

Direct Testimony and Schedules  
Frank L. Frederickson

Before the Minnesota Public Utilities Commission

State of Minnesota

In the Matter of the Application of Minnesota Power  
For Authority to Increase Rates for Electric Utility  
Service in Minnesota

Docket No. E015/GR-23-335

Exhibit \_\_\_\_\_

**CUSTOMER OVERVIEW AND SALES FORECAST**

November 1, 2023

## TABLE OF CONTENTS

	<b>Page</b>
I. INTRODUCTION AND QUALIFICATIONS .....	1
II. CUSTOMER OVERVIEW.....	6
A. Minnesota Power’s Customers.....	6
1. Industrial Customers .....	7
2. Residential Customers.....	10
3. Commercial Customers.....	11
4. Public Authorities & Lighting.....	11
B. Service Requirements for Minnesota Power’s Customers.....	12
C. System Impacts of Minnesota Power’s Customers.....	13
III. CUSTOMER SERVICE AND ECONOMIC DEVELOPMENT .....	19
A. Customer Service Quality .....	19
B. Program Support for Low Income Customers .....	23
C. Conservation Improvement Program .....	27
D. Transportation Electrification .....	28
E. Large Power Customer Service Quality.....	32
F. Regional Economic Development.....	34
IV. SALES FORECAST METHODOLOGY .....	36
A. Forecast Methodology.....	36
B. Large Power Customer Data Gathering Process.....	46
1. Large Power Customer Industry Data.....	49
2. Large Power Customer ESAs and Data .....	50
V. CUSTOMER OUTLOOK.....	57
A. General Trends in Energy Sales.....	58
B. Residential and Commercial Sales.....	61
C. Industrial Customer Sales .....	69
1. Mining and Metal Customers.....	74
2. Paper and Pulp Customers .....	90
3. Pipeline.....	98
4. Other Industrial Customers .....	99
5. Overall Industrial Customers .....	101

**TABLE OF CONTENTS**  
(continued)

	<b>Page</b>
D. Wholesale Customer Sales.....	102
VI. 2024 TEST YEAR SALES FORECAST.....	103
VII. CUSTOMER RATE STABILIZATION MECHANISM.....	106
VIII. CONCLUSION .....	111

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. Please state your name and business address.**

3 A. My name is Frank L. Frederickson, and my business address is 30 West Superior Street,  
4 Duluth, Minnesota, 55802.

5  
6 **Q. By whom are you employed and in what position?**

7 A. I am employed by ALLETE, Inc. (“ALLETE”), doing business as Minnesota Power  
8 (“Minnesota Power” or the “Company”). My current position is Vice President –  
9 Customer Experience and Engineering Services.

10  
11 **Q. Please summarize your qualifications and experience.**

12 A. I have been with Minnesota Power for approximately 16 years and have experience in  
13 the electric industry that includes customer program development, delivery and  
14 operations, strategic account management, regional economic development, renewable  
15 power generation project development and construction management, power generation  
16 business management, and general management of generation reliability and projects  
17 engineering.

18  
19 In my current position with Minnesota Power, I am responsible for several customer  
20 focused areas that include all customer accounts and relationships for Minnesota  
21 Power’s residential, commercial, wholesale, and industrial customers. The Customer  
22 Experience team that I lead focuses on strategic account management; customer insights  
23 and forecasting analytics; customer system transformation, Energy Conservation and  
24 Optimization (“ECO”) programs, renewable programs; customer billing and collection;  
25 customer care and support call center; and economic and regional development. My role  
26 expanded in 2022 to include leadership of Engineering Services, which provides  
27 engineering, project management, facilities management, dam safety program  
28 administration, and drafting and documentation management services across Minnesota  
29 Power’s assets.

1 Prior to my current role, I held the position of Vice President – Minnesota Power  
2 Marketing. In that role, I was responsible for the relationships with our large industrial,  
3 commercial, and wholesale customers, delivery of our conservation improvement  
4 programs, and regional economic development activities.

5  
6 I previously held positions in Minnesota Power’s Generation Operations. As General  
7 Manager, Minnesota Power Hydro and Biomass Renewable Operations, I worked out  
8 of our generation operations office in Cohasset, Minnesota, and had responsibility for  
9 the general management of our hydro and biomass operations, generation reliability,  
10 and projects engineering. Prior to that I managed the renewable business operation at  
11 Rapids Energy Center.

12  
13 Prior to my experience in Generation Operations, I held positions in Renewable Project  
14 Development and Project Management. In those positions I developed and constructed  
15 wind generation facilities and participated in overall planning activities for Minnesota  
16 Power’s renewable energy expansion. Before joining Minnesota Power, I was employed  
17 for seven years as a senior process development engineer for 3M Company, where I am  
18 a named inventor on 16 granted US patents in various technologies. I graduated from  
19 the University of Minnesota with bachelor and master degrees in mechanical  
20 engineering. I am originally from International Falls, Minnesota and have been a  
21 lifelong Minnesota resident.

22  
23 **Q. What is the purpose of your testimony?**

24 A. The purpose of this testimony is to provide an overview of Minnesota Power’s customer  
25 base, the high-quality services and programs Minnesota Power provides to its  
26 customers, and the resulting sales, revenues, and overall health and risk profile of our  
27 utility. First, my testimony provides an overview of Minnesota Power’s customer base  
28 and the associated utility service needs of those customer classes. I also describe  
29 Minnesota Power’s services to customers, including several areas particularly relevant  
30 to current state policy, to the value provided to Minnesota Power’s customers, and to  
31 the communities the Company serves. My testimony also presents the test year sales

1 and customer count forecast for the 2024 test year, including discussing recent trends in  
2 customer count and energy use by customer class. I also describe the methodology used  
3 to develop the forecast in order to demonstrate the reasonableness of Minnesota Power’s  
4 2024 test year outlook. Further, I provide an overview of Minnesota Power’s energy  
5 sales trends for all customer classes and economics surrounding the Large Power (“LP”)  
6 customer group from both industry and individual business perspectives and the need  
7 for a rate and revenue stabilization mechanism to balance the impacts large customers  
8 have on the system during fluctuations in their operations.  
9

10 **Q. Please summarize the 2024 test year energy sales and customer count forecast.**

11 A. The Company’s 2024 test year retail sales forecast, as shown in Table 1, is for total retail  
12 sales of 8,542,184 Megawatt Hours (“MWh”). This is 2.5 percent higher than 2022  
13 actual retail sales (8,333,736 MWh) and about 2.0 percent higher than a historical three-  
14 year average (2020–2022). The Company’s 2024 test year retail sales forecast is also  
15 provided in MP Exhibit \_\_\_ (Frederickson), Direct Schedule 1. As I detail later in my  
16 testimony, the vast majority of this projected change from prior years is attributable to  
17 the declining average level of Industrial customer sales and increasing volatility of  
18 Industrial customer operations. The 2024 test year forecast for other customer classes is  
19 otherwise very comparable to recent years’ actual sales. The Company’s test year sales  
20 forecast provides a reasonable estimate of 2024 test year sales and customer counts and  
21 should be adopted for the purpose of determining the revenue requirement and final  
22 rates in this proceeding.

**Table 1. 2024 Test Year Energy Sales and Customer Count**

	2024 Test Year	
	Energy Sales (MWh)	Customer Count
Residential	1,046,133	125,939
Commercial	1,199,709	24,159
Industrial		
Mining and Metals	4,927,042	8
Paper and Pulp	723,330	5
Pipelines	310,455	2
Other Industrial	285,349	362
Total Industrial	6,246,176	377
Public Authorities & Lighting	50,166	1,037
<b>Total Retail</b>	<b>8,542,184</b>	<b>151,512</b>
Municipals	468,779	
SWLP	994,294	
<b>Total Retail and Wholesale</b>	<b>10,005,257</b>	

**Q. Please discuss any compliance requirements related to the sales forecast from the Company’s prior rate cases.**

A. Order Point 19 of the Minnesota Public Utilities Commission’s (“Commission”) November 2, 2010, Order in the Company’s 2009 rate case (Docket No. E015/GR-09-1151) required the Company to provide in all future rate cases, “all data used in its test year sales forecast at least 30 days before filing the rate case.”<sup>1</sup> This information was e-filed in the current docket by the Company on September 29, 2023 through the Commission’s electronic filing system.

**Q. Has Minnesota Power also filed its 2023 Annual Electric Utility Forecast Report?**

A. Yes, as required by Minnesota Rules Chapter 7610, Minnesota Power submitted its 2023 Annual Forecast Report (“AFR”) on June 30, 2023, in Docket No. E999/PR-23-11. Minnesota Power’s 2023 AFR is included in Volume 4, Workpapers, OS-4.

<sup>1</sup> *In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E015/GR/09-1151, FINDINGS OF FACT, CONCLUSIONS, AND ORDER at Order Point 19 (Nov. 2, 2010).

1 **Q. How is your testimony organized?**

2 A. My testimony is organized as follows:

- 3 • In Section II, I provide an overview of our customers;
- 4 • In Section III, I discuss customer service and economic development;
- 5 • In Section IV, I describe the sales forecast methodology;
- 6 • In Section V, I describe the customer outlook and sales trends;
- 7 • In Section VI, I describe the 2024 test year sales forecast;
- 8 • In Section VII, I discuss the proposed customer rate stabilization mechanism;
- 9 and
- 10 • In Section VIII, I conclude my testimony.

11

12 **Q. Are you sponsoring any exhibits in this proceeding?**

13 A. Yes. I am sponsoring the following schedules to my Direct Testimony:

- 14 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 1 – 2024 Test Year Energy
- 15 Sales and Customer Count (Sales Forecast);
- 16 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 2 – Comparison of Minnesota
- 17 Power’s 2023 AFR Forecast and 2024 Test Year;
- 18 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 3 – Lee Bloomquist, Minntac
- 19 pellet production slowed by structure collapse, Mesabi Tribune (Feb. 8, 2022);
- 20 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 4 – Jimmy Lovrien, Cliffs to
- 21 idle Northshore Mining as fight over royalty fees intensifies, scrap metal lessens
- 22 need for pellets, Duluth News Tribune (Feb. 11, 2022);
- 23 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 5 – Mike Hughlett, Cliffs
- 24 maintains plans to idle Northshore Mining operations on Iron Range, Star
- 25 Tribune (April 22, 2022);
- 26 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 6 – John Myers, New pellet,
- 27 new life for United Taconite, Duluth News Tribune (May 31, 2017);
- 28 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 7 – Jimmy Lovrien, U.S. Steel
- 29 will idle Keetac, lay off 375 employees, Duluth News Tribune (April 16, 2020);



- 1 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 8 – Jimmy Lovrien, U.S. Steel  
2 will restart Keetac next month, Duluth News Tribune (Nov. 5, 2020);
- 3 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 9 – Verso completes sale of its  
4 mill in Duluth, Daily Press (May 20, 2021); and
- 5 • MP Exhibit \_\_\_ (Frederickson), Direct Schedule 10 – Minnesota Power’s  
6 Approved 2022 Test Year Energy Sales Compared to 2022 Actual Energy Sales.  
7

## 8 II. CUSTOMER OVERVIEW

### 9 Q. What is the purpose of this section of your testimony?

10 A. In this section, I provide an overview of Minnesota Power’s unique customer mix and  
11 its impacts on the overall health and risk profile of our utility and region.  
12

#### 13 A. Minnesota Power’s Customers

### 14 Q. Please provide an overview of Minnesota Power’s customer mix.

15 A. Minnesota Power serves approximately 150,000 retail electric customers, including  
16 some of the nation’s largest industrial customers across a 26,000 square mile service  
17 area located in central and northern Minnesota. The Company also serves Superior  
18 Water Light & Power (“SWLP”) in Superior, Wisconsin, and 14 municipal systems as  
19 wholesale customers.  
20

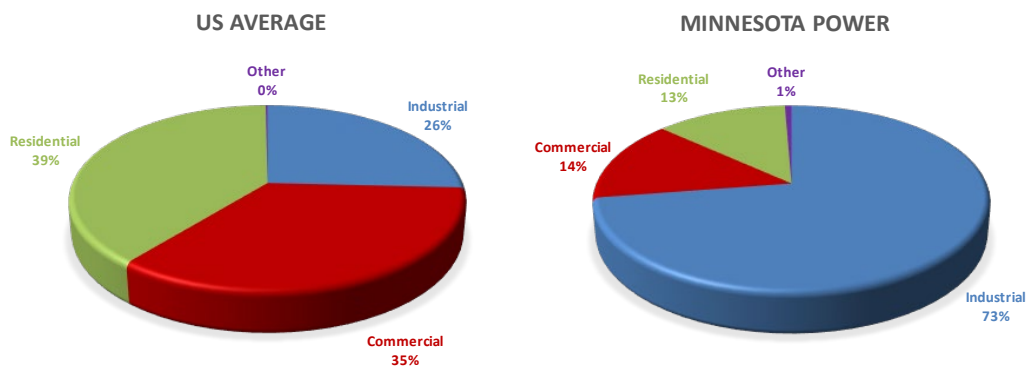
### 21 Q. Please describe the customer classes used in Minnesota Power’s retail customer 22 and sales forecasts.

23 A. The Company projects energy use and customer counts for each of its five retail  
24 customer classes: Residential, Commercial, Industrial, Public Authorities, and Lighting.  
25 Given its size, the Industrial class is further segmented into four sectors for forecasting  
26 purposes: Mining and Metals, Forest Products, Pipelines, and Other Industrial sectors.  
27

28 In 2022, Minnesota Power’s retail customer mix included approximately 125,200  
29 residential, 23,800 commercial, 400 industrial customers, and 1,000 public authorities  
30 and lighting customers. Minnesota Power’s system is, however, dominated by large  
31 industrial customers with approximately 73 percent of retail kilowatt-hours (“kWh”)

energy sales to this customer class in 2022 and only 13 percent and 14 percent of sales to residential and commercial customers, respectively. For comparison, the average utility in the United States sells just 26 percent of its retail kWh energy sales to industrial customers and sells 39 percent and 35 percent of retail kWh energy sales to residential and commercial customers, respectively, as shown in Figure 1 below.

**Figure 1. Minnesota Power's Customer Concentration is Unique**



Source: US Energy Information Administration (2022 EIA Form 861 Data)

1. Industrial Customers

**Q. Who are Minnesota Power’s Industrial customers?**

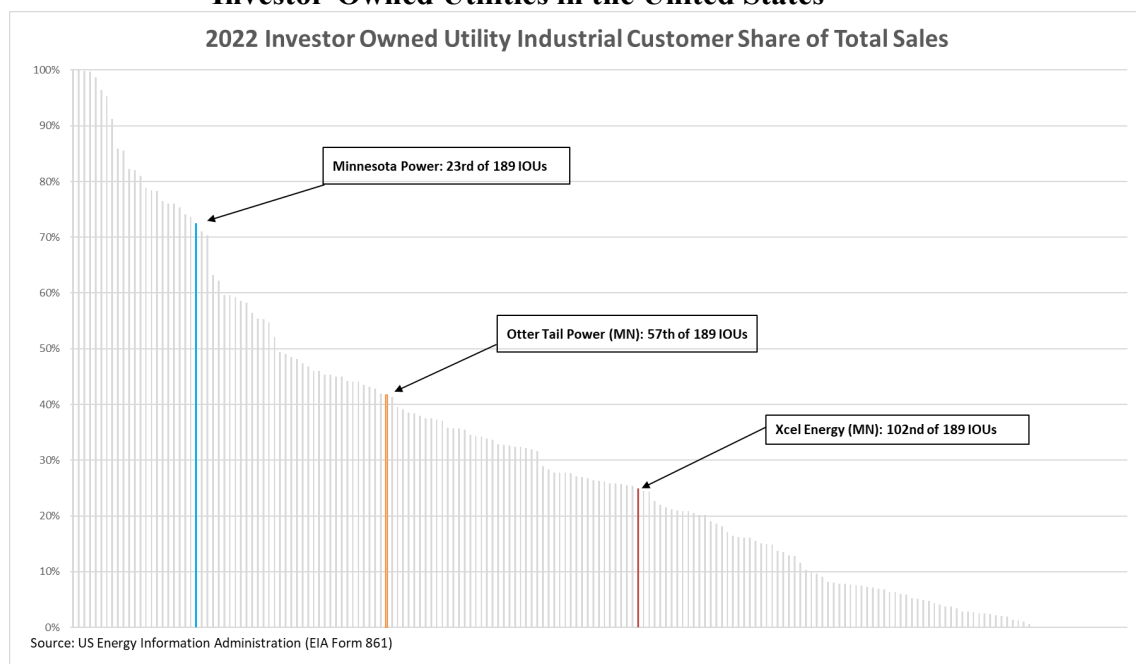
A. Minnesota Power has approximately 400 industrial customers that are served under the Company’s Large Light & Power (“LLP”) and LP rate schedules. Among the industrial customers are eight active LP customer contracts, each serving at least 10 megawatts (“MW”) of load. Two companies manage six taconite-producing facilities under four LP customer contracts, and four companies manage tissue, paper, and pulp mills under four LP customer contracts. The Company also has two companies that manage pipeline systems under LLP service schedules. These customers are among some of the largest industrial operations in the nation and together constitute the majority of the customer sales on Minnesota Power’s system.

**Q. How does Minnesota Power’s industrial concentration compare to other utilities?**

A. Minnesota Power has one of the highest industrial customer concentrations of any utility in the United States, and this concentration is significantly higher than any other utility

1 in Minnesota. According to 2022 energy consumption data from the Energy Information  
2 Administration (“EIA”), Minnesota Power had the 23rd highest industrial customer  
3 energy usage concentration out of 189 investor-owned utilities, including related  
4 subsidiaries, with industrial customers representing approximately 73 percent of retail  
5 kWh energy sales during that year. This industrial concentration is considerably  
6 different than other utilities in the state and most of the nation as illustrated by Figure 2  
7 below.

8  
9 **Figure 2. Industrial Customer Concentrations of**  
10 **Investor-Owned Utilities in the United States**



11  
12  
13 Minnesota Power’s large industrial customers are also unique in their size relative to the  
14 size of the utility that provides their electric service. Figure 3 below shows that just two  
15 companies (*i.e.*, Cleveland-Cliffs, Inc. (“Cleveland-Cliffs”) and United States Steel  
16 Corporation (“U.S. Steel”)) own and operate all six taconite mining facilities in  
17 Minnesota that accounted for over 50 percent of Minnesota Power retail kWh energy  
18 sales in 2022. The forest products category, which accounted for nine percent of retail  
19 kWh energy sales in 2022, is composed of four customers. The pipelines category,  
20 which accounted for four percent of retail kWh energy sales in 2022, is composed of

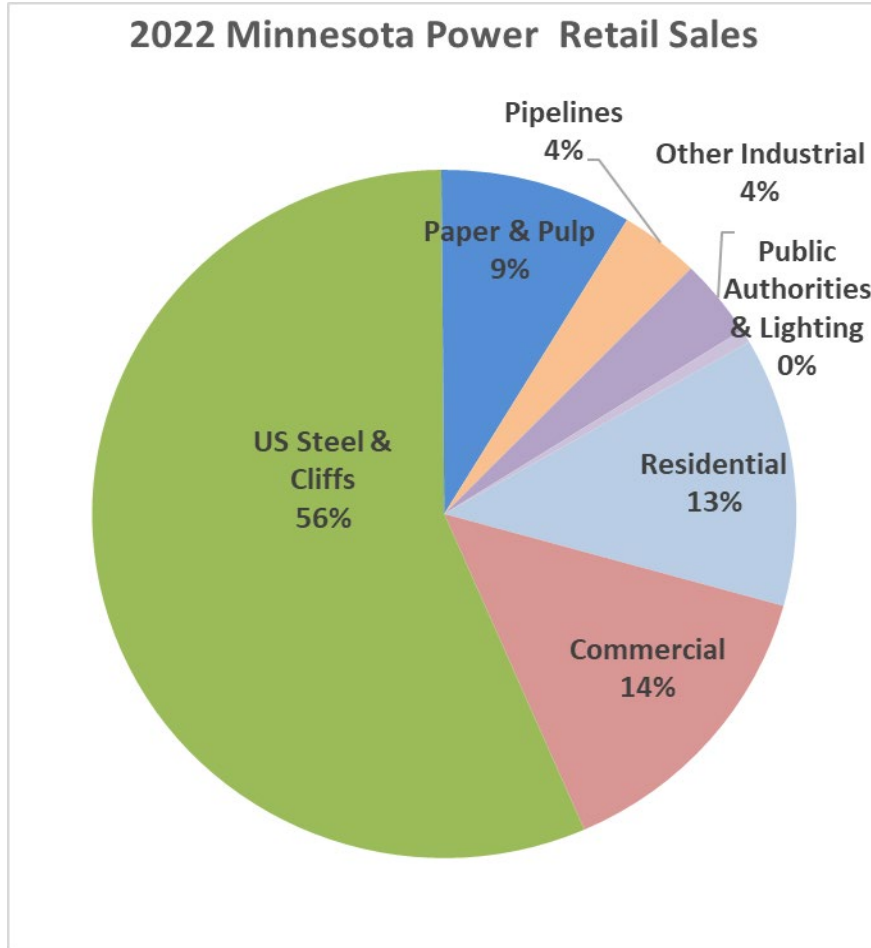
1 two customers. The remaining approximately 370 other industrial customers account  
2 for four percent of retail kWh energy sales.

3  
4 This uniqueness is rooted in the abundant natural resources of northern Minnesota that  
5 serve as the raw material for the nation's steel and forest products and its geographic  
6 location along the shortest path for pipelines from oil production fields in North Dakota  
7 and Canada to supply major population centers around the lower Great Lakes with  
8 petroleum products. As a result, Minnesota Power's large industrial customers primarily  
9 consist of taconite, paper and pulp producers, and pipelines. These industries, like  
10 Minnesota Power itself, are a significant component of the regional economy in northern  
11 Minnesota. Minnesota Power's large industrial customers are also concentrated in  
12 highly cyclical industries, particularly mining and paper.

13

1

**Figure 3. Minnesota Power Retail Energy Sales by Customer Class (2022)**



2

3

4 **Q. How are Minnesota Power’s sales concentrated amongst facility ownership?**

5 A. Minnesota Power has one of the highest concentration of sales among a small amount  
 6 of customers of any utility in the United States. For example, over half of Minnesota  
 7 Power retail sales are attributed to just two entities, U.S. Steel and Cleveland-Cliffs.  
 8 Approximately two-thirds of Minnesota Power sales are attributed to just four entities,  
 9 U.S. Steel, Cleveland-Cliffs, UPM Blandin, and Enbridge.

10

11 2. Residential Customers

12 **Q. Please describe Minnesota Power’s residential customers.**

13 A. Minnesota Power’s residential customers take service under the Company’s Residential  
 14 rate schedules. Minnesota Power’s residential customers generally use less energy than

1 the Minnesota average, due in part to lower cooling load in the summer months  
2 attributable to the cooler northern climate and the longstanding success of Minnesota  
3 Power customer engagement in its Conservation Improvement Programs (“CIP”).  
4 Minnesota Power’s residential customers also tend to have lower incomes than the rest  
5 of the state, and the Company has focused on providing affordability programs and rate  
6 designs to support the segment of its customer base that is low income, as I describe  
7 later in this testimony. From a system-level perspective, the most unique aspect of  
8 Minnesota Power’s residential class is how small it is relative to the typical utility;  
9 Minnesota Power’s residential sales accounted for just 13 percent of retail sales and 17  
10 percent of retail revenues in 2022. For the typical U.S. utility, the residential class is  
11 generally the largest class of customers as measured by both revenue and kWh energy  
12 sales.

### 13 3. Commercial Customers

14 **Q. Please describe Minnesota Power’s commercial customers**

15 A. Minnesota Power’s commercial customers take service under the Company’s General  
16 Service rate schedules and differ from the typical utility commercial customer mix due  
17 to a higher concentration of customers in retail and healthcare related business  
18 segments. Minnesota Power’s commercial customers also use about 30 percent less  
19 electricity than the average Minnesota commercial customer according to the EIA.  
20 Minnesota Power’s commercial class is relatively small compared to the typical U.S.  
21 utility; the Company’s sales to commercial customers accounted for just 14 percent of  
22 retail sales and 20 percent of retail revenues in 2022. The commercial class in a typical  
23 utility represents the second largest class of customers as measured by both revenue and  
24 kWh energy sales.

### 25 4. Public Authorities & Lighting

26 **Q. Please describe Minnesota Power’s Public Authorities and Lighting customers**

27 A. Minnesota Power’s public authorities and lighting customers constitute approximately  
28 one percent of the Company’s retail energy sales. Public authorities customers take  
29 service under the Company’s Municipal Pumping rate schedule for service to water  
30  
31

1 pumping and sewage disposal facilities; however, this rate schedule is closed to new  
2 customers and existing customers are gradually being transitioned to an alternative  
3 applicable rate schedule. Lighting customers take service under the Company's Street  
4 and Highway Lighting Service rate schedule, which is applicable for governmental  
5 subdivisions that take street or highway lighting service within the Company's service  
6 territory.

7  
8 **B. Service Requirements for Minnesota Power's Customers**

9 **Q. Please describe the systems required to serve residential and commercial**  
10 **customers.**

11 A. Residential and commercial customers rely on all of Minnesota Power's systems and  
12 resources to retain reliable electric service. Since residential and commercial customers  
13 are served at lower voltage levels, the energy and capacity must be delivered from the  
14 generating resource through the transmission system and onto the distribution system  
15 before being individually fed to the meter on the home or business.

16  
17 **Q. How do the residential and commercial customer requirements compare to the**  
18 **industrial customer requirements?**

19 A. Industrial customers have larger loads at their service points, and the Company's LP  
20 customers typically take service directly from Minnesota Power's transmission system.  
21 As a result, most of the energy delivered to the Company's industrial customers is  
22 served at the transmission voltage level, and these customers generally do not utilize the  
23 Company's distribution system and the corresponding resources required to service and  
24 maintain the distribution system.

25  
26 **Q. How does Minnesota Power support customers?**

27 A. Minnesota Power invests in numerous systems to meet its customers' expectations for  
28 service using a combination of traditional channels and online options to ensure  
29 customers can get the information and assistance they need in a way that best fits their  
30 preference. Minnesota Power maintains a Call Center staffed with Customer Care and  
31 Support Representatives to take calls from residential and commercial customers with

1 a Strategic Accounts team to serve industrial customers. Minnesota Power also  
2 maintains digital communication and billing systems to serve its customers. These  
3 systems include the Minnesota Power website, app, and MyAccount portal.  
4

5 **C. System Impacts of Minnesota Power’s Customers**

6 **Q. Please describe the general operational characteristics of Minnesota Power’s**  
7 **customers by class.**

8 A. Each of Minnesota Power’s customer classes utilizes the system in a unique way. As  
9 mentioned previously, residential and commercial customers take service at lower  
10 voltage levels and are the predominant users of the distribution system. These customers  
11 also have more variable demand and energy use profiles on a daily basis than the larger  
12 industrial customers; however, annual energy use for residential and commercial  
13 customers is more predictable and stable than for industrial customers, which I describe  
14 below.

15  
16 **Q. What are the typical energy usage characteristics of the residential customer class?**

17 A. Residential customer energy usage varies seasonally depending upon the weather and  
18 the corresponding heating and cooling demand in the home, and overall energy usage  
19 tends to be highest during winter months. Residential customer energy usage is only  
20 slightly higher on weekends than during weekdays, and the residential customer class  
21 demand will typically peak in the evening, regardless of season or day of the week,  
22 when most customers are active in the home. The longer-term trend of energy  
23 consumption by this class shows fairly steady year-to-year decreases on a per-customer  
24 basis due to energy efficiency and conservation measures. Low levels of new customer  
25 growth result in relatively steady weather-normalized energy consumption trend for  
26 Minnesota Power’s residential customer class.

27  
28 **Q. What are the typical energy usage characteristics of the commercial customer**  
29 **class?**

30 A. Commercial customer energy usage also varies by season and is highest in winter and  
31 summer months. Sales to the commercial class vary by one or two percent year-to-year



1 depending on weather and economic conditions, so I would characterize sales to this  
2 class as relatively stable. Hourly demands of the commercial class tend to align closely  
3 with typical business hours; usage will be higher on weekdays than weekends, and  
4 demand will tend to peak mid-day to early afternoon.

5  
6 **Q. What is the typical energy usage pattern of the industrial customer class?**

7 A. Minnesota Power's industrial customers use large quantities of energy and typically  
8 operate around-the-clock every day of the year, show little seasonality, and are not  
9 weather-sensitive like residential or commercial customers. This around-the-clock,  
10 stable usage results in a very high load factor for Minnesota Power's electric system and  
11 consumption of more energy in off-peak hours relative to other customer classes. As a  
12 result, industrial customers generally consume a higher percentage of energy during  
13 lower cost hours than residential and commercial customers.

14  
15 However, Minnesota Power's industrial customers are also subject to significant and  
16 frequent swings in their operations due to broad economic cycles and industry-specific  
17 impacts of global trade and competition, technology evolution, and evolving consumer  
18 preferences for the products they manufacture. These industrial customers often respond  
19 by idling or shutting down production, and as a result, the energy usage by the industrial  
20 customer class can vary widely from year-to-year in magnitudes that have even  
21 exceeded the total energy consumption of the residential class in any given year.

22  
23 **Q. Can you provide more information regarding how the significantly high  
24 concentration of industrial customer load and sales affects Minnesota Power's  
25 rates and revenues?**

26 A. The high concentration of industrial customer sales and corresponding industry cycles  
27 creates a high-risk situation for Minnesota Power. During high production years, these  
28 customers' high load factors and high energy consumption contribute to overall efficient  
29 use of Minnesota Power's system assets, which contributes to lower electric rates for all  
30 customers. However, during low production years, the idling of large industrial facilities  
31 results in a parallel loss of energy sales and overall system efficiency, both of which

1 contribute to substantial revenue shortfalls for Minnesota Power when the industrial  
2 sales forecast is set at higher levels during a rate proceeding. When the industrial  
3 customer sales level is set above the typical, average level of production in a rate  
4 proceeding, the benefits of Minnesota Power's industrial concentration accrue to  
5 customers through lower rates regardless of industrial operating levels, and Minnesota  
6 Power is subject to the risk of substantial loss of revenue when facilities are temporarily  
7 idled. Inversely, when the industrial sales level is set at lower levels during a rate  
8 proceeding, other customers have higher rates regardless of industrial operating levels.

9  
10 The high concentration of industrial customer sales dramatically increases the risk  
11 profile of Minnesota Power compared to other electric utilities in the state and across  
12 the nation. This increased risk and volatility has an adverse impact on Minnesota  
13 Power's business and financing capabilities, resulting in higher rates for all customers,  
14 as discussed by Company witness Mr. Joshua D. Taran.

15  
16 **Q. How does the Company's significantly high concentration of industrial customer**  
17 **load and sales affect the overall efficiency and cost effectiveness of the Company's**  
18 **system?**

19 A. Minnesota Power's customer composition impacts the Company in a variety of complex  
20 ways, and two of the more significant and straightforward factors are described below.

21  
22 First, LP industrial customer demand is delivered almost exclusively via an efficient  
23 high voltage transmission system. The high concentration of industrial customers on  
24 Minnesota Power's system means a significant share of total energy is delivered  
25 efficiently with minimal energy loss since their energy is metered and billed at the high  
26 voltage delivery point without any further losses associated with transformation to lower  
27 voltage levels and delivery through the distribution system.

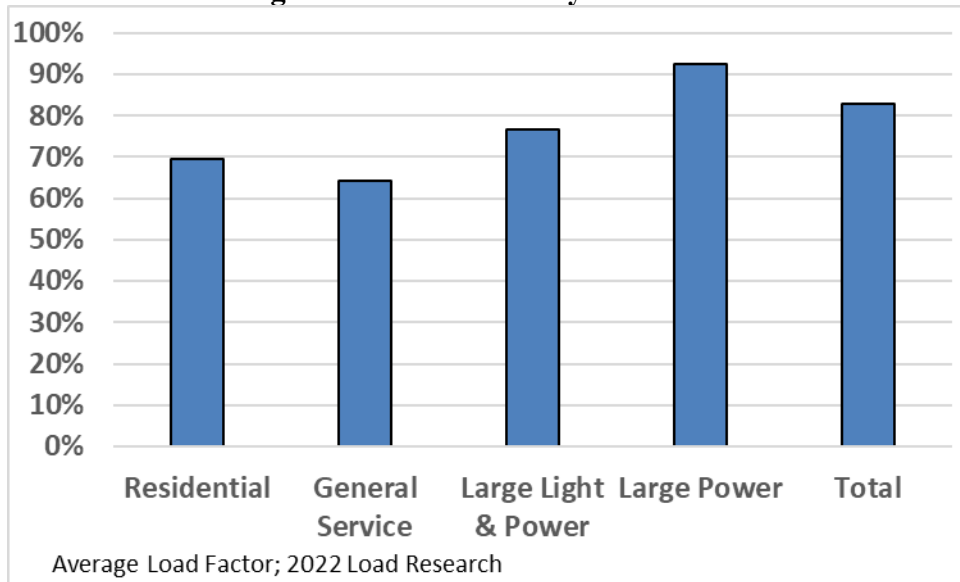
28  
29 Second, the Company's LP industrial customer demand for energy, when they are  
30 operating, is extremely consistent. These customers operate 24 hours per day, seven  
31 days per week, and 365 days per year, which makes very efficient use of generation and

1 transmission assets. By contrast, residential and commercial customers have extremely  
2 variable demand for energy that leaves generation, transmission, and distribution assets  
3 under or unutilized during periods of low demand. This variability of demand is  
4 measured using a metric called “load factor.” A high load factor results in more energy  
5 flowing across the fixed system assets providing higher economic efficiency and lower  
6 costs, while a low load factor results in less energy flowing across the fixed system  
7 assets contributing to less economic efficiency and higher costs per unit of energy. The  
8 high concentration of these high load factor industrial customers on Minnesota Power’s  
9 system raises the system’s overall load factor. Minnesota Power’s load factor by rate  
10 class is shown in Figure 4 below. Note the significantly higher load factor by the LP  
11 class compared to Residential and General Service (*i.e.*, commercial customers), which  
12 increases the total load factor on Minnesota Power’s system.

13  
14 The industrial customers’ high load factor and use of the transmission system for  
15 delivery allows Minnesota Power to spread its total fixed costs over a larger quantity of  
16 sales when they are running, benefiting all customers with lower average electric rates—  
17 independent of any type of specific class rate design and allocation factor.

1

**Figure 4. Load Factor by Rate Class**



2

3 **Q. How does Minnesota Power’s unique customer mix affect the Company’s ability**  
 4 **to manage its capacity needs?**

5 A. As the energy supply shifts from baseload resources to increasingly variable renewable  
 6 resources, the Company must maintain a robust transmission network to reliably deliver  
 7 energy from increasingly remote and diverse generating locations. The Company must  
 8 also employ increasing quantities of dispatchable capacity and demand response  
 9 resources to maintain grid reliability for all its customers, particularly in times of high  
 10 customer load and low renewable energy production. Minnesota Power’s recent capital  
 11 investments, customer programs, and rate designs have been aimed at achieving these  
 12 customer needs while also meeting or exceeding Minnesota’s renewable energy  
 13 standards and carbon reduction goals.

