

Staff Briefing Papers

Meeting Date November 25, 2020 Agenda Item 1*

Company All Electric Utilities Subject to Minnesota Statute §216B.1691

Docket No. E-999/PR-20-12
E-999/PR-02-1240
E-999/M-20-283

In the Matter of Commission Consideration and Determination of Compliance with Renewable Energy Standards for Year 2019
In the Matter of the Green Pricing Verification Filing Process

Issue 1. What action should the Commission take on the RES plans filed by electric utilities for compliance year 2019?

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Relevant Documents

Date

Commission, Comment Notice	March 10, 2020
Department of Commerce, Comments	March 18, 2020
Heartland Consumers Power District, Compliance Report	March 23, 2020
Dairyland Power Cooperative, Compliance Report	May 5, 2020
Southern Minnesota Municipal Power Authority, Compliance Report	May 8, 2020

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



Relevant Documents

Date

Minnkota Power Cooperative & Northern Municipal Power Agency, Compliance Report	May 13, 2020
Missouri River Energy Services, Compliance Report	May 14, 2020
Minnesota Power, Compliance Report	May 21, 2020
Central Minnesota Municipal Power Agency, Compliance Report	May 22, 2020
Basin Electric Power Cooperative, Compliance Report	May 26, 2020
Great River Energy, Compliance Report	May 29, 2020
Xcel Energy, Compliance Report	June 1, 2020
Otter Tail Power Company, Compliance Report	June 1, 2020
Minnesota Municipal Power Agency, Compliance Report	June 1, 2020
East River Electric Power Cooperative, Inc., Compliance Report	June 1, 2020
Northwestern Wisconsin Electric, Compliance Report	June 5, 2020
Department of Commerce, Comments	June 8, 2020

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ATTACHMENTS: Attachment A and Attachment A - Trade Secret

I. Statement of the Issue

What action should the Commission take on the RES plans filed by electric utilities for compliance year 2019?

II. Background

In accordance with the Commission's March 19, 2010 Order (Docket No. E-999/CI-03-869), all entities covered under Minn. Stat. §216B.1691, except Xcel Energy, must retire Renewable Energy Credits (RECs) representing 17 percent of annual retail sales for calendar year 2019. Xcel Energy is required to retire RECs representing 25 percent of annual retail sales for calendar year 2019.

In 2001, Minnesota’s Renewable Energy Objective (REO) statute, Minnesota Statute §216B.1691, was passed. Modifications have been made over the years, with significant changes in 2003¹ and 2007² and clarifications in 2010³.

The following renewable energy goals were established for the end of the year indicated:

2012	12 percent
2016	17 percent
2020	20 percent
2025	25 percent

For utilities that owned a nuclear generating facility as of January 1, 2007, their requirements are:

2012	18 percent
2016	25 percent
2020	30 percent ⁴

This year’s compliance filings include the biennial report. Beginning in 2008, the Commission established its process for receiving the biennial reports to fulfill its statutory duty to investigate compliance with the statute.⁵ The biennial reporting effort collects details related to renewable energy projects, future compliance obstacles, renewable energy mix to meet the standard, and efforts taken to protect ratepayers from undesirable economic impacts, among other details.⁶ The Commission made findings of compliance in its 2008, 2010, 2012, 2014, 2016, and 2018 biennial compliance dockets. This docket represents the Commission’s seventh biennial renewable energy compliance docket.

¹ In 2003, legislation required utilities to file reports with the Commission and that the Commission detail the standards and criteria for judging a utility’s good faith effort to meet the objective. The Commission began setting those criteria in the June 1, 2004 order, which set reporting requirements for utilities to demonstrate their efforts to comply with the statute.

² Significant modifications were made to the statute in 2007 that included the addition of a Renewable Energy Standard (RES) to accompany the already existing REO and established renewable energy goals for years 2012-2025. Changes were also made to eligible energy technologies that included a higher threshold for hydroelectric capacity of 100 MW or less and biomass generation was modified to include landfill gas and anaerobic digester systems (please see Minnesota Statute §216B.1691, Subd. 1 (a)(5)).

