

June 1, 2022

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

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**  
Docket No. ET9/RP-21-782

Dear Mr. Seuffert:

Attached are the comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

Southern Minnesota Municipal Power Agency's Submittal of its 2022-2036 Integrated Resource Plan

The Petition was filed on November 30, 2021 by:

Mark S. Mitchell  
Director of Operations and COO  
Southern Minnesota Municipal Power Agency  
500 First Avenue SW  
Rochester, MN 55902-3303

The Department recommends that the Minnesota Public Utilities Commission (Commission) **accept Southern Minnesota Municipal Power Agency's 2022-2036 Integrated Resources Plan** and is available to answer any questions the Minnesota Public Utilities Commission may have.

Sincerely,

/s/ CHRISTOPHER WATKINS  
Public Utilities Rates Analyst

/s/ CHRISTOPHER T. DAVIS  
Analyst Coordinator

CW/CTD/ja  
Attachment



## Before the Minnesota Public Utilities Commission

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### Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. ET9/RP-21-782

#### I. INTRODUCTION

##### A. OVERVIEW OF THE FILING

Minnesota Rules parts 7843.0100-7843.0600 require electric utilities to file proposed integrated resource plans (IRPs) every two years. The present filing is Southern Minnesota Municipal Power Association's (SMMPA or the Agency) ninth resource plan and covers the period of 2022 through 2036.

##### B. SMMPA BACKGROUND

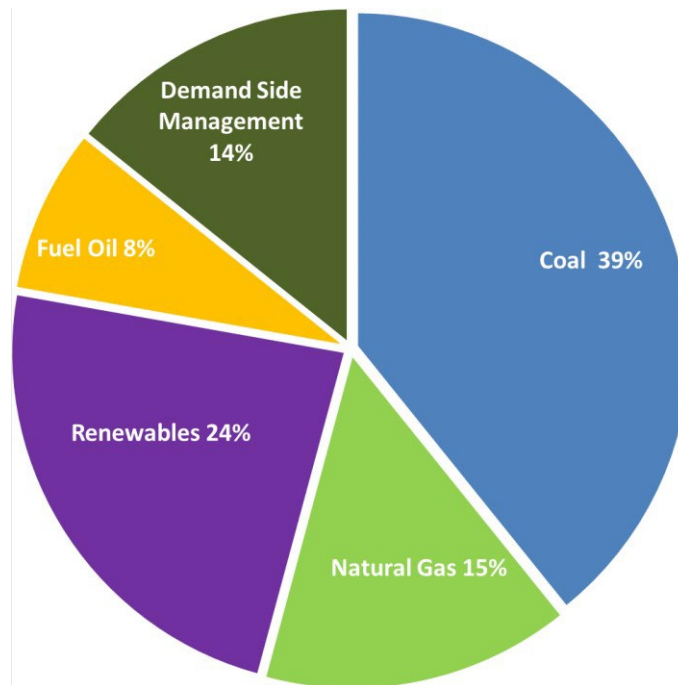
Southern Minnesota Municipal Power Agency is a collectively owned electric generation and transmission joint action agency established under Chapter 453 of Minnesota Statutes.<sup>1</sup> SMMPA has 18 members and its main source of electricity is its 41 percent share of the 884-megawatt (MW) Sherco 3 coal generating unit located near Becker, Minnesota.

Figure 1 below shows SMMPA's 2020 resource capacity mix and Figure 2 illustrates SMMPA's 2020 energy mix.

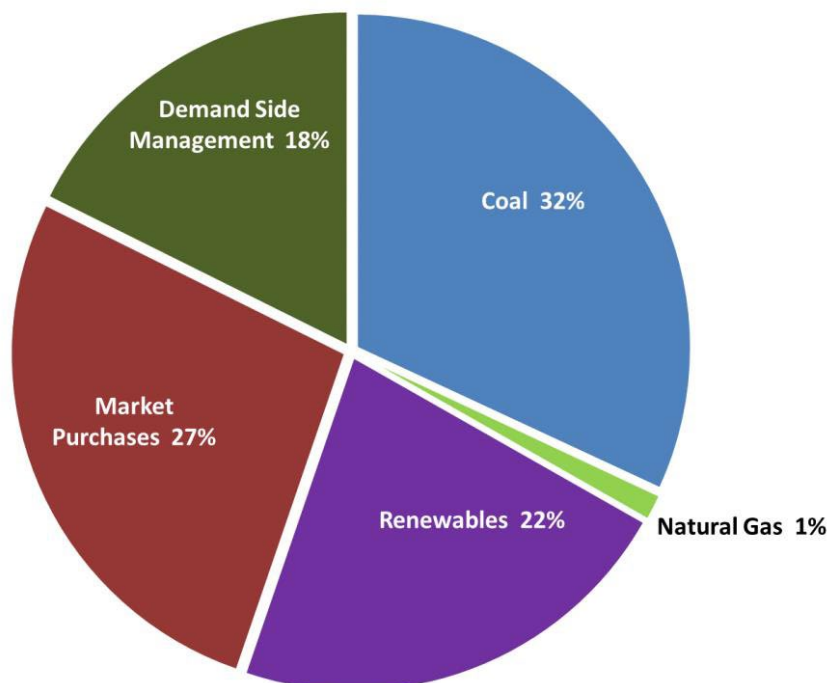
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<sup>1</sup> Other joint action agencies in Minnesota include Central Minnesota Power Agency/Services, Minnesota Municipal Power Agency, Missouri River Energy Services, and Northern Minnesota Municipal Power Agency. Services provided by SMMPA, and other joint action agencies, are equivalent to services provided to distribution cooperatives by generation and transmission cooperatives such as Great River Energy.

**Figure 1: SMMPA's 2020 Resource Capacity Mix**



**Figure 2: SMMPA's 2020 Energy Mix**



However, in February 2020, SMMPA announced a strategic initiative, referred to as SMMPA 2.0 to retire its share of the Sherco 3 coal unit (approximately 360 MW) in 2030 and to add substantial amounts of wind and solar generation to its fleet with the goal of a 90 percent reduction in carbon emissions in 2030 compared to 2005 levels and a generation mix that is 80 percent carbon free going forward.

Sixteen of the Agency's eighteen members have contracts that extend to 2050. Two of the Agency's members, the cities of Austin and Rochester, which represent over fifty percent of the Agency's resource requirements, currently have contracts that terminate on March 31, 2030. After that date, SMMPA has no obligation to provide capacity and energy to those two members. The change in resource requirements will reduce SMMPA's projected peak demand from approximately 610 MW in 2018 to approximately 250 MW in 2032. The change also means the Agency will only need to replace a fraction of its share of Sherco 3 generation when the unit is retired.

#### *C. PROJECTED RESOURCE NEEDS*

Table 1 below shows SMMPA's Projected Resource Needs before any new resources are added. Note that SMMPA's demand requirements include approximately two percent surplus above the MISO requirement due to the uncertainties in the process used by MISO to calculate the future reserve requirements.

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**Table 1: SMMPA's Capacity Position Prior to Procuring New Resources**

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Total Existing Resources (MW)	603	603	603	602	602	602	602	588	586	246	246	245	245	245	245	242	242
Base Load Forecast (MW)	617	618	619	620	621	622	621	622	475	307	307	308	308	308	307	308	308
Long /(Short) (MW)	(14)	(15)	(16)	(18)	(19)	(19)	(19)	(34)	111	(62)	(61)	(63)	(63)	(63)	(62)	(65)	(65)

As seen in Table 1 above, during the planning period the Agency would be capacity short by 14 to 65 MW for every year except 2030.

*D. SMMPA'S PLANNING PROCESS*

*1. Key Assumptions of the Planning Process*

SMMPA uses a capacity expansion model called AURORAxmp Electric Market Model (Aurora). On page 2-2 of its IRP SMMPA listed the following key assumptions that the Agency used in its AURORA model.

- a. Retirement of Sherburne County Unit 3 (Sherco 3), the coal fired generator that SMMPA co-owns with Xcel Energy, at the end of 2030<sup>2</sup>.
- b. Expiration of the Agency's 100.5 MW power purchase agreement (PPA) with the Wapsipinicon wind farm in 2029.
- c. Retirement of the six wind turbines owned by the Agency in 2025 (8.6 MW).
- d. Expiration of the contract for output from the Olmsted County Waste to Energy Facility in 2030.
- e. Retirement of the 1.6 MW Mora landfill gas generator in 2032.
- f. Continuation of the contracts SMMPA has with its members for use of member-owned natural gas, diesel, and dual fuel generating units.
- g. A capacity reserve margin of 9.4 percent based on current MISO requirements.
- h. The study period includes the 15 years from 2022 through 2036. The AURORA optimization analysis evaluates options through 2050 to account for end-effects.
- i. Total present-worth costs are expressed in 2021 dollars and are calculated by discounting annual costs with SMMPA's cost of money.
- j. Projected future demand and energy forecasts were developed by nFront Consulting, LLC (nFront Consulting).
- k. As required by Minnesota Statute 216B.2422 Subd.3, the model includes the cost of environmental externalities issued by the Minnesota Public Utility Commission on June 16, 2017, when optimizing future resource options.
- l. The model uses the Agency's peak demand for determining resource requirements, not its demand coincident with the MISO peak.
- m. The model reflects the expiration of the power sales contracts of Rochester Public Utilities and Austin Utilities with the Agency on March 31, 2030.
- n. The MISO UCAP rating (Unforced Capacity, or generation capacity after considering forced outage rate) for each generator for the 2020/2021 planning year was used.

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<sup>2</sup> Note this is a base assumption, but the model was also given the option to keep or retire the unit and it chose to retire Sherco 3 in 2030.

## *2. Planning Process*

SMMPA used the following approach for its 2022-2036 IRP planning process:

- a. Contracted with nFront Consulting, LLC to work with the Agency and its members to forecast SMMPA's energy and demand for years 2022 to 2036.
- b. Evaluated its current resource capabilities including thermal, renewable, purchased power agreements, and DSM and subtracted member curtailments to determine future resource needs.
- c. Determined resource needs based on parts a and b.
- d. Assumed that SMMPA would achieve energy savings of at least 1.5 percent of retail sales throughout the planning period.
- e. Used Aurora to evaluate seven different base case alternatives representing percentages of carbon-free energy penetration ranging from 36 percent to 92 percent. To analyze these alternatives, SMMPA allowed the AURORA model to choose between the following supply-side resource options:
  - Short-term market capacity purchases in 5 MW increments
  - 2 MW quick-start diesel generators
  - 25 MW aggregated installation of small quick-start diesel generators
  - 25 MW aggregated installation of high efficiency spark-fired natural gas reciprocating engines
  - 25 MW increments of new solar installations
  - 25 MW increments of new wind installations
  - 50 MW battery installation in lieu of conventional generation
- f. Conducted sensitivity analyses of the seven alternative base cases., including evaluating:
  - Load forecast – base, low, high
  - Externality costs – low, high
  - Locational marginal prices (LMP) – base, low, high
  - Natural gas prices – base, low, high
  - No future demand-side management (DSM)
  - No renewable resources
  - No future renewable resources
  - Sudden loss of a generating resource
  - Sudden large load addition

## *3. Preferred Plan*

Based on SMMPA's AURORA analysis, the lowest cost scenario (Optimal Model case--P1) consisted of a generation portfolio that is 75 percent carbon-free by adding 12 MW of diesel engines prior to 2030

and 275 MW of new solar after Sherco 3 retires in 2030. However, SMMPA's preferred plan would replace 50 MW of new solar generation with 50 MW of new wind generation. Since wind generation operates at a higher capacity factor than solar, using 50 MW of new wind generation increases the portfolio's carbon-free percentage from 75 percent to 81 percent and results in an overall renewable resource mix of 60% solar and 40% wind.

Table 2 below shows SMMPA capacity position after resources are added.

