

## Staff Briefing Papers

|              |  |                          |                |
|--------------|--|--------------------------|----------------|
| Meeting Date | September 8, 2022  |                          | Agenda Item 7* |
| Company      | Southern Minnesota Municipal Power Agency (SMMPA)  |                          |                |
| Docket No.   | <b>ET9/RP-21-782</b><br><b>In the Matter of Southern Minnesota Municipal Power Agency’s 2022-2036 Integrated Resource Plan</b> |                          |                |
| Issues       | 1. Should the Commission accept SMMPA’s (SMMPA or Agency) 2022-2036 Integrated Resource Plan (IRP)?                            |                          |                |
|              | 2. Should the Commission require SMMPA to make compliance filings following its IRP?   |                          |                |
|              | 3. When should SMMPA file its next IRP?  |                          |                |
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| <b><u>Relevant Documents</u></b>                                  | <b><u>Date</u></b> |
|---|--------------------|
| SMMPA's Initial Filing (21-782)                                   | November 30, 2021  |
| SMMPA's response to Department Information Requests 5-11 (21-782) | May 23, 2022       |
| LIUNA Minnesota & North Dakota Comments                           | June 1, 2022       |
| Department Comments   | June 1, 2022       |
| SMMPA Reply Comments  | August 12, 2022    |

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

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## I. Statement of Issues

1. Should the Commission accept Southern Minnesota Municipal Power Agency's (SMMPA or Agency) 2022-2036 Integrated Resource Plan (IRP)?
2. Should the Commission require SMMPA to make compliance filings following its IRP?
3. When should SMMPA file its next IRP?

## II. Commission's Role in IRPs

Minn. Stat. §216B.2422, subd. 1 – the Resource Planning Statute – defines a resource plan as:

... a set of resource options that a utility could use to meet the service needs of its customers over a forecast period, including an explanation of the supply and demand circumstances under which, and the extent to which, each resource option would be used to meet those service needs. These resource options including using, refurbishing, and constructing utility plant and equipment, buying power generated by other entities, controlling customer loads, and implementing customer energy conservation.

The Statute requires any entity serving at least 10,000 customers and capable of generating 100,000 kilowatts of electricity file an IRP.

Minn. Stat. § 216B.2422, subd. 2 requires utilities to file a resource plan according to rules adopted by the Commission. Minn. R. 7843.0050, subp. 3 states that resource plans must be evaluated on their ability to:

- A. maintain or improve the adequacy and reliability of utility service;
- B. keep the customers; bills and the utility's rates as low as practicable, given regulatory and other constraints;
- C. minimize adverse socioeconomic effects and adverse effects upon the environment;
- D. enhance the utility's ability to respond to changes in the financial, social, and technological factors affecting its operations; and
- E. limit the risk of adverse effects on the utility and its customers from financial, social, and technological factors that the utility cannot control.

The statutory language governing Minnesota cooperative electric associations is found in Minn. Stat. § 216B.2422, subd. 2 (b), which states that the Commission's order for resource plans filed by these utilities "shall be advisory and the order's findings and conclusions shall constitute prima facie evidence which may be rebutted by substantial evidence in all other proceedings." This differs from the Commission's role in resource plan proceedings for a public utility, in which the "commission shall approve, reject, or modify the plan of a public utility as defined in section 216B.02, subdivision 4, consistent with the public interest."

On October 20, 1994, the Commission issued its first advisory Order under Minn. Stat. § 216B.2422, subd. 2 (b) in the Matter of SMMPA's 1993 IRP.<sup>1</sup> In its Order, the Commission stated

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<sup>1</sup> Docket No. ET-9/RP-93-1203, In the Matter of Southern Minnesota Municipal Power Agency's

the following regarding its oversight role for Cooperatives and municipal utilities filing resource plans under the newly enacted statute:

The Minnesota legislature has recognized that formally structured integrated resource planning by utilities is a responsible and reasonable means to promote the utilities' readiness to meet the energy needs of their customers in ways that are least costly and overall beneficial to the public good. Accordingly, the legislature has adopted resource plan requirements for investor-owned rate-regulated electric utilities and for other utilities of a certain size. This "other utilities" group consists primarily of the state's larger municipal and cooperative utilities, including SMMPA.

Both groups of utilities (investor owned and the municipal and cooperative utilities of a certain size) are required to file with the Commission periodic resource plans as defined in the statute and in accordance with Commission rules for resource plans.

The Commission has a different oversight role, however, regarding resource plans filed by the two utility groups. As to the resource plans of investor-owned rate-regulated electric utilities, the Commission has authority to approve, reject, or modify the plan. For resource plans filed by other utilities, such as SMMPA, the Commission plays an educational and advisory role to the utility regarding the utility's compliance with resource planning requirements.<sup>2</sup>

This is SMMPA's ninth IRP filed with the Commission.