³ Amendments were made in 2010 that clarified the definition of total retail electric sales that barred power supplied by a federal power marketing administration or other federal agency to be regarded as RES compliance. Please see Minnesota Statute §216B.1691, Subd. 1 (c).

⁴ Minnesota Statute §216B.1691, Subd 2 a(a) and 2 a(b).

⁵ “Making findings on compliance status is the most effective way to ensure individual utility compliance and to achieve the statewide renewable energy goals set by the Legislature.” See also Order Paragraph 6 requiring biennial compliance filing from each of the 16 utilities subject to the RES. ORDER SETTING FILING REQUIREMENTS AND CLARIFYING PROCEDURES, Docket E-999/CI-03-869, Issued November 12, 2008, pages 7 and 9, respectively.

⁶ Beginning in 2012, utilities were asked to use a standard reporting format that was created by Commission staff in coordination with Department staff.

Sixteen utilities filed compliance reports between March 23 and June 5, 2020:

- Basin Electric Cooperative (Basin)
- Central Minnesota Municipal Power Agency (CMMPA)
- Dairyland Power Cooperative
- East River Electric Power Cooperative (East River)
- Great River Energy (GRE)
- Heartland Consumers Power District
- L&O Power Cooperative
- Minnesota Municipal Power Agency (MMPA)
- Minnesota Power (MP)
- Minnkota Power Cooperative
- Missouri River Energy Services
- Northern States Power d/b/a Xcel Energy (Xcel)
- Northwestern Wisconsin Electric Company
- Otter Tail Power Company (OTP)
- Southern Minnesota Energy Cooperative (SMEC)
- Southern Minnesota Municipal Power Agency (SMMPA)

On June 8, 2020, the Department of Commerce, Division of Energy Resources (Department) filed comments summarizing their review of the compliance reports and found all utilities in compliance with the 2019 RES.

III. Party Comments

A. Department of Commerce

The Department reviewed the filings and verified that utilities have complied with the RES requirement. The Department calculated that the utilities retired RECs representing 21.0 percent of total Minnesota retail sales in 2019 towards RES compliance.⁷ Below is the summary provided by the Department.⁸

⁷ Department of Commerce, Comments at 2 (June 8, 2020).

⁸ Staff notes two minor modifications: NW Wisconsin sales for 2019 are 630 MWh and the Company retired 24,790 RECS to meet its three-year average retail sales.

Summary of 2019 RES Compliance

Utility	2019 MN Retail Sales MWhs	RES Req. %	RES Req. MWhs	RECs Retired
Basin	867,479	17%	147,471	147,471
CMMPA	381,874	17%	64,919	64,919
Dairyland Power	886,370	17%	150,683	150,683
East River Electric	567,059	17%	96,400	96,494
GRE	10,550,858	17%	1,793,646	1,793,652
Heartland	234,492	17%	39,864	39,864
L&O Power Coop	300,307	17%	51,052	51,053
Minnesota Power	9,676,563	17%	1,645,016	1,645,016
Minnkota	1,590,655	17%	270,411	270,411
MMPA	1,811,695	17%	307,988	307,989
Missouri River Energy Services	1,733,073	17%	294,622	294,623
NW Wisconsin**	630	17%	107	**
Otter Tail Power	2,678,956	17%	455,423	455,423
SMEC	805,913	17%	137,005	137,010
SMMPA	2,904,495	17%	493,764	493,765
Xcel	29,161,074	25%	7,290,269	7,290,269
Total	64,150,863	21%		13,238,642

**NW Wisconsin serves approximately 98 Minnesota customers with 2018 sales of 630 MWhs.

The Company retired 24,970 RECs or 14.48% of its 3-year average Wisconsin retail sales of 171,204 MWhs.