**Table 2: SMMPA's Capacity Position After Implementing its Long-Term Action Plan**

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Year	Total Existing Resources (MW)	Base Load Forecast (MW)	Long / (Short) (MW)	Short Term Capacity Purchases (MW)	New Fossil Fuel (MW)	New Wind (MW)	New Solar (MW)	Long/(Short) (MW)
2022	603	617	(14)	15	0	0	0	1
2023	603	618	(15)	20	0	0	0	5
2024	603	619	(16)	15	3	0	0	3
2025	602	620	(18)	15	5	0	0	2
2026	602	621	(19)	15	5	0	0	1
2027	602	622	(19)	15	5	0	0	1
2028	602	621	(19)	15	5	0	0	1
2029	588	622	(34)	25	10	0	0	1
2030	586	475	111	0	10	0	0	121
2031	246	307	(62)	0	10	10	45	3
2032	246	307	(61)	0	10	10	45	4
2033	245	308	(63)	0	10	10	45	2
2034	245	308	(63)	0	10	10	45	2
2035	245	308	(63)	0	10	10	45	2
2036	245	307	(62)	0	10	10	45	3
2037	242	308	(65)	0	10	10	45	(0)
2038	242	308	(65)	0	10	10	45	(0)

In Table 2, Column C shows the Agency's position prior to adding any new resources. Column D shows that prior to 2030, SMMPA is planning to make short-term capacity purchase of 10 to 25 MW. Column E shows the new diesel generator SMMPA plans to acquire. Columns F and G show the amount of peak capacity provided through the Agency's planned new solar and wind procurements. Column H shows SMMPA's capacity position after SMMPA implements its action plan over the planning period.



## II. DEPARTMENT ANALYSIS

In its analysis, the Department reviewed:

- a. SMMPA's forecast,
- b. SMMPA's historical DSM achievements,
- c. Whether SMMPA's proposed plan would provide a reliable system,
- d. SMMPA's compliance with the Renewable Energy Standard,
- e. SMMPA's progress in meeting Minnesota's greenhouse gas reduction goal.

### A. ASSESSMENT OF ENERGY AND DEMAND FORECAST

#### 1. Forecast Approach

SMMPA forecasted its energy requirements for 2022-2036 in several steps.

- a. The annual retail load served across the members is forecasted by combining econometric forecasts, residential customer counts and average energy use and adding the resulting estimate of residential sales to similar forecasts of total retail sales to commercial and industrial customers and other customers, such as lighting classes and government facilities.
- b. The forecasts of total retail sales by class are adjusted upward for the historical impact of DSM-Conservation programs on the growth rates projected by the econometric models.
- c. After adjusting for distribution losses, the resulting total represents the total delivered energy requirements across all of SMMPA's members.
- d. Total delivered energy requirements are then allocated to the members based on a separate econometric forecast of total delivered energy requirements for each member (SMMPA refers to these as the "Ratio Forecasts").
- e. The contribution of each member's load to SMMPA's peak demand (i.e., coincident peak, from the member's perspective) is forecasted based on an econometric forecast of load factor, combined with the forecasted member energy requirements. In the load forecast and this IRP, the use of the terms coincident peak, coincident peak demand or CP demand refer to SMMPA's peak load, which is the coincident peak demand of SMMPA's 18 members<sup>3</sup>.

To understand what resources SMMPA will need in the coming years, SMMPA netted from the total energy requirements resources such as conservation measures, direct load control, interruptible load, the Western Area Power Administration (WAPA) capacity and energy allocations, and generation resources located behind the wholesale meter. In addition, two SMMPA members, Austin Utilities (Austin) and Rochester Public Utilities (Rochester), operate under a partial requirements arrangement with SMMPA whereby Austin agreed to a Contract Rate of Delivery (CROD) of 70 MW and Rochester

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<sup>3</sup> These terms do not refer to SMMPA's peak load coincident with the MISO total system peak load.

agreed to a CROD of 216MW. Under a CROD agreement, SMMPA serves load only up to the CROD value, with the local utility covering any excess demand. To develop a more accurate forecast, SMMPA removed any load growth for these members above the CROD. Further, Austin and Rochester have contracts that terminate on March 31, 2030. After that date, SMMPA has no obligation to provide capacity and energy to those two members and these contract terms are reflected in the forecast.

## 2. Forecasts

Table 3 below shows SMMPA's Base Case Energy and Peak Demand, with the last columns projecting the forecast net of projected DSM.

**Table 3: SMMPA Base Case Net IMS<sup>4</sup> Energy and Peak Demand**

	Energy (MWh)	Peak Demand (MW)
2022	2,955,507	554
2023	2,970,290	555
2024	2,989,650	555
2025	2,997,109	556
2026	3,010,189	557
2027	3,022,983	558
2028	3,041,607	557
2029	3,047,530	558
2030	1,813,973	276
2031	1,442,914	276
2032	1,446,594	275
2033	1,445,317	276
2034	1,446,190	276
2035	1,446,887	276
2036	1,449,664	276
2037	1,447,504	276
Compound Avg. Growth Rates:		
2022-2029	0.40%	0.1%
2022-2036	-5.00%	-4.9%

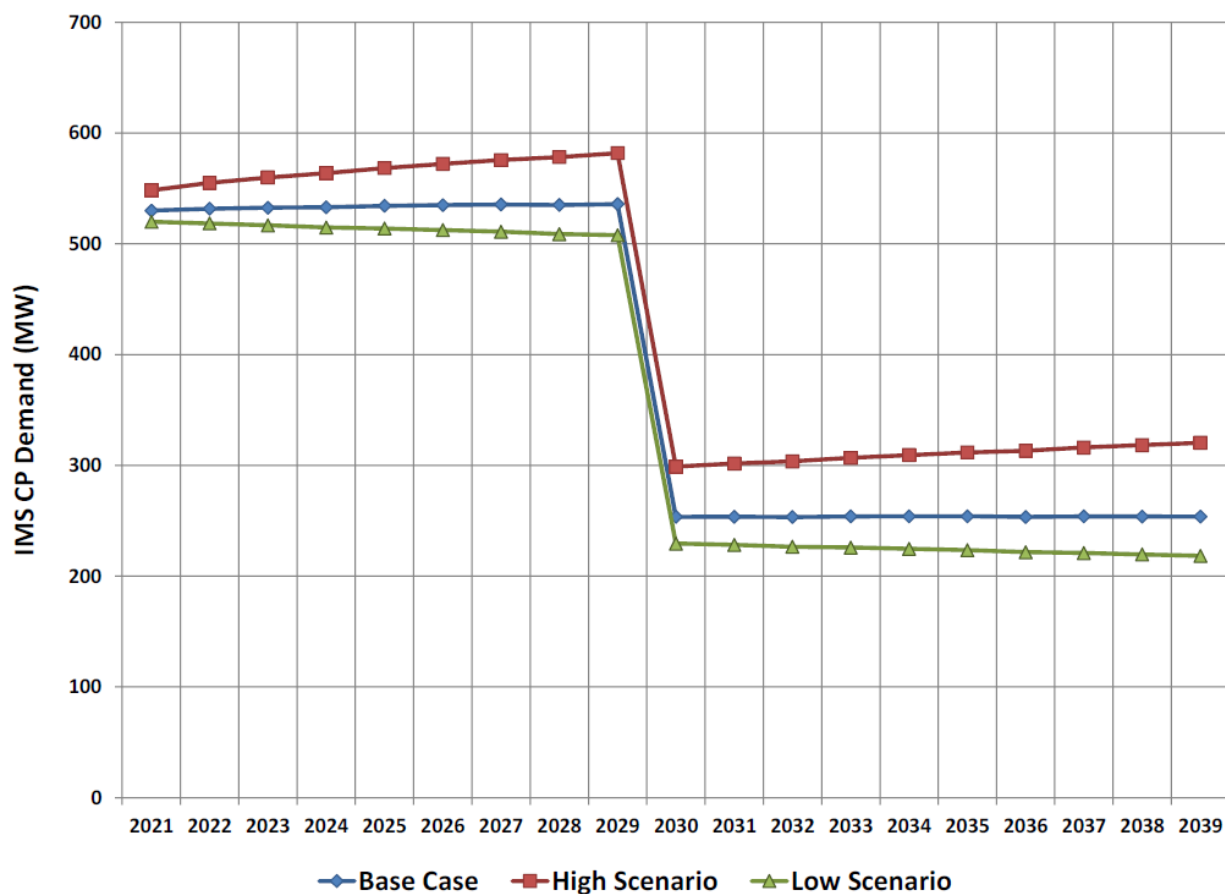
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<sup>4</sup> Inlet to Member System. IMS is the energy delivered to SMMPA's member communities and does not include the Agency's transmission line losses.

As seen in Table 3 above, SMMPA projects that from 2022-2029 (while Rochester and Austin are still members) SMMPA's compound average growth rate (CAGR)<sup>5</sup> for energy will be 0.4 percent while the CAGR for demand will be 0.1%. SMMPA's 2022-2036 CAGR for energy is projected to be approximately 5 percent for both energy and demand.

Figure 3 below shows SMMPA's Low, Base and High Economic IMS Peak Demand Forecasts

**Figure 3: SMMPA's Low, Base and High IMS Peak Demand Forecasts**



<sup>5</sup> The compounded annual growth rate (CAGR) is a way to calculate and determine returns for anything that can rise or fall in value over time.

### *3. Department Analysis*

Given the Department's resource constraints, we did not conduct a formal review of the Agency's forecast. However, the Department believes that the Agency's range of forecasts cover any issues that the Department would have discovered in SMMPA's forecast. Therefore, the Department concludes that SMMPA's forecast is reasonable for planning purposes.

### *4. Department Recommendation*

The Department recommends that the Commission accept SMMPA's energy and demand forecast for this IRP.

## *C. ASSESSMENT OF HISTORICAL DEMAND SIDE MANAGEMENT ACHIEVEMENTS*

### *1. Introduction*

Minnesota's Conservation Improvement Program (CIP) statutes (Minn. Stat. §216B.241) were changed in 2007 to require utilities to meet an energy-savings goal equal to 1.5 percent of a utility's retail sales.

The CIP statutes were again changed in 2021 upon the passage of the Energy Conservation and Optimization Act (ECO Act) to reflect the legislature's finding that "optimizing the timing and method used by energy consumers to manage energy use provides significant benefits to the consumers and to the utility system as a whole" and to emphasize the potential of load management programs to meet state policy goals.<sup>6</sup> The ECO Act also increased the state's annual energy savings goal from 1.5 to 2.5 percent of annual retail energy sales of electricity and natural gas.

In addition, Minn. Stat. §216B.2403 states:

Each individual consumer-owned utility subject to this section has an annual energy-savings goal equivalent to 1.5 percent of gross annual retail energy sales, to be met with a minimum of energy savings from energy conservation improvements equivalent to at least 0.95 percent of the consumer-owned utility's gross annual retail energy sales.

In the Minnesota Public Utilities Commission's Order accepting SMMPA's 2018 – 2032 IRP, the Commission accepted energy savings of 43,655 MWh per year.

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<sup>6</sup> Minn. Stat. §216B.2401(a)

## 2. Historical Performance

The demand-side management (DSM) resource portfolio and offerings to its members provided in SMMPA's 2022 – 2036 IRP reflect the Agency's long-standing commitment to DSM and conservation programs. Since the 2007 Next Generation Energy Act SMMPA's annual energy savings as a percent of total retail sales has increased significantly, and the Agency has made investments in these programs to exceed statutory requirements and continue to offer new programs and services to its members and customers, adding 23 new energy efficiency measures to its suit of programs since the last IRP filing in 2017.<sup>7</sup> Table 4 below provides a summary of SMMPA's historical energy savings over the past ten years.