### **III. SMMPA Background**

SMMPA describes itself as a municipal joint action agency formed in 1977 by thirteen cities, all of which operated municipal electric utilities. In 1984, SMMPA merged with United Minnesota Municipal Power agency and increased its membership to eighteen. As shown by the map below, SMMPA's member utilities are mostly located in east central or southeastern Minnesota, except for Grand Marais, which is located on the North shore of Lake Superior.

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(SMMPA) 1993 Resource Plan, Order Reviewing Resource Plan, Identifying Areas for Improvement and Requiring Progress Report, October 20, 1994.

<sup>2</sup> Docket No. ET-9/RP-93-1203, *In the Matter of SMMPA's 1993 Resource Plan*, Order Reviewing Resource Plan, Identifying Areas for Improvement and Requiring Progress Report, October 20, 1994.



SMMPA is one of several joint action agencies in Minnesota, including Central Minnesota Power Agency/Services, Minnesota Municipal Power Agency, Missouri River Energy Services, and Northern Minnesota Municipal Power Agency.<sup>3</sup> 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.<sup>4</sup>

In 1982, SMMPA met its members' significant generation needs by joining with Northern States Power (NSP, now d/b/a Xcel Energy) to develop Unit 3 at NSP's Sherburne County Generating Station (Sherco 3), which completed construction in 1987. SMMPA owns 41 percent (359 MW) of Sherco 3, which serves as the primary source of energy for SMMPA and its members, while Xcel owns 59 percent and operates and maintains the unit on behalf of both owners.<sup>5</sup> Sherco 3 was critical to the formation of SMMPA and continues to be the agency's largest resource.<sup>6</sup>

SMMPA has continued to expand its renewable resource mix; renewable energy now comprises over 25 percent of SMMPA's energy supply, which ensures that SMMPA meets the state's Renewable Energy Standard (RES).

In 1993, SMMPA created their first demand-side management (DSM) program and have successfully developed and employed a growing number of DSM-Conservation programs since. According to SMMPA, since the state's Conservation Improvement Program (CIP) savings goal

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<sup>3</sup> SMMPA explains that the purpose of joint action agencies are to create economies of scale, allowing the cities to more cost-effectively meet their growing generation and transmission needs.

<sup>4</sup> Initial filing, p. 1-3

<sup>5</sup> <https://smmpa.com/generation/sherco-3>

<sup>6</sup> Initial filing, p. 1-3

of 1.5 percent took effect in 2010, the Agency and its members have collectively saved an annual average of 1.8 percent of their energy through their DSM programs. SMMPA stated that it is supportive of the recent legislative changes from the Energy Conservation and Optimization Act (ECO Act) to allow for the incorporation of beneficial electrification into the CIP program. The Agency plans to participate in the development of program parameters that will govern how beneficial electrification will be accounted for and will develop program offerings that reflect those parameters and provide value to its members' retail customers.<sup>7</sup>

In 2017, SMMPA added the first utility scale solar project to its mix, the 5 MW Lemond Solar Center, which is a 20-year power purchase agreement (PPA).<sup>8</sup> Additionally, SMMPA worked with its members to launch a community solar program, and added a 100 MW wind facility, Stoneray Wind, which began operation in 2020. SIMPA states that the implementation of resource changes outlined in its IRP that allow the Agency to achieve the goals of SMMPA 2.0<sup>9</sup> will result in a renewable resource portfolio that will far exceed state requirements.

SMMPA offers its generating resources into the Midcontinent Independent System Operator (MISO) market, running the generation as called for by the market. The Agency then purchases the energy needed to serve the load of its members from the MISO market. SMMPA's generating assets serve as an "economic hedge" to help manage the cost of energy it purchases from MISO.<sup>10</sup>

The table below provides additional background information about SMMPA:

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<sup>7</sup> Id, p. 1-4

<sup>8</sup> Id.

<sup>9</sup> The SMMPA 2.0 strategic initiative adopted by the SMMPA board of directors in early 2020 showed that an 80 percent carbon-free energy portfolio in 2030 was optimal for significantly reducing carbon initiatives while meeting the Agency's reliability and affordability objectives.