NW Wisconsin generated 33,461 MWh of renewable energy in 2019

IV. Utilities' Biennial Reporting

The biennial reports provide details regarding a utility's renewable mix, efforts taken to meet the state's RES, new renewable energy projects, and potential barriers to meeting the RES.

Many of the sixteen utilities reported to have RES compliance several years out. Below is a summary.

Utility	RES Compliance to Year
Basin Electric Power Cooperative	2030+
Central MN Municipal Power Agency	2033
East River Electric Power Coop, Inc.	2025
Great River Energy	2055+
Heartland Consumers Power District	2044
L & O Power Cooperative	2023+
Minnesota Municipal Power Agency	2023
Minnesota Power	2053
Minnkota Power Cooperative, Inc.	2025
Missouri River Energy Services	2021
Otter Tail Power Company	2028
Southern MN Municipal Power Agency	2040
Xcel Energy	2040+

i. Renewable Mix & Efforts Taken to Meet the RES

Utilities reported a healthy energy mix with existing and planned power supply, both owned and contracted, to meet the RES. Wind and solar are the predominate sources with some hydro and a few biomass projects. One C-BED project was also noted. The companies continue to pursue and evaluate cost-effective renewable resource additions and contractual commitments in their portfolios.

Several utilities reported contractual arrangements and extensions to meet the RES. For instance, Heartland Consumers Power District agreed to a ten-year extension of their 51 MW PPA (Power Purchase Agreements) that was set to expire in 2029. MMPA has two PPAs that total 85.25 MW in addition to nearly 46 MW of wind resources and an 8 MW biomass project that will help MMPA maintain compliance beyond 2020. L&O Power Cooperative is able to meet the MN RES for many years due to securing long term power supply contracts that include wind resources as an integral part of its power supply program.

Xcel noted their large 2016 wind portfolio, which includes a mixture of Self-Build, Build-Own-Transfers (BOT), and PPAs and are all expected to achieve commercial operations prior to 2021 to qualify for the Production Tax Credit (PTC). These resources along with others allows Xcel to meet and exceed its obligations under the MN RES. Likewise, Basin Electric Power Cooperative and L&O Power Cooperative acquired wind energy resources as an integral part of their power supply programs, which are projected to adequately satisfy the requirements of the Minnesota RES.

MRES has wind energy resources and a small solar project that are adequate to satisfy the requirements through 2021. MRES' small hydro project (Red Rock) located in Pella, Iowa will be operational in late 2020, which, added with existing resources, will enable MRES to meet the RES in future years.

Currently, Otter Tail Power's energy mix includes 16% of renewable generation. With the addition of the 150 MW Merricourt project this year, the Company expects their renewable portion will increase to approximately 30%.

Great River Energy noted that it met the 25% MN RES in 2017, eight years early and is committed to the corporate goal for its all-requirements members of 30% in 2020, 40% in 2025 and 50% in 2030. Great River Energy has 900 MW of additional wind purchases under development and currently owns 258-kWac solar and 657 MW of wind and small-head hydro PPAs.

Between 2006 to 2019, in addition to obtaining PPAs, MP constructed over 600 MW of wind facilities to increase its Minnesota-eligible renewable energy supply. In 2019, the renewable portion of MP's retail energy supply is approximately 25% of its projected 2025 retail and wholesale electric sales. With the addition of the Nobles 2 Wind Project and Oliver 1&2 Repower Project in 2020, the renewable portion of MP's retail energy supply increases to 50% of its projected 2025 retail and wholesale electric sales. Given all of this, the Company is well positioned to comply with the standard for 2025 and beyond. For more details, MP included an extensive summary of their renewable projects in their filing.

Other utilities reported efforts to request renewable energy proposals to diversify their resource mixes. For example, East River Electric Power Cooperative and its power suppliers continue to pursue opportunities to add wind, solar, waste heat recovery, and other renewable energy projects and Central Minnesota Municipal Power Agency (CMMPA) brings competitive offers to their members for consideration that often include renewable energy.

ii. Obstacles to Meet the RES

Due to sufficient owned or contracted renewable resources, most utilities reported no obstacles to meet Minnesota's RES.