**Table 4: SMMPA's Historical DSM Energy Conservation Achievements**

Year	Annual Incremental Savings (MWh)	% CIP Savings	Annual CIP Spending	% CIP Spending	Aggregated Savings Lifetime (Years)	First-Year Cost per MWh	Lifetime Cost per MWh
2010	49,674	1.70%	\$7,576,516	3.08%	12.3	\$153	\$12.42
2011	47,969	1.64%	\$6,936,670	2.82%	11.9	\$145	\$12.11
2012	48,748	1.70%	\$7,288,381	2.67%	11.9	\$150	\$12.57
2013	58,984	2.08%	\$6,921,396	2.45%	13	\$117	\$9.03
2014	57,965	2.02%	\$7,190,963	2.55%	12.2	\$124	\$10.14
2015	43,009	1.50%	\$7,549,819	2.66%	11.6	\$176	\$15.15
2016	43,317	1.52%	\$7,684,214	2.71%	11.6	\$177	\$15.35
2017	57,501	2.02%	\$8,007,023	2.80%	11.7	\$139	\$11.86
2018	54,138	1.91%	\$8,025,409	2.74%	12.2	\$148	\$12.16
2019	56,754	2.01%	\$7,898,734	2.61%	12.2	\$139	\$11.43
2020	48,411	1.71%	\$7,054,649	2.34%	12	\$146	\$12.18

Over the period 2010 – 2020 SMMPA achieved annual CIP energy savings of 1.80% with average investments in CIP projects equaling 2.68% of gross operating revenues. The Department calculates that the averaged lifetime energy savings costs from projects implemented during this period to be 1.22 cents per kWh, remaining relatively constant with the 1.24 cents per kWh for projects implemented from 2007 to 2016 and reported in the Agency's 2017 IRP.<sup>8</sup>

<sup>7</sup> SMMPA 2021 IRP, at 5-2.

<sup>8</sup> Comments of the Minnesota Department of Commerce, Division of Energy Resources. *In the Matter of Southern Minnesota Municipal Power Agency's Submittal of Its 2018 – 2032 Integrated Resource Plan*. Docket No. ET9/RP-17-753, at 11. Accessed at <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={10026462-0000-C91C-B5C8-1854242FBB22}&documentTitle=20183-141389-01>.

### 3. *Proposed Energy Savings for 2022 – 2036*

Table 5 below shows SMMPA's Proposed Energy Savings Goals for 2022-2036.

**Table 5: SMMPA's Proposed Energy Savings Goals**

Year	Annual Incremental Savings (MWh)	% CIP Savings	Annual CIP Spending	% CIP Spending	Aggregated Savings Lifetime (Years)	First-Year Cost per MWh	Lifetime Cost per MWh
2022	42,073	1.50%	\$7,196,448	2.41%	12.1	\$171	\$14.17
2023	41,641	1.50%	\$7,268,412	2.44%	12.1	\$175	\$14.46
2024	41,641	1.50%	\$7,341,096	2.48%	12.1	\$176	\$14.61
2025	41,977	1.50%	\$7,414,507	2.52%	12.1	\$177	\$14.64
2026	42,244	1.50%	\$7,488,652	2.55%	12.1	\$177	\$14.69
2027	42,480	1.50%	\$7,563,539	2.59%	12.1	\$178	\$14.75
2028	42,707	1.50%	\$7,639,174	2.63%	12.1	\$179	\$14.82
2029	42,906	1.50%	\$7,715,566	2.67%	12.1	\$180	\$14.90
2030	25,591	1.50%	\$4,601,937	2.71%	12.1	\$180	\$14.90
2031	20,113	1.50%	\$3,616,758	2.75%	12.1	\$180	\$14.90
2032	20,158	1.50%	\$3,624,950	2.79%	12.1	\$180	\$14.90
2033	20,188	1.50%	\$3,630,285	2.83%	12.1	\$180	\$14.90
2034	20,236	1.50%	\$3,638,981	2.88%	12.1	\$180	\$14.90
2035	20,268	1.50%	\$3,644,779	2.92%	12.1	\$180	\$14.90
2036	20,297	1.50%	\$3,649,933	2.96%	12.1	\$180	\$14.90

The significant decrease in annual incremental savings and CIP spending forecasted to begin in calendar year 2030 reflects the termination of contracts with the Agency's member cities of Austin and Rochester, which combined for 24,382 MWh of energy savings and 12.2 MW of demand savings in 2020.<sup>9</sup>

To ascertain the accuracy of SMMPA's projected DSM portfolio energy savings performance as presented in its IRP the Department analyzed three years of data for calendar years 2018 – 2020, comparing the projected energy savings from the Agency's 2017 IRP against the actual energy savings for these same years as reported in the 2021 IRP. Table 6 below provides the projected and actual savings taken from SMMPA's 2017 and 2021 IRPs, and the following Table 7 shows the difference between the two for the years in question.

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<sup>9</sup> SMMPA 2021 IRP, Exhibit 3.

**Table 6: SMMPA's Proposed and Actual Energy Savings Achievements, 2018 – 2020**

Year	Proposed by SMMPA in 2017 IRP <sup>10</sup>				Actual Data Reported in 2022 IRP <sup>11</sup>			
	Annual Incremental Savings (MWh)	% CIP Savings	First-Year Cost per MWh	Lifetime Cost per MWh	Annual Incremental Savings (MWh)	% CIP Savings	First-Year Cost per MWh	Lifetime Cost per MWh
2018	44,629	1.50%	177	14.66	54,138	1.91%	\$148	\$12.16
2019	44,821	1.50%	179	14.81	56,754	2.01%	\$139	\$11.43
2020	45,393	1.51%	180	14.85	48,411	1.71%	\$146	\$12.18

**Table 7: SMMPA's Energy Savings Performance, 2018 – 2020**

Year	Achieved Savings and Costs – Proposed Savings and Costs			
	Annual Incremental Savings (MWh)	% CIP Savings	First-Year Cost per MWh	Lifetime Cost per MWh
2018	9,509	0.41%	-\$29.00	-\$2.50
2019	11,933	0.51%	-\$40.00	-\$3.38
2020	3,018	0.20%	-\$34.00	-\$2.67

As can be seen in Table 7 above SMMPA has consistently overperformed its annual incremental savings targets and has been able to do so while concurrently reducing its first-year and lifetime costs per MWh for projects and services included in its portfolio of offerings.

SMMPA stated that it recognizes that the Agency will need to find new ways to continue meeting its CIP savings goal over the 15-year planning period in a rapidly evolving energy efficiency environment with changing baselines, uncertain economic conditions, and decreased opportunities with certain technologies (such as efficient LED lighting products) that have already started showing declines in

<sup>10</sup> SMMPA 2017 IRP, Table 5-1 at 5-2. Accessed at <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={6041FF5F-0000-C71E-BB2F-EC9605E3B4EB}&documentTitle=201711-137687-01.>

<sup>11</sup> SMMPA 2021 IRP, Table 5-1 at 5-3.

incremental participation in and savings from projects with high adoption rates.<sup>12</sup> The Agency noted its intent to develop new demand-side programs and marketing strategies and recognizes the importance of increased education and outreach in delivering projected DSM savings from new technologies that may be more costly. The Department appreciates the work done by SMMPA in this regard and recommends that the Commission accept SMMPA's proposed energy savings averaging 32,301 MWh per year.

4. *SMMPA's Actual and Projected Demand Savings for 2010 – 2036*

Table 8 below shows SMMPA's annual incremental demand savings achievements for 2010-2020 and projected demand savings for 2021-2036.

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<sup>12</sup> SMMPA 2021 IRP, at 5-6.



**Table 8: SMMPA's Actual and Projected Demand Savings 2010 - 2036**

Year	Incremental DSM-Conservation Savings (MW)	Incremental Member Direct Load Control Savings (MW)	Incremental Energy Management Program Savings		Member Other Peak Shaving (MW)	Total Annual Incremental Peak Demand Savings (MW)
			SMMPA's Program (MW)	Members' Programs (MW)		
2010	14.6	23.7	0.0	9.8	NA	48.1
2011	14.5	25.2	0.0	9.9	NA	49.6
2012	14.2	32.5	0.0	9.7	NA	56.5
2013	13.8	27.9	0.0	11.3	NA	53.0
2014	13.0	13.7	0.0	4.8	3.8	35.4
2015	6.7	12.9	0.0	5.7	3.8	29.2
2016	5.9	12.4	0.0	5.2	3.8	27.3
2017	10.0	10.9	0.0	0.3	3.8	25.0
2018	7.7	12.3	0.0	7.0	3.8	30.8
2019	8.4	13.3	0.0	3.8	2.8	28.3
2020	6.6	13.3	0.0	7.8	3.8	31.5
2021	6.7	13.4	2.7	7.8	3.8	34.4
2022	6.8	13.4	2.7	7.8	3.8	34.6
2023	7.0	13.5	2.7	7.8	3.8	34.8
2024	7.2	13.6	2.7	7.8	3.8	35.1
2025	7.4	13.6	2.7	7.8	3.8	35.4
2026	7.7	13.6	2.7	7.8	3.8	35.7
2027	8.0	13.6	2.7	7.8	3.8	36.0
2028	8.3	13.6	2.7	7.8	3.8	36.3
2029	8.4	13.7	2.7	7.8	3.8	36.4
2030	3.7	8.5	2.7	3.7	3.8	22.4
2031	3.7	8.5	2.7	3.7	3.8	22.5
2032	3.7	8.5	2.7	3.7	3.8	22.5
2033	3.7	8.5	2.7	3.7	3.8	22.5
2034	3.7	8.5	2.7	3.7	3.8	22.5
2035	3.7	8.5	2.7	3.7	3.8	22.5
2036	3.7	8.5	2.7	3.7	3.8	22.5

The Department conducted a comparative analysis of the projected demand savings from SMMPA's 2017 IRP and actual demand savings as reported in the Agency's 2021 IRP for the years 2018-2020 and provides the results below in Table 9.

**Table 9: Comparing SMMPA's Actual and Projected Demand Savings 2018 – 2020**

Projected Demand Savings 2018 - 2020 from SMMPA's 2017 IRP						
Year	Incremental DSM- Conservation Savings (MW)	Incremental Member Direct Load Control Savings (MW)	Incremental Energy Management Program Savings		Member Other Peak Shaving (MW)	TOTAL Annual Incremental Peak Demand Savings (MW)
2018	10.4	10.6	6.9		3.8	31.7
2019	10.6	10.9	6.9		3.8	32.2
2020	10.7	10.9	6.9		3.8	32.3
Actual Demand Savings 2018 - 2020 from SMMPA's 2021 IRP						
Year	Incremental DSM- Conservation Savings (MW)	Incremental Member Direct Load Control Savings (MW)	Incremental Energy Management Program Savings		Member Other Peak Shaving (MW)	TOTAL Annual Incremental Peak Demand Savings (MW)
			SMMPA's Program (MW)	Members' Programs (MW)		
2018	7.7	12.3	0.0	7.0	3.8	30.8
2019	8.4	13.3	0.0	3.8	2.8	28.3
2020	6.6	13.3	0.0	7.8	3.8	31.5
Achieved Savings and Costs – Proposed Savings and Costs						
Year	Incremental DSM- Conservation Savings (MW)	Incremental Member Direct Load Control Savings (MW)	Incremental Energy Management Program Savings		Member Other Peak Shaving (MW)	TOTAL Annual Incremental Peak Demand Savings (MW)
2018	-2.7	1.7	0.1		0	-0.9
2019	-2.2	2.4	-3.1		-1	-3.9
2020	-4.1	2.4	0.9		0	-0.8

While SMMPA's incremental DSM and conservation demand savings have generally underperformed against goals the demand savings from incremental member direct load control (DLC) programs have outperformed expectations, keeping the actual total annual incremental peak demand savings on the system within 5.8% of predicted annual savings on average. In communications with the Department SMMPA explained that the larger decrease in demand savings in 2019 was the result of a single large customer on the system shutting down half of its operations at the facility, decreasing total demand and thus the available demand savings potential for that year. Except for this one-time instance the

Agency has been able to maintain its system incremental peak demand savings performance to within roughly two percent of projections in recent years, and the Department concludes SMMPA's proposed demand savings goals are reasonable.