<sup>10</sup> Initial Filing, p.1-4

**Table 1: SMMPA Background Information**

|   |  |
|---|--|
| Number of Members   | <ul style="list-style-type: none"> <li>▪ 18 Municipal Utilities</li> </ul>   |
| Number of Minnesota retail customers served through SMMPA’s members | <ul style="list-style-type: none"> <li>▪ 121,261</li> </ul>  |
| 2021 Peak Demand  | <ul style="list-style-type: none"> <li>▪ 540 MW</li> </ul>   |
| Primary Resources: Base Load <sup>11</sup>                          | <ul style="list-style-type: none"> <li>▪ Sherco 3 – 360 MW</li> </ul>  |
| Primary Resources: Intermediate Load <sup>12</sup>                  | <ul style="list-style-type: none"> <li>▪ 4 gas-fired reciprocating internal combustion engine generating units in Fairmont, MN – 26.1 MW</li> <li>▪ 4 gas-fired reciprocating internal combustion engine generating units in Owatonna, MN – 38.8 MW</li> </ul>   |
| Primary Resources: Peaking Facilities <sup>13</sup>                 | <ul style="list-style-type: none"> <li>▪ 2 SMMPA-owned 6 MW dual-fuel reciprocating internal combustion engines</li> <li>▪ 1 member-owned 16.5 MW combustion turbine</li> <li>▪ 57 member-owned natural gas and oil fired reciprocating internal combustion engines</li> </ul> <p>Total member-owned peaking units is 147 MW</p> |
| Primary Resources: Renewable Resources <sup>14</sup>                | <ul style="list-style-type: none"> <li>▪ Wind Owned– 8.5 MW</li> <li>▪ Wind PPA – 200.5 MW</li> <li>▪ Hydro member owned – 0.5 MW</li> <li>▪ Biomass Owned – 1.6 MW</li> <li>▪ Biomass PPA – 1.0 MW</li> <li>▪ Solar PPA – 5.0 MW</li> </ul>   |

#### IV. Initial Filing

A core piece of SMMPA’s plan involves two events that both occur in 2030; one is the retirement of Sherco 3, and the other is the expiration of the service contracts with the cities of Austin and Rochester on March 31, 2030. SMMPA explained:

[T]he cities of Austin and Rochester, which combine to 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. **That means the Agency will**

<sup>11</sup> Id., pp. 4-3 to 4-4

<sup>12</sup> Id., pp. 4-4 to 4-5

<sup>13</sup> Id., pp. 4-5 to 4-7

<sup>14</sup> Id., pp. 4-7 to 4-8

**only need to replace a fraction of its approximately 360 MW share of Sherco 3 generation when the unit is retired.** (Emphasis added by staff.)

The sixteen other members of SMMPA have contracts that extend to 2050.

Staff also notes that Austin Utilities (AU) and Rochester Public Utilities (RPU) currently operate under partial requirements arrangements, under which SMMPA and these members have agreed to Contract Rates of Delivery (CROD) of 70 MW and 216 MW, respectively. Under the CROD arrangement, SMMPA serves loads only up to the CROD, which means that any load growth from AU and RPU above the CROD does not impact SMMPA's net requirements; it only increases the computation of Total Member Requirements. This is shown Table 2 below, which is an excerpt of SMMPA's Demand and Resource Balance table attached as Exhibit 7 of the Petition.

**Table 2: Demand and Resource Balance (Preferred Case)<sup>15</sup>**

|                                  | 2022    | 2023    | 2024    | 2025    | 2026    | 2027    | 2028    | 2029    | 2030   |
|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| <b>Total Member Requirements</b> | 809.4   | 817.7   | 824.7   | 833.7   | 841.5   | 849.2   | 855.7   | 864.3   | 402.5  |
| Above CROD                       | (53.4)  | (56.7)  | (59.4)  | (62.7)  | (65.6)  | (68.3)  | (70.4)  | (73.6)  | -      |
| Installed DSM                    | (163.2) | (163.2) | (163.2) | (163.2) | (163.2) | (163.2) | (163.2) | (163.2) | (71.9) |
| Member Generations               | (0.5)   | (0.5)   | (0.5)   | (0.5)   | (0.5)   | (0.5)   | (0.5)   | (0.5)   | (0.5)  |
| Transmission Losses              | -       | -       | -       | -       | -       | -       | -       | -       | -      |
| Total Adjustments                | (217.1) | (220.4) | (223.0) | (226.4) | (229.2) | (232.0) | (234.1) | (237.2) | (72.4) |
| <b>Total Agency Requirement</b>  | 592.3   | 597.3   | 601.7   | 607.3   | 612.3   | 617.3   | 621.5   | 627.1   | 330.2  |

SMMPA's total generation requirements accounts for DSM-Conservation programs, such as existing direct load control and forecasted CIP savings goal. Then, SMMPA adds a 9.4 percent reserve margin assumption, which is based on MISO's planning reserve requirements.

SMMPA included the following in its IRP:

**A. Reference Guide.<sup>16</sup>**

This section lists IRP requirements by Minn. Statutes and rules, in addition to the Minnesota Department of Commerce (Department) recommendations.