14

15 **Q. Does the Company have other opportunities to work with industrial customers to**  
 16 **manage energy and capacity needs?**

17 A. Yes. The Company also maintains contractual relationships with its industrial customers  
 18 to deliver some of the largest quantities of demand response for a utility of its size at  
 19 approximately 240 MW, or approximately 15 percent of the peak load. This is the  
 20 highest percentage of industrial demand response in the state and the second highest  
 21 percentage in the United States among investor-owned utilities, at a level that is more

1 than double the national average demand response level of 6.6 percent in 2021.<sup>2</sup> This  
2 represents a unique benefit that Minnesota Power’s largest customers provide to the  
3 system. Industrial customers sign contracts to provide this capacity for Minnesota  
4 Power’s system on an annual basis through its Demand Response Product A program,  
5 and with the Demand Response Product C pilot program, industrial customers have  
6 made longer-term commitments to provide emergency capacity to the regional grid over  
7 a period as long as six years. This important progression of demand response products  
8 from single-year commitments to longer-term commitments will aid in the ability for  
9 Minnesota Power and regional grid participants to plan for and rely upon this emergency  
10 capacity product for years into the future. Longer-term demand response products also  
11 provide economic signals for customers to invest in their operations so they can safely  
12 adjust production in order to provide emergency capacity to the energy grid, which is  
13 important for maintaining a reliable energy grid that continues to evolve towards a lower  
14 carbon, higher renewable energy mix. Additionally, Minnesota Power proposes an  
15 adjustment to the demand credit for Product A as described by Company witness Ms.  
16 Leah N. Peterson.

17  
18 **Q. Does the Company also provide residential and commercial customers with**  
19 **opportunities to support Minnesota Power’s efficient management of energy and**  
20 **capacity?**

21 A. Yes. Minnesota Power also has established dual fuel and controlled access programs  
22 with its residential and commercial customers to deliver demand response of  
23 approximately 30 MW, or approximately two percent of the peak load, primarily during  
24 winter heating months; however, the benefits of these programs are increasing during  
25 summer cooling months with increased penetration of air source heat pumps amongst  
26 customers. This dual fuel system is not only an important contribution to the Company’s  
27 demand response program; it is also an important platform for decarbonizing home and  
28 business heating and cooling. The dual fuel program favors the use of energy when

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<sup>2</sup> Federal Energy Regulatory Commission (“FERC”), *2022 Assessment of Demand Response and Advanced Metering*, <https://www.ferc.gov/news-events/news/ferc-staff-issues-report-2022-assessment-demand-response-and-advanced-metering>.

1 variable energy prices are lowest, which not only correlates with lower system load, but  
2 increasingly correlates with periods of high renewable generation.

3  
4 Additionally, Minnesota Power is the first utility in the state to have an approved plan  
5 to transition its entire residential class to a default time-of-day rate structure (Docket  
6 No. E015/20-850). The time-of-day rate provides customers with more control over  
7 their energy bills and encourages customers to shift their energy use from periods of  
8 high energy demand and high prices to hours when electricity demand and prices are  
9 low.

### 11 III. CUSTOMER SERVICE AND ECONOMIC DEVELOPMENT

#### 12 Q. What is the purpose of this section of your testimony?

13 A. In this section, I provide an overview of the various programs and services Minnesota  
14 Power provides to its customers as it strives to continually enhance the customer  
15 experience for its customers. I also describe the Company's economic development  
16 efforts to support the diversification of the economy in our region, which helps mitigate  
17 overall risk of customer loss which can result in rising rates for remaining customers.  
18 In the context of this rate case, these Company efforts underscore the value of our  
19 services to customers and all the ways we put customers first.

#### 21 A. Customer Service Quality

#### 22 Q. How does Minnesota Power determine how well it is providing high quality 23 customer service?

24 A. Minnesota Power engages with industry groups, such as the Edison Electric Institute  
25 and the Association of Edison Illuminating Companies, to leverage industry best  
26 practices and deploy the practices that make the most sense for our customers.  
27 Minnesota Power also utilizes surveys of its customers to assess how well it is serving  
28 its customers under current circumstances and to help support which best practices from  
29 the Company's national engagement are most applicable to its customers.

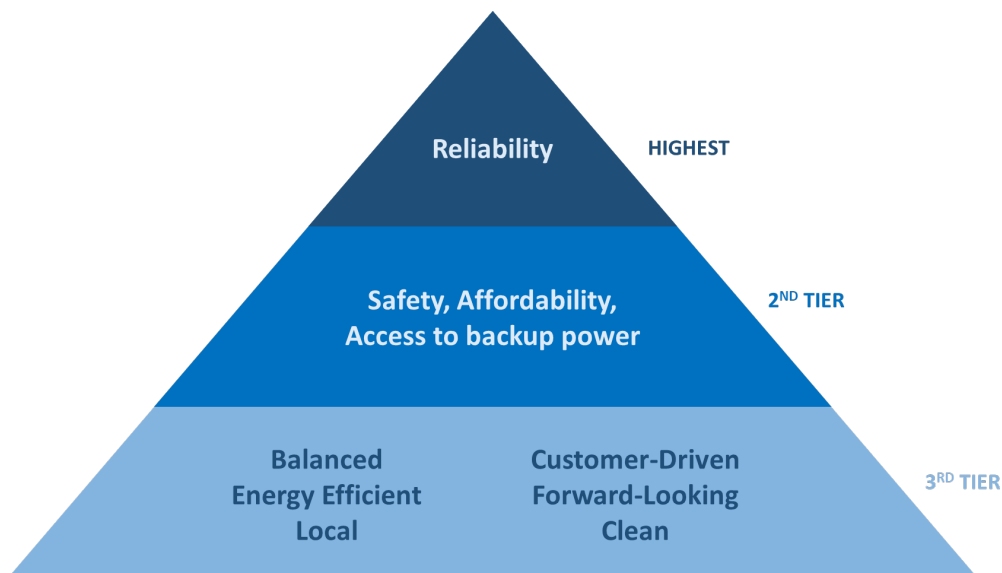
30

1 **Q. What does the Company’s survey data indicate about customers’ key “wants”**  
2 **from their utility?**

3 A. Minnesota Power regularly surveys a sample of 800 adults that reflects the census  
4 demographics of our residential customer base. Rapp Strategies, Inc. manages the  
5 survey contract, with Morris Leatherman LLC providing fieldwork and quality  
6 assurance of the data.

7  
8 In four surveys over the last decade, Minnesota Power has asked residential customers  
9 about a series of objectives for a utility to achieve, requesting a score for each objective  
10 on a scale of 1 to 10. Reliability has ranked at the top of each of these surveys, with  
11 safety, affordability, and access to backup power also appearing in the top three at  
12 various times. Our residential customers value other objectives, including clean power,  
13 energy efficiency, our commitment to community and the benefits of green energy jobs,  
14 but 24-7 reliability of service consistently ranks the top. We are pleased that more than  
15 85 percent of our residential customers give us positive marks for our overall customer  
16 service and our response to power outages. Figure 5 below displays the qualities  
17 Minnesota Power residential customers have consistently ranked as top priorities across  
18 multiple surveys in the past decade.

19  
20 **Figure 5. Qualities Residential Customers Desire in a Utility**



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**Q. Does Minnesota Power rely on other survey data to determine focus areas for its programs and services?**

A. Yes. Our recent survey work examined programs and services in three ways. First, we tested satisfaction with basic service needs; 88 percent of customers gave Minnesota Power’s customer service a positive rating with 28 percent providing a rating of “excellent.” In the area of response to power outages, 89 percent gave a positive rating with 23 percent providing a rating of “excellent.” Finally, we asked customers about the overall value they receive from Minnesota Power. Using a ten-point scale, with ten being most positive, customers gave Minnesota Power a rating of 8.14 for the following statement: “Considering the price I pay and the quality of service I receive, the electricity from Minnesota Power is an excellent value.”

**Q. What is the opinion of Minnesota Power customers with regards to the digital engagement tools it provides?**

A. Our recent survey identified that approximately 40 percent of our customers engage with the Minnesota Power website and approximately 31 percent utilize the Minnesota Power app. Among the customers that use these communication and engagement channels, there was a very high level of satisfaction with over 97 percent rating them good or excellent, and most were utilizing the platforms to engage in billing, payment, and outage reporting and monitoring. These digital platforms are important for customers to access their bill, make payments, review energy use, and to report and monitor outage communications.

**Q. Were these results a surprise to Minnesota Power?**

A. No. As a result of the Company’s consistent engagement directly with customers and in other industry forums, Minnesota Power was aware that it is above average with respect to overall customer satisfaction and the importance customers place upon digital channels for billing, payment, energy usage, and outage communication. We have therefore taken steps to improve payment options and enhance digital platforms for customer interaction. Minnesota Power has made significant progress in digital

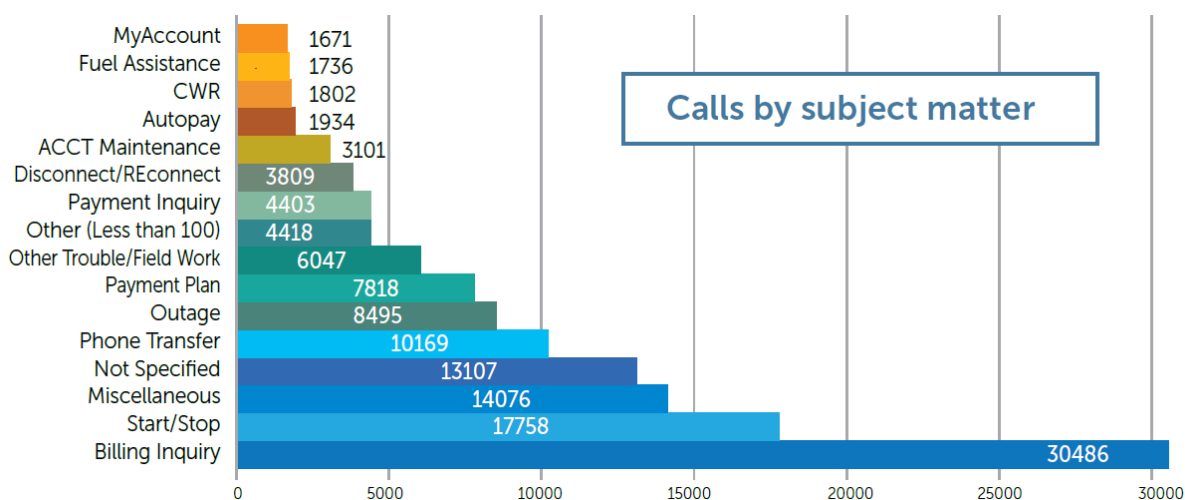


1 platforms for customers that prefer digital channels, whether through our MyAccount  
2 portal, mobile app, or our no-fee credit or debit card bill pay option.

3  
4 **Q. What other information does Minnesota Power use to determine customer service  
5 needs?**

6 A. Minnesota Power reviews call volume and calls by subject matter for timely insights  
7 regarding customer needs and to identify the greatest opportunities for improvement to  
8 the customer experience. Figure 6 provides a breakdown of calls received in 2022 by  
9 subject matter category. This breakdown is based on the wrap codes that are used by  
10 Customer Care and Support Representatives when closing and documenting a call.

11  
12 **Figure 6. Customer Calls by Subject Matter**



13  
14  
15 **Q. What other efforts has Minnesota Power undertaken to continually enhance the  
16 customer experience since its last rate case?**

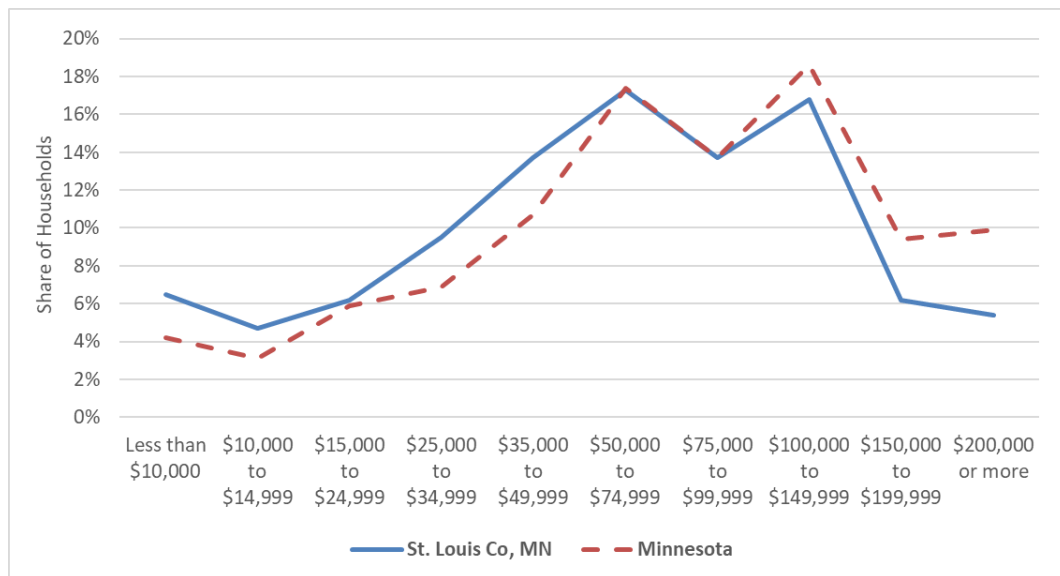
17 A. Since Minnesota Power’s 2021 Rate Case, Docket No. E015/GR-21-335 (“2021 Rate  
18 Case”), the Company has continued to invest in customer metering and billing systems  
19 to enable its phased transition of residential customer rates to a time-of-day rate  
20 structure, which is now underway, as described in Docket No. E015/M-20-850.

1 **B. Program Support for Low Income Customers**

2 **Q. Are Minnesota Power’s low-income residential customers unique in their need for**  
3 **energy assistance?**

4 A. In some ways, yes. Households served by Minnesota Power have an income distribution  
5 that tends to skew lower than Minnesota as a whole, as shown in Figure 7 below. As a  
6 result, Minnesota Power’s residential customers are more likely to be low-income and  
7 may require assistance in maintaining affordable electric service. For example, St. Louis  
8 County’s family poverty rate was 7.1 percent in 2021,<sup>3</sup> whereas the poverty rate for  
9 Minnesota as a whole was 5.5 percent.<sup>4</sup>

10  
11 **Figure 7. Comparison of Household Incomes**



12  
13 **Q. Does Minnesota Power offer rates or programs to enhance the customer experience**  
14 **for low-income customers?**

15  
16 A. Yes, in a number of ways. Minnesota Power offers an income- and usage-qualified  
17 discount to residential customers who average 1,000 kWh or less per month and have

<sup>3</sup> United States Census Bureau, *Poverty Status in the Past 12 Months of Families*, AMERICAN COMMUNITY SURVEY (last visited Aug. 28, 2023), <https://data.census.gov/table?q=St.Louis+Minnesota+poverty&tid=ACSST1Y2021.S1702>.

<sup>4</sup> United States Census Bureau, *Poverty Status in the Past 12 Months of Families*, AMERICAN COMMUNITY SURVEY (last visited Aug. 28, 2023), <https://data.census.gov/table?q=Minnesota+poverty&tid=ACSST1Y2021.S1702>.

1           been approved for energy assistance or self-declared as income-eligible. As the  
2           Company looks to continue to decarbonize its system, encourage beneficial  
3           electrification, and ensure affordability for low-income customers, this was an  
4           innovative design element developed through extensive stakeholder input for residential  
5           rate transition.<sup>5</sup>

6  
7           In addition to rate discounts, Minnesota Power offers a variety of programs for income-  
8           eligible customers. These include our Customer Affordability of Residential Electricity  
9           (“CARE”) program, energy efficiency, and solar offerings. I will describe each of these  
10          in turn below.

11  
12       **Q.    Please discuss recent changes to the CARE program related to energy**  
13       **affordability.**

14       A.    Minnesota Power has offered its CARE Program to its residential customers since  
15       November 1, 2011. This program was created as a result of a 2010 Commission Order  
16       in Minnesota Power’s general rate case under Docket No. E015/GR-09-1151. Annual  
17       reporting and any program modifications related to CARE have since been handled  
18       through a separately assigned CARE docket.<sup>6</sup> Under CARE, those who qualify under  
19       the federally-funded Low Income Home Energy Assistance Program (“LIHEAP”), as  
20       determined by application through Energy Assistance Program Service Providers, are  
21       eligible. Minnesota Power received approval of its proposed program modifications in  
22       the Commission’s October 30, 2019 Order,<sup>7</sup> including nearly doubling the CARE  
23       budget from \$1 million to \$1.75 million. These consensus-driven program  
24       modifications were developed collaboratively through a robust stakeholder engagement  
25       process and are intended to provide ongoing relief to low income customers in northern  
26       Minnesota. The modifications, which became effective on January 1, 2020, use a

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<sup>5</sup> *In the Matter of the Petition for Approval of Minnesota Power’s Residential Rate Design*, Docket No. E015/M-20-850, COMPLIANCE FILING (Dec. 1, 2022).

<sup>6</sup> *In the Matter of Minn. Power’s Petition for Approval of a Rider for Customer Affordability of Residential Elec.*, Docket No. E015/M-11-409, COMPLIANCE FILING (Dec. 10, 2012).

<sup>7</sup> *In the Matter of Minn. Power’s Petition for Approval of a Rider for Customer Affordability of Residential Elec.*, Docket No. E015/M-11-409, ORDER ACCEPTING REPORT AND APPROVING PROGRAM CHANGES (Oct. 30, 2019).

1 combination of a low barrier, automated discount through the flat discount component  
2 and a targeted energy burden discount that is more meaningful for higher usage low-  
3 income customers. This targeted discount is offered on a first-come, first-served basis.  
4

5 In August 2022, Minnesota Power submitted a modification request for CARE to further  
6 expand eligibility to self-declared residential customers and increase the flat discount.<sup>8</sup>  
7 Specifically, the modification 1) increased the amount of the CARE flat discount from  
8 \$15 to \$20/month, 2) extended the CARE flat discount to non-LIHEAP, low-income  
9 customers, and 3) extended the CARE affordability credit to non-LIHEAP, low-income  
10 customers. Items 2 and 3 are a CARE qualification exception for those who initially  
11 self-declare as low-income, using the self-declaration process as part of Minnesota  
12 Power's residential rate transition. These modifications, which significantly expanded  
13 program participation, were approved by the Commission on September 21, 2022 and  
14 went into effect October 1, 2022, coincident with the start of the next program year and  
15 the start of the Cold Weather Rule season.<sup>9</sup>  
16

17 **Q. Please describe Minnesota Power's energy conservation programs that are**  
18 **specifically designed for its low-income customers.**

19 A. Minnesota Power's Energy Partners program focuses on empowering income-qualified  
20 customers to save energy through educational resources, home energy analysis, direct  
21 installation of energy-efficient products, and replacement of inefficient appliances.  
22 Through the Energy Partners program, Minnesota Power is able to help income-  
23 qualified customers reduce their energy usage, thereby reducing their energy burden and  
24 monthly bills.  
25

26 **Q. Please describe Minnesota Power's solar program for its low-income customers.**

27 A. Minnesota Power's low-income solar program focuses on providing easier access to  
28 solar power for income-qualified customers. Customers, community groups, low-

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<sup>8</sup> *In the Matter of Minn. Power's Petition for Approval of a Rider for Customer Affordability of Residential Elec.*, Docket No. E015/M-11-409, MODIFICATION REQUEST (Aug. 2, 2022).

<sup>9</sup> *In the Matter of Minn. Power's Petition for Approval of a Rider for Customer Affordability of Residential Elec.*, Docket No. E015/M-11-409, ORDER APPROVING PROGRAM CHANGES (Sep. 21, 2022).

1 income support groups, and developers can submit projects that benefit income-  
2 qualified customers or facilities that serve income-qualified customers to Minnesota  
3 Power’s low-income solar committee, which includes seven Minnesota Power  
4 employees and seven regional stakeholders. This committee reviews applications and  
5 awards funding to projects based upon an established eligibility criteria that includes  
6 energy conservation, accessibility and empowerment, customer protection and  
7 affordability, sustainability and flexibility, community engagement, innovation, and  
8 accountability. This program has been successful in supporting 16 projects with  
9 approximately \$425,000 in incentives to provide 180 kW of solar to support our low-  
10 income customers.

11  
12 **Q. Is Minnesota Power reaching out to support its low income and economically**  
13 **challenged customers in any other ways?**

14 **A.** Yes. Minnesota Power has made concerted efforts to connect its customers with energy  
15 assistance funding from state and federal agencies and establish payment plans to help  
16 customers get back on track with their energy bills and avoid disconnection. Minnesota  
17 Power has added outbound calling to customers and prioritized energy assistance links  
18 on its app and website so customers see them first upon accessing these channels. A  
19 website communication example is shown in Figure 8 below.

20  
21 **Figure 8. Minnesota Power Website Communication for Energy Assistance**



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**C. Conservation Improvement Program**

**Q. How is Minnesota Power performing with respect to its Conservation Improvement Program (“CIP”) goals?**

A. Minnesota Power has consistently met or exceeded its CIP goals, including in 2022. The Next Generation Energy Act of 2007 established an annual energy savings goal for utilities equal to 1.5 percent of (CIP eligible or non-CIP-exempt) gross annual retail sales.<sup>10</sup> The approved energy savings goal is calculated based upon the most recent three-year weather normalized average, excluding sales to CIP-exempt customers. For Minnesota Power, the 2022 approved kWh savings goal equates to 2.5 percent of CIP eligible retail sales. Minnesota Power exceeded its savings goals for 2022 by achieving 2.9 percent savings as a percentage of adjusted sales.

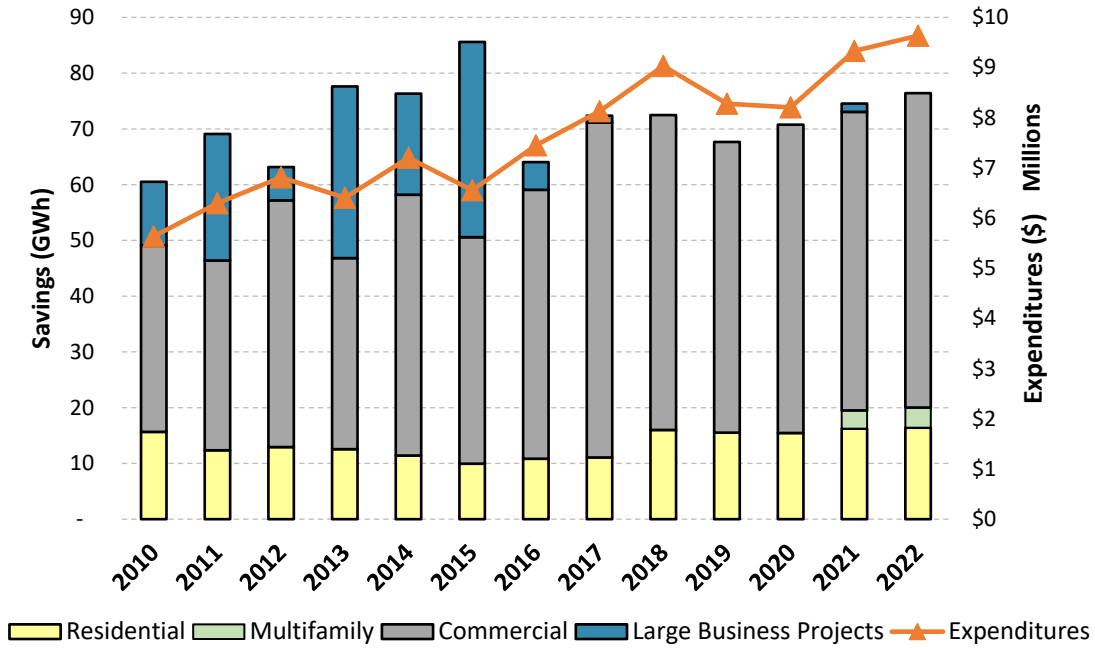
This is an ongoing success story for Minnesota Power and our customers. The Company has exceeded CIP goals every year since 2010, when the 1.5 percent energy-savings goal went into effect, and continued to expand energy savings as shown in Figure 9 below. This strong performance with energy conservation programs has helped keep customers’ total bills lower in a rising rate environment.

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<sup>10</sup> The state’s energy savings goal for utilities was increased to 1.75 percent through the Energy Conservation and Optimization Act of 2021.

1

**Figure 9. Minnesota Power CIP Energy Savings 2010-2022**



2

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**D. Transportation Electrification**

**Q. Please describe Minnesota Power’s Transportation Electrification programs.**

A. Minnesota Power offers several programs designed to reduce the barriers to electric vehicle (“EV”) adoption while optimizing system benefits. Specifically, in April 2021, the Company has received Commission approval of a portfolio of residential EV programs, including a Residential EV Charging Rewards Pilot Program, a Residential EV Charging Rebate Program, and an EV education, outreach, and development program to provide customers with tools and resources to increase general awareness and acceptance of EVs.<sup>11</sup> These EV-related offerings are collectively referred to as the Electric Vehicle Program (“EV Program”).

14

Additionally, Minnesota Power recognizes that access to reliable EV charging infrastructure is a major barrier to electric vehicle adoption in northern Minnesota. The Company received Commission approval to install 16 direct current fast charging

17

<sup>11</sup> *In the Matter of the Petition for Approval of Minnesota Power’s Portfolio of Electric Vehicle Programs*, Docket No. E015/M-20-638, ORDER APPROVING PROPOSALS WITH MODIFICATIONS (April 21, 2021).

1 (“DCFC”) stations throughout its service territory on October 22, 2021.<sup>12</sup> Through this  
2 proposal, the Company will provide equitable access to EV charging infrastructure  
3 throughout its service territory while also encouraging efficient charging behaviors  
4 through time-based rate structures. Construction of these chargers has been delayed as  
5 the result of an unexpected vendor change but are expected to be operational in 2024.  
6 This project is referred to as the Electric Vehicle Service Equipment Project (“EVSE  
7 Project”).  
8

9 **Q. Does Minnesota Power have plans to propose additional programs to support**  
10 **Transportation Electrification?**

11 A. Yes. Minnesota Power will continue to identify opportunities to enhance its portfolio of  
12 Transportation Electrification programs. In addition to completion of the EVSE Project,  
13 Minnesota Power has plans to submit a proposal to encourage EV adoption for  
14 customers in multi dwelling units as required in Docket No. E-999/M-17-879. Future  
15 Transportation Electrification proposals are described in the Company’s 2023  
16 Transportation Electrification Plan filed with the Company’s Integrated Distribution  
17 Plan in Docket No. E015/M-23-258. Costs for these future programs have not yet been  
18 incurred and are therefore not in the test year.  
19

20 **Q. How does Minnesota Power intend to handle and budget for these and other future**  
21 **EV proposals?**

22 A. This will depend on the specific EV proposal or program that is brought forward by the  
23 Company for Commission approval. Any petition that is filed with the Commission will  
24 include a discussion of how the budget for the proposal or program was developed along  
25 with a discussion of the Company’s proposed cost recovery mechanism.  
26

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<sup>12</sup> *In the Matter of Minn. Power’s Elec. Vehicle Charging Infrastructure Inv.*, Docket No. E015/M-21-257, ORDER APPROVING PROPOSAL AS MODIFIED, AUTHORIZING DEFERRED ACCOUNTING, AND REQUIRING REPORTING (Oct. 22, 2021).



1 **Q. How is Minnesota Power proposing to recover EV Program expenses?**

2 A. To date, Minnesota Power has not recovered any EV Program expenses. In February  
3 2022, the Commission approved the Company’s request to track EV Program costs in a  
4 deferred account and seek recovery of certain EV Program expenses in a future rate case  
5 or appropriate rider recovery mechanism in Docket No. E015/M-21-349 (“EV Cost  
6 Recovery Docket”).<sup>13</sup> This approval includes costs related to the Company’s EV  
7 Program as approved by the Commission in Docket No. E015/M-20-638. The EV Cost  
8 Recovery Docket approved tracking EV Program costs incurred until the onset of the  
9 test year in the Company’s next rate case, which is the current rate proceeding.  
10 Therefore, EV Program costs for 2024 are included in the 2024 Interim and Proposed  
11 Test Years in this proceeding.

12  
13 Additionally, as approved by the Commission in the EV Cost Recovery Docket, the  
14 Company is proposing to include deferred EV Program expenses from 2021 to 2023 in  
15 the 2024 Interim and Proposed Test Years. This increase in O&M expense is proposed  
16 to be amortized over two years, which is the period of time until the Company plans to  
17 file its next rate case. Details of this adjustment can be found in the Direct Testimony  
18 of Company witness Ms. Amanda L. Turner and in Volume 4, Workpapers, ADJ-IS-27.

19  
20 The Company did not request approval to include deferred EV Program expenses in rate  
21 base. Therefore, a rate case adjustment was made to the test year in this case to remove  
22 these deferred costs out of rate base in the 2024 Interim and Proposed Test Years.  
23 Details of this adjustment can be found in Volume 4, Workpapers, ADJ-RB-5.

24  

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<sup>13</sup> *In the Matter of a Petition of Minn. Power for the Approval of Deferred Acct. Treatment for Approved Program Costs*, Docket No. E015/M-21-349, PETITION FOR APPROVAL (May 21, 2021); *In the Matter of a Petition of Minn. Power for the Approval of Deferred Acct. Treatment for Approved Program Costs*, Docket No. E015/M-21-349, ORDER PARTIALLY APPROVING DEFERRED ACCOUNTING (Feb. 2, 2022);

1 **Q. Has Minnesota Power complied with the requirements outlined in the**  
2 **Commission’s Order in the EV Cost Recovery Docket related to recovery of the**  
3 **EV Program expense?**

4 A. Yes. The Commission approved cost recovery of EV Program expense with certain cost  
5 caps and restrictions as described below and as supported by Volume 4, Workpapers,  
6 ADJ-IS-27:

- 7 • Order Point 1 – limits the tracker account for the EV Charging Rewards Pilot  
8 Program and EV Charger Rebate Pilot Program costs to \$289,700, including  
9 program development and delivery costs. The EV Charging Rewards Pilot  
10 Program was canceled; therefore there are no costs for this item in the test year.  
11 Costs for the EV Charger Rebate Pilot Program were \$20,988—well below the  
12 cap of \$289,700.
- 13 • Order Point 4 – limits the costs for education and outreach budget to only costs  
14 that are clearly incremental (and not labor expenses already built into base rates)  
15 to those approved in Minnesota Power’s 2016 Rate Case, Docket No. E015/GR-  
16 16-664 (“2016 Rate Case”), and Docket No. E015/M-20-492 (“Economic  
17 Recovery from Covid Docket”). Since there were no EV Program costs in either  
18 the 2016 Rate Case or the Economic Recovery from Covid Docket, all EV  
19 Program costs included in the 2024 test year are incremental costs. Also, there  
20 were no labor expenses related to EV Program costs recovered in the Company’s  
21 2021 Rate Case.
- 22 • Order Point 5 – caps the EV Program costs at \$1,250,700. As shown in  
23 Workpaper ADJ-IS-27, the Company’s EV Program costs from 2021 to 2023  
24 were \$408,798, well below the cap.
- 25 • Order Point 6 – limits deferred accounting only for costs incurred between April  
26 21, 2021, and the onset of the test year in the next rate case (following the date  
27 of the Commission order on February 2, 2022). The deferred costs from 2021 to  
28 2023 shown in Workpaper ADJ-IS-27 do not include costs prior to April 21,  
29 2021 and do not include costs beyond December, 2023. As previously stated,  
30 the 2024 EV Program costs are included as part of the 2024 test year.

1 **Q. How is Minnesota Power proposing to recover EVSE Project expenses in this**  
2 **proceeding?**

3 A. Due to the construction delays associated with DCFC chargers, Minnesota Power is not  
4 including any costs associated with the EVSE Project in this rate case. The Company  
5 anticipates including EVSE Project costs in its next general rate case after these chargers  
6 have been placed in service. Due to the delays with the EVSE Project, the Company  
7 also requested approval from the Commission to extend the deferred accounting for its  
8 EVSE Project costs until the beginning of the test year in the Company's next rate case  
9 following this current rate case. The Commission granted the Company's request on  
10 September 12, 2023.<sup>14</sup> More information can be found in the Direct Testimony of  
11 Company witness Ms. Turner and Volume 4, Workpapers, ADJ-RB-6 and ADJ-IS-13.  
12

13 **E. Large Power Customer Service Quality**

14 **Q. What steps has Minnesota Power taken to continually enhance quality electric**  
15 **service to its LP customers?**

16 A. Minnesota Power has worked diligently with our LP customers to support their needs  
17 as their markets change, and one of the primary methods to improve the service for these  
18 customers is through the customer specific Electric Service Agreements ("ESA"). A  
19 recent example includes Minnesota Power's work with ST Paper to support their  
20 conversion and ultimate restart of the Duluth mill after Verso Paper closed. Minnesota  
21 Power and ST Paper entered into a new ESA on January 29, 2022, which was approved  
22 by the Commission on May 16, 2022, in Docket No. E015/M-22-96. This ESA allowed  
23 ST Paper the flexibility of a startup period under LLP rates while the mill was idle and  
24 undergoing a conversion, before ultimately advancing to an LP ESA in March 2023 to  
25 match the demand and energy needs of the operation once startup was complete.  
26 Furthermore, this ESA leverages the Business Expansion Incentive Rider to help the  
27 customer during initial years of operation following the significant reinvestment  
28 required to convert the facility to a tissue manufacturing operation.  
29

---

<sup>14</sup> *In the Matter of Minnesota Power's Electric Vehicle Charging Infrastructure Investment*, Docket No. E015/M-21-257, ORDER (Sept. 12, 2023).

1 **Q. What other ways does Minnesota Power support the customer service quality for**  
2 **LP Customers?**

3 A. Minnesota Power meets regularly with LP and LLP customers to understand the energy  
4 needs of their businesses, with an ongoing focus on maintaining reliability, while  
5 balancing competitiveness with increased sustainability. In recent years, customer  
6 discussions have increasingly involved carbon impacts, social license to operate, and  
7 corporate sustainability objectives. Minnesota Power is already a leader in the State and  
8 ahead of most utilities in the region and nation with a base energy supply that delivers  
9 over 50 percent renewable energy to its customers, and customers have recognized our  
10 efforts as we work to comply with new Minnesota requirements for 100 percent carbon-  
11 free energy by 2040.<sup>15</sup> However, some customers have sustainability goals that include  
12 an even higher obligation for sustainability, a timeline for decarbonization that differs  
13 from Minnesota Power’s, or business desire for “green products” for certain markets or  
14 “zero-emission operations” in general. As a result of these customer conversations, the  
15 Company is proposing a tariff for a new voluntary renewable energy rider for our  
16 industrial customers.

17  
18 **Q. Please describe the new Rider for Voluntary Renewable Energy for Large**  
19 **Customers.**

20 A. The new rider would be applicable to qualifying customers who choose to offset a  
21 portion of their firm energy requirements through an ESA with energy from a new,  
22 dedicated resource.

23  
24 **Q. What are the main features of this proposed rider?**

25 A. The proposed rider describes a framework under which the Company and qualifying  
26 customers would reach agreement on specific new renewable resource projects. These  
27 prospective projects would be built by the Company and would be used to provide  
28 renewable energy directly to participating customers. This energy would be delivered

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<sup>15</sup> Cleveland-Cliffs Inc., 2022 Sustainability Report, page 28, [https://d1io3yog0oux5.cloudfront.net/clevelandcliffs/files/pages/clevelandcliffs/db/1149/description/CLF\\_SustainabilityReport\\_2023\\_04032023.pdf](https://d1io3yog0oux5.cloudfront.net/clevelandcliffs/files/pages/clevelandcliffs/db/1149/description/CLF_SustainabilityReport_2023_04032023.pdf).

1 ‘first through the meter’ to participating customers who sign up through a long-term  
2 agreement to take such energy, and that renewable energy would offset the current firm  
3 energy requirements supported through the Company’s Fuel and Purchased Energy  
4 Adjustment. Participating customers would pay a new rate for this energy that would  
5 reflect the costs associated with the specific resource, including any upfront  
6 contributions and administrative charges. As result of participation in this rider,  
7 customers would increase the percentage of renewable energy used to power their  
8 operations.