*5. Department Recommendations*

The Department recommends that the Commission accept SMMPA's projected energy and demand savings goals from CIP investments and Agency and member direct load control programs.

*D. SMMPA'S COMPLIANCE WITH THE RENEWABLE ENERGY STANDARD*

*1. Background*

Prior to the 2007 Legislative Session, Minn. Stat. §216B.1691 required utilities to make a good faith effort to obtain 15 percent of their Minnesota retail sales from eligible energy technologies by 2015, and to obtain 0.5 percent renewable energy from biomass technologies. The 2007 Minnesota Legislature amended Minn. Stat. §216B.1691 to include a Renewable Energy Standard (RES) beginning in 2010. As amended, Minn. Stat. §216B.1691, Subd. 2 sets forth the Renewable Energy Objective in place through 2010 and requires that:

Each electric utility shall make a good faith effort to generate or procure sufficient electricity generated by an eligible energy technology to provide its retail customers or the retail customers of a distribution utility to which the electric utility provides wholesale electric service so that commencing in 2005, at least one percent of the electric utility's total retail electric sales to retail customers in Minnesota is generated by eligible energy technologies, and seven percent of the electric utility's total retail electric sales to retail customers in Minnesota by 2010 is generated by eligible energy technologies.

Minn. Stat. §216B.1691, Subd 2a established the Renewable Energy Standard utilities must meet through 2025 and specifically requires that:

Each electric utility shall generate or procure sufficient electricity generated by an eligible energy technology to provide its retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, so that at least the following standard percentages of the electric utility's total retail electric sales to retail customers in Minnesota is generated by eligible energy technologies by the end of the year indicated:

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

The statute no longer requires that a portion of the renewable energy generation come from biomass technologies. An eligible energy technology is defined by Minn. Stat. §216B.1691, Subd. 1 as an energy technology that:

Generates electricity from the following energy sources: (1) solar; (2) wind; (3) hydroelectric with a capacity of less than 100 megawatts; (4) hydrogen, provided that after January 1, 2010, the hydrogen must be generated from the resources listed in this clause; or (5) biomass, which includes without limitation, landfill gas, an anaerobic digester system, and an energy recovery facility used to capture the heat value of mixed municipal solid waste or refuse-derived fuel from mixed municipal solid waste as a primary fuel.

Minn. Stat. §216B.1691, subd. 2(d) directs the Commission to “issue necessary orders detailing the criteria and standards by which it will measure an electric utility’s efforts to meet the renewable energy objectives of subdivision 2 to determine whether the utility is making the required good faith effort.”

The Commission set forth the criteria for determining compliance with the RES Statute after taking comments from affected parties in several Orders.<sup>13</sup> Among the resources the Commission has determined ineligible for meeting the RES are resources used for green pricing, resources that do not meet the statutory definition of eligibility, and generation assigned to compliance for other regulatory purposes such as another state’s Renewable Portfolio Standard Requirements (RPS).

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<sup>13</sup> *In the Matter of Detailing Criteria and Standards for Measuring an Electric Utility’s Good Faith Efforts in Meeting the Renewable Energy Objectives Under Minn. Stat. §216B.1691*, Docket No. E999/CI-03-869, Initial Order Detailing Criteria and Standards for Determining Compliance with Minn. Stat. §216B.1691 and Requiring Customer Notification by Certain Cooperative, Municipal, and Investor-Owned Distribution Utilities. (June 1, 2004) *In the Matter of Detailing Criteria and Standards for Measuring an Electric Utility’s Good Faith Efforts in Meeting the Renewable Energy Objectives Under Minn. Stat. §216B.1691*, Docket No. E999/CI-03-869; *In the Matter of a Commission Investigation into a Multi-State Tracking and Trading System for Renewable Energy Credits*, Docket No. E999/CI-04-1616, Second Order Implementing Minn. Stat. §216B.1691, Opening Docket to Investigate Multi-State Program for Tracking and Trading Renewable Credits and Requesting Periodic Updates from Stakeholder Group; (October 19, 2004) *In the Matter of Detailing Criteria and Standards for Measuring an Electric Utility’s Good Faith Efforts in Meeting the Renewable Energy Objectives Under Minn. Stat. §216B.1691*, Docket No. E999/CI-03-869, Order After Reconsideration (August 13, 2004)

The 2007 amendment to Minn. Stat. §216B.1691, Subd. 4 required the Minnesota Public Utilities Commission to establish a program for tradable Renewable Energy Credits (RECs) by January 2008, and to require all electric utilities to participate in a Commission-approved REC tracking system once such a system was in operation.

The Commission subsequently adopted the use of the Midwest Renewable Energy Tracking System (M-RETS), a multi-state REC tracking system, as the REC tracking system under Minn. Stat. §216B.1691, Subd. 4(d) and required Minnesota utilities to participate.<sup>14</sup>

In its December 18, 2007 *Order Establishing Initial Protocols for Trading Renewable Energy Credits*, the Commission adopted a four-year shelf life for all renewable energy credits to be used for compliance with the Minnesota RES. A four-year shelf life allows a REC to be retired towards MN RES compliance in the year of generation and during the four years following the year of generation.

Finally, in its December 3, 2008 *Third Order Detailing Criteria and Standards for Determining Compliance under Minn. Stat. §216B.1691 and Setting Procedures for Retiring Renewable Energy Credits*, the Commission directed utilities to begin retiring RECs equivalent to one percent of their Minnesota annual retail sales for the 2008 and 2009 compliance year by May 1<sup>st</sup> of the following year. Upon retirement, RECs are transferred into a specific Minnesota RES retirement account and, once retired, are not available to meet other state or program requirements, thus addressing the statutory prohibition against double counting the RECs and promoting the environmental benefits of renewable energy. The Commission further directed the utilities to submit a compliance filing demonstrating their compliance with the RES by June 1 of each year.

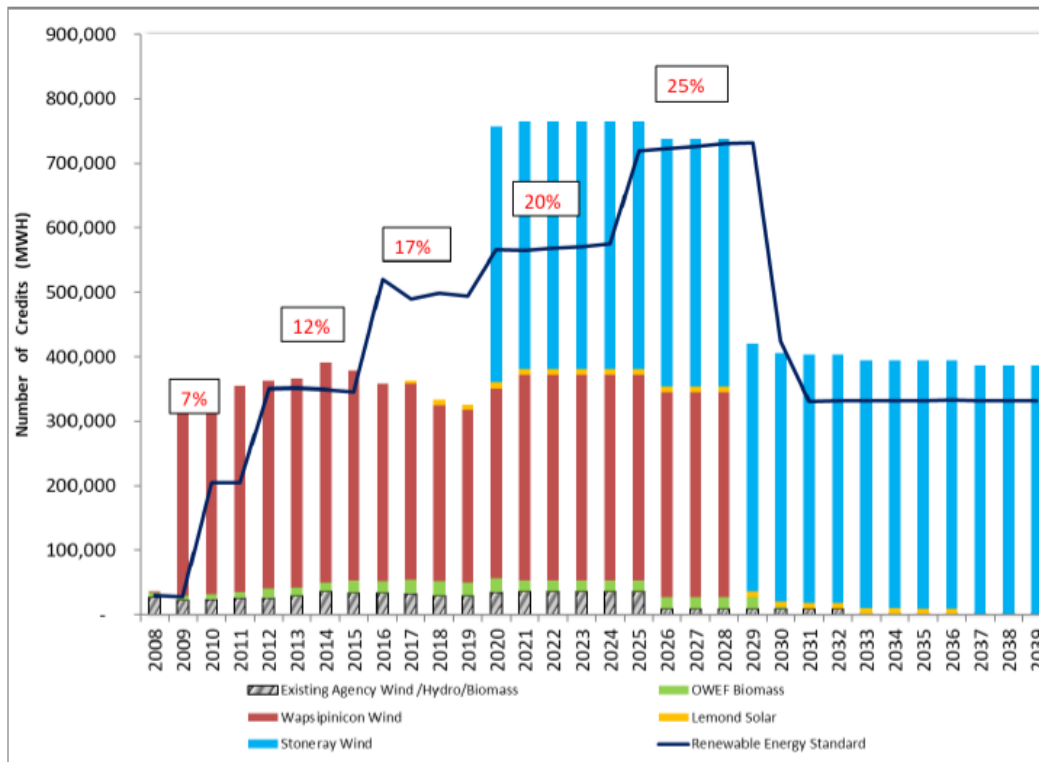
## 2. *SMMPA's RES Requirement During Forecast Period*

SMMPA provided a chart depicting the Agency's RES requirements and its projected renewable resource portfolio production to meet these requirements in Chart 6-1 of its 2021 IRP, the Department provides a copy of this chart in Figure 4 below.

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<sup>14</sup> *In the Matter of a Commission Investigation into a Multi-State Tracking and Trading System for Renewable Energy Credits*, Docket No. E999/CI-04-1616, Order Approving Midwest Renewable Energy Tracking System (M-RETS) Under Minn. Stat. §216B.1691, Subd. 4(d), and Requiring Utilities to Participate in M-RETS (October 9, 2007)

**Figure 4: SMMPA's RES Compliance 2008 – 2039**



The aggregation shown in Figure 4 above represents the production of several small-scale Agency and member-owned and contracted qualifying renewable resources in Minnesota, to include:

- 8.5 MW of SMMPA-owned wind turbines
- 1.6 MW of SMMPA-owned landfill gas generation facilities
- 500 kW member-owned hydro unit
- Renewable production derived from the blending of biodiesel in member-owned generators

SMMPA noted that “due to step increases within the [RES] standard and the economics of scale provided by larger projects a credit banking and depletion strategy” will be used by the Agency to meet compliance requirements for years 2029 and 2030.<sup>15</sup> The deficit is a result of SMMPA’s 20-year power purchase agreement with the 100.5 MW Wapsipinicon Wind Project expiring in 2029, a year before the Agency’s contracts with member cities of Austin and Rochester terminate on March 31, 2030 and SMMPA’s adjusted retail sales and RES compliance requirements decrease significantly.

<sup>15</sup> SMMPA 2021 IRP, at 6-1.

### 3. *Renewable Generation Resources*

SMMPA has registered its renewable generation facilities in the Midwest Renewable Energy Tracking System (M-RETS). At present, the renewable generation resources the Agency has procured or contracted for are projected to generate 727,000 MWh of energy annually, accruing approximately 14,000 MWh of RECs each year from 2022 – 2025.<sup>16</sup>

Currently SMMPA has an unretired REC balance of approximately 839,508 MWh that may be carried forward and used for future RES compliance. In its 2021 Renewable Energy Certificate (REC) Retirement Report SMMPA projected that by the end of 2022 it would carry a surplus of 981,479 MWhs, and by 2025 this surplus will grow to 1,228,641 MWh.<sup>17</sup> The Agency's existing resources and power purchase agreements are sufficient to keep SMMPA in compliance with RES requirements, and the Department concludes that the Agency has procured or contracted sufficient resources and has a reasonable plan to utilize banked RECs to remain in compliance into the 2040 timeframe.

### 4. *Department Recommendation*

The Department recommends that the Commission accept SMMPA's proposal to comply with RES requirements over the planning period.

### D. *PROVIDING A RELIABLE SYSTEM*

As shown in Table 2 above, SMMPA's short- and long-term action plans were projected to provide a reliable system, including meeting the additional two percent capacity cushion that SMMPA added to its MISO requirements in response to the uncertainties in the process used by MISO to calculate future reserve requirements.

In the past two months, the Department has been made aware of compounding issues that could impact SMMPA's reliability, as discussed below.