Of the few reported obstacles, transmission deliverability and costs were touched on by a few utilities.⁹ Transmission congestion and generation interconnection queue study delays create economic viability concerns and project uncertainty.¹⁰ Increasing costs of MISO and affected systems network transmission upgrades have been proven obstacles, which has reduced renewable energy projects in some instances.

Otter Tail Power raised their concern of the small solar portion of the solar energy standard, otherwise not having any anticipated obstacles to meet the RES. Similarly, Xcel noted that although the RES rate and overall renewable requirement has significantly increased over the past several years for the Company, it has been able to take advantage of cost-effective renewable resource additions to meet and exceed compliance obligations.

⁹ Please see the compliance reports for CMMPA, SMMPA, GRE, and MP.

¹⁰ Great River Energy Compliance Report Tab 5 (May 29, 2020).

East River Electric Power Cooperative shared that renewable energy policy and regulatory decisions related to renewable energy could artificially create cost shifts among consumers if renewable energy projects are not required to pay their fair share of utility infrastructure including generation, transmission, and distribution costs. If this is permitted, then other consumers will unfairly pay higher rates, which is detrimental to all impacted consumers, but especially elderly and lower-income groups that have difficulty absorbing any added costs.

MP highlighted a few obstacles, broken down by resource, in their compliance filing: While MP continues to evaluate innovative hydro generation development options and determine feasibility for such projects, the Company noted that “hydro development is realistically limited to expansions at existing impoundments due to anticipated resistance to the construction of new dams. There is obtainable and expandable hydro in the Province of Manitoba, but current Minnesota law does not allow renewable generation from hydro units of 100 MW or larger to apply towards Minnesota’s RES.”¹¹

Competitively priced biomass generation is of interest to MP but finding a sufficient and reasonably priced fuel supply to support large-scale capital is a chief consideration, along with balanced forestry practices with biodiversity, healthy fiber and logging industries, and forest and mill byproducts that are inexpensive. For now, MP intends to focus on existing MP-owned sites and customer sites to leverage existing infrastructure to minimize capital expenditures and assure projects that are competitively priced with other renewable generation alternatives.

MP reported that technological improvements and improved resource assessments have allowed the Company to expand their wind portfolio and continue to evaluate wind as a resource in the future. However, there are concerns regarding adequate transmission and reasonable interconnection costs which create challenges for additional wind development. MP has overcome these challenges by executing unique solutions that minimize interconnection costs for new wind projects. For example, MP’s customers benefit from transmission access to North Dakota wind resources through the purchase of the existing DC Line that runs between the Square Butte substation near Center, North Dakota and MP’s Arrowhead substation near Duluth. MP is always exploring opportunities for wind projects that minimize the cost impact from obstacles such as high interconnection costs.

iii. Solutions

Solutions to some of the obstacles included transmission projects, which have and will continue to benefit renewable energy projects. One utility advocates for transmission infrastructure expansion under equitable cost allocation guidelines. PURPA reform was also among the solutions shared regarding cost share of renewable energy projects.

iv. New Facilities

The biennial report has utilities list projects that will become operational in the next year. Please see the summary table below for new facilities that are expected in 2020.

¹¹ MP Compliance Report Tab 5 (May 21, 2020).

Utility	Facility Name	Type	Capacity (MW)	Cap. Factor (%)	Expected Comm'l Operation Date
Basin Electric	Burke Wind Project	Wind	200	48%	December 2020
	Prevailing Winds Wind Project	Wind	200	48%	December 2020
Dairyland Power Cooperative	Tanaka Wind Farm	Wind	52		2020
Great River Energy	Emmons Logan	Wind	200	48%	January 1, 2020
Minnesota Power	Nobles 2	Wind	250		December 31, 2020
Missouri River Energy Services	Red Rock Hydro Plant	Hydro	36.5	55.7%	October 2020
Otter Tail Power Company	Merricourt	Wind	150	50%	Fall 2020
Xcel Energy	Crowned Ridge Wind, LLC	Wind	200	Trade Secret	January 10, 2020
Xcel Energy	Blazing Star I	Wind	200	Trade Secret	March 31, 2020
Xcel Energy	Crowned Ridge Wind II, LLC	Wind	200	Trade Secret	November 1, 2020
Xcel Energy	Blazing Star II	Wind	200	Trade Secret	December 31, 2020
Xcel Energy	Dakota Range	Wind	200	Trade Secret	December 31, 2020
Xcel Energy	Dakota Range III	Wind	151	Trade Secret	December 31, 2020
Xcel Energy	Freeborn Wind	Wind	200	Trade Secret	December 31, 2020

