Box 511 2201 Avenue B Cloquet, MN 55720	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Daryl	Maxwell	dmaxwell@hydro.mb.ca	Manitoba Hydro	360 Portage Ave FL 16 PO Box 815, Station Main Winnipeg, Manitoba R3C 2P4 Canada	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Matthew	McClincy	MMcClincy@usg.com	USG	35 Arch Street Clouquet, MN 55720	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Craig	McDonnell	Craig.McDonnell@state.mn.us	MN Pollution Control Agency	520 Lafayette Road St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Natalie	McIntire	natalie.mcintire@gmail.com	Wind on the Wires	570 Asbury St Ste 201 Saint Paul, MN 55104-1850	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Joseph	Meyer	joseph.meyer@ag.state.mn.us	Office of the Attorney General-RUD	Bremer Tower, Suite 1400 445 Minnesota Street St Paul, MN 55101-2131	Electronic Service	No	OFF_SL_19-442_Official CC Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	Yes	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
James	Mortenson	james.mortenson@state.mn.us	Office of Administrative Hearings	PO BOX 64620 St. Paul, MN 55164-0620	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Evan	Mulholland	emulholland@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Ave W Ste 515 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Michael	Noble	noble@fresh-energy.org	Fresh Energy	408 Saint Peter St Ste 350 Saint Paul, MN 55102	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Rolf	Nordstrom	mordstrom@gpisd.net	Great Plains Institute	2801 21ST AVE S STE 220 Minneapolis, MN 55407-1229	Electronic Service	No	OFF_SL_19-442_Official CC Service List
M. William	O'Brien	bobrien@mojlaw.com	Miller O'Brien Jensen, P.A.	120 S 6th St Ste 2400 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Christopher J.	Oppitz	N/A	-	PO Box 910 Park Rapids, MN 56470-0910	Paper Service	No	OFF_SL_19-442_Official CC Service List
Elanne	Palcich	epalcich@cpinternet.com	Save Our Sky Blue Waters	P.O. Box 3661 Duluth, MN 55803	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Max	Peters	maxp@cohasset-mn.com	City of Cohasset	305 NW First Ave Cohasset, MN 55721	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
William	Phillips	wphillips@aarp.org	AARP	30 E. 7th St Suite 1200 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Marcia	Podratz	mpodratz@mnpower.com	Minnesota Power	30 W Superior S Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Tolaver	Rapp	Tolaver.Rapp@cliffsnr.com	Cliffs Natural Resources	200 Public Square Suite 3400 Cleveland, OH 441142318	Electronic Service	No	OFF_SL_19-442_Official CC Service List
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_19-442_Official CC Service List
Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy	26 E Exchange St, Ste 206 St. Paul, MN 551011667	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Ralph	Riberich	miberich@uss.com	United States Steel Corp	600 Grant St Ste 2028 Pittsburgh, PA 15219	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Buddy	Robinson	buddy@citizensfed.org	Minnesota Citizens Federation NE	2110 W. 1st Street Duluth, MN 55806	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Santi	Romani	N/A	United Taconite	PO Box 180 Eveleth, MN 55734	Paper Service	No	OFF_SL_19-442_Official CC Service List
Susan	Romans	sromans@allete.com	Minnesota Power	30 West Superior Street Legal Dept Duluth, MN 55802	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Thomas	Scharff	thomas.scharff@versoco.com	Verso Corp	600 High Street Wisconsin Rapids, WI 54495	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Peter	Scholtz	peter.scholtz@ag.state.mn.us	Office of the Attorney General-RUD	Suite 1400 445 Minnesota Street St. Paul, MN 55101-2131	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Robert H.	Schulte	rhs@schulteassociates.com	Schulte Associates LLC	1742 Patriot Rd Northfield, MN 55057	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Christine	Schwartz	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_19-442_Official CC Service List
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_19-442_Official CC Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	7400 Lyndale Ave S Ste 190 Richfield, MN 55423	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Doug	Shoemaker	dougs@charter.net	Minnesota Renewable Energy	2928 5th Ave S Minneapolis, MN 55408	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Brett	Skyles	Brett.Skyles@co.itasca.mn.us	Itasca County	123 NE Fourth Street Grand Rapids, MN 557442600	Electronic Service	No	OFF_SL_19-442_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Richard	Staffon	rcstaffon@msn.com	W. J. McCabe Chapter, Izaak Walton League of America	1405 Lawrence Road Cloquet, Minnesota 55720	Electronic Service	No	OFF_SL_19-442_Official CC Service List
James M	Strommen	jstrommen@kennedy- graven.com	Kennedy & Graven, Chartered	150 S 5th St Ste 700 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Robert	Tammen	bobtammen@frontiernet.net	Wetland Action Group	PO Box 398 Soudan, MN 55782	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jim	Tieberg	jtieberg@polymetmining.com	PolyMet Mining, Inc.	PO Box 475 County Highway 666 Hoyt Lakes, MN 55750	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Jessica	Tritsch	jessica.tritsch@sierraclub.org	Sierra Club	2327 E Franklin Ave Minneapolis, MN 55406	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Karen	Tumboom	karen.tumboom@versocom.com	Verso Corporation	100 Central Avenue Duluth, MN 55807	Paper Service	No	OFF_SL_19-442_Official CC Service List
Kristen	Vake	kvake@taconite.org	Iron Mining Association of Minnesota	1003 Discovery Drive Chisholm, MN 55719	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Kodi	Verhalen	kverhalen@taftlaw.com	Taft Stettinius & Hollister LLP	80 S 8th St Ste 2200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Kevin	Walli	kwalli@fryberger.com	Fryberger, Buchanan, Smith & Frederick	380 St. Peter St Ste 710 St. Paul, MN 55102	Electronic Service	No	OFF_SL_19-442_Official CC Service List