#### 1. New issues that could impact SMMPA's reliability

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<sup>16</sup> SMMPA 2021 REC Retirement Report. *In the Matter of Renewable Energy Certificate Retirement Report for Compliance Year 2021*. Docket No. E999/PR-22-12. Accessed at <https://efiling.web.commerce.state.mn.us/edockets/searchDocuments.do?method=showPoup&documentId={20AE0181-0000-C21A-ADCB-8761DED98B24}&documentTitle=20225-186120-01>.

<sup>17</sup> *Id.*

First, as shown by the recent MISO planning reserve auction (PRA) results, MISO is facing a capacity shortage due to states in the central region of MISO procuring insufficient capacity to meet their needs. This capacity could make it difficult for SMMMPA to purchase the small amounts of capacity it currently plans, but for sure could make its purchases more expensive.

Second, On February 28, 2022, the Administrator of the U.S. Environmental Protection Agency (EPA) signed a proposed Federal Implementation Plan (FIP) to assure that the 26 states identified in the proposed FIP do not significantly contribute to problems attaining and maintaining the 2015 Ozone National Ambient Air Quality Standards (NAAQS) in downwind states. EPA will accept comments on this proposal until June 21, 2022.

EPA's proposed rule expands the existing Cross State Air Pollution Rule (CASPR) Seasonal NO<sub>x</sub> Allowance Trading program to the 26 "upwind" states, including Minnesota, and would impact some of Minnesota utilities' coal and gas units.<sup>18</sup> EPA's proposed seasonal ozone program would limit NO<sub>x</sub> emissions from Minnesota's coal and gas plants due to a modeled "cross state" impact on Cook County, Illinois (Chicago), not for impacts to Minnesota. The FIP is proposed to become effective in May 2023. The proposed EPA FIP would require Minnesota to participate in the emission allowance trading system for Seasonal NO<sub>x</sub> allowances under the "good neighbor" or "interstate transport" provision of the Clean Air Act by 2023 and meet new NO<sub>x</sub> emission limits by 2026.

Utilities serving Minnesota with units impacted by EPA's proposal include Northern States Power Company doing business as Xcel Energy (Xcel), Southern Minnesota Municipal Power Agency (SMMMPA or Agency), Minnesota Power, an operating division of ALLETE, Inc. (Minnesota Power or MP), and Missouri River Energy Services (MRES).

In addition, it should be noted that, 11 of the 15 states covered by the Midcontinent Independent System Operator, Inc. (MISO) are covered for power plants.<sup>19</sup> Thus, the rule could have significant impact on MISO's energy and capacity markets. The impact would negatively affect the reliability and cost of electric service in Minnesota and the MISO region.

EPA's objective is to reduce summer ozone levels by limiting emissions through the allocation of allowances. As proposed, the EPA rule:

- requires Minnesota to participate in the emission allowance trading system,
- does not directly mandate installation of controls, utilities can either install controls, purchase needed allowances, or both,

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<sup>18</sup> EPA's website for the proposal is: <https://www.epa.gov/csapr/good-neighbor-plan-2015-ozone-naaqs>

<sup>19</sup> The states not covered are Montana, North Dakota, South Dakota, and Iowa. The covered states are Minnesota, Wisconsin, Illinois, Missouri, Kentucky, Indiana, Michigan, Arkansas, Texas, Louisiana, and Mississippi.



- does not have explicit exemption provisions for existing units proposed to retire beyond the 2026 ozone season,
- uses a dynamic budgeting approach that would not preserve the coal unit NOx allowances if there was an early exit, making those NOx allowances unavailable for new gas units, and
- does not allocate enough allowances for the May-September 2023 ozone season and beyond to accommodate continued operation at Sherco units 1, 2, and 3 consistent with past operations.<sup>20</sup>

The proposed program plans to reduce emission allocations to coal units in 2027 under an assumption that coal units without Selective Catalytic Reduction (SCRs) will install SCRs on those units. The assumption of installing SCRs in the proposed plan would impact Sherco unit 3 which is jointly owned by SMMPA (41 percent or 359 MW) and Xcel (59 percent or 516 MW). SMMPA and Xcel plan to retire Sherco unit 3 in 2030.

The assumption of installing SCRs would also impact Boswell unit 4 which is jointly owned by MP (80 percent or 443 MW) and WPPI Energy (20 percent or 111 MW). The retirement date for Boswell unit 4 is being studied in Minnesota Power's current resource plan.

## 2. Impact on SMMPA

SMMPA and Xcel plan to retire Sherco unit 3 in 2030,<sup>21</sup> but EPA's proposal does not consider existing coal unit retirement plans approved by state utility commissions and the potential impacts that reduced unit availability, investment in NOx control for the remaining limited life of a unit or changed retirement plans might have on customer costs or system reliability.

EPA's proposed FIP does not require installation of SCRs but assumes that coal units that currently do not have SCRs installed would be able to install SCRs in time for the 2026 ozone season (May to September) and therefore reduces the allowances allocated to these units starting in 2026. Coal units that do not have SCRs installed, optimized, and operating by the start of the 2026 ozone season would potentially incur an economic operating disadvantage due to reduced allowance allocation. They would have to either purchase additional allowances or limit operations during the ozone season.<sup>22</sup>

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<sup>20</sup> Boswell unit 4 may experience the same issue, but this was not discussed by Minnesota Power in response to Department Information Requests.

<sup>21</sup> This retirement date was approved by the Minnesota Public Utilities Commission in Docket No. E002/RP-19-368.

<sup>22</sup> Limiting operations of a generating unit cannot be unilaterally imposed by a utility. At a minimum, such operating limits would have to be discussed with MISO's Independent Market Monitor.

In response to information requests from the Minnesota Department of Commerce (Department) SMMPA stated that although the proposed FIP does not require SCR installation, that may be the practical effect. Based on an engineering estimate prepared several years ago, SMMPA believes the cost will be well more than \$100 million. Xcel separately stated that it considers SCR installation on Sherco unit 3 as inappropriate and not cost-effective. The FIP would provide a reduced allowance allocation to a unit like Sherco unit 3 based on the assumption that an SCR is installed. Absent the addition of an SCR, operating Sherco unit 3 with an allowance allocation calculated based on an assumed emission rate of 0.05 lb/mmBtu would significantly restrict the operation of the unit.

SMMPA understands there is a proposed provision in the FIP that would ease the backstop limit requirement through 2028 for units that would be retired by 2029. Beyond that, SMMPA does not believe there are any other accommodations for units retiring in the 2026 to 2035 timeframe. Since Sherco unit 3 is scheduled for retirement in 2030, it would not qualify for this provision. SMMPA believes there should be flexibility to make accommodations for units that have committed retirement dates, particularly when that commitment is documented in an enforceable state or federal implementation plan related to other EPA rules.

In addition, SMMPA stated that it is coordinating review of the proposed FIP with Xcel to determine the potential impacts to Sherco unit 3. SMMPA's understanding is that the EPA has assumed a 20-year amortization period for the costs of installing SCRs in its evaluation of the economic impacts of the proposed rule. Given the planned 2030 retirement date for Sherco 3 and the FIP requirement to have an SCR installed by the 2026 ozone season, the useful life over which to amortize the costs of a Sherco unit 3 SCR would only be five years. Requiring an investment of more than \$100 million with a cost recovery period of five years would result in an unacceptable cost burden on SMMPA's members' customers.

While Sherco unit 3 could operate without an SCR with a backstop limit of 0.14 lb/mmBtu, SMMPA would likely have to significantly limit the operation to maintain an average emission rate below the limit. Such operational limits would have to be approved by MISO's Independent Market Monitor. While the proposed FIP includes an allowance trading program, SMMPA concludes that the proposed dynamic budgeting and allowance bank cap will create uncertainty and volatility in the market that will result in few, if any, allowances traded and at prices that would be prohibitively expensive. Further, SMMPA concludes that the allowance surrender penalty of 3:1 if the backstop limit is exceeded is overly punitive.

SMMPA has significant concerns about the impact of the proposed FIP on its ability to provide reliable and affordable capacity and energy to its members. Given the generating capacity shortfall in MISO as identified in the recent capacity auction, SMMPA believes it would be extremely difficult to replace the Agency's share of Sherco unit 3 and the associated energy production if the proposed FIP were to result in limited operations or if the unit is forced to retire earlier than planned.

The Commission's primary role regarding SMMPA's IRP is to ensure that the Agency has sufficient resources to provide a reliable system. The proposed rule could endanger SMMPA's ability to meet reliability requirements. According to Chart 8-1 of SMMPA's IRP Petition (Docket No. E002/RP-21-782) SMMPA has a small deficit, around 20 MW to 35 MW in the years 2026 to 2029. Such a small deficit is easily addressed, for example through short term bilateral contracts or a small unit addition.

Removing SMMPA's 359 MW share of Sherco unit 3 would create a substantial deficit for the years 2026 to 2030. After 2030 SMMPA's deficit is reduced to around 60 MW to 65 MW due to loss of certain member municipal utilities. Thus, retiring Sherco unit 3 creates a significant short term planning problem for SMMPA.

The Department provides additional background on the proposed "Good Neighbor Rule" and its impact on Minnesota utilities in Attachment A.

### 3. Department Recommendations

First, the Department, like SMMPA and other electric utilities in Minnesota, concludes that EPA's seasonal ozone proposal is unreasonable for two main reasons:

- the FIP does not consider that Sherco unit 3 is scheduled for retirement in 2030. As SMMPA noted, compliance costs of more than \$100 million for only five years would be cost prohibitive and the uncertainties in the allowance trading program make that an unreliable approach to compliance.
- as illustrated by the recent MISO planning reserve auction results, MISO is facing a capacity shortage due to states in the central region of MISO procuring insufficient capacity to meet their needs. EPA's proposed FIP applies to the states in the central region and will place additional pressure on impacted units which could result in early retirements of units in MISO and exacerbate the existing capacity shortage.

Second, the Department agrees that the proposed FIP does not consider state commission approved IRPs. Xcel's Commission-approved IRP includes early retirement coal units, reduces carbon emissions, and integrates significant renewable resources while considering cost, reliability, and other impacts. The EPA did request input on whether to exempt units that have enforceable retirement dates between 2023 and 2028 from the "backstop" provision. At a minimum the Department recommends that such a provision be added to the EPA's FIP.

Third, the Department understands that the EPA's final decision on the proposed FIP may be made in the fourth quarter of 2022 or the first quarter of 2023. The Department recommends that within 180 days of the EPA's issuance of its final order that SMMPA, Minnesota Power, and Xcel separately submit

a compliance filing in their most recent resource plan proceeding that presents the utility's understanding of the final FIP and an action plan in response to the final FIP.

Fourth, as noted by Xcel, based on the Minnesota Pollution Control Agency (MPCA) April 15, 2022 response to the State Implementation Plan disapproval by EPA, MPCA believes that the modeling completed by EPA did not appropriately account for existing emission reductions in Minnesota and for other modeling issues that would have demonstrated that Minnesota should not be included in the proposal. Thus, it is uncertain if the final version of EPA's proposed FIP will include Minnesota. The Department intends to work with MPCA regarding this and other issues related to the EPA's proposal.

*E. ASSESSMENT OF PROGRESS IN MEETING MINNESOTA'S GREENHOUSE GAS REDUCTION GOALS*

*1. Introduction*

Minnesota Statutes §216H.02 subd. 1 state that Minnesota has a goal to reduce statewide greenhouse gas (GHG) emissions across all sectors to a level at least 15 percent lower than 2005 levels by 2015, at least 30 percent below 2005 levels by 2025, and at least 80 percent below 2005 levels by 2050.