v. Efforts Taken to Protect Ratepayers

The most common effort reported to protect ratepayers against undesirable economic impacts was evaluating renewable energy projects and contracts to determine cost-effective purchases and investments.¹² Signing long-term contracts that control costs and keep rates as low as practicable and that maximize federal tax incentives was also echoed in few reports.¹³ A theme found in the reports is the utilities' commitment in pursuing renewable energy as part of a balanced portfolio to supply customers and communities with reliable and cost-effective energy.

Two utilities mentioned transmission. SMMPA noted their significant investment in CapX¹⁴ and other transmission projects to improve transmission congestion. Great River Energy reported

¹² Basin, GRE, MP, MRES, Otter Tail, and Xcel.

¹³ Dairyland, GRE, Minnkota, and MMPA.

¹⁴ CapX2020 was an effort to ensure the electricity reliability of Minnesota and the surrounding region for the future. It started as an effort by the state's largest transmission owners -- including cooperatives, municipals and investor-owned utilities -- to assess the system and projected growth in customer demand for electricity through 2020.

they secure firm transmission service, when economic, to help offset transmission congestion impacts.

Minnkota secured long-term wind contracts to meet the RES that created a surplus in the near term with generation being greater than its member load for parts of the year.¹⁵ In response, Minnkota negotiated long-term sales contracts with several regional utilities to sell a portion of its surplus power at higher than short-term market rates, which mitigated some of the undesirable economic impacts on the Minnkota/Northern joint system rate payers.¹⁶ Similarly, SMMPA offers output from their renewable projects into the MISO market in an effort to maximize profits and minimize losses.¹⁷

MMPA noted that it finances its owned generation using tax free municipal bonds and, on a long-term basis, that locks in low interest rates for a period of 20 years or more, which is valuable in controlling costs and minimizing volatility.¹⁸

MP remarked on the significant steps taken since 2005 to develop and implement its renewable plan that incorporates substantial cost-effective wind energy.¹⁹ Now, with a significant amount of wind energy in its mix, MP is continually evaluating other renewable energy resources such as biomass, solar, and battery storage.²⁰

Finally, East River and its members, along with their statewide association (Minnesota Rural Electric Association) and regional/national groups, invest substantial resources to encourage positive political, regulatory, and business outcomes, including PURPA reform. Their goal is to support business practices and state and federal policies that protect against undesirable impacts on ratepayers. Their chief concern being cost shifts created when renewable energy projects do not pay their fair share of utility infrastructure.

vi. Additional Comments

In their filing, Xcel provided their annual and voluntary Certified Renewable Percentage (CRP) and addressed two concerns the Commission brought forward last year. The first was the CRP's relationship to the RES and to ensure that RECs were not being double counted. Xcel clarified the methodology where that would not be the case on page three of their cover letter:

As described in the CRP methodology (Attachment B), the CRP includes RECs retired for RES compliance, but this does not represent double-counting. RECs retired for RES compliance represent electricity that was delivered to all retail

¹⁵ Minnkota Compliance Report Tab 5 (May 13, 2020).

¹⁶ Minnkota Compliance Report Tab 5 (May 13, 2020).

¹⁷ SMMPA Compliance Report Tab 5 (May 8, 2020).

¹⁸ MMPA Compliance Report Tab 5 (June 1, 2020).