9  
10 **Q. Is the Company seeking approval of any specific agreements with customers for**  
11 **new Dedicated Renewable Resources in this proceeding?**

12 A. No. Although conversations are continuing with customers who may be interested, no  
13 customers have made commitments at this time. In this proceeding, the Company is  
14 only seeking approval to include a Rider for Voluntary Renewable Energy – Large  
15 Customers Renewable Energy in our rate book as a framework for future agreements  
16 with the Company’s Industrial customers. Should a future project and agreement be  
17 reached with a participating customers, the Company and customer would petition the  
18 Commission for approval of an ESA that follows the general framework of this rider.  
19 The Direct Testimony of Company witness Ms. Peterson describes the key features of  
20 the rider in more detail.

21  
22 **F. Regional Economic Development**

23 **Q. How does the Company support the economic development in the region?**

24 A. The Company actively supports economic development in the region through  
25 partnerships with public and private sector entities to champion technological research  
26 and development advances that may help transform the resource-based industries and,  
27 in doing so, enable them to expand their markets beyond traditional markets. The  
28 Company also works with partners to retain and attract business in the region which  
29 supports diversification of the economy and mitigates overall risk of customer loss  
30 which can equate to rising rates for remaining customers. Membership and engagement  
31 in organizations like the Itasca Economic Development Corporation and Area

1 Partnership for Economic Expansion are examples of the Company’s regional  
2 development support.

3  
4 **Q. Can you provide examples of economic development successes that benefit the**  
5 **region?**

6 A. Yes. The Company has recently been successful in working with partners to attract  
7 Huber Engineering Woods (“HEW”) for what was anticipated to be a \$439 million  
8 wood-based manufacturing project to Cohasset, Minnesota, on land currently used as  
9 buffer for the Boswell Energy Center. While permitting delays unrelated to Minnesota  
10 Power ultimately resulted in HEW pulling back from this investment and relocating its  
11 proposed facility to Mississippi,<sup>16</sup> this is an excellent example of the importance of  
12 Minnesota Power’s engagement with area partners in economic development to support  
13 regional investment, increased tax base, and increased customer base and diversity.

14  
15 Another example is Minnesota Power’s work with partners to secure ST Paper’s  
16 purchase and reinvestment in the Duluth Mill to manufacture tissue paper. This enabled  
17 the re-establishment of 80 high-paying manufacturing jobs and a new LP customer  
18 following the loss of over 200 manufacturing jobs when Verso permanently closed its  
19 pulp and paper manufacturing operation in Duluth.

20  
21 Minnesota Power has successfully attracted a 1,000-plus employee aviation  
22 manufacturing company, a \$20 million co-location data center, a large-scale pet food  
23 manufacturing facility, a rotomold plastics facility, and a biotechnology firm. These  
24 examples illustrate the proven benefits of Minnesota Power’s economic development  
25 efforts and investments.

26  

---

<sup>16</sup> *Press Release: Huber Engineered Woods Announces Plans to Locate its New Mill in Noxubee County, Mississippi, in Response to Strong Market Demand for its Specialty Products*, HUBER ENGINEERED WOODS (June 7, 2023), <https://www.huberwood.com/press-room/press-releases/huber-engineered-woods-announces-plans-to-locate-its-new-mill-in-noxubee-county-mississippi-in-response-to-strong-market-demand-for-its-specialty-products>.

1 **Q. What is the Company’s proposal for recovery of economic development expenses?**

2 A. While the Company continues to expend efforts to support a Just Transition for the fossil  
3 generation host communities in our region, both inside Minnesota Power service  
4 territory and outside Minnesota Power service territory in the region, Minnesota Power  
5 is only seeking 50 percent recovery for economic development costs in this rate case.  
6 This level of recovery is consistent with the Commission’s decision in our 2021 Rate  
7 Case.<sup>17</sup>

8  
9 **IV. SALES FORECAST METHODOLOGY**

10 **Q. What is the purpose of this section of your Direct Testimony?**

11 A. In this section, I provide information regarding the methodology used by Minnesota  
12 Power to develop the 2024 test year sales forecast, including a general overview of the  
13 AFR forecasting process and the data gathering process for Large Power customers.

14  
15 **A. Forecast Methodology**

16 **Q. What process did Minnesota Power use to forecast the number of customers for  
17 the 2024 test year?**

18 A. Minnesota Power used the results of its 2023 AFR. The 2023 AFR uses an econometric  
19 modeling process to forecast customer count and energy sales based on these series’  
20 historical correlation to economic metrics. This process is described in greater detail  
21 below and is also fully documented in Minnesota Power’s 2023 AFR (Docket No.  
22 E015/M-23-11).

23  
24 **Q. What process did Minnesota Power use to forecast the energy sales for the 2024  
25 test year?**

26 A. The 2024 test year forecast is produced by combining the 2023 AFR’s econometric  
27 approach to modeling Residential, Commercial, and small Industrial sales with an  
28 industry specific approach to forecasting sales for the Company’s LP customers.

---

<sup>17</sup> *In the Matter of the Application of Minnesota Power for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E015/GR-21-335, FINDINGS OF FACT, CONCLUSIONS, AND ORDER at 32 (Feb. 28, 2023).

1  
2 **Q. How does the 2023 AFR forecast of 2024 sales compare to the 2024 test year**  
3 **forecast?**

4 A. The 2024 test year forecast of retail energy sales is 539,206 MWh (6.7 percent) higher  
5 than the 2023 AFR’s projection of total 2024 retail energy consumption, primarily due  
6 to a revised higher taconite production estimate for the 2024 test year. Table 2 compares  
7 the two outlooks. This comparison is also provided in MP Exhibit \_\_\_ (Frederickson),  
8 Direct Schedule 2.

9  
10 **Table 2. Comparison of Minnesota Power’s 2023 AFR Forecast and 2024 Test Year**  
11

	<b>2024 Forecast (2023 AFR)</b>	<b>2024 Test Year</b>	<b>Difference</b>	
			<b>(MWh)</b>	<b>% Difference</b>
Residential	1,046,133	1,046,133	-	0.0%
Commercial	1,199,709	1,199,709	-	0.0%
Industrial		-		
Mining and Metals	4,393,621	4,927,042	533,421	12.1%
Forest Products	733,150	723,330	(9,820)	-1.3%
Pipelines	300,834	310,455	9,621	3.2%
Other Industrial	279,366	285,349	5,983	2.1%
<b>Total Industrial</b>	<b>5,706,970</b>	<b>6,246,176</b>	<b>539,206</b>	<b>9.4%</b>
Public Authorities & Lighting	50,166	50,166	-	0.0%
<b>Total Retail</b>	<b>8,002,978</b>	<b>8,542,184</b>	<b>539,206</b>	<b>6.7%</b>
Municipals	467,124	468,779	1,655	0.4%
SWLP	978,203	994,294	16,091	1.6%
<b>Total Retail and Wholesale</b>	<b>9,448,305</b>	<b>10,005,257</b>	<b>556,952</b>	<b>5.9%</b>

12  
13  
14 **Q. Please describe Minnesota Power’s AFR forecast methodology.**

15 A. Minnesota Power forecasts energy usage and customer count by revenue class (as  
16 opposed to rate class) using a robust econometric methodology and an extensive  
17 variable database of economic indicators. Forecast models are structural and are defined  
18 by the mathematical relationships between the forecast quantities and explanatory  
19 factors (*i.e.*, historical usage and economic indicators). The forecast models assume a  
20 normal distribution and “50/50” probability; given the methodology, there is a 50  
21 percent probability that the actual demand will be less than forecast and a 50 percent

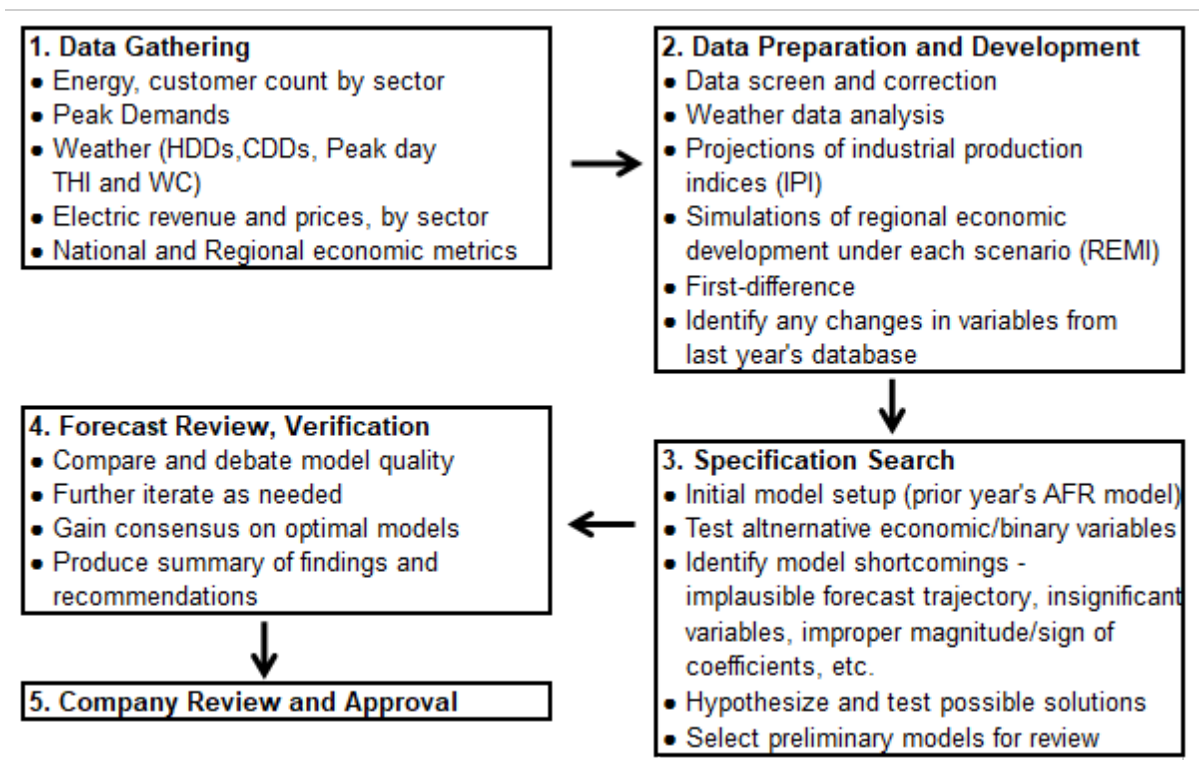


1 probability that the actual demand will be more than forecast. Minnesota Power's  
 2 forecasting methods are in line with electric industry best practices for ratemaking and  
 3 long-term utility planning.

4  
 5 **Q. What are the steps in developing the AFR?**

6 A. The AFR process flow chart is shown in Figure 10 below. The Minnesota Power  
 7 forecast process involves several interrelated steps: 1) data gathering, 2) data  
 8 preparation and development, 3) specification search, 4) forecast review and  
 9 verification, and 5) internal Company review and approval. The steps of the forecast  
 10 process are discussed in detail in Section I.A of Minnesota Power's 2023 AFR.

11  
 12 **Figure 10. Minnesota Power's Forecast Process**



13  
 14 **Q. What data was used to develop Minnesota Power's econometric forecasts?**

15 A. Minnesota Power uses a number of third-party data vendors and public sources in its  
 16 forecast database. Minnesota Power's 2023 AFR describes each data source and  
 17 documents any adjustments to the raw data for forecasting purposes. For example, some

1 data may need to be interpolated from annual to monthly frequency or denominated in  
2 constant/real dollar terms instead of nominal.

3  
4 **Q. What are the sources for the third-party data used to develop the sales forecast?**

5 A. The majority of economic and demographic data used in the forecast are provided by  
6 IHS Global Insight, and the forecasts are adjusted based on economic impact simulation  
7 in the Regional Economic Model Inc. software (“REMI”) to ensure employment and  
8 population series are consistent with the Company’s Industrial customer assumptions.  
9 IHS Global Insight offers comprehensive economic coverage of industries, regions, and  
10 countries. REMI is a leading provider of state, local, and national macroeconomic policy  
11 analysis models. Taken together, these companies provide industry-leading data that  
12 Minnesota Power utilizes to develop its sales forecast.

13  
14 **Q. How does Minnesota Power take weather into account in developing its sales  
15 forecast?**

16 A. Energy sales forecasts assume “Normal Weather,” which is defined as a 20-year (Jan.  
17 2003 to Dec. 2022) historical average consistent with the method used in the Company’s  
18 2021 Rate Case and in other recent Minnesota electric utility rate cases.<sup>18</sup> All historical  
19 Heating Degree Day (“HDD”) and Cooling Degree Day (“CDD”) data is derived  
20 directly from the National Oceanic and Atmospheric Administration’s (“NOAA”) monthly  
21 records for Duluth International Airport.<sup>19</sup> Further, the Company does not re-  
22 calculate or re-create the historical HDD/CDD series from daily temperature data, nor  
23 does it deviate from the NOAA’s standard 65 degree base for the calculation of  
24 HDD/CDD.

25  

---

<sup>18</sup> See *In the Matter of the Application of Northern States Power Company, d/b/a Xcel Energy for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E002/GR-21-630, DIRECT TESTIMONY AND ATTACHMENTS OF SACHIN SHAH at Schedule 2 at 24 (Oct. 3, 2022) (“Normal weather is based on a 20-year historical time period.”).

<sup>19</sup> Minnesota Power retail customer sales were modeled using Duluth HDD/CDD. Wholesale/municipal sales were modeled using the weather station that is proximate to each specific municipality.

1 **Q. Why is “Normal Weather” important to customer sales forecasting?**

2 A. The assumption of normal weather is important because certain customer classes, such  
 3 as Residential and Commercial, are heavily influenced by weather. If Minnesota Power  
 4 were to assume very mild weather in the forecast timeframe, then the sales forecast  
 5 would likely be too low. Assuming extreme weather in the forecast would produce an  
 6 outlook that is likely to be too high. A 20-year average “Normal Weather” assumption  
 7 helps ensure the outlooks for weather-sensitive classes are in the middle of possible  
 8 outcomes and represent a 50/50 forecast with regards to weather. This method is  
 9 consistent with best practices in forecasting electric utility sales.

11 **Q. Has Minnesota Power’s AFR forecast process produced accurate forecasts?**

12 A. Yes, generally. Table 3 below shows AFR forecasts since the 2013 AFR with current  
 13 and year-ahead forecast errors highlighted. Since the Company’s 2010 AFR forecast,  
 14 the Company has over-forecasted the year-ahead timeframe by about 3.7 percent.  
 15 However, swings in demand for taconite production to supply the iron/steel industry are  
 16 difficult to predict, and larger forecast errors of over 5 percent and as high as 15 percent  
 17 are evident when these swings occurred in 2015, 2016, 2020, and 2021. Despite 2022  
 18 Minnesota taconite production totaling approximately 32 million tons, AFR 2021 under-  
 19 forecasted the year by 2.7%.

21 **Table 3. Minnesota Power AFR Forecast Error**

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
AFR 2013	<b>-0.2%</b>	<b>-0.4%</b>	18.1%	24.6%	18.7%	<b>20.0%</b>	22.6%	40.2%	26.2%	33.4%
AFR 2014		<b>-0.3%</b>	<b>13.9%</b>	24.2%	13.9%	14.9%	<b>17.2%</b>	34.0%	20.3%	27.0%
AFR 2015			<b>2.4%</b>	<b>5.9%</b>	9.9%	11.0%	13.1%	<b>29.4%</b>	16.3%	22.6%
AFR 2016				<b>-1.4%</b>	<b>-4.3%</b>	-2.9%	-2.2%	20.4%	<b>10.1%</b>	19.3%
AFR 2017					<b>1.8%</b>	<b>2.5%</b>	3.6%	24.2%	13.1%	<b>19.3%</b>
AFR 2018						<b>1.4%</b>	<b>1.7%</b>	20.4%	9.7%	16.7%
AFR 2019							<b>-1.8%</b>	<b>14.7%</b>	4.2%	12.1%
AFR 2020								<b>-15.7%</b>	<b>-7.8%</b>	-2.2%
AFR 2021									<b>-8.7%</b>	<b>-2.7%</b>
AFR 2022										<b>-1.2%</b>

22 **N.n%** = Year-Ahead Forecast Avg Year-Ahead Error = 3.7%  
 23 **N.n%** = Current Year Forecast Avg Current Year Error = -2.4%

1 **Q. How did Minnesota Power account for the impact of energy efficiency in its 2023**  
2 **AFR and test year sales forecasts?**

3 A. The Company’s approach to forecasting energy efficiency for the 2023 AFR was to use  
4 energy efficiency as an input variable to the regression models. This methodology is  
5 referred to as the “Energy Efficiency as a Right Hand Side Variable” or “EE as RHS  
6 var” method. Minnesota Power identified this as its preferred approach after research,  
7 testing, review by colleagues at other Midwest utilities, and engaging in discussions  
8 with the Department.

9  
10 **Q. What are the benefits of this methodology?**

11 A. The “EE as RHS var” methodology has several advantages over other common energy  
12 efficiency forecasting methodologies, including that it:

- 13 • Avoids double-counting energy efficiency impacts in the forecast timeframe;
- 14 • Accounts for historical and projected conservation resulting from both Company  
15 programs and organic, customer-driven efforts;
- 16 • Leverages raw sales data in regression modeling: sales data are not adjusted for  
17 conservation impacts prior to modeling; and
- 18 • Does not require after-the-fact adjustments to econometric outputs—the energy  
19 sales forecasts already contain the effects of energy efficiency.

20  
21 An “Energy Efficiency” variable explains recent trends in customer consumption that  
22 cannot be explained by economic, demographic, or weather effects. Further, this method  
23 allows the Company to quantify the volume of CIP energy efficiency embedded in the  
24 load forecast, which will be useful in a number of applications—including resource plan  
25 modeling.

26  
27 **Q. What energy efficiency assumptions were used to forecast energy sales?**

28 A. The Company leveraged the results of the Minnesota State DSM Potential Study<sup>20</sup>  
29 funded by the Department and led by the Center for Energy and Environment (“CEE”).

---

<sup>20</sup> *Minnesota Energy Efficiency Potential Study*, CENTER FOR ENERGY AND ENVIRONMENT (Dec. 4, 2018),  
<https://www.mncee.org/minnesota-potential-study>.

1 Minnesota Power worked closely with CEE to update assumptions in the study and  
2 accurately reflect the Company's current customer base, outlook, and to-date historical  
3 experience with CIP. The results of this collaborative study update were used to predict  
4 energy sales to the Residential and Commercial classes.  
5

6 **Q. What methodology did Minnesota Power employ to calculate the impact of electric  
7 vehicles and solar distributed generation in its 2023 AFR and 2024 test year sales  
8 forecasts?**

9 A. Electric vehicle and distributed solar impacts were not estimated via an econometric  
10 process like the energy efficiency forecasting method described above. Instead, the  
11 overall energy sales impact of each new technology was calculated first, and this impact  
12 was applied as an arithmetic adjustment to the raw econometric projection. The  
13 arithmetic adjustments for both electric vehicle and distributed solar were calculated by  
14 combining a projected unit adoption rate with an estimate of per-unit impact on sales.  
15 A more complete description of the process and a full documentation of the  
16 methodologies are included in the 2023 AFR, Section II.B.2.  
17

18 **Q. What methodology was used to forecast test year sales to the non-Mining and  
19 Metals large industrial and wholesale customers?**

20 A. Minnesota Power employs an industry specific approach to forecast sales to our non-  
21 Mining and Metals large Industrial and wholesale customers. These large Industrial  
22 customers include the following sectors: (1) Forest Products; (2) Pipelines; and (3)  
23 Other Industrial.  
24

25 **Q. Please describe this industry specific approach to forecasting large Industrial and  
26 wholesale energy sales in the 2024 test year forecast.**

27 A. Projections for each large Industrial sector were developed in cooperation with  
28 customers in each sector, taking into account the nuances of the sector. These forecasts  
29 are also informed by the national economic trends identified during the AFR modeling  
30 process. Individual customer estimates are aggregated to a class total, which constitutes

1 an industry specific forecast approach, and are validated against the econometrically-  
2 produced AFR forecasts.

3  
4 **Q. Why is an industry specific approach necessary for developing the 2024 test year  
5 forecast for the non-Mining and Metals large Industrial and wholesale customers?**

6 A. The AFR modeling produces sector (or class-level) forecasts and lacks the necessary  
7 detail for short-term forecasting and budgeting processes. The 2023 AFR modeling of  
8 the Paper sector uses national and state-level (macro) economic indicators such as  
9 Industrial Production Indexes, which are excellent for determining general industry  
10 trends and building outlooks for long-term planning, but this modeling will not produce  
11 outlooks with sufficient detail for a test year sales forecast.

12  
13 **Q. Did Minnesota Power use a facility specific approach for forecasting its Mining  
14 and Metals customers' test year sales levels?**

15 A. No. Minnesota Power has moved to forecasting an average operating rate for its Mining  
16 and Metals customers and applying that operating rate across all Mining and Metals  
17 customers' sales.

18  
19 **Q. Why did Minnesota Power change its forecasting methodology for its Mining and  
20 Metals customers?**

21 A. Minnesota Power transitioned from a facility-specific approach to an average operating  
22 rate methodology for its Mining and Metals customers because industry consolidation  
23 has reduced the ability to forecast where production changes will take place. In the past  
24 few years, Cleveland-Cliffs transitioned from a mining company to a vertically  
25 integrated steel company through acquisitions, and now U.S. Steel and Cleveland-Cliffs  
26 have attained control of all the domestic taconite supply and all domestic blast furnaces.  
27 As a result of this consolidation, U.S. Steel and Cleveland-Cliffs are able to make  
28 decisions within their specific corporations to optimize production based upon product  
29 type, production cost, royalty rates, business philosophy, or other strategic factors and  
30 Minnesota Power does not have visibility into these factors or decisions.

31

1 **Q. Can you provide an example of how industry consolidation has impacted specific**  
2 **mining facility operating predictions?**

3 A. Yes. An example is the recent idling of Cleveland-Cliffs Northshore taconite facility. In  
4 2019, Cleveland-Cliffs completed an investment of over \$100 million in the facility to  
5 upgrade production to a more premium, Direct Reduction Grade (“DR-Grade”) pellet  
6 to supply its new, \$1 billion Hot Briquetted Iron (“HBI”) production facility in Toledo,  
7 Ohio. The conventional wisdom of a facility specific forecast would predict consistent  
8 operation of Northshore following this expensive upgrade; however, Cleveland-Cliffs  
9 chose to idle Northshore in the spring of 2022, shift DR-Grade production to its recently  
10 acquired Minorca facility, and utilize Northshore as a swing facility.<sup>21</sup> As a result of the  
11 consolidation in this specific industry, both Cleveland-Cliffs and U.S. Steel can make  
12 strategic operating decisions within their span of control, which now includes all  
13 domestic taconite production.

14  
15 **Q. Do these production decisions by U.S. Steel and Cleveland-Cliffs impact energy**  
16 **sales and Minnesota Power revenue uniformly?**

17 A. No. Each taconite production facility has a different energy intensity per ton due to  
18 differing process flow within each facility, ore body configuration, scale of the facility,  
19 and product variation. In addition, facilities are served by firm versus non-firm retail  
20 service, which have differing revenue associated with the sale due to the nature of the  
21 agreements. This variation in energy intensity per ton of taconite production is shown  
22 in Table 4 below for a representative full annual production output at each facility.

---

<sup>21</sup> Dan Kraker, *Cleveland-Cliffs extends closure of Northshore Mining until April*, MPR NEWS (July 22, 2022), <https://www.mprnews.org/story/2022/07/22/cliffs-extends-closure-of-northshore-mining-until-april>.

Table 4. 2021 Taconite Facility Energy Intensity

Facility	Production (Dry Long Tons)	Usage (MWh)	kWh/ton
Hibtac	7,329,934	[TRADE SECRET DATA BEGINS]	
Keetac	5,300,999		
Minntac	13,460,057		
Minorca	2,670,167		
Northshore (Silver Bay + Babbitt)	4,839,777		
United Taconite	5,091,052		

[TRADE SECRET DATA ENDS]

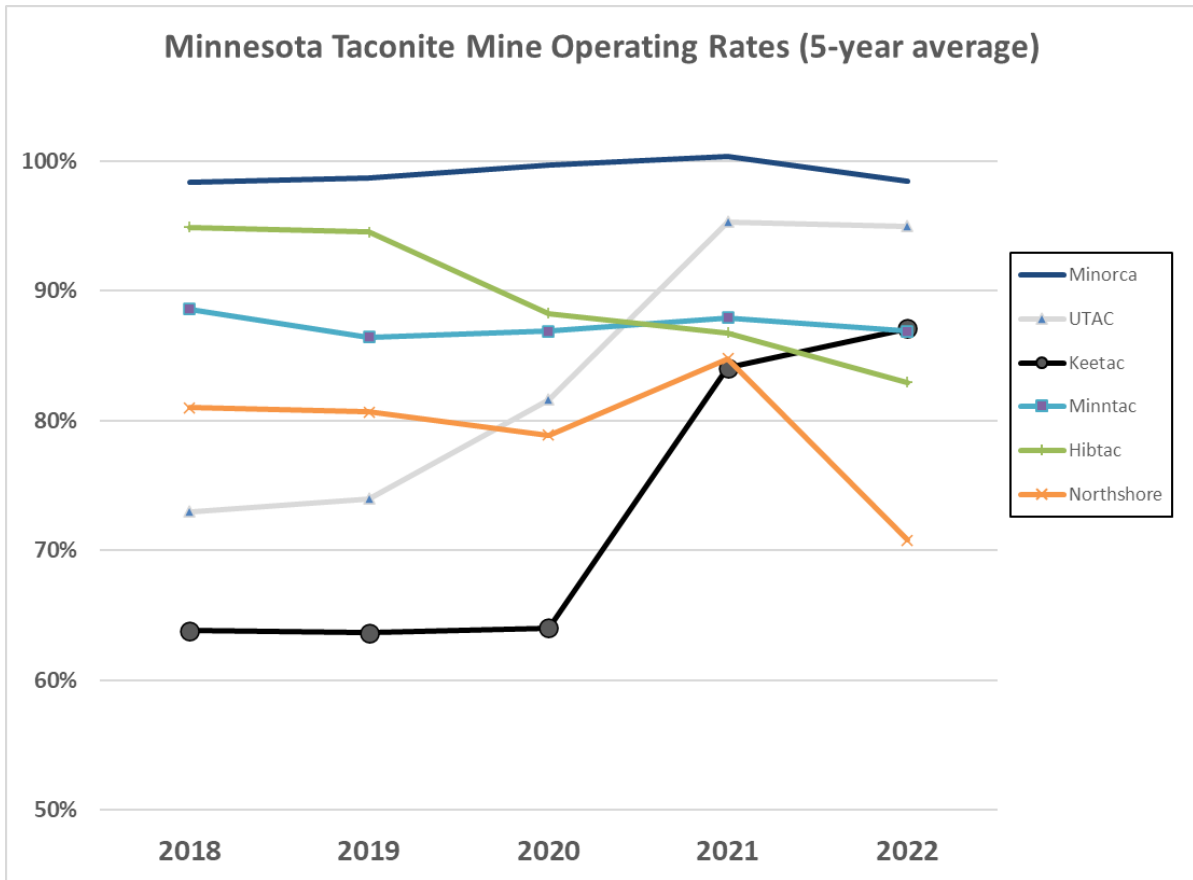
**Q. What events and factors over the past five years impacted individual mine operating rates?**

A. Cleveland-Cliffs acquisition of AK Steel and ArcelorMittal USA has given the company increased operational flexibility at its facilities due to the elimination of the pellet supply agreements with both companies and acquisition of additional mining assets making similar products to Cleveland-Cliffs facilities owned before the purchase. In the past, Cleveland-Cliffs pellet supply agreements were served by specific mines. The acquisition of AK Steel and ArcelorMittal USA allows Cleveland-Cliffs flexibility in how it supplies its newly acquired steel mills based on cost or other strategic reasons. In addition, Cleveland-Cliffs now has ownership of mining facilities capable of making similar products, which gives the company additional optionality on how it serves steel mill pellet demand. Another factor is specific to Hibbing Taconite, which is exhausting its existing ore body and working on plans to transition to its newly acquired ore body in Nashwauk, is resulting in a lower facility operating rate. Lastly, U.S. Steel’s recent strategy of monetizing its iron ore assets and selling to third parties has improved Keetac’s operating rate. Historically, Keetac would swing between operation and idle, and has been a Minnesota Power rate case driver, but in recent years its operating rate has improved as U.S. Steel has implemented this new strategy. These facility operation trends are displayed in Figure 11 below, which shows the five-year average operating rates of each facility since 2018.



1

**Figure 11. Five-year Average Minnesota Taconite Mine Operating Rates**



2  
3

4 **Q. How did Minnesota Power forecast the operating rate for the Mining and Metals**  
5 **customers?**

6 A. Minnesota Power forecasted the operating rate for the Mining and Metals customers  
7 based upon recent sales levels and the continuation of steel industry trends discussed  
8 further in Section V.

9

10 **B. Large Power Customer Data Gathering Process**

11 **Q. Please describe the Company’s data gathering process for its LP customers.**

12 A. Minnesota Power gathers customer, industry, and economic information from a variety  
13 of sources. The Customer Experience Strategic Accounts team and some members of  
14 the Customer Insights and Forecasting Analytics team continually gather information  
15 about our LP customers and their industries, as well as global, state, and local economic  
16 outlooks.

1  
2 Our strategic account professionals are in direct contact with our customers. As part of  
3 these interactions, we frequently discuss the state of the industry as well as the  
4 customers' future production plans. Through these discussions, the Company gauges  
5 the operational plans that our customers have at the local level and how Minnesota  
6 Power can serve their reliability and energy needs to encourage and foster growth,  
7 efficiency, sustainability, and mutual success.

8  
9 Several Minnesota Power employees are also actively involved in our LP customers'  
10 trade organizations, providing yet another source of industry data and information. By  
11 way of example, I served on the board for the Iron Mining Association of Minnesota  
12 and engage as an associate member with the American Iron and Steel Institute and  
13 Minnesota Forest Industries. David Chura, Manager of Strategic Initiatives, serves on  
14 the boards of Mining Minnesota and Jobs for Minnesotans. In addition, several others  
15 from Minnesota Power actively participate and contribute time, talent, and effort in sub-  
16 committees of these organizations. Our interactions in these organizations enable us to  
17 identify issues, trends, opportunities, and challenges that the industries face and to  
18 further our understanding of their energy needs.

19  
20 **Q. To what extent do LP customers develop their own energy use forecasts?**

21 A. In our experience, LP customers look to Minnesota Power to provide annual energy use  
22 forecasts based on the facility production levels they provide the Strategic Accounts  
23 team. Some LP customers develop their own energy forecasts based on their projected  
24 levels of production, but most of them work with Minnesota Power to either develop  
25 the energy use forecasts together or have us develop the forecasts for them. Our detailed  
26 historical data and knowledge of customers' operations help both the Company and our  
27 customers' budget energy requirements for their estimated production levels.

28  
29 **Q. Does Minnesota Power use the energy usage forecasts developed by its customers?**

30 A. While customer forecasts are certainly considered as a part of our sales forecasting  
31 process, they do not necessarily form the sole basis for our sales forecast for several

1 reasons. First, the timing of Minnesota Power’s need for sales forecast information does  
2 not directly align with our customers’ budget development timing. Second, our planning  
3 timeline extends further into the future than our customers’ planning horizons typically  
4 provide. Third, our experience through the years is that our customers’ forecasts,  
5 particularly at the local level, have had inaccuracies due to failure to consider macro  
6 business trends and decisions that are outside of local purview and control.

7  
8 This has become more evident in recent years as our industrial customers have  
9 experienced increased variability in demand for their products and industry  
10 consolidation has allowed for more production decisions to be made at the corporate  
11 level for various business and strategic reasons. To prepare a more accurate sales  
12 forecast, we meld our customers’ direct information with our own external information  
13 and analysis of macro business trends and then forecast production based upon expected  
14 production levels.

15  
16 **Q. Are statistical methods like econometric modeling by themselves sufficient to**  
17 **understand the LP customers’ likely test year energy usage?**

18 A. No. Econometric modeling is adept at identifying “macro” industry trends and useful in  
19 long-term forecasting. However, a purely econometric approach does not incorporate  
20 information regarding specific customers, such as a customer’s contracts for seaborne  
21 exports, whether a local plant may be idled or, conversely, if a customer is planning a  
22 capital project addition. This is especially true as technology changes in mining and  
23 paper production have enabled increased product substitution by the end customer in  
24 these respective industries. For example, the increased concentration of Electric Arc  
25 Furnace (“EAF”) based steelmaking has enabled greater raw material substitution from  
26 scrap, pig iron, or HBI which increases the variability in estimating production of  
27 taconite for the iron and steel industry as a whole. Similarly in the paper industry,  
28 consolidation and reduction in demand has resulted in increased impacts from “grade  
29 switching” by printing companies as well as substitution of electronic media to increase  
30 variability in raw paper demand for a specific grade produced by a specific mill. As a

1 result, a macro industry metric may infer strong customer operations but a specific  
2 local customer operation may be weak, or vice versa.

3  
4 1. Large Power Customer Industry Data

5 **Q. What are your sources of industry data pertinent to your LP customers' future**  
6 **energy needs?**

7 A. In addition to specific customer input, we use a wide range of industry data,  
8 publications, metrics, and government data. For example, our Customer Experience  
9 team tracks several relevant industry metrics, including, but not limited to, domestic  
10 steel demand, raw steel capacity utilization rates, blast furnace versus EAF production  
11 percentages, steel and iron ore pricing levels, steel imports and exports, drill rig counts,  
12 iron ore and steel inventory levels, Lake Superior boat traffic, pricing levels for various  
13 grades of paper, and business analyst reports of our customers, their industries, their  
14 corporate parents, and their competitors.

15  
16 We also subscribe to numerous industry periodicals and track industry news on a macro  
17 level to supplement our knowledge of our customers' industries. For the mining  
18 industry, we subscribe and/or review information from Steel Market Update, CRU,  
19 American Metal Markets, Steel Business Briefing, Skillings Mining Review, and  
20 several others. For the paper industry, we obtain and review market information from  
21 the American Forest and Paper Association ("AF&PA"), PaperAge Magazine, and pulp  
22 and paper industry intelligence from Fastmarkets RISI.

23  
24 **Q. Do you also use broader data about global, state, or local economic trends?**

25 A. Yes, we also use publicly available information from the U.S. Securities and Exchange  
26 Commission ("SEC"), the U.S. Census Bureau, American Iron and Steel Institute,  
27 World Steel Association, the United States Geological Survey, and other sources to  
28 provide the information we need for our load forecasting purposes. This includes  
29 Institute of Supply Management Manufacturing Indices, consumer spending, exchange  
30 rates, savings rates, capital investment rates, Federal Reserve Business Outlook surveys,

1 Industrial Production Indices for steel and paper, the Chicago Index of Activity, and  
2 more.

3  
4 **Q. Do historical trends for an LP customer’s industry or markets factor into your  
5 analysis as well?**

6 A. Yes. Historical and projected industry trends are considered in the development of short  
7 and long-term energy requirements forecasts.

8  
9 **Q. How does the Company utilize industry and economic data to develop expectations  
10 for LP customer sales in any given year?**

11 A. Industry and economic data is factored in with the customers’ historical operating rates  
12 and their anticipated future production levels in a combination of micro and macro  
13 views to attempt to both validate the sales outlooks and to attempt to anticipate industry  
14 cycles.

15  
16 2. Large Power Customer ESAs and Data

17 **Q. Please describe, in general, how LP ESAs supplement standard tariff rates.**

18 A. LP ESAs, which are considered to be tariffs themselves upon approval, supplement the  
19 standard LP tariff rate by specifically outlining connection points, voltage levels, a  
20 methodology to determine billing demand, an Incremental Production Service  
21 Threshold, a confidentiality agreement, and any terms or conditions that differ from or  
22 are additional to the terms and conditions specified in the LP Service Schedule or in any  
23 rider or tariff applicable to LP Service. Each of these terms are specifically tailored to  
24 customer operating characteristics.