Minnesota Statutes §216H.03 subd. 2 defines statewide power sector carbon dioxide emissions as follows:

For the purpose of this section, "statewide power sector carbon dioxide emissions" means the total annual emissions of carbon dioxide from the generation of electricity within the state and all emissions of carbon dioxide from the generation of electricity imported from outside the state and consumed in Minnesota. Emissions of carbon dioxide associated with transmission and distribution line losses are included in this definition. Carbon dioxide that is injected into geological formations to prevent its release to the atmosphere in compliance with applicable laws, and emissions of carbon dioxide associated with the combustion of biomass, as defined in section [216B.2411, subdivision 2](#), paragraph (c), clauses (1) to (4), are not counted as contributing to statewide power sector carbon dioxide emissions.

On pages 9-3 through 9-6 of its IRP, SMMPA discussed how its preferred resource plan would help the utility achieve the greenhouse gas reduction goals under 216H.02.

*2. SMMPA's GHG Emissions Account Methodology for this IRP*

For this IRP, SMMPA used a methodology that accounts for carbon emissions from all Agency-owned or contracted generation resources and does not deduct the emissions for any energy sold into the energy market whenever the Agency's total energy production is greater than its load.

Likewise, this calculation methodology does not try to account for carbon emissions associated with energy purchased from the market.

Using this methodology, SMMPA developed the accounting for its changes in greenhouse gas emissions shown in Table 10 below.

**Table 10: SMMPA's Projection of it Progress Towards Meeting Minnesota's GHG Reduction Goal**

Year	Energy Production GWh	CO2 Emissions Tons	CO2 Emission Rate lb/MWh	Percent Reduction
<b>2005</b>				
Sherco (Coal)	2,024,442	2,171,787	2,146	
Austin NE (Coal)	141,155	188,731	2,674	
Member Gas	26,474	21,322	1,611	
Member Oil	2,505	2,175	1,737	
Wind	21,937	-	-	
Solar	-	-	-	
Other Renewables	-	-	-	
Total Resources	2,216,513	2,384,015	2,151	
<b>2015</b>				
Sherco	1,931,733	2,069,819	2,143	
Agency Gas	15,543	7,690	989	
Member Gas	5,074	3,177	1,252	
Member Oil	-	-	-	
Wind	324,571	-	-	
Solar	-	-	-	
Other Renewables	34,404	-	-	
Total Resources	2,311,325	2,080,686	1,800	13%
<b>2025</b>				
Sherco	238,546	255,483	2,142	
Agency Gas	19,055	7,654	803	
Member Gas	4,596	2,882	1,254	
Member Oil	2,598	2,599	2,001	
Wind	322,430	-	-	
Solar	8,781	-	-	
Other Renewables	26,571	-	-	
Total Resources	622,577	268,618	863	89%

As can be seen, SMMPA projected that although it did not meet the State's GHG reduction goal by 2015, the Agency projected it will experience an 89 percent reduction in its GHG emissions by 2025 as compared to 2005.

## 2. *Department Analysis*

The Department notes that the Commission has not approved a specific GHG accounting methodology for Minnesota utilities to use in their IRPs to determine whether they are progressing towards meeting the state's GHG emissions reduction goals. The Department had several discussions with parties before recommending the following "Minnesota ratepayer methodology" in SMMPA's 2013 IRP.<sup>23</sup>

- Start with emissions from utility-owned generation,
- Add emissions from utility purchases, and
- Subtract CO<sub>2</sub> emissions from sales from utility-owned generation.

Since the emissions from utility purchases is unknown (unless a bilateral contract exists), the Department recommended that utilities use the 2005 average emissions per MWh for the Midwest Reliability Organization (MRO) West region 2005 purchases, and the 2009 average emissions per MWh for the MRO West region for 2015 and 2025.

In February 2015 the Department gathered the following parties to further discuss how to measure an electric utility's progress towards the state's greenhouse gas reduction goal:

- Dairyland Power Cooperative
- Basin Electric Cooperative
- Great River Energy
- Interstate Powe and Light
- Minnesota Power
- Minnesota Municipal Power Agency
- Missouri River Energy Services
- Otter Tail Power
- SMMPA
- Xcel
- Large Power Intervenors
- Minnesota Pollution Control Agency
- Minnesota Public Utilities Commission

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<sup>23</sup> Docket No. ET9/RP-13-1104.

Based on discussions at and after the meeting, the Department developed a set of guiding principles presented to the parties in November 2015, further outlining the retail ratepayer methodology, which mirrors the resource planning methodology. That is, the retail ratepayer methodology recognizes that a utility will use utility-owned generation to supply the electric needs of both its customers and other utility customers, make purchases from entities that are located both inside and outside of the State, and make some purchases from unidentified resources, which may or may not be located in Minnesota. The Department continues to conclude that the Minnesota ratepayer approach provides the most reasonable estimate of how an electric utility's system-wide greenhouse gas emissions are changing. The November 2015 guiding principles are included as Attachment B.

In addition, the Department discussed the ratepayer methodology for calculating progress towards Minnesota's GHG reduction goal in our January 4, 2016 comments on Minnesota Power's 2015 IRP (Docket No. E015/RP-15-690) at pages 59 to 64. The discussion included a discussion of how the retail ratepayer methodology does not comply with Minnesota Statutes 216H.03, there are problems with the statutory methodology.

Although SMMPA's analysis of its greenhouse gas emissions does not comply with the retail ratepayer methodology, the Department considers the Agency's reasonable for its present IRP. However, the Department is concerned that Minnesota's utilities use of different methodologies undermines any meaningful measurement of the state's progress in achieving greenhouse gas reduction goals.

### *3. Department Recommendations*

The Department recommends that the Commission accept SMMPA's analysis of its progress toward meeting Minnesota's GHG reduction goal for this IRP.

The Department recommends that parties convene in 2023 to discuss whether a consensus can be reached on how to analyze an electric utility's progress toward meeting Minnesota's GHG reduction goal and even if not, that the Commission adopt a uniform method for use in IRPs.

## **III. DEPARTMENT RECOMMENDATIONS**

The Department recommends the following for SMMPA's IRP:

### *A. ENERGY AND DEMAND FORECAST*

The Department recommends that the Commission accept SMMPA's energy and demand forecast for this IRP.

### *B. ENERGY AND DEMAND SAVINGS GOALS*

The Department recommends that the Commission accept SMMPA's projected energy and demand savings goals from CIP investments and Agency and member direct load control programs.

*C. RES COMPLIANCE*

The Department recommends that the Commission accept SMMPA's proposal to comply with RES requirements over the planning period.

*D. PROVIDING A RELIABLE SYSTEM*

First, the Department, like SMMPA and other electric utilities in Minnesota, concludes that EPA's seasonal ozone proposal is unreasonable for two main reasons:

- the FIP does not consider that Sherco unit 3 is scheduled for retirement in 2030. As SMMPA noted, compliance costs of more than \$100 million for only five years would be cost prohibitive and the uncertainties in the allowance trading program make that an unreliable approach to compliance.
- as illustrated by the recent MISO planning reserve auction results, MISO is facing a capacity shortage due to states in the central region of MISO procuring insufficient capacity to meet their needs. EPA's proposed FIP applies to the states in the central region and will place additional pressure on impacted units which could result in early retirements of units in MISO and exacerbate the existing capacity shortage.

Second, the Department agrees that the proposed FIP does not consider state commission approved IRPs. Xcel's Commission-approved IRP includes early retirement coal units, reduces carbon emissions, and integrates significant renewable resources while considering cost, reliability, and other impacts. The EPA did request input on whether to exempt units that have enforceable retirement dates between 2023 and 2028 from the "backstop" provision. At a minimum the Department recommends that such a provision be added to the EPA's FIP.

Third, the Department understands that the EPA's final decision on the proposed FIP may be made in the fourth quarter of 2022 or the first quarter of 2023. The Department recommends that within 180 days of the EPA's issuance of its final order that SMMPA, Minnesota Power, and Xcel separately submit a compliance filing in their most recent resource plan proceeding that presents the utility's understanding of the final FIP and an action plan in response to the final FIP.

Fourth, as noted by Xcel, based on the Minnesota Pollution Control Agency (MPCA) April 15, 2022 response to the State Implementation Plan disapproval by EPA, MPCA believes that the modeling completed by EPA did not appropriately account for existing emission reductions in Minnesota and for other modeling issues that would have demonstrated that Minnesota should not be included in the proposal. Thus, it is uncertain if the final version of EPA's proposed FIP will include Minnesota. The Department intends to work with MPCA regarding this and other issues related to the EPA's proposal.



*E. PROGRESS TOWARD MEETING MINNESOTA'S GREENHOUSE GAS REDUCTION GOAL*

First, the Department recommends that the Commission accept SMMPA's analysis of its reduction in GHG for this IRP.

Second, the Department recommends that parties convene in 2023 to discuss whether a consensus can be reached on how to analyze an electric utility's progress toward meeting Minnesota's GHG reduction goal and even if not, that the Commission adopt a uniform method for use in IRPs.

## Preliminary Report

### U.S. EPA Draft Cross-State Air Pollution Rule

#### I. BACKGROUND

On February 28, 2022, the Administrator of the U.S. Environmental Protection Agency (EPA) signed a proposed Federal Implementation Plan (FIP) to assure that the 26 states identified in the proposed FIP do not significantly contribute to problems attaining and maintaining the 2015 Ozone National Ambient Air Quality Standards (NAAQS) in downwind states. EPA will accept comments on this proposal until June 21, 2022.

EPA's proposed rule expands the existing Cross State Air Pollution Rule (CASPR) Seasonal NOx Allowance Trading program to the 26 "upwind" states, including Minnesota, and would impact some of Minnesota utilities' coal and gas units.<sup>1</sup> EPA's proposed seasonal ozone program would limit NOx emissions from Minnesota's coal and gas plants due to a modeled "cross state" impact on Cook County, Illinois (Chicago), not for impacts to Minnesota. The FIP is proposed to become effective in May 2023. The proposed EPA FIP would require Minnesota to participate in the emission allowance trading system for Seasonal NOx allowances under the "good neighbor" or "interstate transport" provision of the Clean Air Act by 2023 and meet new NOx emission limits by 2026.

Utilities serving Minnesota with units impacted by EPA's proposal include Northern States Power Company doing business as Xcel Energy (Xcel), Southern Minnesota Municipal Power Agency (SMMMPA or Agency), Minnesota Power, an operating division of ALLETE, Inc. (Minnesota Power or MP), and Missouri River Energy Services (MRES). Because MRES' unit impacted by the proposed FIP is not located in Minnesota, MRES does not have a resource plan pending, and MRES is not rate regulated, impacts on MRES were not pursued for this report.

In addition, it should be noted that, 11 of the 15 states covered by the Midcontinent Independent System Operator, Inc. (MISO) are covered for power plants.<sup>2</sup> Thus, the rule could have significant impact on MISO's energy and capacity markets. The impact would negatively affect the reliability and cost of electric service in Minnesota and the MISO region.

EPA's objective is to reduce summer ozone levels by limiting emissions through the allocation of allowances. As proposed, the EPA rule:

- requires Minnesota to participate in the emission allowance trading system;
- does not directly mandate installation of controls, utilities can either install controls, purchase needed allowances, or both;

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<sup>1</sup> EPA's website for the proposal is: <https://www.epa.gov/csapr/good-neighbor-plan-2015-ozone-naaqs>

<sup>2</sup> The states not covered are Montana, North Dakota, South Dakota, and Iowa. The covered states are Minnesota, Wisconsin, Illinois, Missouri, Kentucky, Indiana, Michigan, Arkansas, Texas, Louisiana, and Mississippi.

- does not have explicit exemption provisions for existing units proposed to retire beyond the 2026 ozone season;
- uses a dynamic budgeting approach that would not preserve the coal unit NOx allowances if there was an early exit, making those NOx allowances unavailable for new gas units;
- does not allocate enough allowances for the May-September 2023 ozone season and beyond to accommodate continued operation at Sherco units 1, 2, and 3 consistent with past operations.<sup>3</sup>

The proposed program plans to reduce emission allocations to coal units in 2027 under an assumption that coal units without Selective Catalytic Reduction (SCRs) will install SCRs on those units. The assumption of installing SCRs in the proposed plan would impact Sherco unit 3 which is jointly owned by SMMPA (41 percent or 359 MW) and Xcel (59 percent or 516 MW). SMMPA and Xcel plan to retire in Sherco unit 3 in 2030.