¹⁹ MMPA Compliance Report Tab 5 (June 1, 2020).

²⁰ MP Compliance Report Tab 5 (May 21, 2020).

customers, which is what the CRP seeks to clarify. To the extent that an amount of renewable energy greater than the RES is delivered to customers, additional RECs will be retired in accordance with the CRP methodology.

The CRP represents RECs retired for RES compliance plus any additional RECs retired on behalf of all retail customers. Each year, the Company will calculate the CRP for the preceding year, after all program participation, REC sales, REC retirements for the RES, trade margin sales, and all other data points that affect the CRP are available. After the annual CRP is calculated, the Company will then retire the additional RECs to match the amount of renewable energy delivered to customers.

The second item related to how the CRP incorporated electricity purchased within MISO and whether the amount of renewable energy in the market is accounted for in CRP calculations. For this, Xcel stated:

When the Company buys or sells energy in the MISO market, those transactions do not include RECs, regardless of whether the energy comes from a renewable generator. Therefore, when the Company buys energy in the wholesale market that was generated by a renewable resource, we are unable to account for its renewable attributes. On the other hand, when the Company sells energy that was generated by a renewable resource, we retain the RECs associated with the energy.

The numerator of the CRP is based on all RECs issued to or transferred to the Company with a vintage of the calendar year of the calculation. To account for the Company's interaction with the market, we make a "trade margin adjustment" to the numerator on a "slice of the system" basis to roughly estimate the portion of RECs held by the Company that should be attributed to the Company's interaction with wholesale market through trade margin sales. More information on trade margin sales and the CRP can be located in Attachment B, Section 4.

In addition, detailed methodology for the CRP is provided in Attachment B, as well as further details on REC retirements for the 2018 CRP and preliminary data on the 2019 CRP.

Using data from 2018, the 2019 estimated CRP is 26%. Xcel noted that any calculation and associated REC retirements will be subject to third party verification, with their final confirmation in the coming months. Staff notes this year's CRP is slightly lower from the 2018 CRP, which was 26.6%.

Table 5
Preliminary 2019 CRP Calculations

[values in MWh unless otherwise noted]	2019
MN Retail Sales (A)	29,161,074
RECs Allocated to MN in 2019	
Total MN Renewable Generation (including Solar*Rewards) (B)	9,669,997
MN Solar*Rewards RECs/Generation (C)	37,288
Adjustments	
Trade Margin Adjustment (D)	1,797,749
Wholesale REC transfers (E)	
REC Sales (F)	
Purchased RECs (for Windsource) (G)	86,756
REC Retirements and Attribution	
RES Obligation %	25.0%
SES Obligation %	
RECs retired for RES/SES compliance	7,290,269
Renewable*Connect RECs/generation and sales (H)	183,055
Total Windsource sales (includes purchased RECs and system RECs) (I)	326,796
Outputs	
CRP Numerator = (B-D) – (H+I+E+F) + G	7,449,153
CRP Denominator = A – (H+I) + C	28,688,511
Certified Renewable Percentage	26.0%
Additional RECs to be retired for CRP	158,884

The Company's methodology remains the same from last year, with the formula included below.²¹ Xcel also provided an example of how the CRP complements various levels of participation in voluntary renewable programs (i.e. Windsource or Renewable*Connect) on pages five to seven of their narrative.

Certified Renewable Percentage (Minnesota) =

$$\frac{\text{Total RE generation attributable to MN (MWh)} - \text{Trade margin adjustment} - (\text{REC sales} + \text{Windsource}^{\circledR} \text{ RECs} + \text{Renewable*Connect RECs} + \text{Wholesale REC transfers}) + \text{Purchased RECs}}{\text{Total MN retail sales (MWh)} - (\text{Windsource}^{\circledR} \text{ sales} + \text{Renewable*Connect sales}) + (\text{Solar*Rewards generation})}$$

V. Staff Analysis

Utilities expressed their path and obstacles to RES compliance. In the near term, utilities reported they will meet the increase in REC retirements coming in 2020 (20% and 30% for Xcel).