<sup>15</sup> Id., Exhibit 7, p. 7-1

<sup>16</sup> Id., pp. iv to v



**B. Non-Technical Summary.**<sup>17</sup>

This section provides a summary of SMMPA's 2022-2036 IRP, including an overview of SMMPA, the Plan's development, Load Forecast, Resources, DSM, Renewable Resources, Preferred Plan, Sensitivity Cases, and its Environmental Stewardship.

**C. Plan Development.**<sup>18</sup>

In this section, SMMPA described the Plan objectives and Planning Model, including model inputs and assumptions.

SMMPA uses the AURORAxmp (Aurora) Electric Market Model, which is an electric modeling forecasting and analysis software developed by EPIS, Inc., for its short- and long-range resource planning. The Agency states that the Aurora model is designed to mimic the way in which MISO operates, and, among other things, the model can determine if there is enough total generating capacity to serve peak demand plus reserve requirements each year.<sup>19</sup>

The Agency uses several assumptions in its planning model, including (*Staff added emphasis*):

- a. **Sherco 3 was assumed to retire at the end of 2030**, although the model was also given the option to keep or retire the unit and it chose to retire Sherco 3 in 2030.
- b. **Expiration of the 100.5 MW power purchase agreement with the Wapsipinicon wind farm in 2029.**
- c. Retirement of the six wind turbines owned by the Agency in 2025 (8.6 MW). This includes Fairmont Phase I Wind (2003), 1.9 MW; Fairmont Phase II Wind Owned 2004/2005, 3.3 MW; Redwood Falls Phase II Wind Owned 2004/2005, 3.3 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.

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<sup>17</sup> Id., pp. 1-1 to 1-8

<sup>18</sup> Id., pp. 2-1 to 2-4

<sup>19</sup> Id., p. 2-1

- 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 the Commission's environmental externalities 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.

**D. Load Forecast.**<sup>20</sup>

SMMPA's load forecast is based on its 2020 SMMPA long-term load forecast, which was developed with assistance from nFront Consulting LLC (nFront Consulting), a utility industry consulting firm based out of Orlando, Florida. The forecast uses an econometric approach,<sup>21</sup> which SMMPA notes is the same methodology used in previous SMMPA IRP filings.

The Agency provides the following list of steps used to arrive at its forecasted demand and energy requirements:

1. The annual retail load served across the members is forecasted by combining econometric forecasts of 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

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<sup>20</sup> Id., pp. 3-1 to 3-16

<sup>21</sup> Forecasting equations are developed that explain variation in load as a function of a series of explanatory variables, which are then simulated with future values of the explanatory variables to generate forecasts of load determinants.

2. 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.
3. After adjusting for distribution losses, the resulting total represents the total delivered energy requirements across all of SMMPA's members.
4. The total delivered energy requirements are allocated to the members based on a separate econometric forecast of total delivered energy requirements for each member.
5. 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.

SMMPA states that while its load forecast implicitly accounts for the historical relationships between energy usage and the following factors to the extent they have occurred in the past, **this load forecast does not explicitly reflect** extraordinary potential future effects of (*emphasis added by staff*):

1. Increases in appliance design efficiency or building insulation standards;
2. Development of substitute energy sources or load-side generation;
3. Consumers switching to traditional or new types of electrical end-uses from other alternatives (e.g., electric vehicles);<sup>22</sup>
4. Consumers switching from electrical appliances to other alternatives; or;
5. Variations in load that might result from legal, legislative or regulatory actions.

#### **E. Resources.**<sup>23</sup>

SMMPA states that it and its members operate entirely within the MISO footprint. According to SMMPA, it is required to own or control enough generating capacity to serve its forecasted load, plus a reserve margin<sup>24</sup>, but SMMPA does not run its own generation to serve its own load and instead offers all its generating resources into the MISO market.<sup>25</sup> The generation is dispatched by MISO based on economics and operational needs of the entire MISO system, without direct consideration of SMMPA's

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<sup>22</sup> The Department's third information request asked for additional information about how EVs factored into SMMPA's load forecast, if SMMPA reviewed other utilities' EV load forecasts, and what data SMMPA requires to forecast EV usage over the long term. In response, SMMPA explains that EV adoption is increasing across its members' systems and that this adoption has affected historical energy sales and peak demands. Based on statewide EV data when the load forecast was developed, the estimated number of light-duty plug-in vehicles within SMMPA communities by 2040 that may be viewed as implicit within the load forecast ranged from 5,000 to 16,000, which SMMPA estimates to be between 0.5 percent to 2 percent of SMMPA's 2040 energy requirements. SMMPA states that it did not review other utilities' EV load forecasts as a part of developing the load forecast for this IRP. SMMPA plans to develop projections regarding the adoption of EVs across their members for this year's load forecast using publicly available data.