The assumption of installing SCRs would also impact Boswell unit 4 which is jointly owned by MP (80 percent or 443 MW) and WPPI Energy (20 percent or 111 MW). The retirement date for Boswell unit 4 is being studied in Minnesota Power's current resource plan.

## **II. IMPACT ON SMMPA**

SMMPA and Xcel plan to retire Sherco unit 3 in 2030,<sup>4</sup> but EPA's proposal does not consider existing coal unit retirement plans approved by state utility commissions and the potential impacts that reduced unit availability, investment in NOx control for the remaining limited life of a unit or changed retirement plans might have on customer costs or system reliability.

EPA's proposed FIP does not require installation of SCRs but assumes that coal units that currently do not have SCRs installed would be able to install SCRs in time for the 2026 ozone season (May to September) and therefore reduces the allowances allocated to these units starting in 2026. Coal units that do not have SCRs installed, optimized, and operating by the start of the 2026 ozone season would potentially incur an economic operating disadvantage due to reduced allowance allocation. They would have to either purchase additional allowances or limit operations during the ozone season.<sup>5</sup>

In response to information requests from the Minnesota Department of Commerce (Department) SMMPA stated that although the proposed FIP does not require SCR installation, that may be the practical effect. Based on an engineering estimate prepared several years ago, SMMPA believes the cost will be well more than \$100 million. Xcel separately stated that it considers SCR installation on Sherco unit 3 as inappropriate and not cost-effective. The FIP

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<sup>3</sup> Boswell unit 4 may experience the same issue, but this was not discussed by Minnesota Power in response to Department Information Requests.

<sup>4</sup> This retirement date was approved by the Minnesota Public Utilities Commission in Docket No. E002/RP-19-368.

<sup>5</sup> Limiting operations of a generating unit cannot be unilaterally imposed by a utility. At a minimum, such operating limits would have to be discussed with MISO's Independent Market Monitor.

would provide a reduced allowance allocation to a unit like Sherco unit 3 based on the assumption that an SCR is installed. Absent the addition of an SCR, operating Sherco unit 3 with an allowance allocation calculated based on an assumed emission rate of 0.05 lb/mmBtu would significantly restrict the operation of the unit.

SMMPA understands there is a proposed provision in the FIP that would ease the backstop limit requirement through 2028 for units that would be retired by 2029. Beyond that, SMMPA does not believe there are any other accommodations for units retiring in the 2026 to 2035 timeframe. Since Sherco unit 3 is scheduled for retirement in 2030, it would not qualify for this provision. SMMPA believes there should be flexibility to make accommodations for units that have committed retirement dates, particularly when that commitment is documented in an enforceable state or federal implementation plan related to other EPA rules.

In addition, SMMPA stated that it is coordinating review of the proposed FIP with Xcel to determine the potential impacts to Sherco unit 3. SMMPA's understanding is that the EPA has assumed a 20-year amortization period for the costs of installing SCRs in its evaluation of the economic impacts of the proposed rule. Given the planned 2030 retirement date for Sherco 3 and the FIP requirement to have an SCR installed by the 2026 ozone season, the useful life over which to amortize the costs of a Sherco unit 3 SCR would only be five years. Requiring an investment of more than \$100 million with a cost recovery period of five years would result in an unacceptable cost burden on SMMPA's members' customers.

While Sherco unit 3 could operate without an SCR with a backstop limit of 0.14 lb/mmBtu, SMMPA would likely have to significantly limit the operation to maintain an average emission rate below the limit. Such operational limits would have to be approved by MISO's Independent Market Monitor. While the proposed FIP includes an allowance trading program, SMMPA concludes that the proposed dynamic budgeting and allowance bank cap will create uncertainty and volatility in the market that will result in few, if any, allowances traded and at prices that would be prohibitively expensive. Further, SMMPA concludes that the allowance surrender penalty of 3:1 if the backstop limit is exceeded is overly punitive.

SMMPA has significant concerns about the impact of the proposed FIP on its ability to provide reliable and affordable capacity and energy to its members. Given the generating capacity shortfall in MISO as identified in the recent capacity auction, SMMPA believes it would be extremely difficult to replace the Agency's share of Sherco unit 3 and the associated energy production if the proposed FIP were to result in limited operations or if the unit is forced to retire earlier than planned.

The Commission's primary role regarding SMMPA's IRP is to ensure that the Agency has sufficient resources to provide a reliable system. The proposed rule could endanger SMMPA's ability to meet reliability requirements. According to Chart 8-1 of SMMPA's IRP Petition (Docket No. E002/RP-21-782) SMMPA has a small deficit, around 20 MW to 35 MW in the years 2026 to 2029. Such a small deficit is easily addressed, for example through short term bilateral contracts or a small unit addition. Removing SMMPA's 359 MW share of Sherco unit 3 would

create a substantial deficit for the years 2026 to 2030. After 2030 deficit then is reduced to around 60 MW to 65 MW due to loss of certain member municipal utilities. Thus, retiring Sherco unit 3 creates a significant short term planning problem for SMMPA.

### **III. IMPACT ON MINNESOTA POWER**

Unlike SMMPA, the Commission has full regulatory authority with respect to actions taken by Minnesota Power and Xcel. The proposed FIP would impact Minnesota Power's Boswell unit 4. Boswell unit 4 has a nameplate rating of 582 MW and is jointly owned by MP (80 percent or 443 MW) and WPPI Energy (20 percent or 111 MW). Table 1 of the Department's April 29, 2022 comments in MP's ongoing IRP (Docket No. E015/RP-21-33) shows that MP's capacity surplus, before taking any actions, of about 220 MW to 250 MW in the years 2026 to 2035 if MP maintains a 50 percent share of the Nemadji Trail Energy Center (NTEC).<sup>6</sup> If Minnesota Power reduces its share of NTEC to 20 percent, as proposed by MP, the capacity surplus is between 70 MW and 100 MW in the years 2026 to 2035.

An early shut down of Boswell unit 4 would trigger the need for substantial additions of accredited capacity in order for Minnesota Power to meet reliability requirements. Unlike SMMPA, MP's capacity needs would be long term as the capacity reduction would not be offset by expected load reduction as with SMMPA. MP's needed additions would be over 200 MW (if the NTEC share remains at 50 percent) and could be over 350 MW (if the NTEC share is reduced to 20 percent). Replacing 200 MW to 350 MW of baseload capacity and energy is not a simple task. The replacement is complicated by the fact that Minnesota Power's IRP petition discusses the need for either new dispatchable generation or new transmission specifically located at the Boswell site if the units are retired.

As with SMMPA, MP's initial analysis of the proposed FIP indicates that existing units proposed to retire beyond the 2026 ozone season do not have explicit exemption provisions. Thus, retirement of Boswell unit 4 could be made significantly more complicated by EPA's FIP.

MP has analyzed the new unit set-aside provisions for new units under the proposed FIP. From this analysis MP concluded that the EPA's proposed dynamic budgeting approach would not preserve the Boswell coal unit NOx allowances if there was an early retirement of the Boswell units, making those NOx allowances unavailable for new gas units. Furthermore, MP concluded that the proposed new unit set-aside allowance for Minnesota would likely be grossly insufficient to cover the emissions from new gas units outfitted with SCRs that could be required to replace the capacity and energy from Boswell.

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<sup>6</sup> The Commission has approved a 50 percent share of NTEC for MP—about 250 MW. However, MP has announced an agreement to reduce the share to 20 percent or about 100 MW. The Commission has not approved this change.

In conclusion, at this time the choices, just considering EPA's proposed FIP, appear to be:

- retire Boswell unit 4 by the end of 2026 and obtain replacement capacity and energy;
- retain Boswell unit 4 as is and either purchase excess allowances or curtail operations during the ozone season until the preferred retirement date is reached;
- retain Boswell unit, install required pollution control equipment—presumably SCR—and run the unit for the duration required to make SCR economically viable (presumed to be 20 years in EPA's proposed rule.

None of the choices are without significant problems. First, obtaining 200 MW to 400 MW of accredited capacity by the end of 2026 would be difficult and expensive. The time frame required by EPA and the difficulties presented by MISO's interconnection process will increase the cost of replacement significantly. Second, purchasing excess allowances or curtailing operations present significant risks. If allowances are to be purchased, their cost and availability would be unknown. If operations must be curtailed that means the utilities' loads would be unhedged, leaving customers exposed to market pricing at a time when MISO's energy and capacity markets are likely to be significantly short. Third, retaining a large coal unit to allow recovery of costs of installing controls to reduce NOx pollution would result in increases in other pollutants, such as CO<sub>2</sub> because Boswell would not be shut down or cease coal operations for the foreseeable future.

#### **IV. IMPACT ON XCEL**

Both Sherco units 1 and 3 are potentially impacted by EPA's proposed 2026 reduction in unit allowance allocations. However, since Sherco unit 1 is planned for retirement by the end of 2026, the impacts of the reduced allowances are less than for Sherco unit 3, which is planned to operate through 2030. Xcel does not view the installation of an SCR on Sherco unit 3 as reasonable and cost-effective given the 2030 retirement date for the unit. The reduction in allowances in 2026 may impact unit availability between 2026 and 2030 depending on availability of excess allowances for purchase and the cost for allowances.

As with MP and SMMPA, Xcel understands that the EPA's proposed FIP does not have explicit provisions to exempt coal fired units that retire between 2023 and 2030 from the proposed FIP. In fact, in the proposed FIP, EPA assumed that Sherco unit 2 would either retire before, or not operate during, the 2023 ozone season and as a result did not provide an allowance allocation to the unit. Sherco unit 1 was provided a proposed allowance allocation in both 2023 and 2026, although the 2026 allocation is reduced from 731 tons in 2023 to 423 tons in 2026 based on the EPA's assumption that the unit should have an SCR installed within three years after the proposal is finalized. Sherco unit 3 is allocated allowances based on an assumption that the

unit will reduce its overall emissions as if it had installed SCR in 2026, even though the unit is slated to retire by the end of 2030.

Based upon the most recent information available, filed by Xcel in March 2022 in the certificate of need proceeding for additional storage at the Monticello nuclear plant (Docket No. E002/CN-21-668), the early retirement of Sherco unit 3 as a compliance strategy would require all of the unit's accredited capacity to be replaced starting in 2027. To the extent the unit's energy was not replaced, Xcel's customers would be exposed to energy market pricing at a time when MISO's energy and capacity markets are short.

Xcel also noted that the novel "dynamic budgeting" proposed by EPA could result in ongoing allowance market volatility and incentivize allowance holders who might have excess allowances that could be offered for sale to hold allowances to ensure they can cover future years' emissions since they may have decreasing allowance allocations from EPA. Additionally, Xcel noted that EPA does not need to include a "dynamic budgeting" approach in the final FIP, as the proposed allowance allocations are supposed to be a "full remedy" to address downwind compliance obligations.

Finally, Xcel described the proposed allowance trading market as EPA proposing to cap the excess allowances that may be available in the market by 10.5% thus ensuring that there are limited excess allowances and, when combined with "dynamic budgeting," would serve to reduce allowance availability and drive-up allowance prices, creating uncertainty for utilities about whether they would be able to find the needed allowances to cover compliance obligations at the end of the ozone season.

Xcel estimated the proposed FIP would provide 62% to 75% of the allowances Xcel anticipates are needed for the 2023 ozone season, depending on whether Sherco unit 2 operates during the 2023 ozone season. Based on Xcel Energy generation modeling results, if Sherco unit 2 is operated during the 2023 ozone season as it has historically, Xcel may need to purchase NOx Ozone Season allowances to cover compliance obligations. If Sherco unit 2 is not operated at all during the 2023 ozone season, Xcel still may need to purchase NOx Ozone Season allowances to cover compliance obligations. Thus, Xcel considers some purchases of allowances to be required in any circumstance.