25  
26 **Q. Please describe the methodology in which LP ESAs determine customer billing  
27 demand.**

28 A. LP customers nominate their firm demand levels based on the electric load expectations  
29 for each calendar month. Nomination frequency varies between monthly and three times  
30 per year, with varying advance notice requirements depending on the customer’s ESA.  
31 These nominations must be equal to or above the Minimum Service Requirement set

1           forth in each customer’s ESA. If a customer is operating at full production, their billing  
2           demand will be equal to their nominated demand. Periodically, as a part of the normal  
3           course of business, customers need to take maintenance downtime. In anticipation, a  
4           customer must notify Minnesota Power a minimum time set in the ESA ahead of the  
5           maintenance period. In exchange, the customer’s billing demand will be reduced by the  
6           amount of time and level in which they were below their nominated demand level. Each  
7           LP customer has an allowance for scheduled maintenance set in their ESA, which sets  
8           the maximum amount their billing demand can be reduced below their nominated  
9           demand.

10  
11   **Q.     What other benefits do LP ESAs provide to LP and non-LP customers?**

12   A.     The ability to customize the general features of the LP tariff to the unique and individual  
13           characteristics of each customer is crucial for them to most efficiently align their electric  
14           service with their operations. As stated previously, and by way of example, many LP  
15           customers would pay higher demand charges when down for scheduled reasons if they  
16           were not able to use the provision for scheduled maintenance, leading to an increased  
17           overall rate for the same periods of time in which they are not producing a saleable  
18           product.

19  
20           Another benefit LP customers provide to all of Minnesota Power’s customers is their  
21           longer-term commitment to purchase a minimum of 182 MW of demand each month,  
22           which represents a commitment for approximately 23 percent of their full production  
23           electric needs. The Minimum Service Requirement set in each ESA provides a  
24           minimum level of contribution, regardless of whether or not a customer is operating, to  
25           ensure Company revenue does not drop to zero when the customer idles an operation.

26  
27           While the Minimum Service Requirement commitment by contracted LP customers is  
28           a unique commitment compared to other customer classes, it is also noteworthy that  
29           Minnesota Power still has significant sales and revenue risk from our largest customer  
30           class due to their ability to reduce nominations by over 70 percent in any given  
31           nomination period. A reduction in demand, along with reduced energy sales revenue

1 that correspond with a lower nomination, can result in significant revenue fluctuations  
2 for Minnesota Power with only 23 percent of its revenue protected by the minimum  
3 service requirements of its LP ESAs as shown in Table 5 below.

4 **Table 5. Large Power Customer Minimum Service Requirement Versus Full**

5 **Production Revenue**

	<u>Minimum Service Requirement</u>	<u>Minimum Demand (Annual \$ Millions)</u>	<u>Full Production Nomination (MW)</u>	<u>Full Production Firm Energy (MWh)</u>	<u>Full Production Firm Demand and Energy (Annual \$ Millions)</u>	<u>Minimum Revenue vs. Full Production Revenue Variance (%)</u>
	[TRADE SECRET DATA BEGINS]					
US Steel						
Hibtac						
UTAC/NSM-Babbitt						
Minorca						
Blandin						
Boise						
Sappi						
ST Paper						
	TRADE SECRET DATA ENDS]					
<b>Total</b>	<b>182</b>	<b>\$ 61.2</b>	<b>619</b>		<b>\$ 261.7</b>	<b>23%</b>

6  
7 Capital market analysts and rating agencies carefully monitor the status of the  
8 Company’s LP customers and regularly assess what protections are in place to maintain  
9 Company revenue through swings in LP customer operations. This is a unique risk that  
10 sets Minnesota Power apart from other utilities and results in higher financing costs that  
11 ultimately impacts customers through higher electric rates. Minnesota Power has some  
12 ability to replace revenue through Midcontinent Independent System Operator  
13 (“MISO”) market sales when LP customers idle; however, lower market prices and the  
14 shift to more renewables in the Company’s generation fleet has reduced the amount of  
15 revenue it is able to recover as described further in the Direct Testimony of Company  
16 witness Ms. Julie I. Pierce. As a result of these challenges to rate and revenue stability,  
17 Minnesota Power is proposing a customer rate stabilization mechanism to smooth this  
18 volatility as I describe later in this testimony.  
19

1 **Q. Please describe, in general, how the Company works with LP customers to**  
2 **anticipate their energy demands for each year.**

3 A. Minnesota Power works closely with LP customers on an ongoing basis to plan for their  
4 future energy needs and to ensure their electric service remains reliable. We devote a  
5 great deal of attention to understanding near-term customer operating plans because  
6 changes in our customers' operating rates or load additions/subtractions at any LP  
7 customer site can have a large impact on our Company. Any significant changes in a LP  
8 customer's energy demand will have a material effect on Minnesota Power because this  
9 class represents nearly three-quarters of the Company's retail energy sales.

10  
11 Minnesota Power's Strategic Accounts team works with our customers early in the year  
12 to understand their energy needs for the next year. In some cases, we work directly with  
13 our LP customers to calculate their internal energy budget based on production estimates  
14 they provide to us. In other cases, we provide customers with historic energy  
15 consumption and pricing information at various production levels for use in their  
16 budgeting process. In still other cases, we work with customers to identify the amount  
17 of power that they will need to purchase from Minnesota Power to supplement their  
18 own self-generation. In every case, we are aligned at some level with our customers in  
19 the preparation of their operating plans and energy needs for the following year. In some  
20 circumstances, our timelines and needs require us to forecast or project customers' load  
21 in advance of their normal budget and estimate processes for the upcoming year. In  
22 those instances, our processes are very similar, and we typically use the summary  
23 information that we derive as the first step in working with customers on their budgeting  
24 processes later in the year.

25  
26 **Q. Does Minnesota Power collect information that may be relevant to a customer's**  
27 **energy needs that is not provided directly by the customer?**

28 A. Yes. As I noted earlier, the Company collects press releases, SEC documents, articles,  
29 and industry group data. Minnesota Power also gathers and analyzes public economic  
30 data from Bureau of Economic Analysis and the Federal Reserve, for example, as well  
31 as any other information regarding our customers that may be helpful in the forecasting



1 process. These sources of external and third-party information are necessary to round  
2 out the estimated average levels of production anticipated for any given year, especially  
3 with the increased variability in production levels being experienced in recent year and  
4 expected to continue into future years. Further detail about industry trends and  
5 forecasting is provided in Section V of my testimony.

6  
7 **Q. Does Minnesota Power adjust its forecast of LP customer needs throughout a given**  
8 **year?**

9 A. Yes. Throughout the year, we adjust our estimates with more granular commitments  
10 from our customers as to their short-term operating plans. Most commonly, this is  
11 accomplished through a LP customer's written submittal of demand nominations. LP  
12 customers provide demand nominations for three and four month periods, depending  
13 upon their specific ESA requirements. The demand nomination indicates the amount of  
14 power demand requirements above the Minimum Service Requirement or take-or-pay  
15 levels specified in the individual LP customer's contract, as indicated earlier in my  
16 testimony.

17  
18 **Q. To what extent does Minnesota Power use formal demand nominations to prepare**  
19 **its annual sales budgets?**

20 A. The Company's sales budget for the upcoming year is typically completed by late  
21 summer of the prior year. As a result, our sales budgets are completed well ahead of the  
22 nomination deadlines for any of the various nomination periods in the next year. For  
23 example, four-month nominating customers are required to submit their demand  
24 nomination for the first four months of 2024 on December 1, 2023, approximately one  
25 month after the filing of this rate case. In addition, formal nominations are of limited  
26 use for forward budgeting because our sales budgets are annual budgets, whereas the  
27 formal demand nominations cover shorter periods.

28

1 **Q. Does Minnesota Power also receive energy usage information from LP customers**  
2 **outside of formal nominations?**

3 A. Yes. Minnesota Power receives information from LP customers via pre-nomination  
4 predictions that can take several forms. For example, LP customers can provide energy  
5 usage information during their budget development process or in response to changes  
6 in business plans or projections. This information is received on an ad hoc or as-needed  
7 basis and does not follow a strict calendar. Often, these predictions encompass widely  
8 varying timeframes. Since the predictions are not binding on the customer, they are  
9 sometimes informal and may represent the customer's most optimistic view of their  
10 future energy demand.

11  
12 **Q. Does Minnesota Power also receive information from LP customers other than**  
13 **energy usage?**

14 A. Yes. We obtain LP customers' most current production estimates, and we use those  
15 production estimates to aid us in our sales budget updates. Minnesota Power also  
16 provides our customers with periodic updates on their energy usage and cost for their  
17 use in updating their operating budgets, which allows for information sharing. We have  
18 some customers who prepare current estimates on a monthly basis for the balance of the  
19 year; others who prepare quarterly updates for the balance of the year; and yet others  
20 who prepare rolling two-year forecasts.

21  
22 **Q. How much do historical trends in a specific LP customer's business factor into**  
23 **your analysis, overall?**

24 A. Minnesota Power uses all of the LP customer data at our disposal—including historical  
25 energy usage, formal budgets, historical demand nominations, periodic customer  
26 updates, pre-nomination predictions, and updated customer production estimates—as  
27 tools to help us anticipate customers' future operating levels and energy requirements.  
28 For example, the historical trend of taconite production is important for predicting future  
29 production as there has been notable increase in the volatility of production in recent  
30 years. This information is combined with the industry information and trends I discussed

1 above to develop the overall projection of a specific LP customer’s annual energy  
2 requirements.

3  
4 **Q. What data did the Company have in hand for the 2024 test year as it was**  
5 **developing this rate case filing?**

6 A. We used historical trends, industry data, and other customer information, as described  
7 above, to develop our test year forecast. As noted above, we did not receive 2024  
8 nominations from LP customers in time for preparation of the 2024 test year LP sales  
9 forecast, which is consistent with the usual timing of LP nominations in relation to an  
10 initial rate case filing. Minnesota Power anticipates receiving its nominations from its  
11 four-month nominating customers on or before December 1, 2023, for the first four  
12 months of the 2024 test year. Nominations for the remaining two, four-month  
13 nominating periods of the test year are received on or before March 1, 2024 and August  
14 1, 2024, respectively.

15  
16 **Q. Are these test year budgets subject to change as the actual test year progresses?**

17 A. Yes. Take, for example, our 2021 Rate Case where Minnesota Power budgeted energy  
18 sales to support a taconite production level of approximately 34 million tons (“MT”) in  
19 the 2022 test year and the actual taconite production in 2022 was approximately 31.9  
20 MT. During the 2022 test year, all customers started the year at full production levels.  
21 If full production would have continued for all 12 months, nearly 38 MT of taconite  
22 would likely have been produced in 2022. Instead, two significant changes occurred  
23 during the 2022 test year that impacted taconite production levels. U.S. Steel’s Minntac  
24 facility slowed pellet production following a structure collapse<sup>22</sup> and Cleveland-Cliffs  
25 announced the idling of its Northshore mining operations.<sup>23</sup>

26  

---

<sup>22</sup> Lee Bloomquist, *Minntac pellet production slowed by structure collapse*, MESABI TRIBUNE (Feb. 8, 2022), attached as MP Exhibit \_\_\_ (Frederickson), Direct Schedule 3.

<sup>23</sup> Jimmy Lovrien, *Cliffs to idle Northshore Mining as fight over royalty fees intensifies, scrap metal lessens need for pellets*, DULUTH NEWS TRIBUNE (Feb. 11, 2022), attached as MP Exhibit \_\_\_ (Frederickson), Direct Schedule 4; Mike Hughlett, *Cliffs maintains plans to idle Northshore Mining operations on Iron Range*, STAR TRIBUNE (April 22, 2022), attached as MP Exhibit \_\_\_ (Frederickson), Direct Schedule 5.

1 Due to the significant impact that any of the LP customers can have on Minnesota  
2 Power's overall energy sales, it is important account for this wide range of production  
3 in a test year by forecasting a representative average volume of taconite production that  
4 reflects the increasing variability occurring with Minnesota taconite production  
5 facilities and lower overall trend in annual production.  
6

7 **Q. How are changes in the budget factored into the Company's analysis during the**  
8 **rate case?**

9 A. The Company and parties can only make updates that are known during the course of  
10 the proceeding, and even then, the long-term ramifications of a change in the status of  
11 a customer or plant changes cannot always be discerned before the proceeding ends.  
12 While Minnesota Power is able to choose when to file rate cases, it does not have control  
13 over the timing of its customers' business decisions, despite the significant  
14 consequences for the utility.  
15

16 **Q. Is there a more effective way to address the issue of LP volatility in Company**  
17 **revenue and customer rates?**

18 A. Yes. Since a change in operation of one or two large industrial customers have the  
19 capability to impact the Company's revenues by a larger amount than its entire  
20 residential customer class, Minnesota Power is proposing a customer rate stabilization  
21 mechanism to smooth this volatility and to reduce the impact of setting test-year  
22 industrial production levels either too-high or too-low. I describe in Section VII of this  
23 testimony the Company's proposal for a customer rate stabilization mechanism to  
24 address these fluctuations in a manner that stabilizes revenue for the Company and rates  
25 for customers.  
26

## 27 V. CUSTOMER OUTLOOK

28 **Q. What is the purpose of this section?**

29 A. In this section, I provide a general overview of Minnesota Power's energy sales trends,  
30 followed by more detailed information about the Company's residential, commercial,  
31 and industrial customer trends including LP customer industry outlooks. As previously

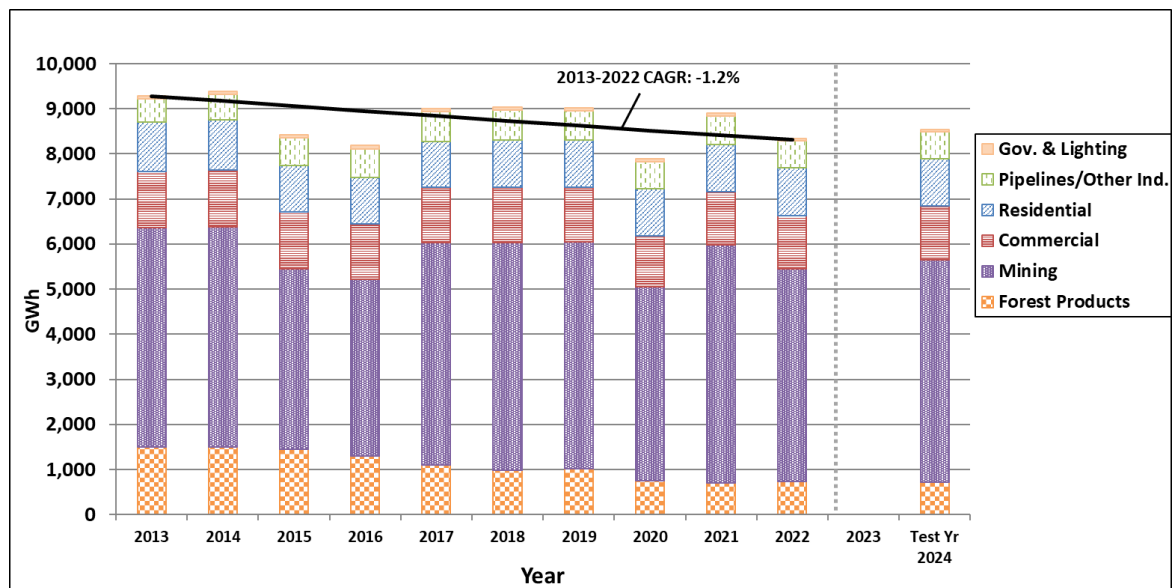
discussed, industrial customers represent the majority of energy sales for Minnesota Power. Sales to Minnesota Power’s industrial customers have increased in volatility in recent years and changes in these customers’ operations have the greatest impact on the overall revenue and health of Minnesota Power. I describe the Company’s data gathering process from these customers and industries and provide forecast information for Minnesota Power’s mining, pulp and paper, and other LP customers.

**A. General Trends in Energy Sales**

**Q. Please describe the general trend in Minnesota Power’s customer sales.**

A. Over the last decade, Minnesota Power’s energy sales have declined, which puts upward pressure on the cost per kWh of delivered energy to customers, as there are fewer kWh energy sales over which the fixed costs of the energy system can be spread. By means of example, the Compound Annual Growth Rate (“CAGR”) of Minnesota Power’s retail sales over the last decade (from 2013 to 2022) is -1.2 percent. Minnesota Power’s energy sales have also increased in volatility in recent years. These general trends are shown in Figure 12 below.

**Figure 12. Minnesota Power Retail Sales by Customer Class**

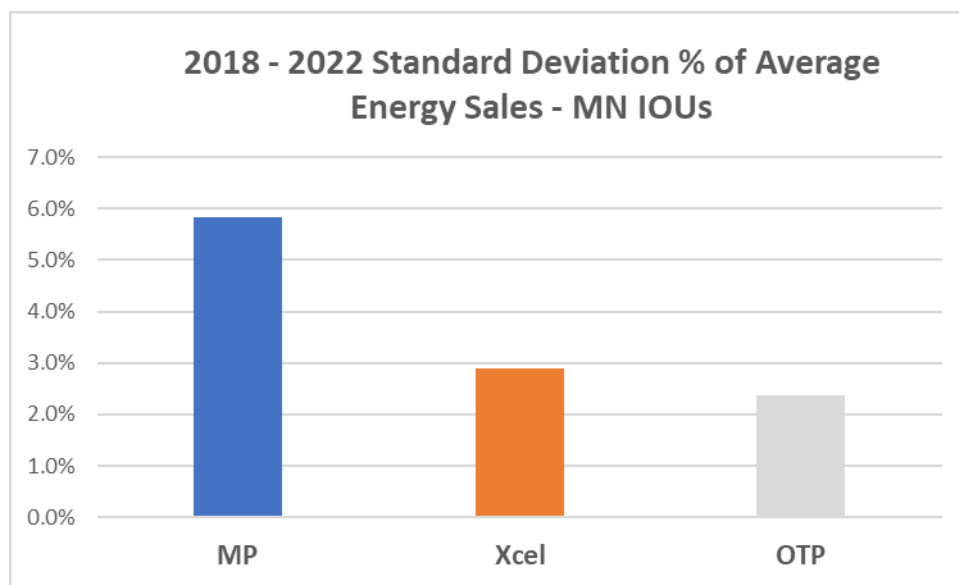


19  
20

1 **Q. Are Minnesota Power energy sales more volatile than other utilities in the state?**

2 A. Yes. As shown in Figure 13 below, Minnesota Power energy sales have been about  
3 twice as volatile as the other investor-owned utilities in Minnesota. Minnesota Power's  
4 standard deviation as a percentage of average retail sales from 2018 to 2022 was  
5 approximately six percent. Said another way, utilizing standard confidence intervals,  
6 Minnesota Power can be 95 percent confident that sales will be within a range of twelve  
7 percent of average levels, whereas Xcel Energy and Otter Tail Power Company (OTP)  
8 can be 95 percent confident that their sales will be within a range of six and five percent,  
9 respectively, of average levels.

10  
11 **Figure 13. Minnesota Investor-Owned Utilities Retail Sales' Standard Deviation as**  
12 **Percent of Average Sales (2018-2022)**



13  
14  
15 **Q. How do energy sales trends vary by customer class?**

16 A. Residential and commercial customer sales have stagnated or declined since the 2007–  
17 2009 Great Recession, contracting -0.5 percent per year (on average) from 2013 to 2022.  
18 Residential and commercial customer account growth stagnated in the last decade due  
19 to demographic factors like low population growth, in particular in the rural regions  
20 such as Northeastern Minnesota. The stagnation of population growth, coupled with the  
21 reduction in average customer energy use due in part to Minnesota Power's ongoing

1 success with CIP delivering energy savings that have exceeded the 1.5 percent energy-  
2 savings goal every year for thirteen straight years, has resulted in lower energy sales.

3  
4 Minnesota Power's industrial sector is predominantly natural resource based, and  
5 energy sales are largely driven by the global economic conditions and trade policies that  
6 determine demand for iron, steel, and paper as well as changes in manufacturing  
7 technology and processes that impact future demand for certain types of natural  
8 resource-based products such as taconite and printing and writing papers.

9  
10 Demand for iron ore pellets is highly cyclical and increasingly subject to the steel  
11 industry's technological evolution. The Great Recession (2007–2009), increased global  
12 steel imports (2015–2016), and the COVID-19 Recession (2020) are each unique  
13 economic and trade policy conditions that resulted in the temporary idling of large  
14 taconite producing facilities, which in turn resulted in dramatic reductions in Minnesota  
15 Power's retail energy sales. Lower taconite pellet demand in 2022 is a result of yet  
16 another factor, the transition in steel manufacturing technology from traditional blast  
17 furnaces that use taconite as a key input towards less taconite intensive EAFs that  
18 primarily leverage scrap steel. As a result of this technological change, Minnesota  
19 taconite production capacity now exceeds domestic demand, resulting in additional  
20 idling of facilities to balance supply with lower demand levels.

21  
22 Demand for printing and writing paper has been in systemic decline since the  
23 proliferation of digital communication over the past 20 years. Sales to Minnesota  
24 Power's Forest Products customers have contracted at an average pace of about 7.6  
25 percent per year from 2013 to 2022.

26  
27 Minnesota Power's sales to wholesale customers have also declined. Independent  
28 municipal electric utilities, which until recent legislative changes to Minnesota energy  
29 policy, were not required to align with Minnesota's Renewable Energy Standard. This  
30 enabled them to purchase non-renewable and non-carbon free power supply at the lower  
31 marginal cost from the wholesale power markets.

1  
2 **Q. Are energy sales to residential and commercial customers generally more stable**  
3 **than to industrial customers?**

4 A. Yes. While Minnesota Power has observed a clear downward trend in sales to  
5 Residential and Commercial classes, it is fair to say that any year-to-year changes in  
6 sales are small relative to the Industrial class. Historically, it has been exceedingly rare  
7 for Residential or Commercial sales to increase or decrease by more than five percent  
8 in any year, whereas a decrease of ten percent or more in industrial sales is not unusual  
9 for Minnesota Power. This energy sales trend, coupled with the significant Industrial  
10 customer sales on Minnesota Power's system create a level of volatility in energy sales  
11 that is not seen on other electric utility systems.  
12

13 **B. Residential and Commercial Sales**

14 **Q. Has Minnesota Power observed any notable trends in its Residential and**  
15 **Commercial customer classes?**

16 A. Yes. There are long-term trends that correlate with regional demographics and  
17 conservation and a more recent (likely temporary) sales impact due to COVID-19. The  
18 long-term view shows sales to both the Residential and Commercial classes have  
19 contracted since 2009—the end of the Great Recession (2007–2009). Prior to 2009,  
20 Residential and Commercial sales were growing at 1.6 percent per year and 2.6 percent  
21 per year, respectively. Since 2009, the pace of annual growth in both the Residential  
22 and Commercial sales has slowed to -0.2 percent. In both the Residential and  
23 Commercial classes, the pace of customer count growth has slowed and, on average,  
24 each individual customer is using less energy due to increases in home and business  
25 energy efficiency.  
26

27 **Q. What is driving the general downward trend of sales to the Residential class?**

28 A. There are two factors driving lower sales to the Residential class in recent years: slow  
29 to stagnant customer count growth and reduced energy usage per customer. The reduced  
30 pace of customer count growth is due to regional demographic and economic factors.  
31 The decreasing average energy use per Residential customer is at least partly driven by

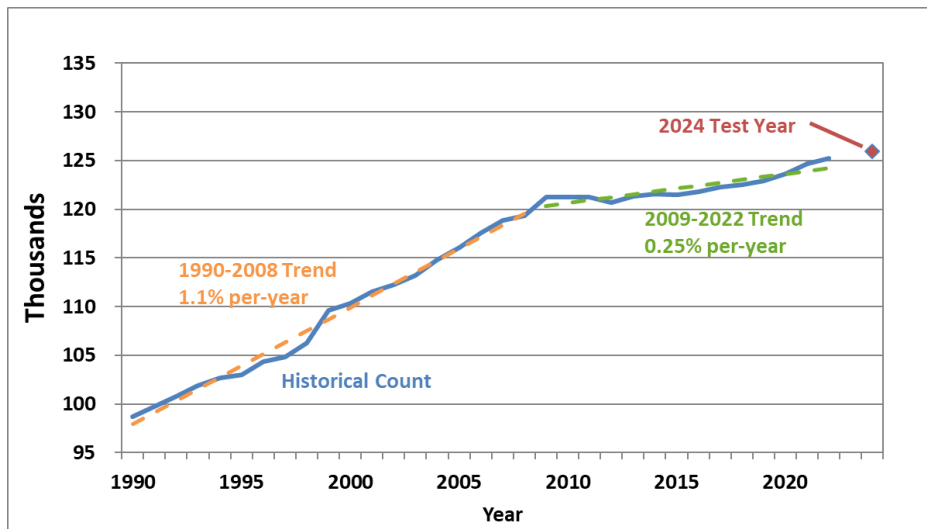


1 the cumulative effects of energy conservation. As a result, sales to the Residential class  
2 have declined slightly over the last decade; sales in the years 2008–2010 averaged  
3 1,070,810 MWh, whereas sales over the last three years (2020–2022) have averaged  
4 1,048,969 MWh.

5  
6 **Q. Describe trends in Residential customer counts.**

7 A. The rate of annual Residential customer count growth slowed from an average 1.1  
8 percent pace prior to the Great Recession (1990–2008) to just 0.25 percent per year  
9 since 2009. Figure 14 below compares the pre-recession and post-recession trends in  
10 Residential customer count growth. In terms of actual customer counts, Minnesota  
11 Power was gaining 1,150 Residential customers per year prior to 2009, and new  
12 customer growth has slowed to about 310 customers per year in the years since the Great  
13 Recession. The reduced pace of new Residential customer growth is consistent with  
14 regional population metrics. For example, U.S. Census data demonstrates that the City  
15 of Duluth’s population, the largest city in Minnesota Power’s service area, has increased  
16 by only 0.4 percent since 2010.

17  
18 **Figure 14. Residential Customer Counts**

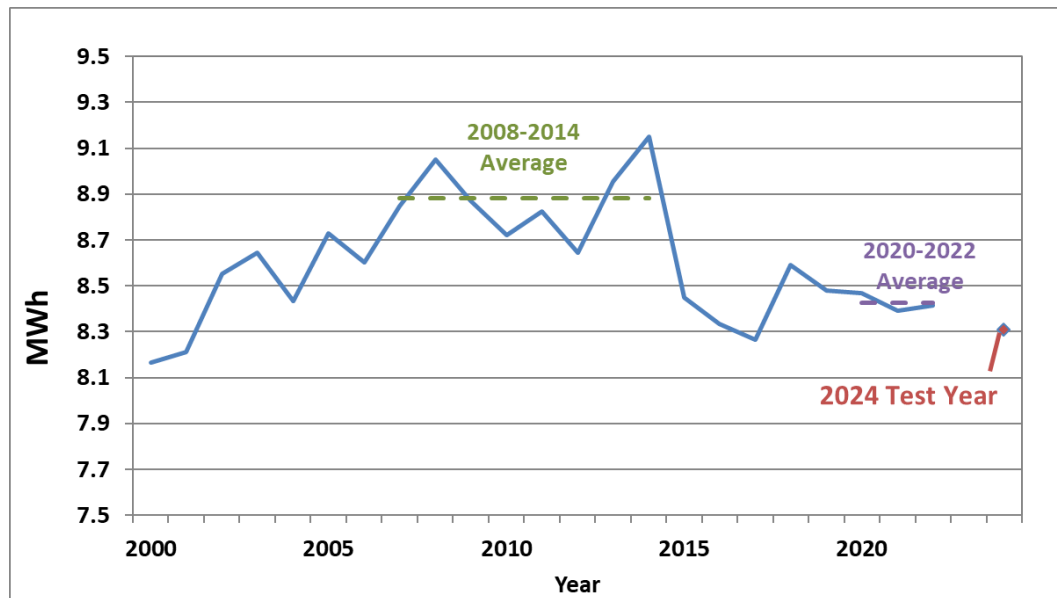


19

1  
2 **Q. How has energy use per Residential customer changed in recent years?**

3 A. Energy usage by the average Residential customer has plateaued or decreased in recent  
4 years. Figure 15 below shows the average Residential customer’s annual energy use  
5 averaged about 8,900 kWh in the 2007–2014 timeframe, declining to an 8,400 kWh  
6 level in the last three years (2020–2022). The Company attributes the decline in per-  
7 customer energy use to both Minnesota Power’s conservation programs and customer-  
8 driven conservation.

9  
10 **Figure 15. Average Residential Customer’s Annual Energy Use**

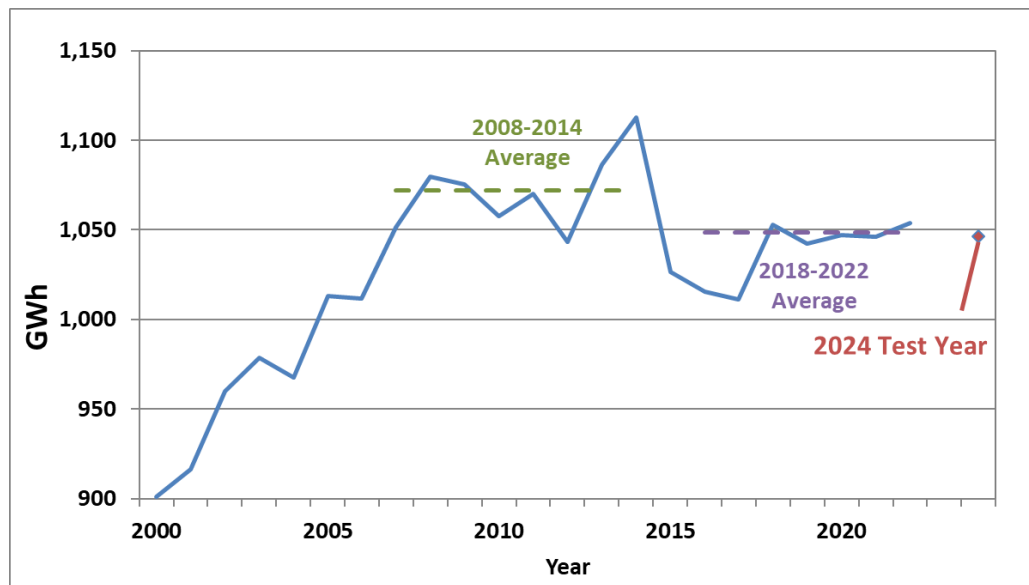


11  
12  
13 **Q. Is the Company’s 2024 test year sales forecast consistent with these recent trends**  
14 **for Residential customers?**

15 A. Yes. Figure 14 and Figure 15 above show the test year forecasts of both customer count  
16 and average use per-customer are in line with recent trends. The 2024 test year forecast  
17 of customer count reflects a continuation of the low 0.2 to 0.3 percent per year growth  
18 trend since 2009. The forecast of use per customer is only slightly lower than a recent  
19 historical average, but this is in line with the historical downward trend of weather-  
20 normalized sales to this class.

1 The 2024 test year forecast of overall sales to the Residential class is produced by  
 2 combining the modeled forecasts of customer count and per-customer usage. Figure 16  
 3 shows the Company’s 2024 test year sales forecast for total Residential sales of  
 4 1,046,133 MWh is largely in line with the recent levels of actual sales and reflects a  
 5 continuation of these trends. The 2024 test year outlook is about 7,500 MWh (0.7  
 6 percent) lower than 2022 actual sales and only about 2,300 MWh (0.2%) lower than the  
 7 five-year average (2018–2022).

8  
 9 **Figure 16. Energy Sales to the Residential Customer Class**

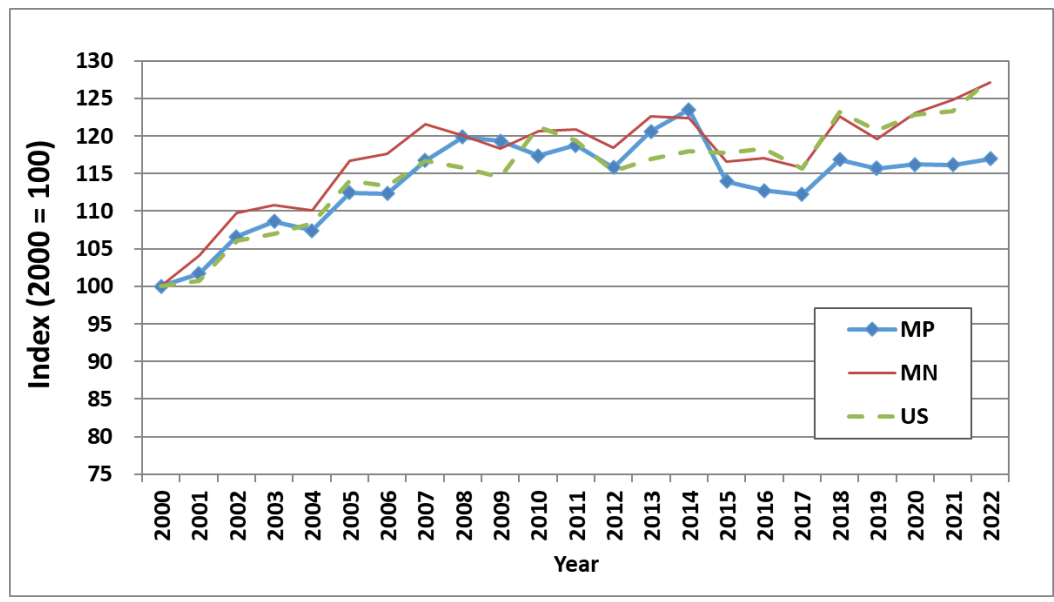


10  
 11  
 12 **Q. Have the Company’s historical sales been consistent with state and national trends**  
 13 **for Residential customers?**

14 A. Minnesota Power’s sales to Residential customers generally followed historical state  
 15 and national trends, but growth in state and national energy sales have outpaced  
 16 Minnesota Power since 2019. Figure 17 shows Residential energy use at the state and  
 17 national level compared to Minnesota Power’s Residential sales with all sales histories  
 18 indexed to 2000. All three Residential energy usage series in Figure 17 show a change  
 19 in slope beginning in the 2007–2008 timeframe. Minnesota and national electricity  
 20 usage grew by 22 percent and 17 percent (respectively) from 2000 to 2007, but  
 21 electricity consumption in both geographies decreased (by 4.7 percent and 1.0 percent,

1 respectively) from 2007 to 2017. Minnesota Power’s Residential sales increased by 17  
 2 percent from 2000 to 2007 and then contracted 3.9 percent from 2007 to 2017. From  
 3 2017 to 2019, Minnesota and national Residential electricity usage grew by three and  
 4 four percent, respectively, and Minnesota Power’s sales to the class grew by 3 percent.  
 5 In 2020, Minnesota and national sales growth to Residential customers began to  
 6 significantly outpace Minnesota Power. From 2019 to 2022, both Minnesota and  
 7 national sales to Residential customers grew by approximately six percent, whereas  
 8 Minnesota Power sales only grew by 1.1 percent over the same period.