<sup>23</sup> Initial Filing, pp. 4-1 to 4-10

<sup>24</sup> Reserve requirement percentage is determined by MISO.

<sup>25</sup> Initial Filing, p. 4-1

load requirements. SMMPA, in turn, purchases all the energy needed to serve its members' load from the MISO market. In essence, SMMPA is serving its load with a combination of its own generation, that is being run by MISO, and purchases from other generators, also being run by MISO.

Chart 1 below displays the diversity of SMMPA's current generation capacity portfolio by resource type:

**Chart 1: Current Resource Capacity Mix<sup>26</sup>**

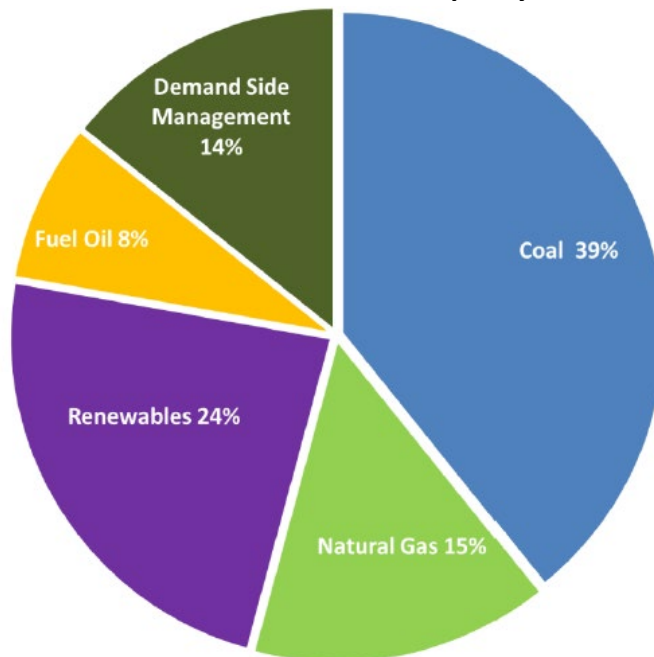
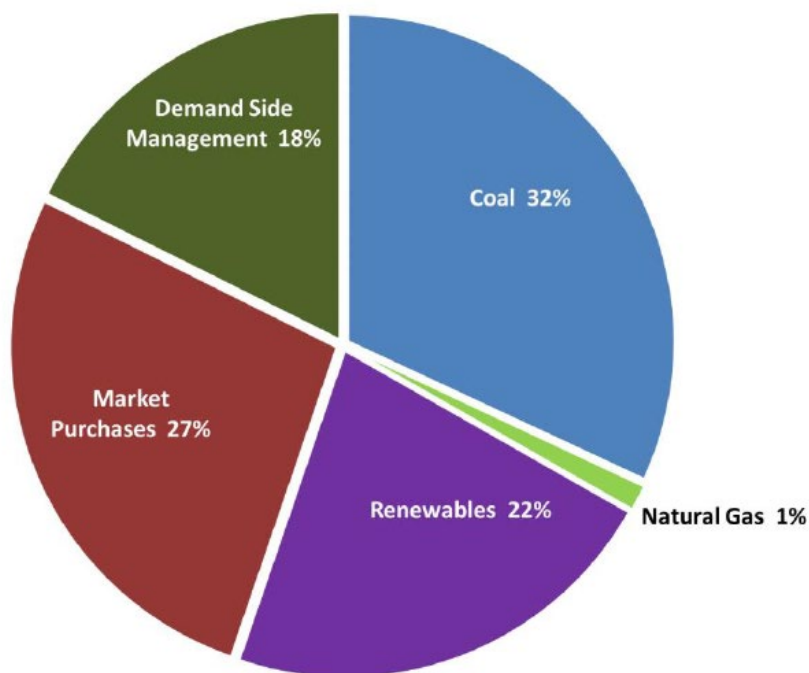


Chart 2 shows an approximation of the combination of Agency resources and market purchases used to meet SMMPA's energy needs in 2020, including energy consumption eliminated by DSM.

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<sup>26</sup> Id., Chart 4-1, p. 4-2

**Chart 2: 2020 Energy Mix<sup>27</sup>**



SMMPA is a Transmission Owning member of MISO. The Agency owns 13 percent of the CapX 2020 345 kV line that runs from Hampton, MN to Rochester, MN and on to La Crosse, WI and is a 6.5 percent participant in a 345 kV extension of that line from La Crosse to Madison, WI, through its Wisconsin subsidiary, SMMPA Wisconsin LLC.

In addition to SMMPA's percentage ownership in CapX 2020 facilities, Table 3 lists the mileage of other transmission lines owned by SMMPA in Minnesota. All these lines are overhead lines except for 6.9 miles of underground cable in the 69 kV class.