Xcel explained that the "backstop" emission limit provision (0.14lb/mmBtu) for coal units greater than 100 MW that takes effect in 2027 is a provision that further encourages coal units to install and operate an SCR. For emissions that exceed what would have been emitted if the backstop limit had been met, the facility will be required to surrender allowances for those additional emissions at a rate of 3:1 (1 allowance per ton plus an additional 2 allowances per ton as a penalty for failing to meet the limit). EPA created this provision to encourage operators to utilize and optimize SCR operations during the ozone season. Xcel's Sherco unit 3 may have days where the unit is challenged to meet this provision. On average, according to the EPA data, the unit averages an emission rate of 0.11568 lbs. NOx/mmBTU. However, a closer look at the EPA data shows that the average emission rate varies between 0.1111 and

0.1208 lbs./mmBTU. Sherco unit 3 often has emissions above the backstop rate when operating at high load levels. Since these are averages, it is possible that there may be days where the “backstop” emission rate may be exceeded due to unit startup or shutdowns when NOx emissions typically increase or if there is a malfunction in unit combustion control equipment or other air emission controls where NOx emissions increase.

Xcel provided an example using the Allen S. King plant, which has an SCR installed. Xcel noted that King consistently performs below the proposed backstop limit. However, unit operations caused by changing economic conditions result in more frequent startups/shutdowns and creates uncertainty in whether there may be an occasional exceedance of the backstop limit. Since Xcel plans to retire King in 2028, there would be a shorter period where King’s operations would be a potential concern as compared to Sherco unit 3, which is scheduled to retire in 2030.

In summary, Xcel understands EPA’s reasoning for the “backstop” provision, but does not believe it is necessary in light of the overall proposal to bring in additional states to the NOx Ozone Season allowance trading program with corresponding allowance allocations that already assume the presence of SCR control at units included in the plan.

## **V. DEPARTMENT RECOMMENDATION**

First, the Department, like SMMMPA and other electric utilities in Minnesota, concludes that EPA’s seasonal ozone proposal is unreasonable for two main reasons:

- the FIP does not consider that Sherco unit 3 is scheduled for retirement in 2030. As SMMMPA noted, compliance costs of more than \$100 million for only five years would be cost prohibitive and the uncertainties in the allowance trading program make that an unreliable approach to compliance.
- as illustrated by the recent MISO planning reserve auction results, MISO is facing a capacity shortage due to states in the central region of MISO procuring insufficient capacity to meet their needs. EPA’s proposed FIP applies to the states in the central region and will place additional pressure on impacted units which could result in early retirements of units in MISO and exacerbate the existing capacity shortage.

Second, the Department agrees that the proposed FIP does not consider state commission approved IRPs. Xcel’s Commission-approved IRP includes early retirement coal units, reduces carbon emissions, and integrates significant renewable resources while considering cost, reliability, and other impacts. EPA did request input on whether to exempt units that have enforceable retirement dates between 2023 and 2028 from the “backstop” provision. At a minimum the Department recommends that such a provision be added to EPA’s FIP.



Third, the Department understands that the EPA's final decision on the proposed FIP may be made in the fourth quarter of 2022 or the first quarter of 2023. The Department recommends that within 180 days of the EPA's issuance of its final order that SMMPA, Minnesota Power, and Xcel separately submit a compliance filing in their most recent resource plan proceeding that presents the utility's understanding of the final FIP and an action plan in response to the final FIP.

Fourth, as noted by Xcel, based on the Minnesota Pollution Control Agency (MPCA) April 15, 2022 response to the State Implementation Plan disapproval by EPA, MPCA believes that the modeling completed by EPA did not appropriately account for existing emission reductions in Minnesota and for other modeling issues that would have demonstrated that Minnesota should not be included in the proposal. Thus, it is uncertain if the final version of EPA's proposed FIP will include Minnesota. The Department intends to work with MPCA regarding this and other issues related to the EPA's proposal.

## GREENHOUSE GAS REDUCTION GOALS UNDER MINNESOTA STATUTES 216H.02

### I. INTRODUCTION

In 2013, the Minnesota Legislature passed amendments to Minnesota Statutes §216B.2422, subd.4. The newly amended legislation now states (new language underlined):

The commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest. The public interest determination must include whether the resource plan helps the utility achieve the greenhouse gas reduction goals under section 216H.02, the renewable energy standard under section 216B.1691, or the solar energy standard under section 216B.1691, subdivision 2f.

Minnesota Statutes 216H.02, Subdivision 1 states:

It is the goal of the state to reduce statewide greenhouse gas emissions across all sectors producing those emissions to a level at least 15 percent below 2005 levels by 2015, to a level at least 30 percent below 2005 levels by 2025, and to a level at least 80 percent below 2005 levels by 2050. The levels shall be reviewed based on the climate change action plan study.

On August 5, 2013, the Minnesota Public Utilities Commission issued a Notice of Information in Future Resource Plan Filings (Commission's Letter). The Commission Letter states, in part:

**PLEASE TAKE NOTICE** that the Commission expects utilities to include in their resource plans filed after August 1, 2013 an explanation of how the resource plan helps the utility achieve the greenhouse gas reduction goals, renewable energy standard, and solar energy standard as listed in the above-referenced legislation. Parties should also be prepared to discuss the matter in comments.

In its March 27, 2014 comments in Southern Minnesota Municipal Power Agency's (SMMPA) Integrated Resource Plan (Docket No. ET9/RP-13-1104), the Department

recommended that when responding to the Commission's notice concerning greenhouse gas reduction goals, each utility should calculate its CO<sub>2</sub> emissions using the following approach:

- Start with emissions from utility-owned generation;
- Add emissions from utility purchases; and
- Subtract CO<sub>2</sub> emissions from sales from utility-owned generation.

Since the CO<sub>2</sub> emissions from utility market purchases are unknown (unless a bilateral contract exists), the Department recommended that utilities use the 2005 average emissions per MWh for the Midwest Reliability Organization (MRO) West region 2005 purchases, and the 2009 average emissions per MWh for the MRO West region for 2015 and 2025. The Department also asked other parties to offer suggestions for how to improve the Department's recommended methodology.

In addition to the discussion in SMMPA's IRP, the issue has also been discussed in the IRPs of:

- Interstate Power and Light (Docket No. E001/RP-14-77),
- Minnkota Power Cooperative (Docket No. ET6125/RP-14-526), and
- Great River Energy (Docket No. ET2/RP-14-813).

In general, parties agree about the types of generation CO<sub>2</sub> emissions that should be included in the calculation (include all emissions of owned and purchased generation, exclude emissions from sales). Parties also agreed that the methodology recommended by the Department needed to be improved so that more updated information about the emissions from purchases could be incorporated. The issue is that the calculations for the U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database (eGRID) for the MRO West North American Electric Reliability Council (NERC) sub-region are often three and a half to five years old by the time it is released. During that time lag the carbon intensity of generation sources in MRO West continues to decline. Thus, relying on eGRID data would result in the overstatement of CO<sub>2</sub> emissions.

On February 26, 2015, the Department convened a group of stakeholders to see if a consensus could be reached on how to calculate historic emissions of CO<sub>2</sub> emissions and forecast future emissions of CO<sub>2</sub> in response to the Commission's August 5, 2013 letter. The biggest controversy concerns how to calculate emissions of purchases from Midwest Independent System Operator (MISO), both for historic emissions and for forecasting future emissions. Xcel Energy has offered to provide its calculation of the average MRO West emissions, a calculation that is more timely than EGRID data (with a lag of 3 to 15 months) to the Department or Commission and the Department or Commission would distribute the emissions rate to all Minnesota electric utilities that file IRPs. This emissions rate could then be used for each electric utility's purchases from unknown sources.

Based on the conversations at the meeting, the Department proposes the following methodology for calculating CO<sub>2</sub> emissions of that would be used both to comply with the Commission's August 5, 2013 Notice and the environmental disclosure information required under Docket No. E,G999/CI-00-1343 and E,G999/CI-01-1127.

# Calculating Electric Utility Progress Towards Meeting Minnesota's Greenhouse Gas Reduction Goal

## I. Overview

The greenhouse gas calculation methodology should include a base case which:

- Includes carbon emissions from utility-owned (or controlled) generation and purchases while excluding carbon emissions from electricity wholesale sales ,
- Uses a regional average CO2 emissions rate for unknown purchases (provided by regulatory agencies) that most reasonably matches the time period being evaluated,
- Include emissions rate assumptions and sources for different generation resources,
- Uses median forecast, and
- Tracks biogenic emissions separately<sup>1</sup>.

## II. Base Case for reporting progress towards meeting Minnesota's Greenhouse Gas Reduction Goal under Minnesota Statutes 216H.02 and for Environmental Disclosure

### A. Calculate 2005 CO2 Emissions

1. Include CO2 emissions from actual generation, including line losses:
  - owned generation (Source of CO2 LBS/Net MWh)
  - purchases from specific generation sources (Source of emissions)
  - unknown purchases (Xcel provided emissions rate per MWh of purchase, source from MRO West).
2. Exclude CO2 Emissions from wholesale sales
3. Report biogenic CO2 emissions separately

### B. Forecast Future CO2 Emissions

1. Utilities with capacity expansion models base CO2 emissions on output of preferred plan. Use Xcel-provided emissions rate for unknown purchases.
2. Utilities without capacity expansion models base CO2 emissions on expected output of resources used in preferred plan. Use Xcel-provided emissions rate for unknown purchases.
3. Report biogenic emissions separately.

## III. Scenario Analysis

Utilities expressed an interest in providing reasoning for why it might include or exclude emissions from particular or groups of resources for reasons specific to the individual utility.

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<sup>1</sup> Biogenic fuels (often referred to as biomass) are biologically based materials that are either used for combustion or product processes or otherwise decompose. eGRID assigns all CO2 emissions from biogenic fuels a value of zero. By keeping these emissions separate, electric utilities will be prepared to respond to future reporting requirements.

One example for scenario analysis that could occur would be allocating specific resources to Minnesota if Minnesota's public policy caused the utility to make the investment.

## **CERTIFICATE OF SERVICE**

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce**  
**Comments**

**Docket No. ET9/RP-21-782**

Dated this **1<sup>st</sup>** day of **June 2022**

**/s/Sharon Ferguson**

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Christina	Pierson	christinap@cmpasgroup.org	Central Minnesota Municipal Power Agency	459 S Grove St  Blue Earth, MN 56013	Electronic Service	No	OFF_SL_21-782_RP-21-782
Chrisitna	Pierson	christinap@cmpas.org	Central Municipal Power Agency/Services	459 S Grove Street  Blue Earth, MN 56013	Electronic Service	No	OFF_SL_21-782_RP-21-782
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_21-782_RP-21-782
Robert H.	Schulte	rhs@schulteassociates.com	Schulte Associates LLC	1742 Patriot Rd  Northfield, MN 55057	Electronic Service	No	OFF_SL_21-782_RP-21-782
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th PI E Ste 350  Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_21-782_RP-21-782



First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Beth H.	Soholt	bsoholt@windonthewires.org	Wind on the Wires	570 Asbury Street Suite 201  St. Paul, MN 55104	Electronic Service	No	OFF_SL_21-782_RP-21-782
Jeremy	Sutton	Jsutton@rpu.org	Rochester Public Utilities	4000 E River Rd  Rochester, Minnesota 55906	Electronic Service	No	OFF_SL_21-782_RP-21-782
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_21-782_RP-21-782
Toni	Volkmeier	toni.volkmeier@state.mn.us	MPCA	520 Lafayette Rd. N.  St. Paul, MN 55155	Electronic Service	No	OFF_SL_21-782_RP-21-782