10 **Figure 17. Residential Energy Use Trends: Minnesota Power, State of Minnesota, and**  
 11 **U.S.**

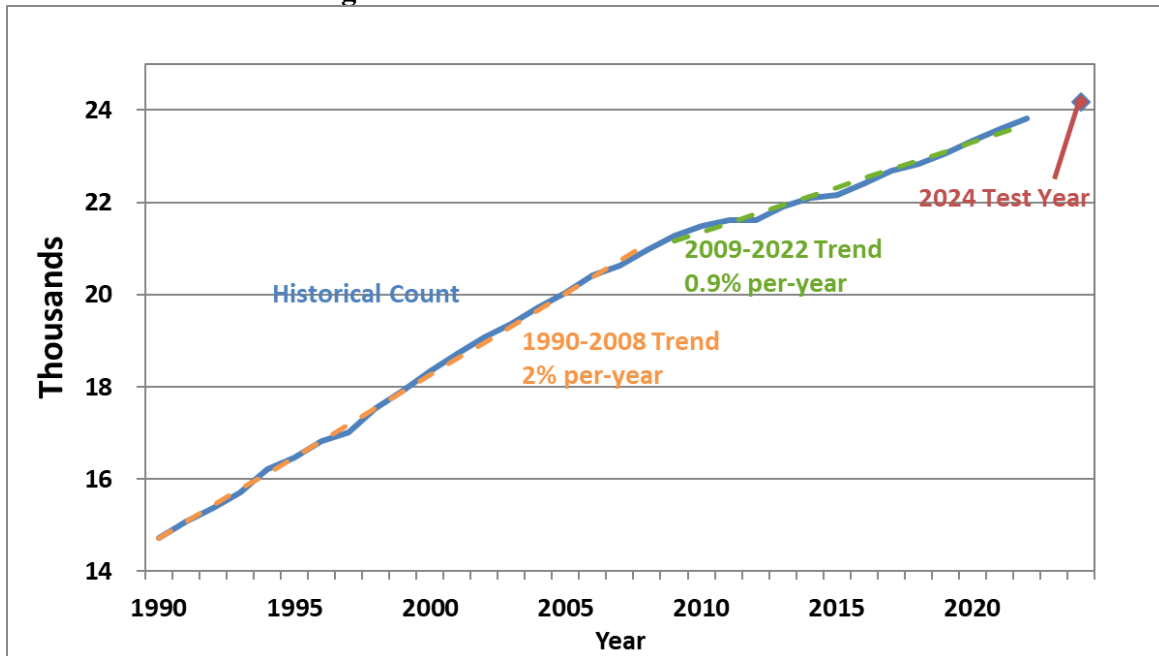


12  
 13  
 14 **Q. Please describe recent trends in the Commercial customer class.**

15 A. Similar to the trends seen with the Residential class, Commercial customer count growth  
 16 and use per customer have also slowed in recent years. Figure 18 shows Commercial  
 17 customer count grew by about 2 percent per year (350 new accounts per year) in the  
 18 pre-2009 recession timeframe. Since 2009, this rate has slowed to about 0.9 percent  
 19 (190 new accounts per year). The slower rate of customer growth is likely following the  
 20 same demographic and economic trends that have impacted Residential customer  
 21 growth since the Great Recession (2007–2009).

1  
2

**Figure 18. Commercial Customer Count**

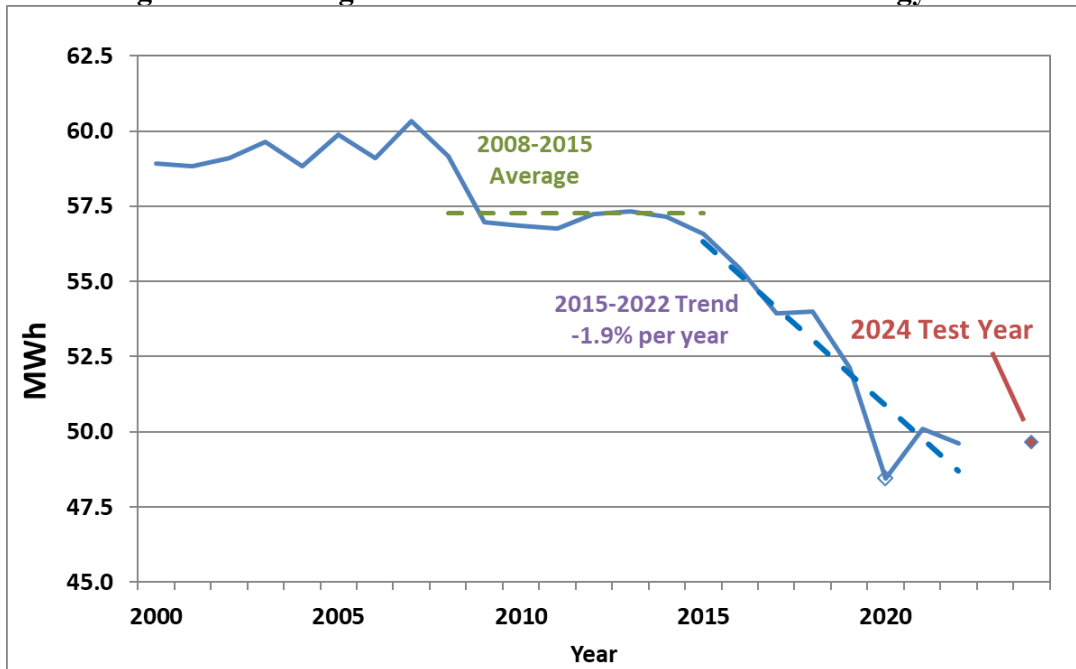


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Figure 19 shows the average Commercial customer’s annual energy consumption declined approximately 3.7 percent from 2008 to 2009, plateaued for about six years following the Great Recession, and then declined about 1.9 percent per year from 2015 to 2022. Sales to Commercial customers in 2020 were below the trend and depressed due to COVID-19 “stay at home” orders and capacity limits for businesses. These stay-at-home orders and capacity limits had a direct impact on Commercial customer energy consumption. In addition, consumers’ behavioral responses to COVID-19 (avoiding public spaces, for example) likely also affected Commercial activity and energy use. Following 2020, 2021 and 2022 Commercial customer energy intensity recovered modestly from 2020 levels, but continued the general downward trend from pre-COVID-19 levels. The test year projection for per-customer Commercial use reflects the continuation of past conservation trends and a continuation of the general downward trend.

1

**Figure 19. Average Commercial Customer’s Annual Energy Use**



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The underlying trend of decreasing per-customer usage is likely due in part to conservation, but also in part may be attributable to commercial customers operating on reduced hours following the COVID-19 pandemic due to staffing shortages, businesses optimizing time of operations, and more employees working from home.

8

**Q. How does the Company’s 2024 test year sales forecast for Commercial customers compare to actual sales in recent years?**

9

10

A. Figure 20 shows the Company’s 2024 test year forecast for Commercial energy sales (1,199,709 MWh) compared to recent historical actuals. The 2024 test year outlook is about 1.5 percent higher than 2022 sales. The 2024 test year outlook for Commercial sales reflects a nearly complete return to “normal” levels after the COVID-19 pandemic, driven primarily by the aforementioned commercial customer count growth. For example, the 2024 test year forecast is only about 0.2 percent below 2019 actual sales and 1.2 percent higher than a five-year (2018–2022) historical average of actual sales.

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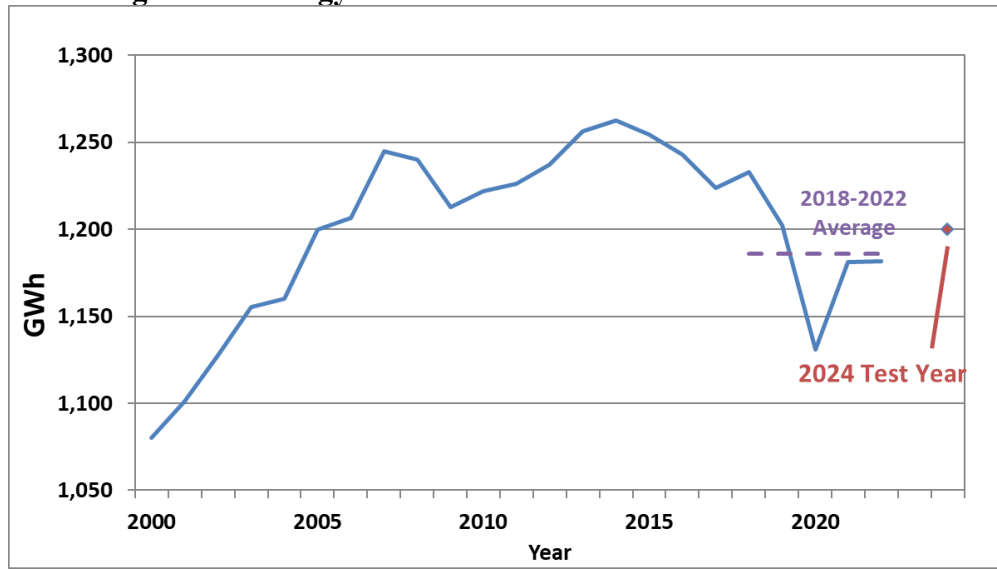
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**Figure 20. Energy Sales to the Commercial Customer Class**



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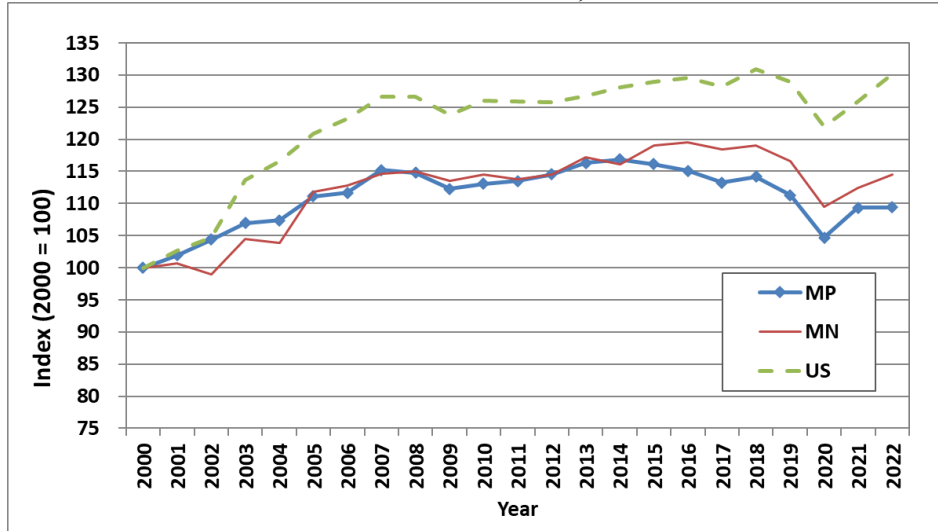
4 **Q. Is the Company’s 2024 test year sales forecast consistent with state and national**  
5 **trends for Commercial customers?**

6 A. Yes. Minnesota Power’s sales to Commercial customers have generally followed state  
7 trends, and the national trends are comparable in some respects. Figure 21 shows  
8 Commercial energy use at the state and national level compared to Minnesota Power  
9 Commercial sales with all sales histories indexed to 2000. All three historical series  
10 demonstrate the same flattening of sales starting around 2007 and 2008. Following the  
11 COVID-19 pandemic, both Minnesota and Minnesota Power Commercial sales have  
12 not returned to pre-pandemic levels, whereas United States Commercial sales did in  
13 2022. The 2024 test year sales forecast reflects the continued recovery from the  
14 pandemic, slightly lagging the United States in total.

15

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**Figure 21. Commercial Energy Use Trends: Minnesota Power, State of Minnesota, and U.S.**



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**C. Industrial Customer Sales**

**Q. Earlier you discussed the Company’s LP customers at a high level. Can you provide more detail regarding their individual status?**

A. Yes. Table 6 below identifies our contracts for electric service for six taconite-producing facilities served through four LP customer contracts and four paper and pulp mills served through four LP customer contracts. Minnesota Power also has a non-firm retail power supply contract with Silver Bay Power Company, which supplies energy to the Northshore Mining Processing Facility in Silver Bay, Minnesota.



1

**Table 6. Minnesota Power Firm Retail LP Customer Contracts<sup>24</sup>**

Customer	Industry	Ownership	Earliest Termination Date as of November 1, 2023	Status
Cleveland-Cliffs – Minorca Mine	Taconite	Cleveland-Cliffs.	November 30, 2027	Operating
United Taconite and Northshore Mining Babbitt Mine Operations	Taconite	Cleveland-Cliffs	November 30, 2027	Operating
Hibbing Taconite Co.	Taconite	85.3% Cleveland-Cliffs 14.7% USS Corporation	November 30, 2027	Operating
USS Corporation (USS – Minnesota Ore)	Taconite	USS Corporation	November 30, 2027	Operating
Boise, Inc.	Paper	Packaging Corporation of America	November 30, 2027	Operating
UPM Blandin	Paper	UPM-Kymmene Corporation	December 31, 2029	Operating
Sappi Cloquet LLC	Paper and Pulp	Sappi Limited	November 30, 2027	Operating
ST Paper Duluth LLC	Paper and Pulp	ST Paper & Tissue LLC	February 28, 2029	Operating

2

3 **Q. Do the Company’s LP customers play a significant role in the regional economy?**4 A. Yes. In addition to Minnesota Power’s significant economic and employment presence  
5 in the region, the Company’s LP customers provide a significant portion of the Gross  
6 Regional Product, jobs, and wages in northeastern Minnesota. Likewise, when the  
7 overall production from these customers declines, so does the overall economic and  
8 employment presence in the region.

9

10 For production year 2022, Minnesota’s iron mining industry directly employed 3,770  
11 individuals and directly paid \$110 million in production taxes in 2022. Of this total,  
12 \$44.5 million was distributed to the Iron Range Resources and Rehabilitation, \$19.2  
13 million was distributed to local school districts, \$12.0 million was distributed to  
14 counties, \$12.3 million was distributed to cities and townships, \$13.5 million was  
15 distributed to property tax relief, and \$8.8 million went to other sources like the Taconite

<sup>24</sup> Minnesota Power also has a non-firm retail power supply contract with Silver Bay Power Company, which supplies the Northshore Mining Processing Facility in Silver Bay, Minnesota, and Minnesota Power serves Mesabi Metallics via a wholesale agreement with Nashauk Public Utilities.

1 Economic Development Fund and Range Association of Municipalities and Schools. In  
2 addition to production taxes, mining customers also paid \$42.6 million in Occupational  
3 Tax in 2022, which is dispersed to the State General Fund (50 percent), Elementary and  
4 Secondary Education (40 percent), and the University of Minnesota (10 percent).  
5 Mining customers also paid \$8.8 million in Sales and Use Taxes, which go to the State  
6 General Fund in their entirety. Various Ad Valorem and Property Taxes of \$0.9 million  
7 were also paid for production year 2022.<sup>25</sup>

8  
9 In the region more broadly, the forest products industry in Minnesota has demonstrated  
10 a \$9.1 billion impact throughout the state according to Minnesota Forest Industries.  
11 Minnesota’s pulp, paper, and board plants produce over \$2 billion in products annually,  
12 employ 2,500 individuals and pay wages totaling over \$237 million.<sup>26</sup>

13  
14 **Q. What is the overall trend in energy sales to industrial customers in recent years?**

15 A. Since 2014, average annual sales to its LP customers have decreased while the year-to-  
16 year variation in sales has increased. Figure 22 below illustrates both of these trends.  
17 Minnesota Power sales to its industrial customers fell thirteen percent from 2014 to  
18 2022. In addition, standard deviation as a percentage of average sales increased from  
19 four percent over the 2010–2014 five-year period to seven percent over the 2018–2022  
20 period.

21  

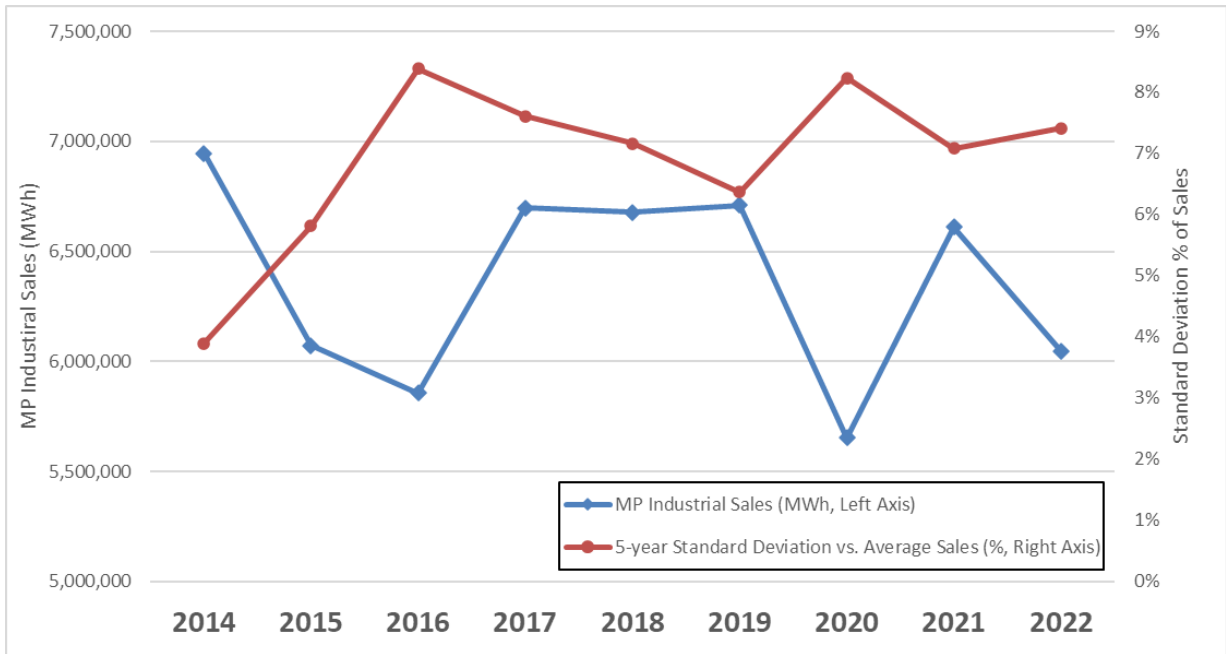
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<sup>25</sup> Minn. Dept. of Rev., *2023 Mining Tax Guide*, MINN. DEPT. OF REV. (2023),  
<https://www.revenue.state.mn.us/sites/default/files/2023-10/2023-mining-tax-guide.pdf>.

<sup>26</sup> Minn. Forest Indus., *Forestry Drives Our Econ.*, ECON. OF FORESTS (last visited October 8, 2023),  
<https://www.minnesotaforests.com/economy-of-forests>.

1

**Figure 22. MP Lower Industrial Sales and Increased Volatility (2014–2022)**



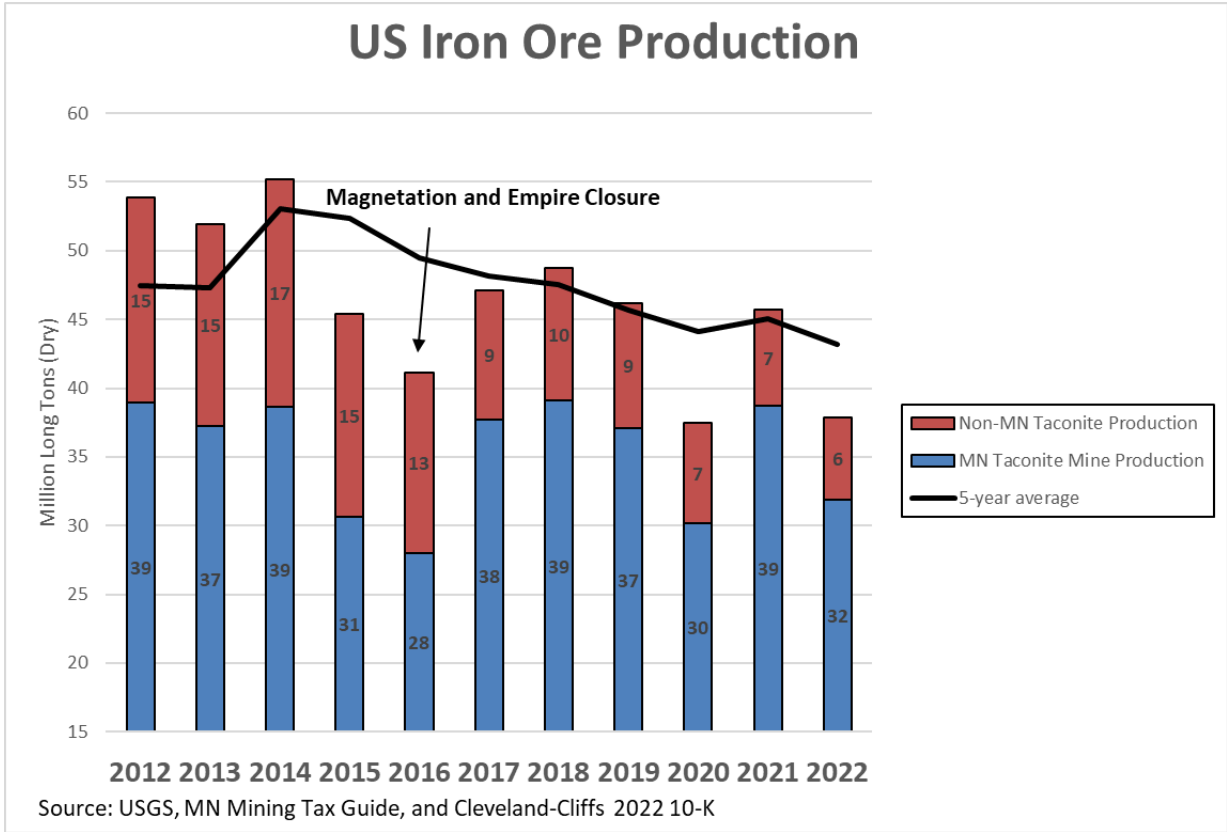
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3

4 **Q. Why are the 2024 test year’s LP sales levels lower than in recent years?**

5 A. There are two key reasons. First, the downward trend in paper production has resulted  
6 in loss of customers and load over the past several years at Boise, UPM-Blandin, and  
7 Verso Duluth. The restart of the Duluth Mill by ST Paper to manufacture tissue paper  
8 has been one positive outcome amongst this negative trend; however, the energy  
9 required for the new operation is a fraction of what was required by the previous  
10 operation at the Duluth mill. Second, the Company’s assumed 2024 taconite production  
11 of 35 MT is lower than high production years like 2017, 2018, 2019, and 2021; higher  
12 than low production years like 2015, 2016, 2020, 2022; but entirely consistent with  
13 recent trends of increased volatility in taconite production levels resulting in lower  
14 annual average production and energy consumption. The 35 MT assumption also  
15 reflects recent and expected reductions in operating blast furnace capacity in North  
16 America. The reduced North American demand for taconite will result in lower taconite  
17 production, unless additional taconite sales can be exported via the seaborne market and  
18 our customers choose to sell in that market. In summary, the reduced domestic demand  
19 for taconite pellets has resulted in an increase in the volatility of taconite production and  
20 approximately a 10 MT reduction in the five-year average level of production since

2014 (or about 1.2 MT annually) from US iron ore production facilities in Minnesota and Michigan, as shown in Figure 23 below.

**Figure 23. United States Iron Ore Production Annual and Five-Year Average**



**Q. Does Minnesota Power rely on historical sales trend information in developing its customer sales forecast?**

A. While historical trends of LP customer sales are taken into account, they are only one of many sources of information that the Company uses to develop a sales forecast that is as accurate and realistic as possible. Below, I describe the various sources of information gathered by Minnesota Power and how we use them in creating our LP customer sales forecast.

1                   1.       Mining and Metal Customers

2   **Q.    Please describe Minnesota Power’s retail mining customers.**

3   A.    Minnesota Power provides electric service to all six of Minnesota’s taconite plants.  
4        These six taconite plants are owned by two corporations: U.S. Steel and Cleveland-  
5        Cliffs. Minnesota Power also provides electric service to PolyMet/NewRange Copper  
6        Nickel.

7  
8   **Q.    What does the global and regional economic data indicate about the iron mining  
9        industry for 2023 and beyond?**

10  A.    Iron ore, particularly in the form of iron ore pellets, has been in temporary short supply  
11        on a global basis, primarily as result of significant capacity shutdowns in Brazil due to  
12        dam failures, the war in Ukraine, and increased pellet usage abroad to curb emissions.<sup>27</sup>

13  
14        Additionally, federal trade action has been taken against China and other steel producing  
15        nations to limit the amount of steel dumping in the United States through Section 232  
16        tariffs. Domestic steel companies have highlighted China’s unfair trade practices,  
17        subsidization of its industry, and general lack of environmental controls on its industry  
18        as the cause for its unfair cost advantages. Cleveland-Cliffs Chief Executive Officer  
19        Lourenco Goncalves has highlighted the high levels of pollutants emitted in China  
20        compared to the United States, and American Iron and Steel Institute has produced  
21        studies that indicate Chinese steel is produced with approximately 50 percent more  
22        carbon intensity than American steel.<sup>28</sup> These numerous reasons have been used to  
23        support the federal trade action, which has resulted in a reduction of steel imports to the  
24        United States from record high levels of nearly 30 percent in January, 2018 to a level  
25        that is still historically above average, but more moderate at approximately 20 percent

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<sup>27</sup> Diana Kinch, *Higher iron ore pellet premiums needed to ensure seaborne availability: consultant*, S&P GLOBAL (Apr. 21, 2021), <https://www.spglobal.com/platts/en/market-insights/latest-news/metals/042121-higher-iron-ore-pellet-premiums-needed-to-ensure-seaborne-availability-consultant>.

<sup>28</sup> *New Study Shows Lower Greenhouse Gas Emissions for North American Steel vs. Chinese Steel for Building Construction*, AMERICAN IRON AND STEEL INSTITUTE (Nov. 28, 2018), <https://www.steel.org/2018/11/new-study-shows-lower-ghg-na-steel-vs-china-construction/>.

1 presently. As such, governmental action has helped to limit imports, and that action has  
2 served to solidify some domestic steel production.

3  
4 However, policymakers are discussing the modification of the Section 232 actions as  
5 part of broader discussion with trade partners in a shift towards a carbon border  
6 adjustment mechanism. While it is difficult to predict the outcome of governmental  
7 action and intervention in trade policies, any change can have significant impacts on  
8 demand for the domestic steel industry, which typically correlates with Minnesota  
9 Power's taconite customer energy sales.

10  
11 Beyond trade policy, production disruptions have impacted global iron ore and pellet  
12 trade from Brazil and Ukraine. In Brazil, dam failures in late 2015 and early 2019  
13 resulted in curtailment of iron pellet production and subsequent reduction in exports.  
14 Since that time, mining companies have rebuilt facilities and continue to restore  
15 production, allowing for increased exports.<sup>29</sup> The war in Ukraine has disrupted iron  
16 pellet production, reducing exports to European steelmakers. In addition, trade actions  
17 taken by countries against Russia has resulted in less iron pellet exports to Europe.

18  
19 **Q. What domestic factors are affecting Minnesota Power's mining customers?**

20 A. On the domestic level, there are increased pressures and headwinds for the type of  
21 steelmaking that uses Minnesota iron pellets, which is predominantly blast furnaces.  
22 Figure 24 below shows the trend in domestic steel production is increasing towards EAF  
23 production, which uses fewer iron ore pellets than traditional blast furnace production.

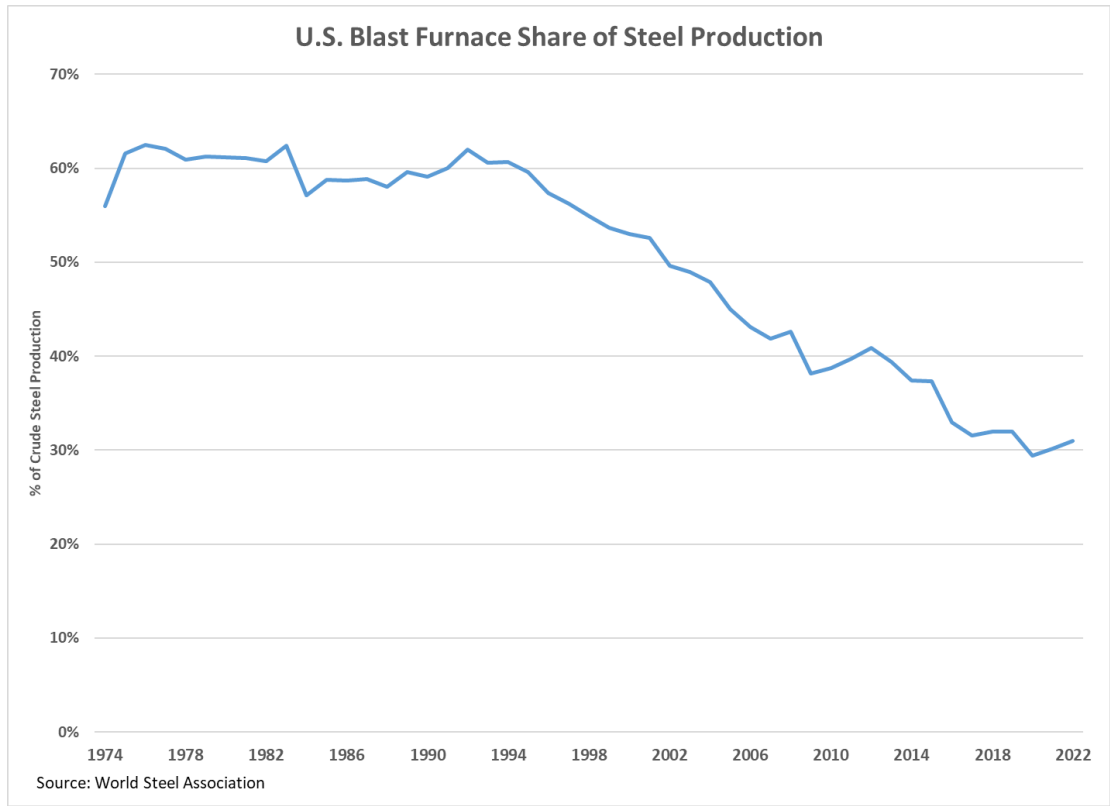
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<sup>29</sup> *Samarco to double production by 2025*, BHP (July 10, 2023),  
<https://www.bhp.com/news/articles/2023/07/samarco-to-double-production-by-2025>.

1

**Figure 24. United States Blast Furnace Share of Steel Production**



2

3

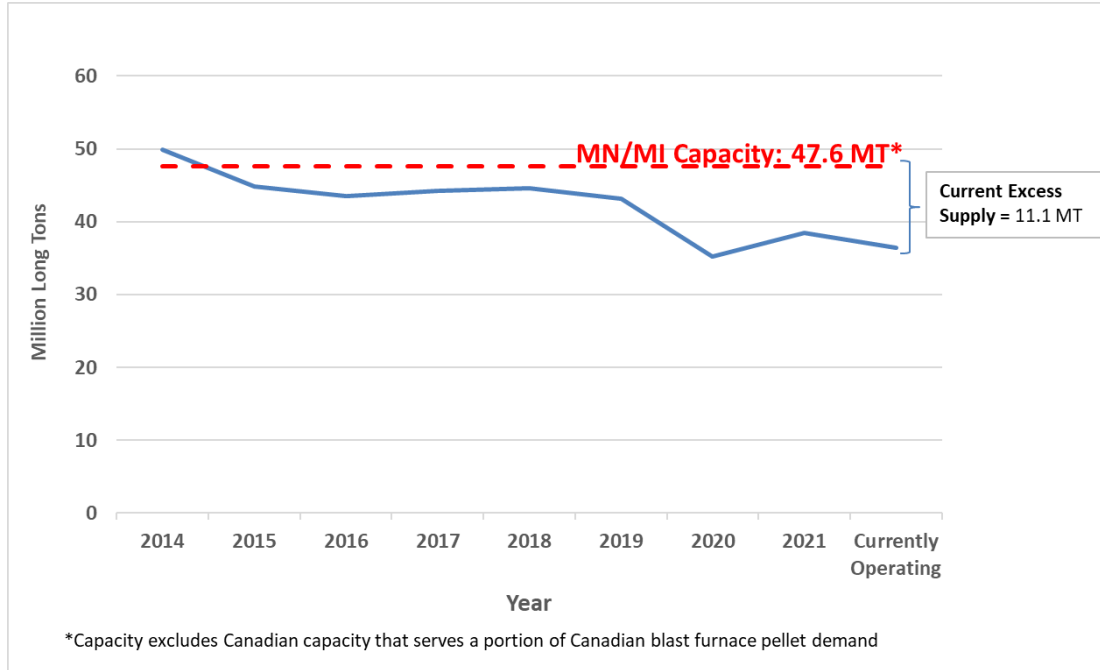
4 **Q. How does this blast furnace trend impact iron ore pellet demand?**

5 A. Currently, approximately 30 percent of all steel produced in the United States is  
 6 produced by processes that use Minnesota’s iron ore pellets. Both Cleveland-Cliffs and  
 7 U.S. Steel have moved to differentiate some of its product from standard iron ore pellets  
 8 to products that can be accepted in EAFs; however, most of Minnesota’s taconite mining  
 9 capacity is limited to supplying a declining base of blast furnace production and the  
 10 domestic iron ore pellet market is now in an over-supply condition due to reduced blast  
 11 furnace capacity as shown in Figure 25 below.

12

1

**Figure 25. Domestic Iron Ore Pellet Demand from Great Lakes Blast Furnaces**



2

3

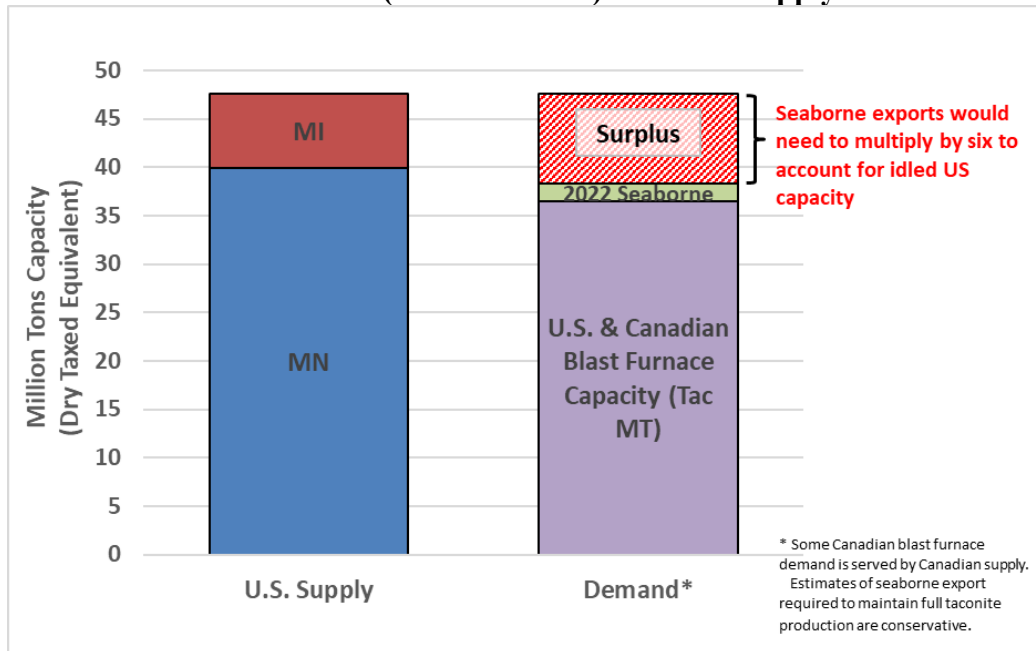
4 **Q. Please explain further the extent of the domestic iron ore pellet oversupply and the**  
5 **impacts it has on customer operations?**

6 A. Current U.S. iron production capacity (in Minnesota and Michigan) is about 47.6 MT,  
7 while the current domestic operating blast furnace capacity typically served by these  
8 mines is only 36.5 MT; this creates a domestic taconite capacity surplus of  
9 approximately 11 MT. Part of this domestic surplus can be alleviated via seaborne  
10 exports, but if it cannot, then capacity must be curtailed. For example, Figure 26 shows  
11 that in 2022, the Great Lakes region taconite producers exported about 1.9 MT of pellets  
12 into seaborne markets. Since only 1.9 MT of pellets were marketed into the seaborne  
13 market in 2022, capacity had to be curtailed during the year. Specific curtailments  
14 included the idling of Cleveland-Cliffs' Northshore Mining Company.