**Table 3: Circuit Miles of Transmission by Voltage<sup>28</sup>**

| Voltage<br>(kV) | Circuit length<br>(Miles) |
|-----------------|---------------------------|
| 230             | 17.09                     |
| 161             | 123.68                    |
| 115             | 11.85                     |
| 69              | 149.80                    |

SMMPA emphasized that to implement aggressive decarbonization plans that include retirement of centralized coal plants and high levels of disbursed renewable resources, significant investment in new and upgraded transmission lines and substations will be required. Thus, one component of SMMPA's long-term plan is to identify future

<sup>27</sup> Id., Chart 4-2, p. 4-2

<sup>28</sup> Id., Table 4-4, p. 4-10

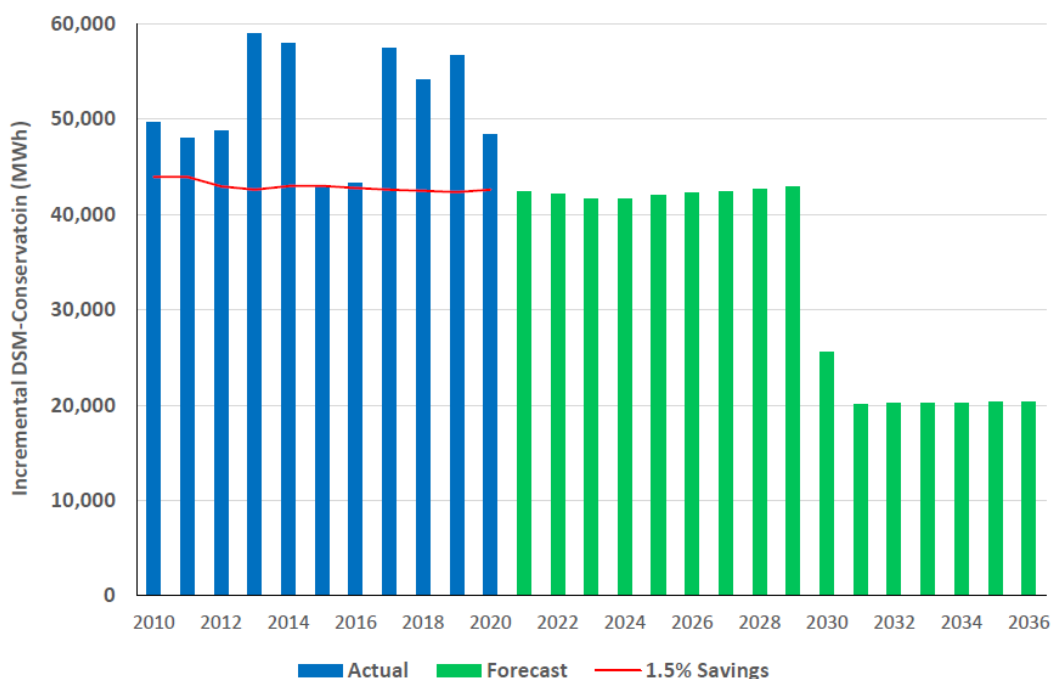
challenges now and work with the industry and stakeholders to develop solutions before they are needed.<sup>29</sup>

***F. Demand-Side Management Resources.***<sup>30</sup>

In this section, SMMPA explains its long-standing commitment to DSM, stating that it has maintained a consistent and high level of commitment to DSM and has added 23 new energy efficiency measures to its suite of programs since its 2017 IRP filing. According to SMMPA, its members have collectively exceeded the CIP savings goal of 1.5 percent by averaging 1.8 percent energy savings between 2010 and 2020. SMMPA also reports that its members have collectively exceeded the CIP spending requirement of 1.5 percent of gross operating revenues by spending on average 2.68 percent between 2010 and 2020.<sup>31</sup>

Chart 3 displays SMMPA's historical and projected DSM energy savings. The dramatic reduction in SMMPA's projected DSM-Conservation impacts beginning in 2030 is a result of the expected departure of Austin Utilities and Rochester Public Utilities effective April 2030.

**Chart 3: 2010-2036 Historical and Projected DSM Energy Savings**



SMMPA states that it intends to continue to achieve at least 1.5 percent of total retail energy savings in each year of the planning period but notes that the current energy efficiency environment is rapidly evolving in ways that will continue to present new

<sup>29</sup> Id., p. 4-9.

<sup>30</sup> Id., pp. 5-1 to 5-12

<sup>31</sup> Id., p. 5-2

challenges to meeting the CIP savings goals over the 15 year period.<sup>32</sup> SMMPA notes that changing baselines, uncertain economic conditions, and decreased opportunities with certain technologies<sup>33</sup> will all impact SMMPA's ability to meet its savings goals.