Attachment 12

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Laurie	Williams	laurie.williams@sierraclub.org	Sierra Club	Environmental Law Program 1536 Wynkoop St Ste 200 Denver, CO 80202	Electronic Service	No	OFF_SL_19-442_Official CC Service List
Scott	Zahorik	scott.zahorik@aeoa.org	Arrowhead Economic Opportunity Agency	702 S. 3rd Avenue Virginia, MN 55792	Electronic Service	No	OFF_SL_19-442_Official CC Service List

Attachment 12

[illegible]

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_21-335_21-335
Jennifer	Cady	jjcady@mnpower.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_21-335_21-335
David	Cartella	David.Cartella@cliffsnr.com	Cliffs Natural Resources Inc.	200 Public Square Ste 3300 Cleveland, OH 44114-2315	Electronic Service	No	OFF_SL_21-335_21-335
Greg	Chandler	greg.chandler@upm.com	UPM Blandin Paper	115 SW First St Grand Rapids, MN 55744	Electronic Service	No	OFF_SL_21-335_21-335
Steve W.	Chriss	Stephen.chriss@walmart.com	Wal-Mart	2001 SE 10th St. Bentonville, AR 72716-5530	Electronic Service	No	OFF_SL_21-335_21-335
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_21-335_21-335
Riley	Conlin	riley.conlin@stoel.com	Stoel Rives LLP	33 S. 6th Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_21-335_21-335
Brooke	Cooper	bcooper@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	OFF_SL_21-335_21-335
Sean	Copeland	seancopeland@fdlrez.com	Fond du Lac Band of Lake Superior Chippewa	1720 Big Lake Rd Cloquet, MN 55720	Electronic Service	No	OFF_SL_21-335_21-335

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Hillary	Creurer	hcreurer@allte.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_21-335_21-335
Patrick	Cutshall	pcutshall@allte.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	Yes	OFF_SL_21-335_21-335
Lisa	Daniels	lisadaniels@windustry.org	Windustry	201 Ridgewood Ave Minneapolis, MN 55403	Electronic Service	No	OFF_SL_21-335_21-335
Richard	Dornfeld	Richard.Dornfeld@ag.state.mn.us	Office of the Attorney General-DOC	Minnesota Attorney General's Office 445 Minnesota Street, Suite 1800 Saint Paul, Minnesota 55101	Electronic Service	No	OFF_SL_21-335_21-335
J.	Drake Hamilton	hamilton@fresh-energy.org	Fresh Energy	408 St Peter St Ste 350 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_21-335_21-335
Brian	Edstrom	briane@cubminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota St Ste W1360 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_21-335_21-335
Ron	Elwood	relwood@mnlisap.org	Legal Services Advocacy Project	970 Raymond Avenue Suite G-40 Saint Paul, MN 55114	Electronic Service	No	OFF_SL_21-335_21-335
Catherine	Fair	catherine@energycents.org	Energy CENTS Coalition	823 E 7th St St Paul, MN 55106	Electronic Service	No	OFF_SL_21-335_21-335
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_21-335_21-335

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Frank	Frederickson	ffrederickson@mnpower.com	Minnesota Power	30 W Superior St. Duluth, MN 55802	Electronic Service	Yes	OFF_SL_21-335_21-335
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_21-335_21-335
John R.	Gasele	kgasele@fryberger.com	Fryberger Buchanan Smith & Frederick PA	700 Lonsdale Building 302 W Superior St Ste 700 Duluth, MN 55802	Electronic Service	No	OFF_SL_21-335_21-335
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_21-335_21-335
Barbara	Gervais	toftemn@boreal.org	Town of Tofte	P O Box 2293 7240 Tofte Park Road Tofte, MN 55615	Electronic Service	No	OFF_SL_21-335_21-335
Jerome	Hall	hallj@s.louiscountymn.gov	Saint Louis County Property Mgmt Dept	Duluth Courthouse 100 N 5th Ave W Rm 515 Duluth, MN 55802-1209	Electronic Service	No	OFF_SL_21-335_21-335
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STATE OF MINNESOTA)
) ss
COUNTY OF ST. LOUIS)

AFFIDAVIT OF SERVICE VIA
ELECTRONIC FILING

Tiana Heger of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 1st day of March, 2023, she served Minnesota Power's Annual True-up Report in **Docket No. E015/AA-21-312** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on E-Docket's Official Service List for this Docket were served as requested.



Tiana Heger