15



1 **Figure 26. Current Great Lakes (U.S./Canadian) Iron Ore Supply and Demand**



2  
3  
4 **Q. What are the impacts of this iron ore pellet oversupply on domestic production and subsequently, Minnesota Power’s energy sales?**

5  
6 A. Historically, domestic iron ore demand exceeded domestic supply and Minnesota  
7 Power’s energy sales varied due to one main factor: domestic steel demand. Now, with  
8 domestic iron ore production in oversupply to domestic demand there is increased  
9 volatility in Minnesota Power’s energy sales as its customers’ operations respond to  
10 both domestic steel demand variability and global iron ore trade variability.

11  
12 **Q. Has excess iron ore pellet supply resulted in pellet production facility closures in the United States over the past decade?**

13  
14 A. Yes. Excess iron ore supply resulted in the closure of Cleveland-Cliffs’ Empire Mine  
15 and Magnetation’s iron ore concentrate facilities in Minnesota and pellet plant in  
16 Indiana. Cleveland-Cliffs’ decision to close Empire timed with the end of its mine life,  
17 but replacement capacity was not built as Empire production volume was absorbed in  
18 the available capacity at United Taconite.<sup>30</sup> Magnetation’s closure was financially

<sup>30</sup> John Myers, New pellet, new life for United Taconite, DULUTH NEWS TRIBUNE (May 31, 2017), attached as MP Exhibit \_\_\_ (Frederickson), Direct Schedule 6.

1 driven,<sup>31</sup> but again, replacement capacity was not built in the United States and the  
2 facility was not restarted by another entity.

3  
4 **Q. Does Minnesota Power expect this trend towards more EAF and less blast furnace  
5 production to continue?**

6 A. Yes. This trend toward EAF production is expected to continue in 2024 and beyond as  
7 steelmakers like Nucor, Steel Dynamics, Algoma Steel, ArcelorMittal Dofasco, and  
8 U.S. Steel, have announced new EAF capacity additions and permanent shutdown of  
9 blast furnaces at their operations. Some of these projects are directly targeting the  
10 markets of integrated steelmakers, including automotive.<sup>32</sup> Other projects will result in  
11 a permanent reduction in North American demand for traditional blast furnace pellets  
12 when two Canadian steelmakers, Algoma Steel and ArcelorMittal Dofasco, complete  
13 their transitions into EAF steelmaking. Algoma Steel plans to bring its EAFs online in  
14 2024 and begin reduced operations of its blast furnace for a few years before completely  
15 shutting down the furnace in 2029.<sup>33</sup> ArcelorMittal Dofasco broke ground in 2022 on  
16 its new EAF projects as part of their transition, and expects to phase out of their blast  
17 furnace operations in 2026-2027, permanently closing their blast furnaces by 2028.<sup>34</sup> In  
18 addition, ArcelorMittal has made significant investments in its Canadian mining  
19 operations in eastern Canada to convert its entire 10 MT annual pellet production to DR-  
20 Grade pellets by the end of 2025, with expectation to support its own EAF steelmaking  
21 at its sites in Canada and Europe.<sup>35</sup>

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<sup>31</sup> Alex Brown, *Magnetation Ceasing Operations in Reynolds*, INSIDE INDIANA BUSINESS (Oct. 7, 2016), <https://www.insideindianabusiness.com/articles/magnetation-ceasing-operations-in-reynolds>.

<sup>32</sup> *Nucor to Build State-of-the-Art Sheet Mill*, PR NEWswire (Sept. 20, 2021), <https://www.prnewswire.com/news-releases/nucor-to-build-state-of-the-art-sheet-mill-301380284.html>.

<sup>33</sup> Algoma Steel, *Action Plan*, [https://algoma.com/wp-content/uploads/2022/09/1040-Algoma-EAF-Site-Specific-Doc-03\\_Action-Plan\\_v3.pdf](https://algoma.com/wp-content/uploads/2022/09/1040-Algoma-EAF-Site-Specific-Doc-03_Action-Plan_v3.pdf).

<sup>34</sup> *ArcelorMittal breaks ground on first transformational low-carbon emissions steelmaking*, ArcelorMittal (Oct. 13, 2022), <https://corporate.arcelormittal.com/media/press-releases/arcelormittal-breaks-ground-on-first-transformational-low-carbon-emissions-steelmaking-project>.

<sup>35</sup> *ArcelorMittal announces CAD \$205 million decarbonization investment in its flagship Canadian mining operations with support from the Quebec government*, ArcelorMittal (Nov. 3, 2021), <https://corporate.arcelormittal.com/media/press-releases/arcelormittal-announces-cad-205-million-decarbonisation-investment-in-its-flagship-canadian-mining-operations-with-support-from-the-quebec-government>.

1 U.S. Steel, a steelmaker whose entire U.S. footprint was traditionally comprised of  
2 integrated steelmaking with blast furnaces, has completed an EAF project at its  
3 Fairfield, Alabama steelmaking facility<sup>36</sup> and continues to expand EAF production at  
4 its Big River Steel facility in Arkansas.<sup>37</sup> These investments by U.S. Steel highlight how  
5 the domestic steel market continues to move towards EAF steel production, even by  
6 long-time proponents of traditional integrated steelmakers.

7  
8 Cleveland-Cliffs CEO Mr. Goncalves has also acknowledged this trend and that the  
9 company will be shifting towards EAFs in the future, especially if automotive market  
10 share is lost.<sup>38</sup> Cleveland-Cliffs also completed the construction of its HBI facility in  
11 Toledo, Ohio. HBI is a raw material input utilized to supplement scrap steel in the EAF  
12 steelmaking process. Cleveland-Cliffs has also began utilizing HBI and scrap steel in  
13 its blast furnaces to stretch hot metal production and reduce carbon emissions,  
14 displacing demand of traditional taconite pellets.

15  
16 **Q. Are there any other notable trends among Minnesota Power’s mining customers?**

17 **A.** Yes. In addition to the continued transition towards EAF steelmaking, significant steel  
18 industry consolidation occurred in 2020. Along with the aforementioned U.S. Steel  
19 acquisition of Big River Steel in 2021, Cleveland-Cliffs acquired both A.K. Steel and  
20 its largest customer, ArcelorMittal U.S.A., to transform from an iron ore miner to the  
21 largest North American producer of flat-rolled steel.<sup>39</sup> The ArcelorMittal U.S.A.

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<sup>36</sup> *U. S. Steel Announces Successful Start-up of New Electric Arc Furnace at its Alabama Facility*, U.S. STEEL (Oct. 26, 2020),

<https://info.usstubular.com/hubfs/Press%20Releases/U.%20S.%20STEEL%20ANNOUNCES%20SUCCESSFUL%20START-UP%20OF%20NEW%20ELECTRIC%20ARC%20FURNACE%20AT%20ITS%20ALABAMA%20FACILITY.pdf>

<sup>37</sup> *U. S. Steel Closes on \$240 Million Financing to Support Big River 2*, U.S. STEEL (May 18, 2023), [https://www.ussteel.com/newsroom/-/blogs/u-s-steel-closes-on-240-million-financing-to-support-big-river-2?com\\_liferay\\_blogs\\_web\\_portlet\\_BlogsPortlet\\_redirect=https%3A%2F%2Fwww.ussteel.com%3A443%2Fnewsroom%3Fp\\_p\\_id%3Dcom\\_liferay\\_blogs\\_web\\_portlet\\_BlogsPortlet%26p\\_p\\_lifecycle%3D0%26p\\_p\\_state%3Dnormal%26p\\_p\\_mode%3Dview%26\\_com\\_liferay\\_blogs\\_web\\_portlet\\_BlogsPortlet\\_cur%3D1%26\\_com\\_liferay\\_blogs\\_web\\_portlet\\_BlogsPortlet\\_delta%3D20](https://www.ussteel.com/newsroom/-/blogs/u-s-steel-closes-on-240-million-financing-to-support-big-river-2?com_liferay_blogs_web_portlet_BlogsPortlet_redirect=https%3A%2F%2Fwww.ussteel.com%3A443%2Fnewsroom%3Fp_p_id%3Dcom_liferay_blogs_web_portlet_BlogsPortlet%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26_com_liferay_blogs_web_portlet_BlogsPortlet_cur%3D1%26_com_liferay_blogs_web_portlet_BlogsPortlet_delta%3D20)

<sup>38</sup> Rye Druzin, *Cliffs will move toward EAFs in next decade: Goncalves*, ARGUS (Aug. 24, 2021), <https://www.argusmedia.com/en/news/2247248-cliffs-will-move-toward-eafs-in-next-decade-goncalves>.

<sup>39</sup> *Cleveland-Cliffs Inc. Completes Acquisition of ArcelorMittal USA*, CLEVELAND-CLIFFS (Dec. 9, 2020), <https://www.clevelandcliffs.com/news/news-releases/detail/8/cleveland-cliffs-inc-completes-acquisition-of>.

1 acquisition included the Minorca Mine (“Minorca”) and ArcelorMittal U.S.A.’s 62  
2 percent stake in Hibbing Taconite. Following the acquisition, Cleveland-Cliffs  
3 demolished the former AK Steel Ashland Works<sup>40</sup> and indefinitely idled ArcelorMittal  
4 Indiana Harbor #3 and #4 blast furnaces.<sup>41</sup>

5  
6 **Q. Do you expect further industry consolidation and transition?**

7 A. Yes. In August, 2023, Cleveland-Cliffs made an offer to acquire U.S. Steel, and U.S.  
8 Steel acknowledged its receipt of proposals and its competitive strategic review  
9 process.<sup>42</sup> Should further consolidation occur between Cleveland-Cliffs and U.S. Steel,  
10 it could further impact Minnesota Power’s customer concentration.

11  
12 **Q. How are these trends more specifically impacting Minnesota Power’s iron mining  
13 customers?**

14 A. As of late October 2023, Minnesota Power’s mining customers are all running at fairly  
15 high operating levels; however, future production remains uncertain.

16  
17 For example, Cleveland-Cliffs has communicated its intentions not to sell its iron ore  
18 pellets from its excess capacity to third parties<sup>43</sup> and that it will continue to treat its  
19 Northshore operation as a swing operation.<sup>44</sup> U.S. Steel’s blast furnace footprint  
20 continues to reduce as it indefinitely idled its two blast furnaces at Great Lakes Works

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<sup>40</sup> *Demo marks end of steel era in Kentucky City*, CONSTRUCTION & DEMOLITION RECYCLING (Feb. 9, 2022), <https://www.cdrecycler.com/news/ashland-kentucky-steel-mill-demolition-ak-cleveland-cliffs/>.

<sup>41</sup> *Cleveland-Cliffs Announces Indefinite Idle of Indiana Harbor #4 Blast Furnace and Notifies of Flat-Rolled Price Increase*, CLEVELAND-CLIFFS (Feb. 21, 2022), <https://www.clevelandcliffs.com/news/news-releases/detail/542/cleveland-cliffs-announces-indefinite-idle-of-indiana>.

<sup>42</sup> *Cleveland-Cliffs Proposes to Acquire U.S. Steel*, CLEVELAND-CLIFFS (Aug. 13, 2023), <https://www.clevelandcliffs.com/investors/news-events/press-releases/detail/600/cleveland-cliffs-proposes-to-acquire-u-s-steel>; *U.S. Steel Confirms Receipt of Unsolicited Proposals from Cleveland-Cliffs and Multiple Other Parties; Reaffirms Competitive Strategic Review Process to Maximize Stockholder Value*, U.S. STEEL (Aug. 13, 2023), <https://investors.ussteel.com/news-events/news-releases/detail/641/u-s-steel-confirms-receipt-of-unsolicited-proposals-from>.

<sup>43</sup> *Cleveland-Cliffs (CLF) Q3 2021 Earnings Call Transcript*, MOTLEY FOOL (Oct. 22, 2021), <https://www.fool.com/earnings/call-transcripts/2021/10/22/cleveland-cliffs-clf-q3-2021-earnings-call-transcr/>.

<sup>44</sup> *Northshore Mining Co. won’t run full out in 2023*, BUSINESS NORTH (April 25, 2023), [http://www.businessnorth.com/daily\\_briefing/northshore-mining-co-wont-run-full-out-in-2023/article\\_bb895754-e387-11ed-99fd-838227a29872.html](http://www.businessnorth.com/daily_briefing/northshore-mining-co-wont-run-full-out-in-2023/article_bb895754-e387-11ed-99fd-838227a29872.html)

1 in 2020 and recently idled its second of two blast furnaces at its Granite City Works in  
2 response to curtailed automotive production amidst labor strikes.<sup>45</sup>

3  
4 As North American blast furnace demand for pellets is decreasing, both Cleveland-  
5 Cliffs and U.S. Steel are investing in new products to address some of the changes in  
6 domestic steel production trends. Cleveland-Cliff’s completed its investment in  
7 Northshore in 2019 and U.S. Steel is investing Keetac in 2023 to produce Direct  
8 Reduction Grade (“DR-Grade”) pellets. U.S. Steel has also communicated its objective  
9 to utilize its low-cost iron ore units to develop a differentiated metallics strategy through  
10 higher quality raw materials for its growing EAF assets by investing in pig iron casting  
11 at its Gary Works.<sup>46</sup> While these investments and projects will create new uses for iron  
12 ore pellets, there is an overall reduction in quantity required to make steel through the  
13 EAF process. Unless the excess pellet capacity is sold in the seaborne market, facilities  
14 need to idle, either temporarily or indefinitely, to balance supply with the reducing  
15 demand.

16  
17 **Q. To what extent do you expect these trends to continue into 2024?**

18 A. We expect these trends and factors to continue in 2024 as domestic steelmakers continue  
19 to transition towards EAF steelmaking even further. Reduced domestic demand for  
20 traditional iron ore pellets and potentially shipping to the seaborne iron ore pellet market  
21 will subject Minnesota Power’s customers, and, in turn, Minnesota Power’s energy  
22 sales, to increased volatility associated with highly volatile global iron ore markets. This  
23 provides a further consideration for the increased risk profile of Minnesota Power  
24 compared to the average electric utility and the need for the customer rate stabilization  
25 mechanism the Company is proposing in this rate case.

26  

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<sup>45</sup> *Q1 2023 Earnings Call Slides*, U.S. STEEL (April 28, 2023), [https://d1io3yog0oux5.cloudfront.net/\\_6010c1c3fb869a6b5a5aba70bda5acf4/ussteel/db/3222/30089/earnings\\_call\\_slides/EARNINGS-CALL-SLIDES-Q1-2023-FINAL.pdf](https://d1io3yog0oux5.cloudfront.net/_6010c1c3fb869a6b5a5aba70bda5acf4/ussteel/db/3222/30089/earnings_call_slides/EARNINGS-CALL-SLIDES-Q1-2023-FINAL.pdf); KMOV Staff, *U.S. Steel to idle Blast Furnace B at Granite City works, says it is temporary*, KMOV4 (Sept. 18, 2023), <https://www.kmov.com/2023/09/18/us-steel-idle-blast-furnace-b-granite-city-works-says-it-is-temporary/>.

<sup>46</sup> *2022 Annual Report*, U.S. STEEL (April 25, 2023), <https://investors.ussteel.com/news-events/events-presentations>.

1 **Q. What does the global and regional economic data indicate about steel and other**  
2 **precious metal mining industry for 2024 and beyond?**

3 A. The clean energy economy, through expansion of wind and solar generation, battery  
4 storage, and EVs, is anticipated to require significant amounts of steel and precious  
5 metals beyond current global demand. This expansion in raw material and precious  
6 metal extraction is needed to meet the growing demand. In 2017, The World Bank  
7 released a report on “The Growing Role of Minerals and Metals for a Low-Carbon  
8 Future.”<sup>47</sup> The report highlighted the substantial increase in demand for several key  
9 minerals and metals to manufacture cleaner energy technologies, effectively stating the  
10 clean energy transition will be significantly mineral intensive. Northeastern  
11 Minnesota’s existing and future mining industry is positioned well to support the clean  
12 energy mineral demand with existing infrastructure and a safe, talented workforce;  
13 however, permitting delays and restrictions continue to delay construction of new  
14 mining facilities in the region.

15  
16 **Q. What information specific to the Company’s mining customers is used in**  
17 **forecasting sales?**

18 A. Below, I walk through each LP mining customer in turn.

19  
20 a. U.S. Steel

21 **Q. Please describe U.S. Steel’s operations in Minnesota Power’s service territory.**

22 A. U.S. Steel wholly owns both the Minntac and Keetac facilities and owns 14.7 percent  
23 of Hibbing Taconite Company. These facilities produce iron ore pellets for use in U.S.  
24 Steel owned blast furnaces in and, in recent years, for third-party sales.

25

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<sup>47</sup> Zubin Bamji, *Clean Energy Transition Will Increase Demand for Minerals, says new World Bank report*, THE WORLD BANK (July 18, 2017), <https://www.worldbank.org/en/news/press-release/2017/07/18/clean-energy-transition-will-increase-demand-for-minerals-says-new-world-bank-report>.

1 **Q. What type of agreement does the Company have with U.S. Steel?**

2 A. The Company has an LP ESA with USS Corporation for its Minnesota Ore Operations  
3 of Minntac and Keetac. As of November 1, 2023, the earliest termination date for this  
4 ESA is November 30, 2027.

5  
6 **Q. Have there been any notable changes to U.S. Steel's business since the Company's  
7 last rate case?**

8 A. In addition to the acquisitions, idling of facilities, and sale process underway at U.S.  
9 Steel that I described earlier in my testimony, U.S. Steel has been actively investing in  
10 modifications to Keetac to facilitate the production of DR-Grade pellets, which is  
11 expected to be complete in 2023. Keetac has historically been a swing facility for U.S.  
12 Steel. For example, Keetac was idled during the imports driven steel downturn of 2015–  
13 2016, and resumed operations in February 2017 after a 22-month idling. Keetac ran at  
14 full production until April 16, 2020, when U.S. Steel announced it would idle Keetac  
15 and lay off 375 employees.<sup>48</sup> On November 5, 2020, U.S. Steel announced the restart of  
16 Keetac in mid-December of 2020.<sup>49</sup> Keetac continues to operate at the time of this  
17 writing.

18  
19 **Q. What sources of information have been relevant to Minnesota Power's  
20 determination of a reasonable 2024 forecast of sales to U.S. Steel?**

21 A. The Company has used U.S. Steel's quarterly and annual reports as well as the  
22 aforementioned industry data, customer nominations, and conversations with U.S. Steel.

23  
24 **Q. How do these assumptions align with broader industry and economic trends  
25 affecting the mining business?**

26 A. The Company's test year forecast assumptions for U.S. Steel are generally consistent  
27 with the mining industry economic trends and historical average production as discussed  
28 earlier.

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<sup>48</sup> Jimmy Lovrien, *U.S. Steel will idle Keetac, lay off 375 employees*, DULUTH NEWS TRIBUNE (April 16, 2020), attached as MP Exhibit \_\_\_\_ (Frederickson), Direct Schedule 7.

<sup>49</sup> Jimmy Lovrien, *U.S. Steel will restart Keetac next month*, DULUTH NEWS TRIBUNE (Nov. 5, 2020), attached as MP Exhibit \_\_\_\_ (Frederickson), Direct Schedule 8.

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b. Cleveland-Cliffs

**Q. Please describe Cleveland-Cliffs operations in Minnesota Power’s service territory.**

A. Cleveland-Cliffs wholly owns Northshore Mining Company, Minorca, and United Taconite LLC. Cleveland-Cliffs also owns 85.3 percent of Hibbing Taconite Company. These facilities produce iron ore pellets for use in Cleveland-Cliffs owned blast furnaces. Northshore Mining Company also produces DR-Grade iron ore pellets for further processing at its HBI facility in Toledo, Ohio. Cleveland-Cliffs’ acquisition of ArcelorMittal USA on December 9, 2020,<sup>50</sup> included Minorca and Arcelor Mittal’s share of Hibbing Taconite Company.

**Q. Have there been any notable changes to Cleveland-Cliffs’ business since the Company’s last rate case?**

A. Yes. Cleveland-Cliffs completed a project at its Northshore Mining facility to allow it to produce DR-Grade pellets; however, Cleveland-Cliffs has communicated that Northshore would be its swing facility as it balances supply with demand as discussed earlier in this testimony. This included an idling of Northshore in April 2022 through April 2023. At the time of this writing, Northshore continues to operate at partial production. Cleveland-Cliffs has also been actively pursuing additional mineable ore to extend the mine life of Hibbing Taconite. On May 25, 2023, Cleveland-Cliffs gained Minnesota Executive Council approval of iron ore mineral leases at Nashwauk, and announced it will begin the work necessary to develop the ore body as an extension for Hibbing Taconite.<sup>51</sup>

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<sup>50</sup> *Cleveland-Cliffs Inc. Completes Acquisition of ArcelorMittal USA*, CLEVELAND-CLIFFS (Dec. 9, 2020), <https://www.clevelandcliffs.com/news/news-releases/detail/8/cleveland-cliffs-inc-completes-acquisition-of>.

<sup>51</sup> *Cleveland-Cliffs, Cleveland-Cliffs gains Minnesota Executive Council approval of iron ore mineral leases at Nashwauk*, CLEVELAND-CLIFFS (May 25, 2023), [https://d1io3yog0oux5.cloudfront.net/f1521807a5a1ba9c17ec06c3d31ea2d4/clevelandcliffs/news/2023-05-25\\_Cleveland\\_Cliffs\\_Gains\\_Minnesota\\_Executive\\_592.pdf](https://d1io3yog0oux5.cloudfront.net/f1521807a5a1ba9c17ec06c3d31ea2d4/clevelandcliffs/news/2023-05-25_Cleveland_Cliffs_Gains_Minnesota_Executive_592.pdf).



1 **Q. What type of agreement does the Company have with Cleveland-Cliffs?**

2 A. The Company has an LP ESA with United Taconite LLC and with Northshore Mining's  
3 Babbitt mine operations, an ESA with Minorca, and an ESA with Hibbing Taconite  
4 Company. As of November 1, 2023, the earliest termination date for these LP ESAs is  
5 November 30, 2027. The Company also has a non-firm retail power supply agreement  
6 with Silver Bay Power Company, which provides energy to the Northshore Mining  
7 processing facility in Silver Bay, Minnesota.

8  
9 **Q. How does the Company's test year sales assumptions for Cleveland-Cliffs align  
10 with broader industry and economic trends affecting the mining business?**

11 A. The Company's test year forecast assumptions for Cleveland-Cliffs are generally  
12 consistent with the mining industry economic trends and historical average production  
13 as discussed earlier.

14  
15 c. PolyMet/NewRange Copper Nickel

16 **Q. How long has the PolyMet mine been development in Minnesota?**

17 A. In 1989, PolyMet leased mineral rights from U.S. Steel. The environmental review  
18 process began in 2004, and PolyMet acquired the Erie Plant near Hoyt Lakes, Minnesota  
19 in 2005. Minnesota Power entered into an ESA with PolyMet Mining Corporation in  
20 December of 2006. This ESA was approved by the Commission in 2007 (Docket No.  
21 E-015/M-07-221).

22  
23 **Q. Please describe the recent joint venture between PolyMet and Teck Resources.**

24 A. On February 15, 2023, PolyMet closed a 50:50 joint venture with Teck American Inc.,  
25 a subsidiary of Teck Resources Limited ("Teck"), that places their respective NorthMet  
26 and Mesaba resources under single management.<sup>52</sup> In doing so, PolyMet and Teck  
27 became equal owners in PolyMet Mining, Inc., which was renamed NewRange Copper  
28 Nickel LLC.

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<sup>52</sup> *PolyMet closes NewRange Copper Nickel joint venture with Teck Resources*, POLYMET MINING (Feb. 15, 2023), <https://polymetmining.com/investors/news/polymet-closes-newrange-copper-nickel-joint-venture-with-teck-resources/>.

1  
2 **Q. Please describe NewRange Copper Nickel’s current activities in Minnesota**  
3 **Power’s service territory and any notable changes to NewRange Copper Nickels’**  
4 **operations since the Company’s last rate case.**

5 A. The NewRange Copper Nickel NorthMet project is located near the community of Hoyt  
6 Lakes, Minnesota. When operational, this non-ferrous mining operation will produce  
7 nickel, palladium, and cobalt. While all permits necessary to begin construction were  
8 received, there continue to be legal challenges and opposition to these permits. Of the  
9 more than 20 permits issued to build and operate the mine, legal challenges have  
10 impacted three permits. In April 2021, the Minnesota Supreme Court overturned a  
11 decision by the Minnesota Court of Appeals for an open-ended contested case hearing  
12 and instead limited the Permit to Mine contested case hearing to the effectiveness of  
13 bentonite clay at the tailings basin. The Minnesota Department of Natural Resources  
14 held a hearing on March 27, 2023, and is awaiting the administrative law judge’s non-  
15 binding recommendation on the matter. On June 6, 2023, the U.S. Army Corps of  
16 Engineers revoked the project’s permit under Section 404 of the Clean Water Act.<sup>53</sup> The  
17 National Pollutant Discharge Elimination System/State Disposal System Water  
18 Discharge Permit for the project was remanded to Minnesota Pollution Control Agency  
19 for additional review on August 2, 2023. Ongoing litigation and permitting activity is  
20 expected to continue on this project. Following resolution of outstanding legal and  
21 regulatory challenges and securing final project financing, construction is expected to  
22 take 24-30 months,<sup>54</sup> which means startup of the NewRange Copper Nickel NorthMet  
23 project is well outside the 2024 test year.  
24

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<sup>53</sup> U.S. Army Corps. of Engineers, St. Paul District, *Corps of Engineers announces NorthMet Mine permit decision*, U.S. ARMY CORPS. OF ENGINEERS (June 6, 2023), <https://www.mvp.usace.army.mil/Media/News-Releases/Article/3419225/corps-of-engineers-announces-northmet-mine-permit-decision/>.

<sup>54</sup> *Investor Presentation: Developing Next Generation, Clean Energy Mineral Resources*, POLYMET MINING (May 11, 2023), <https://polymetmining.com/wp-content/uploads/2023/05/PLM-Investor-Presentation-May-11-2023.pdf>.

1 **Q. What sources of information have been relevant to understand NewRange’s plans**  
2 **and status?**

3 A. PolyMet’s Investor Relations website and related disclosures and information continue  
4 to provide updates on the NorthMet project and a timeline of milestone activities.<sup>55</sup>  
5 Additionally, NewRange Copper Nickel’s website includes project updates and news.<sup>56</sup>  
6 Further, PolyMet and NewRange Copper Nickel’s representatives have been quoted in  
7 publications regularly, providing updates to the community.

8  
9 **Q. What are the key assumptions included in forecasts of Minnesota Power sales to**  
10 **PolyMet for the 2024 test year?**

11 A. The 2024 test year includes a minimal level of PolyMet load, consistent with idle levels.  
12 Once in operation, Minnesota Power will supply power to the PolyMet NorthMet  
13 Project via a ten-year ESA that was approved by the Commission in 2007. But this  
14 timeline is still several years into the future, even assuming no further permitting delays  
15 or legal challenges.

16  
17 d. Former Magnetation and Essar Sites

18 **Q. What is the status of the former Magnetation iron ore mine and processing**  
19 **project?**

20 A. The former Magnetation sites—specifically Plant 2, Plant 4, and the Jesse Mine  
21 Loadout—were purchased out of bankruptcy by ERP Iron Ore LLC (“ERP”). ERP never  
22 operated the facilities and declared bankruptcy. In the latest round of bankruptcy, all of  
23 the Company’s contracts with ERP were rejected by the bankruptcy court. Minnesota  
24 Power disconnected electric service to the ERP facilities in its service territory in the  
25 spring of 2018. The bankruptcy trustee has sold the aforementioned assets, Plant 2 was  
26 dismantled, and Prairie River Minerals was awarded the right to purchase the Plant 4  
27 and Jesse Mine Loadout assets. Prairie River Minerals also never operated the facilities  
28 and declared bankruptcy, and Minnesota Power disconnected electric service in the

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<sup>55</sup> *PolyMet Events and News*, POLYMET MINING (last visited Oct. 27, 2023),  
<https://polymetmining.com/investors/news/>.

<sup>56</sup> NEW RANGE COPPER NICKEL, <https://www.newrangecoppernickel.com/>.

1 summer of 2019. A new company, MagIron LLC, has purchased the Plant 4 and Jesse  
2 Mine Loadout assets from the bankruptcy trustee, and Minnesota Power has  
3 reconnected general service to the facilities. MagIron LLC has been doing pilot scale  
4 bench testing with the Minnesota Natural Resources Research Institute but has not  
5 requested to begin contract negotiations or given indication of a timetable for  
6 construction and commencement of commercial production.

7  
8 **Q. What level of sales are assumed for the former Magnetation facilities in the  
9 Company's sales forecast for 2024?**

10 A. No sales to the customer are reflected in the 2024 industrial customer test year sales  
11 forecast as usage at the former Magnetation facilities under our general service rate  
12 schedule is limited to lighting and building heat and reflected in our test year sales for  
13 the general service schedule.

14  
15 **Q. What is the status of the former Essar iron ore mine and processing project?**

16 A. Mesabi Metallics purchased the Essar project assets out of bankruptcy. To date,  
17 construction has not been completed on the site and no operations have commenced.  
18 The Company has received no communications from Mesabi Metallics with projected  
19 startup dates. The Company regularly corresponds with the Nashwauk Public Utilities  
20 Commission, the retail service provider for the Mesabi Metallics plant processing sites  
21 and has learned that they have not had communications from Mesabi Metallics with  
22 projected startup dates. As discussed earlier, the Minnesota Executive Council approved  
23 assumption of state mineral leases at the Nashwauk mine site for Cleveland-Cliffs,  
24 reducing the mineable area for the Mesabi Metallics project. As of the filing of this  
25 testimony, there is no clear timetable for operations.

26  
27 **Q. What level of sales is assumed for Mesabi Metallics in the Company's sales forecast  
28 for 2024?**

29 A. Minnesota Power has not assumed any operations on the former Essar iron ore mine  
30 during the 2024 test year. As a result, the Company expects 2024 wholesale sales to the

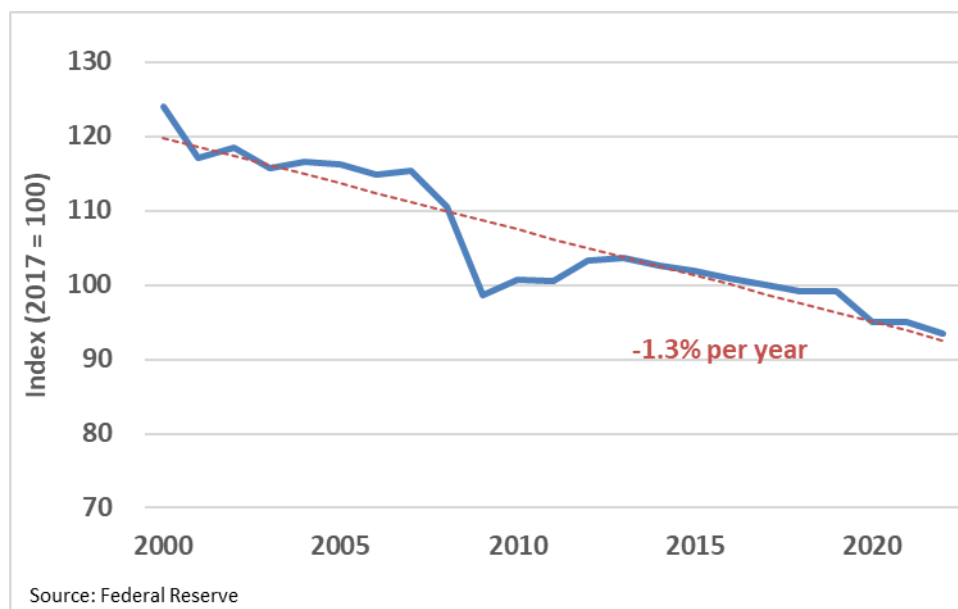
1 Nashwauk Public Utilities Commission,<sup>57</sup> which is the retail service provider to Mesabi  
2 Metallics and other city customers, to be similar to recent sales levels.

3  
4 2. Paper and Pulp Customers

5 **Q. Please describe the Company’s customers in the Paper and Pulp sector.**

6 A. Minnesota Power currently serves four operating pulp and paper mills, each producing  
7 a different paper product (or paper “grade”): (a) Blandin Paper Company (“Blandin”)  
8 in Grand Rapids, which produces Coated Ground Wood (“CGW”); (b) Boise in  
9 International Falls, which produces an Uncoated Free Sheet (“UFS”); (c) Sappi in  
10 Cloquet, which produces Coated Free Sheet (“CFS”); and (d) ST Paper in Duluth, which  
11 produces recycled tissue for the away from home market (“tissue”). Each of these mills  
12 that produce printing and writing papers face a secularly declining North American  
13 paper market, while tissue consumption is more stable. Figure 27 below shows an index  
14 of U.S. paper production since 2000. Production has declined by 1.3 percent per year  
15 (CAGR) for the last two decades.

16 **Figure 27. U.S. Index of Industrial Production for Paper**



17  
<sup>57</sup> Minnesota Power sells energy to the Nashwauk Public Utilities Commission as a wholesale municipal customer for its city load.

1 Minnesota Power annual sales to Paper and Pulp customers declined by about 760,000  
2 MWh (51 percent) from 2014 to 2022. Reductions in sales have occurred for two  
3 reasons: (1) customers reducing energy costs through energy conservation and by  
4 increasing their own generating capabilities to reduce purchases from Minnesota Power,  
5 and (2) permanent paper machine shutdowns or mill closures. These reductions in sales  
6 have occurred with some regularity. Only recently have new sales occurred with the  
7 restart of the Duluth Mill under the ownership of ST Paper.

8  
9 **Q. Please provide additional details regarding the reduction in sales to Minnesota  
10 Power's Paper customers.**

11 A. In late 2013, Boise idled two paper machines resulting in an approximate [TRADE  
12 SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] MWh reduction  
13 in annual sales. In 2015, Boise installed a new turbine generator that displaced  
14 Minnesota Power deliveries and reduced annual sales by about [TRADE SECRET  
15 DATA BEGINS [REDACTED] TRADE SECRET DATA ENDS] MWh. In mid-2016, the  
16 Sappi Turbine Generator 5 transitioned to Sappi ownership and resulted in an  
17 approximate [TRADE SECRET DATA BEGINS [REDACTED] TRADE SECRET DATA  
18 ENDS] MWh reduction in annual sales. In late 2017, Blandin idled its Paper Machine  
19 # 5, resulting in an annual sales reduction of about [TRADE SECRET DATA BEGINS  
20 [REDACTED] TRADE SECRET DATA ENDS] MWh. In mid-2020, the Verso mill in  
21 Duluth idled the entire mill and later decided to permanently shut down the mill,  
22 resulting in an annual sales reduction of about [TRADE SECRET DATA BEGINS  
23 [REDACTED] TRADE SECRET DATA ENDS] MWh.<sup>58</sup>

24  
25 In 2013, Sappi converted some of its processes to a chemical cellulosus product that is  
26 used in textiles. In 2021, ST Paper purchased the Duluth mill from Verso and converted  
27 the mill tissue production. ST Paper has been operational since early 2023, and its  
28 estimated annual energy requirements are about [TRADE SECRET DATA BEGINS

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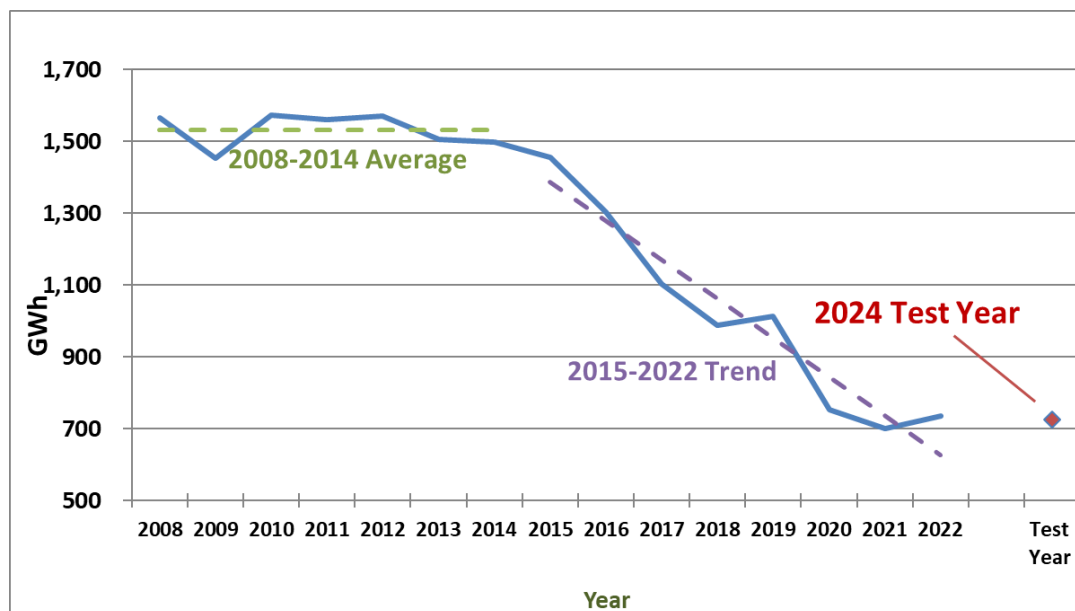
<sup>58</sup> *Verso announces necessary actions to offset unprecedented market decline due to COVID-19*, Verso Corporation SEC Disclosure Form 8-k (June 9, 2020), <http://app.quotemedia.com/data/downloadFiling?webmasterId=101533&ref=115065412&type=HTML>.