In an attempt to continue meeting its CIP savings goal, the Agency explained that it intends to develop new DSM programs and market strategies, while also obtaining energy efficiency savings through supply-side efficiency initiatives and new beneficial electrification/efficient fuel-switching measures.<sup>34</sup> SMMPA recognized that increased education and outreach will be critical to delivering their projected DSM savings as these new technologies may be more costly, and contractors and customers may be hesitant to adopt them.

SMMPA highlights the fact that the ECO Act that was signed into law allows utilities to claim CIP savings for efficient fuel switching. Because of this, SMMPA stated that it is looking at opportunities to leverage customer's support for the efficient electrification of end uses to achieve its CIP savings goals. The Agency make specific mention of EVs, electric water heaters, and air source heat pumps.<sup>35</sup>

SMMPA lists several current DSM-Conservation programs it provides to its members' customers, in addition to its continuing efforts to develop new DSM-Conservation Initiatives.

#### **G. Renewable Resources.**<sup>36</sup>

This section of SMMPA's IRP describes the Agency's renewable resources. Minn. Stat. 216B.1691; Subd. 2a, Minnesota's Renewable Energy Standard (RES), requires SMMPA to provide 20 percent of its energy from renewable resources by 2020 and 25 percent in 2025. The Agency states that it has maintained compliance with the standard since the standard's commencement.

Chart 4 displays SMMPA's compliance with the RES, as well as how it plans to continue to comply. The chart shows yearly credit retirements required by the standard, along with historical and projected credit production from the agency's portfolio.<sup>37</sup>

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<sup>32</sup> Id., p. 5-6

<sup>33</sup> SMMPA specifically discusses its use of LED lighting products for CIP programs. LED lighting measures became an obvious and easy energy saving option for customers. However, with changing energy efficiency codes and standards impacting lighting measure baselines, significant market penetration of commercial efficient lighting, and no currently available lighting alternative more efficient than LEDs, SMMPA has started to see participation in and savings from lighting projects decrease.