²¹ Xcel Energy REPORT--GREEN PRICING at Attachment B, page 1 (June 1, 2020).

The utilities have demonstrated that their effective planning and resource evaluation are instrumental to meeting the RES goals.

Almost 13.72 million RECs were retired for 2019 RES compliance. When comparing REC retirements from 2018, staff notes there fewer – 439,005 – due to a decline in MWhs of retail sales.²²

Fourteen new renewable projects with more than 2200 MW will be added to the grid in 2020, creating a more diversified power supply.

Staff appreciates the efforts of the utilities in providing the detailed reports.

Regarding Xcel's CRP, staff notes this is a voluntary and informational tool provided to its customers and nothing is required by the Commission.

VI. Decision Options

- I. Compliance with the 2019 Renewable Energy Standard*
 - A. Find that the utilities enumerated above and subject to Minnesota Statute §216B.1691 have complied with the 2019 renewable energy standard of 17% percent of annual retail sales (25% for Xcel) OR
 - B. Make some other finding.

²² 2018 RECs retired: 13,677,647 (66,130,393 MWhs Retail Sales) vs 2019 RECs retired: 13,328,642 (64,150,863 MWhs Retail Sales).

ATTACHMENT A: REC PRICES
Docket Nos. E-999/PR-20-12, E-999/PR-02-1240, E-999/M-20-283

PUBLIC VERSION - REC Prices Reported in Biennial Reports - PUBLIC VERSION		
Utility	REC Sales or Purchases	Price
Basin Electric Power Cooperative	None	
Central Minnesota Municipal Power Agency	None	
Dairyland Power Cooperative	2019 Sales: 27,500	\$0.40/REC
	2019 Purchases: 6,455	\$0.50/REC
East River Electric Power Cooperative	2019 Purchases and Sales: 3,376	3,376 @ \$0.55/REC
Great River Energy	Sales: 47,500	TRADE SECRET DATA HAS BEEN OMITTED
	Purchases: 247,231	
Heartland Consumers Power District	2018 Sales: 50,000	\$0.83/REC
	2019 Sales: 43,827	\$0.82/REC
L & O Power Cooperative	None	
Minnesota Municipal Power Agency	TRADE SECRET DATA HAS BEEN OMITTED	TRADE SECRET DATA HAS BEEN OMITTED
Minnesota Power	None	
Minnkota Power Cooperative, Inc.	2018 Sales: 2,085,000	100,000 @ \$ 0.65/REC
		35,000 @ \$ 1.65/REC
		35,000 @ \$ 1.75/REC
		75,000 @ \$ 1.25/REC
		30,000 @ \$ 1.30/REC
		250,000 @ \$ 1.00/REC
		445,000 @ \$.90/REC
	2019 Sales: 1,490,000	100,000 @ \$.80/REC
		115,000 @ \$.95/REC
		700,000 @ \$.85/REC
		200,000 @ \$.73/REC
		150,000 @ \$.60/REC
		200,000 @ \$.66/REC
		550,000 @ \$.70/REC
200,000 @ \$.69/REC		
250,000 @ \$.74/REC		
100,000 @ \$.73/REC		
Missouri River Energy Services	None	
Northwestern Wisconsin Electric Company	None	
Otter Tail Power Company	Purchases: 51,309	3,112 @ \$7.25/REC
		48,197 @ \$1.63/REC
Southern Minnesota Municipal Power Agency	None	
Xcel Energy dba Northern States Power	Sales: 523,899	1,713 @ \$0.86/REC
		113,290 @ \$30.00/REC
		2,030 @ \$0.03/REC
		60,778 @ \$0.20/REC
		335,153 @ \$0.10/REC
	Purchases: 260,260	10,935 @ \$0.15/REC
		7,500 @ \$0.80/REC
		48,000 @ \$0.75/REC
		38,760 @ \$0.72/REC
		166,000 @ \$0.74/REC