1 [REDACTED] **TRADE SECRET DATA ENDS**] MWh, which are about 70 percent less than  
2 the prior requirements of the Verso Duluth mill.  
3

4 **Q. How does the Company's 2024 test year forecast for Paper and Pulp customers**  
5 **compare to actual sales in recent years?**

6 A. Figure 28 shows the Company's 2024 test year forecast for the Forest Products  
7 Industrial sector (723,330 MWh) is considerably lower than other recent historical years  
8 due to the loss of sales to Verso, but similar to the level approved by the Commission  
9 in the 2021 Rate Case.

11 **Figure 28. Energy Sales to the Forest Products Industrial Sector**



12  
13  
14 **Q. Please describe the assumptions for Paper and Pulp customers in the Company's**  
15 **test year forecast.**

16 A. The Company's 2024 test year forecast for the Forest Products Industrial sector of  
17 723,330 MWh assumes production and energy requirements at all paper mills remain in  
18 line with current levels.  
19

1 **Q. What does the data collected and reviewed by the Company indicate about the**  
2 **future of the pulp and paper industry for 2022 and beyond?**

3 A. The Company reviews reports and data from PaperAge, Quad Paper Services, AF&PA,  
4 Pulp and Paper Products Council, the Minnesota DNR's monthly Wood Markets  
5 Update, Specialty Print Communications, GlobalNewswire, Vantage Market Research,  
6 and Fastmarkets RISI. Metrics considered include mill operating and capacity rates,  
7 demand indicators such as magazine ad pages, catalogs mailed, postage rates, imports,  
8 strength of the US dollar, and pricing. In general, graphic paper demand has been in  
9 secular decline since the launch of enhanced mobile devices, like the iPhone, in 2007,  
10 while packaging paper, tissue products, and certain types of wood pulp have seen stable  
11 to growing demand. More than half the market demand for graphic paper has evaporated  
12 since 2007 and is not expected to return given electronic substitution and changing  
13 consumer preferences. In order to maintain paper price stability, graphic paper  
14 production capacity needs to come offline at a rate of approximately one mill or one  
15 large paper machine every 18 months. Some mills are able to convert their operations  
16 and repurpose some equipment for production of packaging paper or market pulp;  
17 however, more closures than conversions are necessary to balance supply and demand  
18 for all pulp and paper products. The COVID-19 recession hit the industry hard and  
19 pushed many mills to close, causing paper markets to tighten due to reduced capacity  
20 and decreased demand. Mill costs have risen significantly (*e.g.*, freight, fuel, energy,  
21 and pulp) and are predicted to stay elevated, forcing producers to increase prices across  
22 all paper grades and leaving the question of how paper consumers will react in the  
23 future.

24  
25 **Q. What information specific to the Company's Paper and Pulp customers is used in**  
26 **forecasting sales?**

27 A. Below, I walk through each LP Paper and Pulp customer in turn.  
28



1 a. Blandin

2 **Q. Please describe Blandin’s operations in Minnesota Power’s service territory.**

3 A. Blandin Paper Company is a groundwood pulp and papermaking facility that operates  
4 a single paper machine producing Light Weight Coated papers used for catalogs,  
5 magazines, advertising inserts, direct mail, and other commercial products. Blandin is  
6 wholly owned by UPM, a Finland based corporation.

7  
8 **Q. What type of agreement does the Company have with Blandin?**

9 A. The Company has an LP ESA with Blandin Paper Company for its operations in Grand  
10 Rapids, Minnesota. As of November 1, 2023, the earliest termination date for this ESA  
11 is December 31, 2029.

12  
13 **Q. Have there been any notable changes to Blandin’s business since the Company’s  
14 last rate case?**

15 A. Yes. Blandin employees went on strike in July and August of 2023, resulting in a  
16 temporary shutdown of operations. The strike has been resolved and as of this writing  
17 Blandin has resumed operations and is working to re-establish its order book.<sup>59</sup> The  
18 2024 test year assumes Blandin continues to operate at similar levels to what was  
19 approved in the 2021 Rate Case.

20  
21 **Q. What sources of information have been relevant to Minnesota Power’s  
22 determination of a reasonable 2024 forecast of sales to Blandin?**

23 A. To forecast Blandin’s 2024 energy purchases, the Company relied upon the IPST set  
24 forth in the ESA, UPM’s quarterly and annual reports, the aforementioned customer and  
25 industry data, and conversations with the customer.

26  

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<sup>59</sup> *UPM Blandin expects to operate again by Sept. 11 after strike*, KAXE (Aug. 21, 2023),  
<https://www.kaxe.org/local-news/2023-08-21/upm-blandin-expects-to-operate-again-by-sept-11>.

1 **Q. How do these assumptions align with broader industry and economic trends**  
2 **affecting the pulp & paper business?**

3 A. They are consistent with declines in the paper and pulp business described earlier in my  
4 testimony.

5

6 b. Boise

7 **Q. Please describe Boise’s operations in Minnesota Power’s service territory.**

8 A. Boise is a kraft pulp and paper facility that operates two paper machines producing  
9 Uncoated Freesheet papers used for office and copy papers. Boise is wholly owned by  
10 Packaging Corporation of America (“PCA”).

11

12 **Q. What type of agreement does the Company have with Boise?**

13 A. The Company has a LP ESA with Boise, Inc., for its operations at International Falls,  
14 Minnesota. As of November 1, 2023, the earliest termination date for this ESA is  
15 November 30, 2027.

16

17 **Q. Have there been any notable changes to Boise’s business since the Company’s last**  
18 **rate case?**

19 A. No. Boise continues to operate at similar levels to what was approved in the 2021 Rate  
20 Case.

21

22 **Q. What sources of information have been relevant to Minnesota Power’s**  
23 **determination of a reasonable 2024 forecast of sales to Boise?**

24 A. To forecast Boise’s 2024 energy purchases, the Company relied upon the IPST set forth  
25 in the ESA, PCA’s quarterly and annual reports, the aforementioned customer and  
26 industry data, and conversations with the customer.

27

28 **Q. How do these assumptions align with broader industry and economic trends**  
29 **affecting the pulp & paper business?**

30 A. They are consistent with declines in the paper and pulp business described earlier in my  
31 testimony.

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c. Sappi

**Q. Please describe Sappi’s operations in Minnesota Power’s service territory.**

A. Sappi is a kraft pulp and paper facility that operates two paper machines producing Coated Freesheet papers used for communications and packaging and market pulp for both paper and fabric markets. Sappi is wholly owned by Sappi Limited.

**Q. What type of agreement does the Company have with Sappi?**

A. The Company has a LP ESA with Sappi Cloquet, LLC, for its operations in Cloquet, Minnesota. As of November 1, 2023, the earliest termination date for this ESA is November 30, 2027.

**Q. Have there been any notable changes to Sappi’s business since the Company’s last rate case?**

A. No. Sappi continues to operate at similar levels to what was approved in the 2021 Rate Case.

**Q. What sources of information have been relevant to Minnesota Power’s determination of a reasonable 2024 forecast of sales to Sappi?**

A. To forecast Sappi’s 2024 energy purchases, the Company relied upon the IPST set forth in the ESA, Sappi’s quarterly and annual reports, the aforementioned customer and industry data, and conversations with the customer.

**Q. How do these assumptions align with broader industry and economic trends affecting the pulp & paper business?**

A. They are consistent with declines in the paper and pulp business described earlier in my testimony.

1 d. ST Paper

2 **Q. Please describe ST Paper's proposed operations in Minnesota Power's service**  
3 **territory.**

4 A. ST Paper purchased the Duluth Mill from Verso on May 13, 2021 and converted the  
5 mill to produce tissue using recycled fiber instead of the Super Calendered advertising  
6 paper the facility produced from groundwood pulp when owned by Verso.<sup>60</sup> ST Paper  
7 commenced operations in early 2023, and became an LP customer on March 1, 2023,  
8 according to the terms of the LP ESA approved by the Commission in Docket No.  
9 E015/M-22-96 on May 16, 2022. ST Paper is wholly owned and privately held by ST  
10 Paper & Tissue, LLC.

11  
12 **Q. What type of agreement does the Company have with ST Paper?**

13 A. The Company has an LP ESA with ST Paper Duluth, LLC, for its operations in Duluth,  
14 Minnesota. As of November 1, 2023, the earliest termination date for this ESA is  
15 February 28, 2029.

16  
17 **Q. Have there been any notable changes to ST Paper's business since the Company's**  
18 **last rate case?**

19 A. Yes. ST Paper commenced operations after the test year of the 2021 Rate Case and is  
20 operating at similar levels to what was approved in the 2021 Rate Case.

21  
22 **Q. What sources of information have been relevant to Minnesota Power's**  
23 **determination of a reasonable 2024 forecast of sales to ST Paper?**

24 A. To forecast ST Paper's 2024 energy purchases, the Company relied upon the IPST set  
25 forth in the ESA, the aforementioned customer and industry data, and conversations  
26 with the customer.

27  

---

<sup>60</sup> *Verso completes sale of its mill in Duluth*, DAILY PRESS (May 20, 2021), attached as MP Exhibit \_\_\_\_  
(Frederickson), Direct Schedule 9.

1 **Q. How do these assumptions align with broader industry and economic trends**  
2 **affecting the pulp & paper business?**

3 A. They are consistent with the stable to growing demand for tissue products described  
4 earlier in my testimony.

5

6 3. Pipeline

7 **Q. What types of customers are included in the Pipeline Industrial class?**

8 A. The Pipeline sector includes all pipeline operating industrial customers.

9

10 **Q. Please describe recent trends in the Company's Pipelines and Other Industrial**  
11 **sector.**

12 A. Pipeline energy sales increased by approximately 14 percent on average annually from  
13 2011 to 2017. Sales plateaued from 2017 to 2021 before falling 12 percent in 2022 after  
14 one of Minnesota Power's pipeline customers commissioned a new pipeline in late  
15 2021.

16

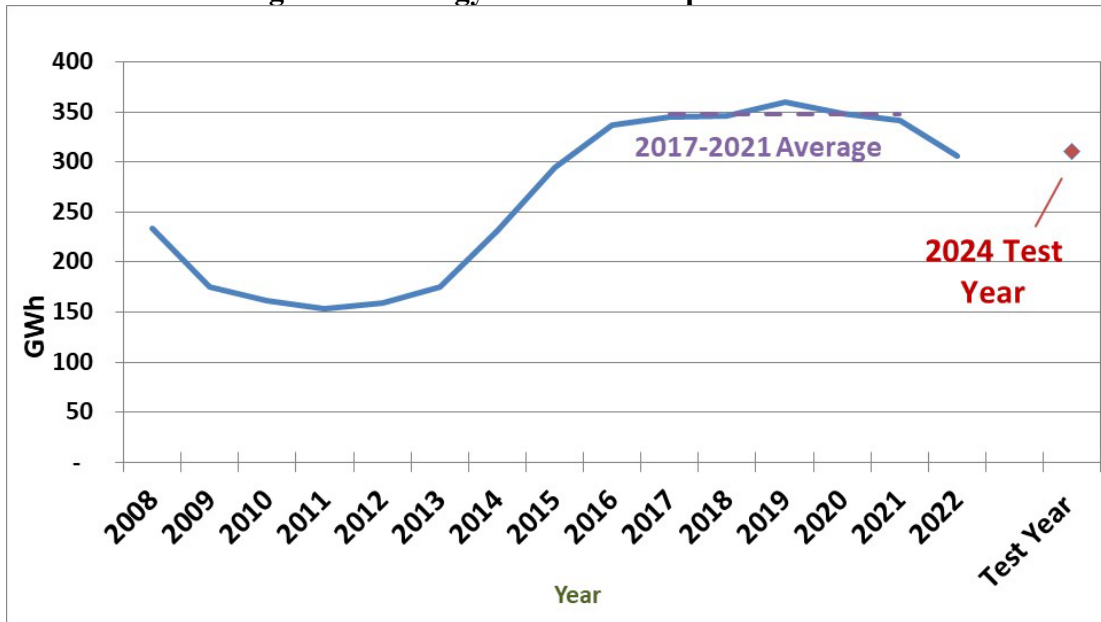
17 **Q. How does the Company's 2024 test year forecast for Pipelines and Other Industrial**  
18 **customers compare to actual sales in recent years?**

19 A. Figure 29 shows the Company's 2024 test year forecast of Pipelines energy sales  
20 compared to recent trends. The 2024 test year forecast of 310,455 MWh is about 5,000  
21 MWh higher than 2022 sales.

22

1

**Figure 29. Energy Sales to the Pipelines Sector**



2

3 **Q. Please describe the test year outlook’s assumptions for Minnesota Power’s**  
4 **Pipelines customers.**

5 A. The Company’s 2024 test year forecast for the Pipeline sector of 310,455 MWh includes  
6 changes in operations due to the activation of Enbridge Line 3, as reflected in Minnesota  
7 Power’s AFRs since 2016.

8

9 4. Other Industrial Customers

10 **Q. What types of customers are included in the Other Industrial classes?**

11 A. The Industrial sectors includes all Non-Mining, Non-Paper, and Non-Pipeline Industrial  
12 customers. Foundries/casting/recycling and food product manufacturing currently  
13 comprising about 37 percent and 27 percent of the class, respectively.

14

15 **Q. Please describe recent trends in the Company’s Other Industrial sector.**

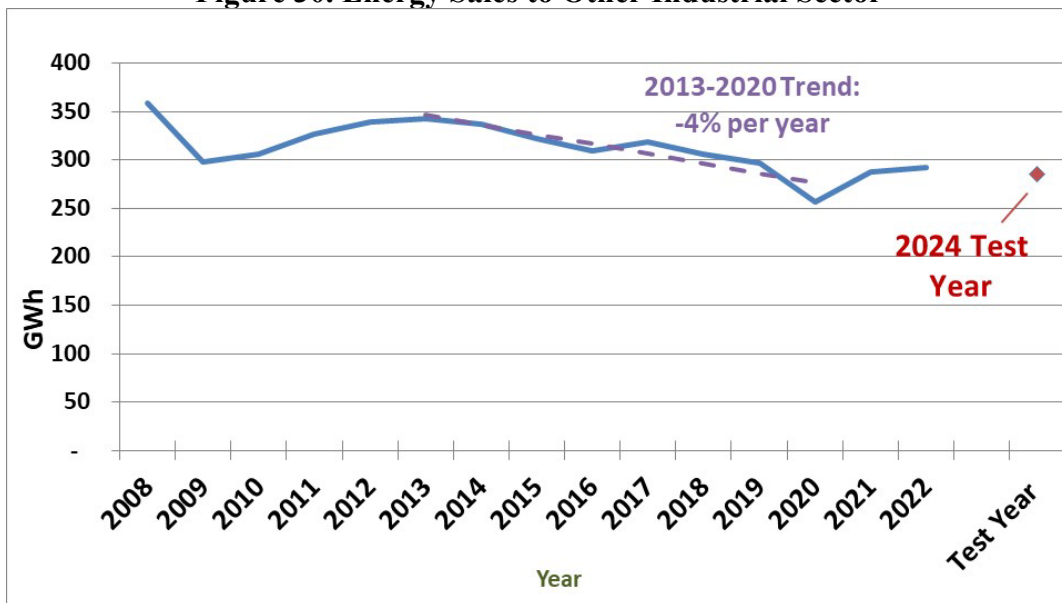
16 A. The Other Industrial sector has contracted by about 4 percent per year from 2013 to  
17 2020. This loss of load is due to a few noteworthy customer facility closures, including:  
18 the Banta Publishing plant in Long Prairie, the Central Minnesota Renewables/Green  
19 Biologics plant in Little Falls, the Diamond Brand match and toothpick factory in  
20 Cloquet, and International Bildrite in International Falls. In 2021 and 2022, Other

1 Industrial energy sales increased as customer sales recovered, namely to the Foundries,  
2 following the COVID-19 pandemic.

3  
4 **Q. How does the Company’s 2024 test year forecast for Pipelines and Other Industrial**  
5 **customers compare to actual sales in recent years?**

6 A. Figure 30 shows the Company’s 2024 test year forecast of Other Industrial energy sales  
7 compared to recent trends. The 2024 test year forecast of 285,349 MWh is 2 percent  
8 lower than 2022 sales as they are forecasted to return to their downward trajectory seen  
9 before the COVID-19 pandemic.

10  
11 **Figure 30. Energy Sales to Other Industrial Sector**



12  
13  
14 **Q. Please describe the test year outlook’s assumptions for Minnesota Power’s Pipeline**  
15 **and Other Industrial customers.**

16 A. The Company’s 2024 test year forecast for the Pipeline and Other Industrial sectors of  
17 310,455 MWh and 285,349 MWh, respectively, are based upon the aforementioned  
18 industry specific approach for its Pipeline and larger Other Industrial customers and  
19 AFR 2023 forecasted levels for its smaller Other Industrial customers.

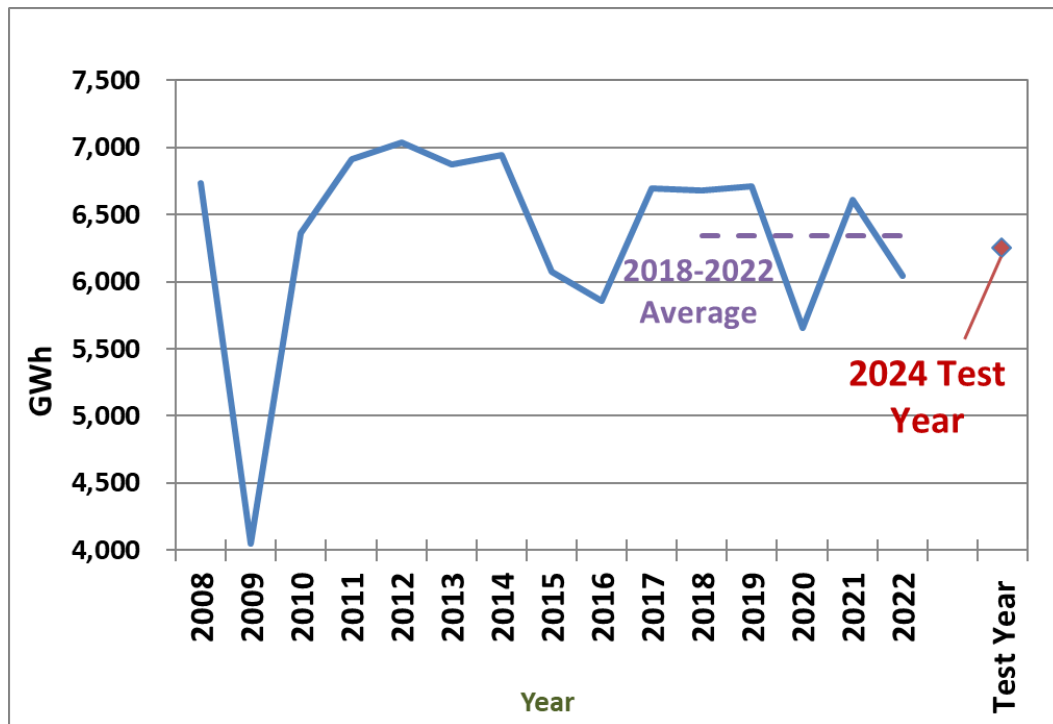
5. Overall Industrial Customers

**Q. Please summarize the overall test year sales forecast for the Industrial customer class.**

A. The Company's 2024 test year Industrial forecast (6,246,176 MWh) is the summation of the Mining, Forest Products, Pipelines, and Other Industrial forecasts described above. The 2024 test year's Industrial sector forecast is about 3.3 percent higher than actual 2022 Industrial sales (6,045,708 MWh) and about 93,000 MWh (1.5 percent) lower than a historical five-year average of sales to the Industrial class.

Figure 31 compares the 2024 test year forecast of total Industrial sales to an average of 2018 to 2022 sales. It shows 2024 sales being relatively consistent with the 2018–2022 average.

**Figure 31. Energy Sales to the Industrial Customer Class**





1           **D.     Wholesale Customer Sales**

2   **Q.     What is Minnesota Power’s forecast for its required wholesale customers?**

3   A.     The Company’s 2024 test year forecast for the required wholesale customer class, which  
4         includes sales to SWLP and Minnesota Power’s 14 municipal customers, is 1,463,073  
5         MWh. This is 11,504 MWh (0.8 percent) higher than actual 2022 sales and 27,538 MWh  
6         higher than a five-year (2018–2022) historical average of actual sales to this class.

7  
8         The wholesale customer sales forecast includes the restart of the Cenovus Oil Refinery  
9         that affects sales to SWLP as approved in final rates of the 2021 Rate Case and the  
10        transition of Hibbing Public Utilities from a wholesale electric customer to a power sale  
11        agreement as approved by the Commission in Docket No. E015/M-22-501. Minnesota  
12        Power has not experienced any additional changes in its wholesale customers since the  
13        Commission issued its decision in the Company’s 2021 Rate Case.

14  
15   **Q.     Did the transfer of Hibbing Public Utilities to a power sale agreement impact the**  
16         **Company’s fuel adjustment clause?**

17   A.     Yes. Customers benefited by the power sale agreement flowing through the fuel  
18         adjustment clause. Customers also benefited because Hibbing Public Utilities was  
19         treated as a full requirements wholesale customer in the 2021 Rate Case, reducing  
20         revenue requirements. In order to offset what would otherwise be a double benefit to  
21         customers, the Commission allowed the Company (in Docket No. E015/M-22-501) to  
22         recover about \$4.4 million (\$3.2 million Minnesota Jurisdictional) annually through the  
23         fuel adjustment clause until the Company’s next rate case. Effective with the 2024 test  
24         year, Hibbing Public Utilities is no longer treated as a wholesale customer in the  
25         calculation of base rates and the fuel adjustment clause will no longer include the \$4.4  
26         million of collection for the Company.

27

1 **VI. 2024 TEST YEAR SALES FORECAST**

2 **Q. What is the purpose of this section of your testimony?**

3 A. In this section of my testimony, I provide a summary of the 2024 test year sales forecast  
4 and a comparison of recent actual sales with historical test year sales forecasts. I also  
5 describe the historical accuracy of Minnesota Power’s sales forecasts.  
6

7 **Q. How are the customer counts and sales forecasts for the 2024 test year used in this  
8 proceeding?**

9 A. Customer count and energy sales forecasts are used to calculate projected revenue under  
10 current rates and projected revenue under the rates proposed for the 2024 test year. The  
11 Direct Testimony of Company witness Mr. Colin B. Anderson describes the processes  
12 of determining the test year revenue requirement using the energy sales forecast for use  
13 in rate design and class cost-of-service study.  
14

15 **Q. What is the rate impact if the test year sales forecast overstates or understates  
16 actual sales?**

17 A. Generally speaking, if actual energy sales are lower than the test year’s projected  
18 volume of sales, then rates will have been set too low to achieve the revenue  
19 requirement. On the other hand, if actual energy sales are higher than the test year  
20 forecast, then rates will have been set higher than necessary to achieve the revenue  
21 requirement.  
22

23 Rates set in this rate review proceeding should be based on a reasonable estimate of  
24 energy sales to ensure Minnesota Power does not over or under recover its revenue  
25 requirement. As described earlier in this testimony, Minnesota Power’s variability in  
26 sales is significantly higher than a typical utility, with a standard deviation more than  
27 double of the other utilities in the state. In order to help with balance the variability in  
28 Minnesota Power’s industrial energy sales, the Company is proposing a rate  
29 stabilization mechanism to track and true-up over-estimated and under-estimated sales  
30 following implementation of final rates as I describe later in this testimony. This

1 mechanism can also serve to reduce the impact on customers and the Company of setting  
2 the sales too high or too low in this proceeding.

3  
4 **Q. Please summarize Minnesota Power’s customer count forecast for the 2024 test**  
5 **year.**

6 A. Minnesota Power’s 2024 test year forecast includes 151,512 retail customers. This is an  
7 increase of 1,048 customers (0.7 percent) over 2022 actual retail counts (150,464 retail  
8 customers). About 66 percent of the projected customer count increase is attributable to  
9 Residential account growth and the remainder of this growth is predominantly  
10 Commercial account growth.

11  
12 **Q. Please summarize Minnesota Power’s sales forecast for the 2024 test year.**

13 A. The Company’s 2024 test year’s retail sales forecast of 8,542,184 MWh is 2.5 percent  
14 higher than 2022 actual retail sales (8,333,736 MWh) and 1.0 percent lower than a five-  
15 year historical average of actual retail sales (8,632,645 MWh).

16  
17 The Company’s 2024 test year energy forecast—which is inclusive of wholesale energy  
18 sales—of 10,005,257 MWh is 2.2 percent higher than 2022 actual retail and wholesale  
19 sales (9,785,305 MWh) and 0.6 percent lower than a five-year historical average of  
20 actual retail sales (10,068,180 MWh).

21  
22 **Q. How do actual sales compare with the test year sales forecast for 2022 approved in**  
23 **Minnesota Power’s 2021 Rate Case?**

24 A. 2022 actual sales were lower than the test year sales forecast approved in Minnesota  
25 Power’s 2021 Rate Case. This was primarily driven by lower sales to Minnesota  
26 Power’s Mining and Metals customers as shown in Table 7 below.

27

1 **Table 7. Minnesota Power’s Approved 2017 Test Year Energy Sales Compared to**  
 2 **Resent Years’ Energy Sales in MWh**

	Residential	Commercial	Pub & Light	Industrial			Total Ind.	Total Retail
				Mining	Pulp & Paper	Other		
<b>2022 Test Year - MP Filed</b>	1,037,401	1,184,475	53,626	4,675,529	607,348	602,359	5,885,236	8,160,738
<b>2022 Test Year - MPUC Approved</b>	1,037,401	1,184,475	53,626	5,032,870	728,308	602,359	6,363,537	8,639,039
<b>2022 Actuals</b>	1,053,657	1,181,683	52,688	4,712,773	735,506	597,430	6,045,708	8,333,736
<b>2024 Test Year</b>	1,046,133	1,199,709	50,166	4,927,042	723,330	595,804	6,246,176	8,542,184

3  
4  
5 **Q. Please explain why the approved 2022 test year over predicted sales to Mining and**  
6 **Metals customers.**

7 A. The 2022 test year sales forecast approved by the Commission over-estimated sales to  
8 Mining and Metals because it did not account for production reductions associated with  
9 mining companies balancing supply with demand and maintenance activity at the  
10 facilities. For example, the Company’s 2022 test year forecast assumed a 34 MT  
11 production year and actual production levels were less than 32 MT. The Commission  
12 approved forecast for the 2022 test year was based upon a production level of nearly 36  
13 MT. Furthermore, the approved level of taconite production is amongst what might be  
14 considered a “high” production level, while in recent years taconite production has  
15 regularly swung from high to low production levels, averaging closer to 35 MT.

16  
17 **Q. How did 2022 actual sales compare to the approved 2022 test year sales forecast?**

18 A. Total retail sales in 2022 were 305,303 MWh (about 3.5 percent) below the approved  
19 2022 test year level. Table 8 below shows 2022 actual sales compared to the approved  
20 2022 test year level. This comparison is also provided in MP Exhibit \_\_\_ (Frederickson),  
21 Direct Schedule 10.

1 **Table 8. Minnesota Power’s Approved 2022 Test Year Energy Sales**  
2 **Compared to 2022 Actual Energy Sales**

	<b>MPUC Approved Test Year</b>	<b>2022 Sales</b>	<b>Difference (MWh)</b>	<b>% Difference</b>
Residential	1,037,401	1,053,657	16,256	1.6%
Commercial	1,184,475	1,181,683	(2,792)	-0.2%
Industrial				
Mining and Metals	5,032,870	4,712,773	(320,097)	-6.4%
Forest Products	728,308	735,506	7,198	1.0%
Pipelines	316,335	305,391	(10,944)	-3.5%
Other Industrial	286,024	292,039	6,015	2.1%
Total Industrial	6,363,537	6,045,708	(317,829)	-5.0%
Public Authorities & Lighting	53,626	52,688	(938)	-1.7%
<b>Total Retail</b>	<b>8,639,039</b>	<b>8,333,736</b>	<b>(305,303)</b>	<b>-3.5%</b>
Municipals	604,042	535,603	(68,439)	-11.3%
SWLP	944,901	915,965	(28,936)	-3.1%
<b>Total Retail and Wholesale</b>	<b>10,187,982</b>	<b>9,785,305</b>	<b>(402,677)</b>	<b>-4.0%</b>

3  
4  
5 **Q. What do you conclude based on this comparison of the 2022 test year to 2022 actual**  
6 **sales?**

7 A. The main conclusion I draw is that the 2022 test year was set too high to be  
8 representative of customer operations which are increasing in volatility. The other  
9 conclusion I draw is that the subsequent negative effects of misestimating the test year  
10 sales volume are avoidable. Below I describe the importance of the Company’s  
11 proposed rate stabilization mechanism, which would address and mitigate the financial  
12 impacts related to operational volatility of LP customer sales between rate cases.

13  
14 **VII. CUSTOMER RATE STABILIZATION MECHANISM**

15 **Q. Does Minnesota Power have a proposal to address and mitigate the financial**  
16 **impacts related to operational volatility of LP customers between rate cases?**

17 A. Yes. The Company is proposing a customer rate stabilization mechanism as a simple  
18 and balanced method to align risks and benefits of LP volatility that occur between rate  
19 cases with all customer classes.

1 **Q. Please explain at a high level how the proposed customer rate stabilization**  
2 **mechanism would work.**

3 A. Following the conclusion of the current rate case, Minnesota Power would establish a  
4 tracker through which the Company would compare base rate revenues annually for the  
5 entire LP class to a baseline level established for the 2024 test year, and incorporate  
6 with this variance any margins the Company received from sales due to lost LP load.  
7 This information would be submitted in annual compliance filings with the  
8 Commission. The tracker would carry over year to year and would increase and decrease  
9 as actual LP revenues vary from the baseline. Once the tracker balance reached a  
10 threshold, proposed to be triggered by an amount of five percent or more of LP base  
11 revenues (above or below the baseline), the balance would be either credited or billed  
12 to customers as a rider on bills. In essence, the Company would account for the level of  
13 base revenues approved by the Commission in this proceeding and all variances over or  
14 under that level would flow to customers over time.

15  
16 **Q. Please explain in more detail how the proposed rate stabilization mechanism would**  
17 **work.**

18 A. If the LP base rate revenue in future years is above the level approved in the 2024 test  
19 year, the Company would track the over-collected amount and submit the tracker value  
20 in an annual compliance filing with the Commission. If revenue in subsequent years  
21 was below the approved level of the 2024 test year, the Company would use the over-  
22 collected amounts to offset the under-collection in the tracker. The Company would  
23 submit the end of year net value of the tracked amounts to the Commission in an annual  
24 compliance filing.

25  
26 Conversely, if the base rate revenue in future years is below the level approved in the  
27 2024 test year, the Company would track the amount, and if revenue in subsequent years  
28 was above the approved level of the 2024 test year, the Company would apply over-  
29 collected amounts from such year(s) to offset the under-collection in previous years. In  
30 all cases, the Company would submit the end of year tracker balance to the Commission  
31 in an annual compliance filing.

1  
2 This approach to balancing years of over-collection with years of under-collection will  
3 reduce the impact of LP class volatility on the Company while also helping ensure  
4 customers get the benefit in years of increased LP revenues. In the event the tracker  
5 balance reaches a trigger value, proposed to be an amount (positive or negative) of five  
6 percent of the LP customer revenue level set in the 2024 test year, the Company will  
7 request Commission approval to apply a surcharge or credit to customer bills in order  
8 to bring the tracker balance to a neutral value.  
9

10 **Q. What are the components of LP base rate revenues?**

11 A. LP base rate revenues currently include four components: customer charge, demand  
12 charges, firm demand transmission, and firm energy. These revenues exclude fuel and  
13 purchased energy costs, which are already incorporated in Minnesota Power's fuel  
14 adjustment clause, and also exclude revenues related to other LP customer programs,  
15 such as demand response. The revenues related to these products are not included  
16 because they are not factored into base rates and including them would not result in an  
17 apples-to-apples comparison to the baseline revenues.  
18

19 **Q. How is the comparable variance determined in the proposed rate stabilization  
20 mechanism?**

21 A. First, a variance is calculated comparing LP base rate revenues in the current period to  
22 the baseline LP revenue amount. Then, any margins from sales due to loss of customer  
23 load attributable to the LP class is added to this variance to determine the comparable  
24 true-up variance.  
25

26 **Q. Why does the calculation add the margins from sales due to loss of LP load?**

27 A. Sales margins due to loss of LP customer load are added because these are amounts the  
28 Company has already captured to help mitigate reductions in customer load between  
29 rate cases. These are sales margins that do not flow through the fuel adjustment clause.  
30 They need to be added to the variance calculation to reduce the amount of under-

1 recovery the Company experienced due to lost LP sales. Adding these margins ensures  
 2 there is no double-counting of benefits associated with these margins.

3  
 4 **Q. How would the Company determine the LP portion of margins on sales due to the**  
 5 **loss of customer load?**

6 A. Minnesota Power tracks margins on sales due to loss of customer load on a monthly  
 7 basis. Because these types of sales are made in batches and are not directly attributable  
 8 to a specific customer’s load reduction, an allocator is necessary to determine which  
 9 portion of the sales due to loss of customer load should be attributable to the LP class.  
 10 The Company proposes to use an LP allocation factor on a monthly basis and apply it  
 11 to the total monthly margins on sales due to loss of customer load. The allocation factor  
 12 would be calculated by taking total LP loss of load (this is the loss of load as compared  
 13 to the baseline and recorded in MWs) divided by total retail and wholesale loss of  
 14 customer load. Table 9 below shows how the LP portion of margins on sales due to loss  
 15 of customer load would be calculated.

16  
 17 **Table 9. Calculation of LP Margins Due to Loss of Sales**

<b>Calculation of Annual LP Margins Due to Loss of Sales</b>	
a. Total Margins From Loss of Sales	Calculated monthly: includes total sales due to loss of load (wholesale and retail) less fuel and MISO costs (in dollars)
b. LP reduction in MWs	Monthly MW reduction, if any, for LP class compared to baseline (in MWs)
c. Retail and wholesale reduction in MWs	Monthly MW reduction, if any, for retail (which includes the LP class) and wholesale compared to baseline (in MWs)
d. LP portion of MW reduction	= b / c (in percent)
e. LP Margins from Loss Sales - month	= a * d (in dollars)
f. LP Margins from Loss Sales - annual	= sum of e (January through December)

18  
 19 **Q. When would the rate stabilization mechanism be billed or credited to customers?**

20 A. If the deferred revenue tracker (positive or negative) were to exceed an amount proposed  
 21 to be set at five percent of the LP base revenue level approved in this rate case, the  
 22 Company proposes to apply the tracker amount to base revenues for all customer classes



1 from the projected year's budget (for the upcoming year) to calculate a new Rider for  
2 Customer Rate Stabilization Adjustment. Applying the variance to base revenues from  
3 the projected year's budget would ensure that the mechanism would be consistent with  
4 the rate design approved in the most recent rate case and would use the most recent  
5 estimate of sales to help ensure the adjustment is neutralized in 12 months. The new  
6 rider would apply to customer bills similar to the Company's Tax Rider that was  
7 implemented following the Tax Cut and Jobs Act of 2017.<sup>61</sup>

8  
9 **Q. Why is the Company proposing a threshold of five percent of LP sales levels to**  
10 **trigger the Rider for Customer Rate Stabilization?**

11 A. The Company determined that a five percent variance of baseline revenues is a  
12 significant amount, similar to the level chosen for significant events filings in the Fuel  
13 Adjustment Clause Rider. The mechanism will allow rates to maintain a level of stability  
14 when LP customers increase or decrease operations at thresholds below a five percent  
15 variance, reducing over-collection by the Company during high customer operations  
16 and under collection when customer sales are low. These smaller variances will carry  
17 over from year to year and the Rider for Customer Rate Stabilization will only be  
18 utilized when the tracker reaches a significant level of at least five percent variance of  
19 baseline revenues.

20  
21 **Q. What does the Company propose regarding annual compliance filings?**

22 A. Minnesota Power proposes to make compliance filings annually by March 1, reporting  
23 on the variance of net revenues for the previous year compared to the baseline, the  
24 current value of the tracker, and a proposal for whether the tariff should be updated. The  
25 tariff would need Commission approval before being implemented. If the current rate  
26 case is concluded and the rate stabilization mechanism is approved before December  
27 2024, we would begin to track variances starting January 2025 and would make the first  
28 annual compliance filing by March 1, 2026.

29  

---

<sup>61</sup> *In the Matter of a Comm'n Investigation into the Effects on Elec. and Nat. Gas Util. Rates and Serv. of the 2017 Fed. Tax Act*, Docket No. E,G-999/CI-17-895, COMPLIANCE FILING (Jan. 30, 2018).

1 **Q. When would the rate stabilization mechanism end?**

2 A. The mechanism would be reconsidered in Minnesota Power's next rate case. The  
3 Commission would determine then whether to continue or modify its use.

4  
5 **Q. How would the rate stabilization mechanism help customers and shareholders of  
6 ALLETE?**

7 A. The rate stabilization mechanism will help align risks and benefits of LP volatility  
8 between rate cases. It will allow customers to benefit with rate stability because it is less  
9 likely a change in LP revenues will trigger a rate case, or that a test year will understate  
10 LP revenues in any given year. Conversely, it will help the Company stay out of future  
11 rate cases that are triggered by LP operations, stabilize the financial health of the utility,  
12 and reduce the Company's overall risk profile. As discussed in the testimony of  
13 Company witnesses Mr. Taran and Ms. Ann E. Bulkley, ALLETE's credit rating  
14 agencies, credit ratings, and equity ratings would favor the mechanism and allow for an  
15 authorized return on equity toward the middle of the appropriate range (rather than the  
16 very high end), as it shares rewards and risks of LP volatility with all customers and  
17 more closely aligns Minnesota Power's risk profile with that of other utilities.

18

19

## VIII. CONCLUSION

20 **Q. Does this complete your testimony?**

21 A. Yes.

## Schedule 1 – Minnesota Power Retail Operations MWh Sales and Customer Counts 2024 Test Year

	2024 Test Year	
	Energy Sales (MWh)	Customer Count
Residential	1,046,133	125,939
Commercial	1,199,709	24,159
Industrial		
Mining and Metals	4,927,042	8
Paper and Pulp	723,330	5
Pipelines	310,455	2
Other Industrial	285,349	362
Total Industrial	6,246,176	377
Public Authorities & Lighting	50,166	1,037
<b>Total Retail</b>	<b>8,542,184</b>	<b>151,512</b>
Municipals	468,779	
SWLP	994,294	
<b>Total Retail and Wholesale</b>	<b>10,005,257</b>	

## Schedule 2 – Minnesota Power Retail Operations MWh Sales: 2023 AFR Forecast for 2024 vs. 2024 Test Year

	2024 Forecast (2023 AFR)	2024 Test Year	Difference	
			(MWh)	% Difference
Residential	1,046,133	1,046,133	-	0.0%
Commercial	1,199,709	1,199,709	-	0.0%
Industrial		-		
Mining and Metals	4,393,621	4,927,042	533,421	12.1%
Forest Products	733,150	723,330	(9,820)	-1.3%
Pipelines	300,834	310,455	9,621	3.2%
Other Industrial	279,366	285,349	5,983	2.1%
<b>Total Industrial</b>	<b>5,706,970</b>	<b>6,246,176</b>	<b>539,206</b>	<b>9.4%</b>
Public Authorities & Lighting	50,166	50,166	-	0.0%
<b>Total Retail</b>	<b>8,002,978</b>	<b>8,542,184</b>	<b>539,206</b>	<b>6.7%</b>
Municipals	467,124	468,779	1,655	0.4%
SWLP	978,203	994,294	16,091	1.6%
<b>Total Retail and Wholesale</b>	<b>9,448,305</b>	<b>10,005,257</b>	<b>556,952</b>	<b>5.9%</b>

[https://www.mesabtribune.com/news/local/minntac-pellet-production-slowed-by-structure-collapse/article\\_4a5bb8aa-887b-11ec-b7a1-afb320775822.html](https://www.mesabtribune.com/news/local/minntac-pellet-production-slowed-by-structure-collapse/article_4a5bb8aa-887b-11ec-b7a1-afb320775822.html)

TOP STORY

## Minntac pellet production slowed by structure collapse

Three of taconite plant's pellet-making lines idled by conveyor system failure

LEE BLOOMQUIST | FOR MESABI TRIBUNE  
Feb 8, 2022



SUBMITTED

As Steve Bonach looked over the collapse of an iron ore pellet conveyor structure at United States Steel Corp.'s Minntac Mine in Mountain Iron on Monday morning, he was sickened.

"It's sickening just looking at it," Bonach, United Steelworkers Local 1938 president at Minntac Mine said. "It really is. But things happen and we'll get through it."

A "house" on the head end of the structure collapsed onto the pellet stockpile below it Saturday morning between 9:30 and 10:00 a.m. as the conveyor structure was transporting pellets, Bonach said.

Plans were already in place to fix the structure, Bonach said.



The area had been cordoned off and was off-limits to workers, he said.

Nobody was injured in the collapse.

“It was all blocked off,” Bonach said. “They were in the process of shoring up the structure to the “A” frame. Part of the head end of the 043 (belt) collapsed and nobody knows why.”

The conveyor system transports iron ore pellets from Minntac's Step I & II agglomerator to an outside stockpile.

Minntac's agglomerator Lines 3, 4 and 5, which feed iron ore pellets onto the conveyor system, are shut down as a result of the collapse, Bonach said.

Lines 6 & 7, which are newer pellet-making lines in a separate Step III agglomerator building, are still operating.

But the collapse has, for now, put a crimp in the taconite plant's iron ore pellet production.

“Line 5 was due for a major (maintenance repair),” Bonach said. “They're moving that up now. They're idling Lines 3 and 4 because they need the heat in the building. They want to do the Line 5 major, but they want to run Lines 3 and 4 with a temporary conveyor to be able to run it (pellets) out of the building.”

The Mine Safety and Health Administration and St. Louis County Mine Inspector are investigating the incident.

Another structural failure on a different portion of the gallery occurred about 12 days ago, according to Bonach.

Minntac Mine is North America's largest taconite facility.

It began producing iron ore pellets in 1967 and today employs about 1,300 hourly workers.

“First and foremost, we are thankful that no one was hurt,” Rep. Dave Lislegard of Aurora, whose district includes Minntac said. “The Minntac facility is critical to our region, the state and the U.S. steel industry. As a delegation, we will rally behind the facility and provide assistance as we are able to get them back to full production as soon as possible.”

United States Steel Corp. did not reply to emails for comment on Monday.



The company on Saturday issued a statement:

“Today at Minntac we had a structural failure on the conveyor system. We are investigating the cause and developing plans for repair. The area was cordoned off at the time of the incident, so there was no one in the area. There was no danger to personnel at any time, and there were no injuries. At this time, we do not anticipate impact to our customers or supply chain.”

As of Monday, there was no information on potential layoffs, Bonach said.

“The crusher and concentrator are running right now and they will keep running the pit,” Bonach said. “There's no word on layoffs. We're hoping we can absorb everybody into this major and the maintenance people with clean up (of the collapse. Hopefully, we'll avoid a layoff.”

With the Great Lakes shipping season idle for winter, most of the iron ore pellets produced at northeastern Minnesota's six taconite plants are stockpiled at docks and the plants.

“They said it's not going to affect the customers on the product side,” Bonach said. “We're filling up the docks right now. If there's any good that comes out of it, it's a good time for it to happen. Hopefully, we'll weather this storm and it won't affect anyone's employment.”





BUSINESS

## Cliffs to idle Northshore Mining as fight over royalty fees intensifies, scrap metal lessens need for pellets

The company does not want to pay "absurdly high" royalty fees to Mesabi Trust and is using more scrap metal in its electric arc furnaces.



Cleveland-Cliffs' Northshore Mining in Silver Bay. (Clint Austin / 2020 file / News Tribune)



By **Jimmy Lovrien**

February 11, 2022 at 11:04 AM

Share

DULUTH — Cleveland-Cliffs will idle its Northshore Mining operations in Babbitt and Silver Bay amid a royalties dispute and as the use of scrap metal in its electric arc furnaces reduces the need for its pellets.



The Silver Bay pellet plant and the Babbitt mine will idle May 1 and last into at least the fall as the company moves production of direct-reduced grade pellets to its Minorca Mine in Virginia, Cliffs CEO Lourenco Goncalves said in a year-end earnings call with investors Friday morning.

Layoffs are expected for 410 of Northshore's 580 employees, Cliffs spokesperson Pat Persico said in an email to the News Tribune. Some will be hired at Cliffs' other Minnesota operations, she added.

The announcement [intensifies Cliffs' efforts to get out of what it has called "absurdly high" royalty fees it pays to Mesabi Trust, \(https://www.duluthnewstribune.com/business/amid-royalties-dispute-cliffs-says-it-will-move-dr-pellet-production-from-northshore-to-minorca\)](https://www.duluthnewstribune.com/business/amid-royalties-dispute-cliffs-says-it-will-move-dr-pellet-production-from-northshore-to-minorca) a publicly traded trust that collects royalties from Cliffs based on the volume of shipments from Northshore, the price of taconite and the amount of taconite that was mined from land owned by the trust — namely the Peter Mitchell Mine in Babbitt, which supplies Northshore with ore.

"Because we are now able to produce (direct-reduced) grade pellets at Minorca, and mainly due to the ridiculous royalty structure we have in place with the Mesabi Trust, we will be idling all production at our Northshore Mine. ... No production, no shipments, no royalty payments,"Goncalves said in the call.

It came in the same call where Cliffs announced a record profit of \$3 billion in 2021 on a record revenue of \$20.4 billion.

In October, the company announced it was moving production of its direct-reduced, or DR, grade pellets to its Minorca Mine in Virginia and away from its Northshore Mining plant in Silver Bay to avoid Mesabi Trust's royalty fees.

The October announcement came just weeks after an arbitrator ruled in favor of Mesabi Trust on unpaid royalty fees.

Mesabi Trust's Deutsche Bank manager declined to comment on the idling of Northshore.

In its quarterly report filed Jan. 28(<https://www.sec.gov/ix?doc=/Archives/edgar/data/65172/000155837022000678/msb-20220128x8k.htm>) , Mesabi Trust said it received nearly \$21 million in royalty payments from Cliffs during the fourth quarter of 2021.

Asked if Northshore would keep running if Mesabi Trust were to lower its royalty fees, Persico said: "Cleveland-Cliffs has adjusted its full-year iron ore pellet production volume expectation to correspond to internal steelmaking needs for this year. This adjustment of iron ore pellets reflects our internal use of hot-briquetted iron (HBI) production and increased use of scrap in our steelmaking. We will be curtailing iron ore pellet production and temporarily idling Northshore Mining."

Cliffs spent \$100 million on Northshore's direct-reduced or DR-grade pellet plant, which opened in 2019, and can produce 3.5 million tons of DR-grade pellets per year.

Goncalves has said he never would have built the plant at Northshore, which also produces traditional pellets meant for blast furnaces, if he had known that Cliffs would buy ArcelorMittal USA and its Minorca Mine in 2020.

The DR-grade pellets supply Cliffs' new Toledo hot briquetted iron plant, which in turn feeds electric arc furnaces.

Because the company uses more scrap metal in its electric arc furnaces, the idling could be prolonged, Goncalves said.

Babbitt Mayor Andrea Zupancich told the News Tribune that she was "stunned" by Friday's announcement.

She said that the only positive she got out of it was that it would idle mostly during the summer — and hopefully not any longer.

"It's not only the miners that are affected, it's absolutely everyone else in town that's affected," Zupancich said. "It's the school that's affected, it's the government that's affected, it's the businesses in town that are affected, it's the bars and restaurants in town that are all affected. So it's a massive trickle-down effect."

***This story was updated several times with additional quotes from company, trust and city officials and with additional information from the call. The final version was published at 2:27 p.m. Feb. 11. The initial version was posted at 10:38 a.m. Feb. 11.***

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By **Jimmy Lovrien**(<https://www.duluthnewstribune.com/jimmy-lovrien>)

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BUSINESS

## Cliffs maintains plans to idle Northshore Mining operations on Iron Range

The company will close the operations in Babbitt and Silver Bay on May 1.

By Mike Hughlett (<https://www.startribune.com/mike-hughlett/6370445/>) Star Tribune |

APRIL 22, 2022 — 4:27PM

Cleveland-Cliffs is maintaining plans to temporarily shut down its Northshore Mining operations in Babbitt and Silver Bay on May 1.

Cliffs, Minnesota's largest iron ore operator, said in February it would idle the facilities this spring amid a royalty dispute and changing operational strategies. Together, the operations employ 500 people.

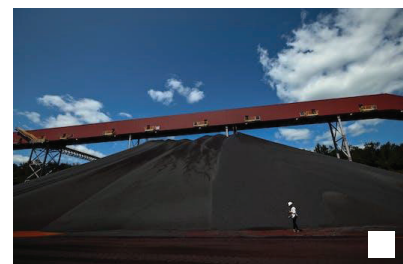
During an earnings conference call Friday, Cliffs CEO Lourenco Goncalves said the company has "space capacity."

"We are treating Northshore in Minnesota as our swing producer," he said. "We are not planning to run Northshore at this time because we feel that that would not be the right thing to do."

Northshore's mine in Babbitt and the taconite processing plant in Silver Bay are expected to be closed for at least four months. The shutdown will be a significant economic blow to both Silver Bay and the Iron Range.

Cleveland-based Cliffs is in a long-running dispute with Mesabi Trust, a publicly traded company that gets all of its revenue from royalties paid by Cliffs for ore mined in Babbitt. Goncalves has called the royalty payments "absurdly high."

In 2019, Cliffs spent \$100 million upgrading Northshore's operations to produce a better grade of iron for steelmaking. But that supply is now being sourced from the Minorca mine near Virginia, Minn., which Cliffs has owned since buying ArcelorMittal USA in late 2020.



AARON LAVINSKY, STAR TRIBUNE

The Northshore taconite processing and shipping facility in Silver Bay and the Babbitt mine will idle this spring due in part to a

10/13/23, 2:43 PM

Cliffs maintains plans to idle Northshore Mining operations on Iron Range

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Through acquisitions over the past couple of years, Cliffs — which also owns two other Iron Range taconite operations — has transformed itself into a full-fledged integrated steelmaker.

The company is shifting away from selling iron ore to other steel companies. It also acquired a scrap-steel firm last fall, which can supply its steelmaking operations in place of some iron ore.

Cliffs reported strong first quarter earnings Friday. It posted net profits of \$801 million, or \$1.50 a share, up from \$41 million or 7 cents a share a year earlier. Analysts were forecasting per-share earnings of \$1.40.

Cliffs' stock closed Friday at \$28.95, down 63 cents on a down day for the market. The company's stock rose from about \$19 in February, before the Russian invasion of Ukraine, to as high as \$32.71 in late March.

Ukraine and Russia are major iron and steel producers, and the war has constricted global supplies of both.

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**Mike Hughlett** covers energy and other topics for the Star Tribune, where he has worked since 2010. Before that he was a reporter at newspapers in Chicago, St. Paul, New Orleans and Duluth.

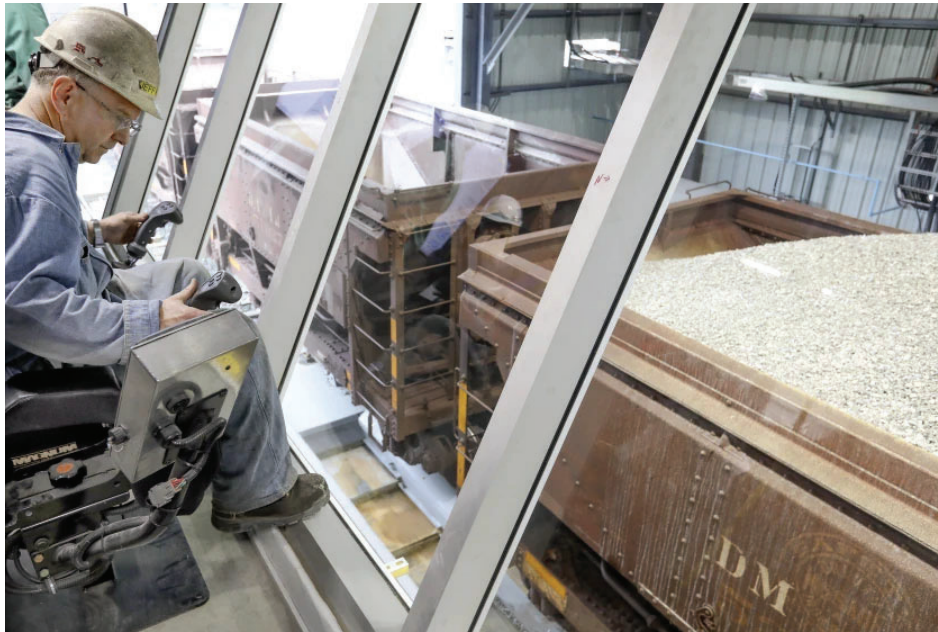
mike.hughlett@startribune.com 612-673-7003



NEWS

## New pellet, new life for United Taconite

FORBES -- Jeff Kayfes was sitting in a bucket seat, hands on dual joysticks, trying to line up his unloading machine with a cog on a rail car full of limestone and dolomite. This limestone unloading job is new for Kayfes who was still getting use...



Jeff Kayfes controls the equipment that unloads rail cars carrying fluxstone to United Taconite. The building is new, part of Cliffs Natural Resources' new Mustang pellets project. Steve Kuchera / skuchera@duluthnews.com



By **John Myers**

May 31, 2017 at 8:24 AM

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FORBES - Jeff Kayfes was sitting in a bucket seat, hands on dual joysticks, trying to line up his unloading machine with a cog on a rail car full of limestone and dolomite.

10/13/23, 3:00 PM

New pellet, new life for United Taconite - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

This limestone unloading job is new for Kayfes who was still getting used to his bird's-eye view from above the rail car and the video-game controls in his hands. But after 41 years as a steelworker at United Taconite, it wasn't anything he couldn't handle.

"It's not that different than unloading ore cars, which is what I did before ... except that I'm sitting up here now and not down at eye level," Kayfes said Tuesday. "It takes a little getting used to."

With the flick of his wrist Kayfes opened up the trapdoor on the bottom of the rail car and 50 tons of the mixed rock - workers here call it fluxstone - tumbled onto a conveyor belt.

Off the rock went to be merged with taconite iron ore and made into a valuable little iron-rich pellet called the Mustang, destined for ArcelorMittal's Furnace No. 7 at Indiana Harbor in East Chicago, Ind., the largest blast furnace steel mill in the U.S.

Kayfes, like the other 474 workers at United Taconite, was part of an on-the-job celebration Tuesday by Cliffs Natural Resources for the new pellet that has breathed new life into a facility that was idle at this time last year, a victim of the downturn in the domestic steel industry and domestic iron ore industry that feeds it.

Now, less than one year after nearly all of them were on indefinite layoff, they are not only back on the job making taconite pellets, they're making an all-new pellet for Cliffs' largest customer, a new product that should add years, if not decades, to United's life.

"It's good to be back. I was off six months," Kayfes said. "We needed this."

By "this" he meant the \$75 million Cliffs spent on the project finished earlier this month on-time and under budget. Every day 60 rail cars of the limestone-dolomite mix from Michigan come up the train tracks from the Duluth waterfront. Here at the United

10/13/23, 3:00 PM

New pellet, new life for United Taconite - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

processing plant it's mixed with taconite iron ore from the nearby Thunderbird mine in Eveleth.

The button was pushed to start the new pellet production at 3 a.m. on May 12. Starting June 2, the first shipments of the Mustang pellet will be heading south to the steel mill.

"We now have a more marketable product that will carry us forward," said Brian Zarn, a United employee and president of Steelworkers Local 6860.

Cliffs' investment was praised at Tuesday's celebration at the plant by U.S. Sen. Amy Klobuchar and U.S. Rep. Rick Nolan as well as other state lawmakers and local dignitaries. In turn, Cliffs' CEO Lourenco Goncalves praised the Minnesota Democrats for their efforts pushing for stiff federal trade penalties against below-cost foreign steel that had flooded the U.S. market, displacing American-made steel and triggering an Iron Range mining recession that saw more than 2,000 workers laid off.

That push-back against foreign steel has led to more demand for U.S. made steel, officials say, and more demand for Minnesota taconite.

"We're back on track and this time we're going to keep it on track," Nolan said of the Iron Range mining industry.

Flux pellets aren't new for the Iron Range, and Cliffs made a nearly identical pellet at its now-shuttered Empire Mine in Michigan's Upper Peninsula. But Cliffs ran out of ore there and made the decision to transfer the ArcelorMittal order to United, which can produce about 5 million tons of taconite pellets annually. About 40 percent of the plant's annual production will be the Mustang pellet. When that order is filled by late autumn the plant will produce traditional acid pellets for the rest of winter for other customers.



10/13/23, 3:00 PM


New pellet, new life for United Taconite - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

"It will be a seasonal thing. We'll fill one order, then move to the other pellet, then back," said Ryan Korpela, plant manager.

The flux pellets mix limestone and dolomite with iron at the front end of the process, instead of at the steel mill, Korpela said, saving the steelmaker time, energy and money.

"They like us to have the headaches," he said. "But it ends up working better for everyone, so we're glad to do it."

1/2: Two United Taconite employees use tricycles to move through the concentrator building at the Forbes plant. Part of the concentrator building was converted to crush fluxstone for Cliffs' new Mustang pellets project. Steve Kuchera / skuchera@duluthnews.com

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By **John Myers**(<https://www.duluthnewstribune.com/john-myers>)

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10/13/23, 3:00 PM

New pellet, new life for United Taconite - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

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BUSINESS

## US Steel will idle Keetac, lay off 375 employees

It's the second Iron Range mine to announce an idling and layoffs this week as steel demand tumbles during the COVID-19 pandemic.



U.S. Steel's Keetac facility. (file photo / News Tribune)



By **Jimmy Lovrien**

April 16, 2020 at 12:40 PM

Share

U.S. Steel will idle its Keetac mine and processing facility in Keewatin and lay off 375 of its 423 employees as the [COVID-19 pandemic continues to hurt demand for steel](https://www.duluthnewstribune.com/business/energy-and-mining/5006183-Iron-Range-mines-face-looming-recession-triggered-by-COVID-19)(<https://www.duluthnewstribune.com/business/energy-and-mining/5006183-Iron-Range-mines-face-looming-recession-triggered-by-COVID-19>) .

10/13/23, 3:31 PM

US Steel will idle Keetac, lay off 375 employees - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

Keetac is the second Minnesota mine and plant to idle and lay off employees. On Monday, [Cleveland Cliffs announced it would idle Northshore](#)

[Mining\(https://www.duluthnewstribune.com/business/energy-and-mining/5040979-Cliffs-will-idle-Northshore-Mining-Tilden-Mine-until-late-summer\)](https://www.duluthnewstribune.com/business/energy-and-mining/5040979-Cliffs-will-idle-Northshore-Mining-Tilden-Mine-until-late-summer) in Silver Bay and Babbitt until at least mid-August, laying off 470 of its 570 employees.

U.S. Steel's decision follows "operational adjustments" it announced in March, U.S. Steel spokesperson Meghan Cox said in an email to the News Tribune on Thursday afternoon. Cox would not say if U.S. Steel's other Minnesota facility, Minntac in Mountain Iron, would also be affected.

"After further study of current demand, we must make additional adjustments to our raw materials production and indefinitely idle our Keetac facility to respond to the sudden and dramatic decline in business conditions resulting from the worldwide COVID-19 pandemic," Cox said.

Cox said 75 employees with fewer than three years of experience would be laid off first, but a total of 375 union and non-union employees will be laid off over the next month.

Dan Pierce, United Steelworkers Local 2660 president and a diesel mechanic at Keetac, told the News Tribune on Thursday that layoffs would begin Sunday for people with fewer than three years of experience, and the union sent letters to members Wednesday informing them of the layoffs.

As of Thursday morning, the union continued to negotiate additional layoffs with U.S. Steel.

"We're in the process of negotiating with the company for employees that have three years or more," Pierce said.

10/13/23, 3:31 PM

US Steel will idle Keetac, lay off 375 employees - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

Over the last month, U.S. Steel has idled two of its blast furnaces at Gary Works plant in Indiana as demand for steel sunk.

Demand for steel has fallen not only from consumer markets, but also from companies such as General Motors, Ford and Fiat Chrysler voluntarily shuttering plants to help curb the spread of coronavirus. All three halted production in March. Other factories requiring steel have also closed.

In the last month, capacity utilization of the country's blast furnaces has fallen from 80.5% to 56.1%, [according to the Iron and Steel Institute\(https://www.steel.org/industry-data?mc\\_cid=b35ecd2ff4&mc\\_eid=942e2bb46d\)](https://www.steel.org/industry-data?mc_cid=b35ecd2ff4&mc_eid=942e2bb46d) .

Iron ore pellets produced on the Iron Range from mined taconite supply many of those blast furnaces. Keetac produces about 6 million net tons of pellets each year for U.S. Steel's steelmaking plants.

Reached by phone Thursday, Keewatin Mayor William King summed up the situation for the town of about 1,000 residents: "It sucks."

King, a 40-year resident of Keewatin, said unlike past shutdowns, some of the businesses in town are already closed due to the pandemic. He's not sure all three of Keewatin's restaurants and bars will survive if the order to halt dine-in service and the mine shutdown last a long time.

"They might have been able to get by a month, maybe two. But if this continues, then when they open up, there's nobody to come," King said. "Then it's gonna be really tough for their small businesses."

Ben DeNucci, an Itasca County Commissioner representing the district that includes Keewatin, said he's also worried about area small businesses.

10/13/23, 3:31 PM

US Steel will idle Keetac, lay off 375 employees - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

"It's challenging to own and operate a small business. So with a pandemic, it just makes things even harder," DeNucci said. "We are very concerned about how this is all going to shake out, how businesses are going to get through it. We have a real level of concern in Itasca County about the current state and the future, and then when you add on a layoff of this nature, it just compounds that."

And, DeNucci said, mining jobs are the area's "good" jobs.

"Those are family-sustaining, good-paying jobs," he said.

For now, King said he hopes all the Keetac workers will be able to get by on unemployment.

"Hopefully, these guys, once they start laying them off, won't have any trouble getting into unemployment," King said.

***This story was updated at 5:25 p.m. April 16 with additional information and quotes from Mayor William King and County Commissioner Ben DeNucci. It was originally posted at 1:40 p.m. April 16.***

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By **Jimmy Lovrien**(<https://www.duluthnewstribune.com/jimmy-lovrien>)

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BUSINESS

# US Steel will restart Keetac next month

Nearly 400 workers will return to work at the mine in December.



U.S. Steel's Keetac facility. (File / News Tribune)



By **Jimmy Lovrien**

November 05, 2020 at 6:06 PM

 Share

The only Iron Range mine still shut down due to the pandemic is set to restart.

U.S. Steel announced Thursday that it would be restarting the Keetac iron ore mine and pellet plant in Keewatin, which has been indefinitely idled since May, leaving 375 employees out of work(<https://www.duluthnewstribune.com/business/energy-and->

10/13/23, 3:32 PM

US Steel will restart Keetac next month - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

[mining/5090981-US-Steel-will-idle-Keetac-lay-off-375-employees](#))  
after the pandemic caused the demand for steel to fall.

But next month they'll be back to work.

"We will resume operations in mid-December," U.S. Steel spokesperson Amanda Malkowski told the News Tribune. "We're starting to recall workers as soon as today."

In an emailed statement, U.S. Steel said the decision comes as demand for steel improves.

"We are encouraged by the increase in demand and believe this restart will best support our customers," U.S. Steel said. "This will also ensure that we have sufficient iron ore supply where it is needed to meet that demand. We expect to fill nearly 400 positions as part of this restart and will work with the United Steelworkers to recall employees that may have been affected by the idle."

In a call with investors last week, U.S. Steel CEO David Burritt said the company was considering reopening Keetac to rebuild an inventory of iron ore pellets before locks on the Great Lakes close for winter.

The Soo Locks, which connect Lake Superior to the rest of the Great Lakes, are generally closed mid-January to mid-March due to ice. Ships loaded with ore in Lake Superior pass through the locks to reach steel mills along other Great Lakes.

Dan Pierce, a diesel mechanic at Keetac and president of United Steelworkers Local 2660, which represents workers at Keetac, said Thursday the restart was "awesome news" and a "stress reliever," especially just before the holidays.

"We have a huge amount of new members that lost their insurance at the end of October, and we were slated to have another big bunch lose their insurance at the end of November," Pierce said.



10/13/23, 3:32 PM

US Steel will restart Keetac next month - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

"So this is a big relief for a lot of young families and members that have never been through it before."

Pierce said the company will reach out to members Friday and some people will begin returning to work to get the plant ready for restart soon.

In a statement Thursday evening, Gov. Tim Walz applauded U.S. Steel's decision.

"This is a good day for the Iron Range and for an industry that's a pillar of Minnesota's economy," Walz said. "The decision to reopen Keetac will restore hundreds of good-paying union jobs for Minnesotans in the Northland. I'm excited to see Minnesotans get back to work."

As pandemic-induced restrictions swept the U.S. this spring, demand for steel fell, causing iron ore mines in Minnesota to idle.

At its height, Keetac, Cleveland-Cliffs' Northshore Mining in Babbitt and Silver Bay and ArcelorMittal-managed Hibbing Taconite had all idled. Additionally, U.S. Steel's Minntac in Mountain Iron lowered production and laid off 260 of its workers.

Layoffs at the three idled facilities and Minntac totaled approximately 1,760 workers, more than one-third of the 4,105 total jobs at the Iron Range's six mines in 2019.

Most of the mines reopened and recalled employees by mid to late summer but Keetac remained idled.

Due to its small size, Keetac is usually the last mine to restart after downturns. It produced just over 5 million tons of pellets and employed 451 people last year while Minntac produced 13 million tons of pellets and employed 1,460 people.

But its restart is a sign of improving demand for steel and the iron ore pellets used in its production.

10/13/23, 3:32 PM


US Steel will restart Keetac next month - Duluth News Tribune | News, weather, and sports from Duluth, Minnesota

In the spring, the country's blast furnace utilization fell from 81.6% on March 7 to 51.1% on May 2. Last week, it reached 70.4%, according to the American Iron and Steel Institute.

Burritt last week said he was confident demand would remain high.

"We believe today's market demand is sustainable and will continue into next year," Burritt said. "As vacations, movies, concerts and dining out have been replaced by vehicle and appliance sales and home improvement projects, we have continued to see a noticeable increase in steel demand."

***This story was updated several times with additional information from U.S. Steel and quotes from USW Local 2660 President Dan Pierce. The final version was published at 7:06 p.m. Nov. 5. The initial version was posted at 3:46 p.m. Nov. 5.***

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## Verso completes sale of its mill in Duluth

MIAMISBURG, Ohio — Verso Corp. announced it completed the sale of its idled Duluth mill as of Thursday to ST Paper 1.

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*“Since the idling of the Duluth mill in July 2020, we have been working diligently to find a viable and sustainable alternative,”* said Randy Nebel, president and CEO. *“We are pleased to have found a buyer who plans to operate the Duluth mill in the future, providing local employment opportunities and serving the local business community and residents of the Duluth area.”*

ST Paper & Tissue currently has mills that produce bath tissue, paper towels and napkins in Oconto Falls, Wis.; and Isle of Wight, Va.

Verso announced its plans to idle both the Duluth and Wisconsin Rapids, Wis., mills last June. For the past several months, a group of timber professionals in Wisconsin has been working to create a cooperative with the goal to purchase the Wisconsin Rapids mill and operate it as a group along with mill workers and community members, the Wisconsin Rapids Daily Tribune reported. The Great Lakes Timber Professionals Association in Rhinelander, Wis., created the Timber Professionals Cooperative in August as part of that group.

Dennis Schoeneck, the president of the Timber Professionals Cooperative, told the newspaper the group has continued talking with Verso about a potential sale of the Wisconsin Rapids mill, although there hasn't been a deal on the table yet.

10/20/23, 9:47 AM

Verso completes sale of its mill in Duluth | News, Sports, Jobs - Daily Press

In early 2020, Verso completed the sale of mills in Stevens Point, Wis., and Jay, Maine, to Pennsylvania-based Pixelle Specialty Solutions. Its remaining mills are in Escanaba and Quinnesec.

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## Schedule 10 – Minnesota Power Retail Operations MWh Sales Commission Approved 2022 Test Year vs. 2022 Actual Sales

	MPUC Approved Test Year	2022 Sales	Difference (MWh)	% Difference
Residential	1,037,401	1,053,657	16,256	1.6%
Commercial	1,184,475	1,181,683	(2,792)	-0.2%
Industrial				
Mining and Metals	5,032,870	4,712,773	(320,097)	-6.4%
Forest Products	728,308	735,506	7,198	1.0%
Pipelines	316,335	305,391	(10,944)	-3.5%
Other Industrial	286,024	292,039	6,015	2.1%
<b>Total Industrial</b>	<b>6,363,537</b>	<b>6,045,708</b>	<b>(317,829)</b>	<b>-5.0%</b>
Public Authorities & Lighting	53,626	52,688	(938)	-1.7%
<b>Total Retail</b>	<b>8,639,039</b>	<b>8,333,736</b>	<b>(305,303)</b>	<b>-3.5%</b>
Municipals	604,042	535,603	(68,439)	-11.3%
SWLP	944,901	915,965	(28,936)	-3.1%
<b>Total Retail and Wholesale</b>	<b>10,187,982</b>	<b>9,785,305</b>	<b>(402,677)</b>	<b>-4.0%</b>