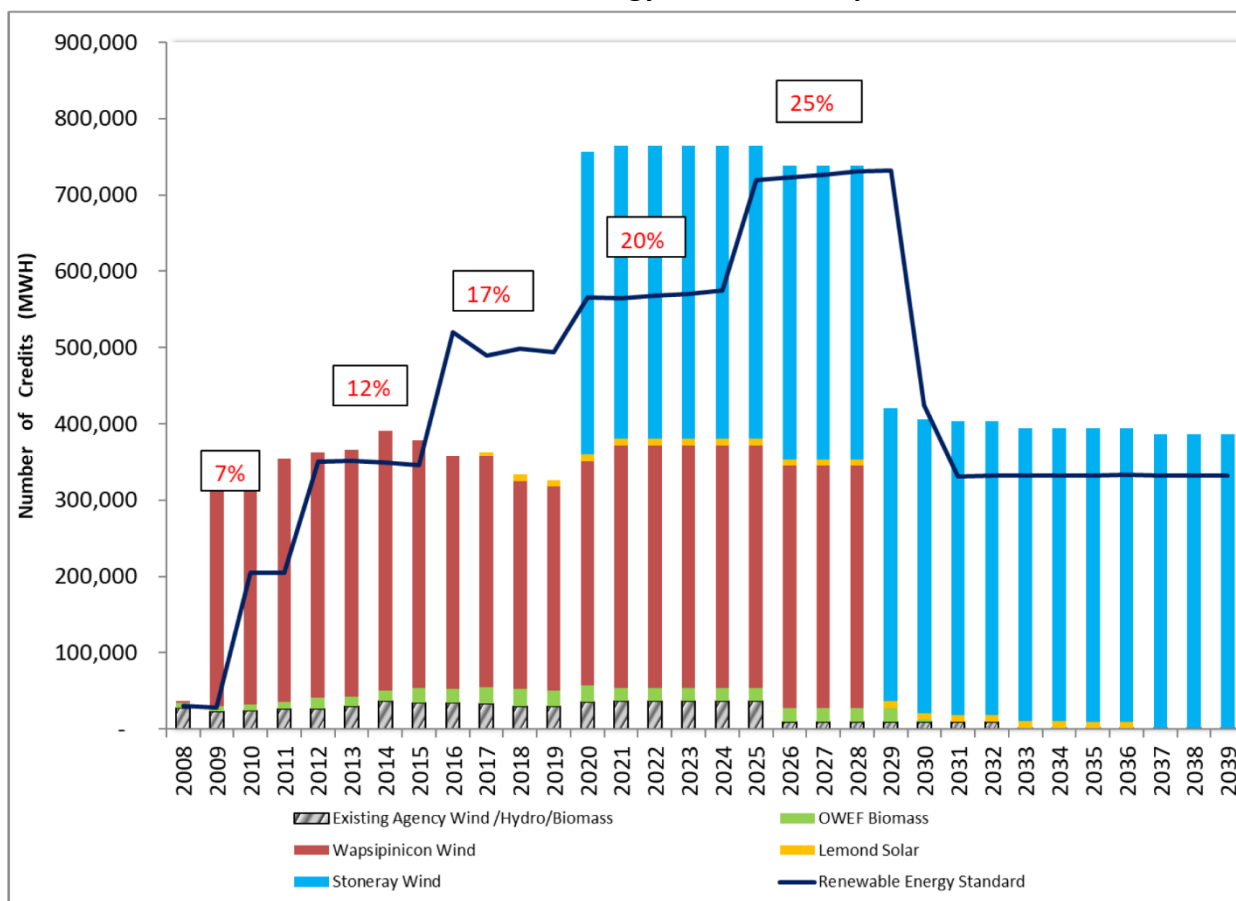
<sup>34</sup> Initial Filing, p. 5-6

<sup>35</sup> Id., p. 5-7

<sup>36</sup> Id., pp. 6-1 to 6-5

<sup>37</sup> In the years 2016 through 2019 a credit banking and depletion strategy filled the gaps during a time where renewable need outpaced renewable generation. SMMPA plans to use this strategy again from 2029 and 2030.

**Chart 4: SMMPA Renewable Energy Standard Compliance<sup>38</sup>**



The Agency has implemented a portfolio approach to procure qualifying renewable resources, utilizing multiple technologies and various ownership structures. SMMPA's renewable resources located within the State of Minnesota include:

- **Agency Wind/Hydro/Biomass**
  - 8.5 MW of SMMPA-owned wind turbines
  - 1.6 MW of SMMPA-owned landfill gas generation
  - 500 kW member-owned hydro unit
  - Renewable production derived from the blending of biodiesel in member-owned diesel generators
- **Olmsted County Waste-to-Energy Facility Biomass** – an 8.7 MW combined heat and power facility located in Rochester, MN, that is owned and operated by Olmsted County. The facility utilizes municipal solid waste to produce steam for electric generation.
- **Wapsipinicon Wind** – a 100.5 MW electric generating facility owned and operated by EDF Renewable Energy. The facility is located in Mower County,

<sup>38</sup> Initial Filing, Chart 6-1, p. 6-2



Minnesota. The facility's energy output and environmental attributes are sold to SMMPA under a 20-year PPA that expires in 2029.

- **Lemond Solar** – a 5 MW AC / 6.58 MW DC solar facility owned and operated by Enerparc Inc. The facility is located near Owatonna. SMMPA is the sole off-taker from the facility under a 20-year PPA.
- **Stoneray Wind** – a 100 MW facility built, owned, and operated by EDF Renewable Energy. SMMPA entered a 20-year PPA with EDF Renewable Energy for the energy and environmental attributes in 2020. The facility is located in Pipestone and Murray counties.
- **Solar Choice Program** – a program that provides customers with an alternative to rooftop solar by allowing residents and business customers the opportunity to subscribe to the output of panels in a large solar garden and receive credit for solar generation on their energy bills each month. Energy for the program is provided by the 5 MW Lemond Solar Center. SMMPA member communities Austin, Preston, Princeton, Rochester, and Saint Peter are currently offering the program. SMMPA had planned to contract for an additional 3 MW of solar energy from a new facility if at least 25 percent of the new facility (2,481 panels) was subscribed to by retail customers of participating members for the full 25-year term of the anticipated PPA by October 2018. This threshold was not met, and so participating members continue to be served from the Lemond Solar Center.

#### ***H. Preferred Plan<sup>39</sup> and Sensitivity Cases.<sup>40</sup>***

Minnesota Rule 7843.0400 Subp. 3 requires utilities to include in their resource plan information supporting the selection of a proposed resource plan. This includes a list of resource options considered when existing resources are inadequate to meet projected level of service need, a description of the overall process and the analytical technique used by the utility to create its proposed plan, a 5-year action plan describing the activities the utility intends to undertake to obtain noncurrent resources identified in its proposed plan, and a discussion of why the plan would be in the public interest. SMMPA uses the "Preferred Plan" and "Sensitivity Cases" sections of its IRP to fulfill the requirements of Minn. Rule 7843.0400 Subp. 3. Staff has provided a combined summary of both sections below.

##### ***i. Preferred Plan***

###### **Five-Year Action Plan**

SMMPA's 2020 load forecast shows the energy need increasing annually by 0.5 percent through 2029, but in 2030 its total energy requirements decrease by 50 percent due to

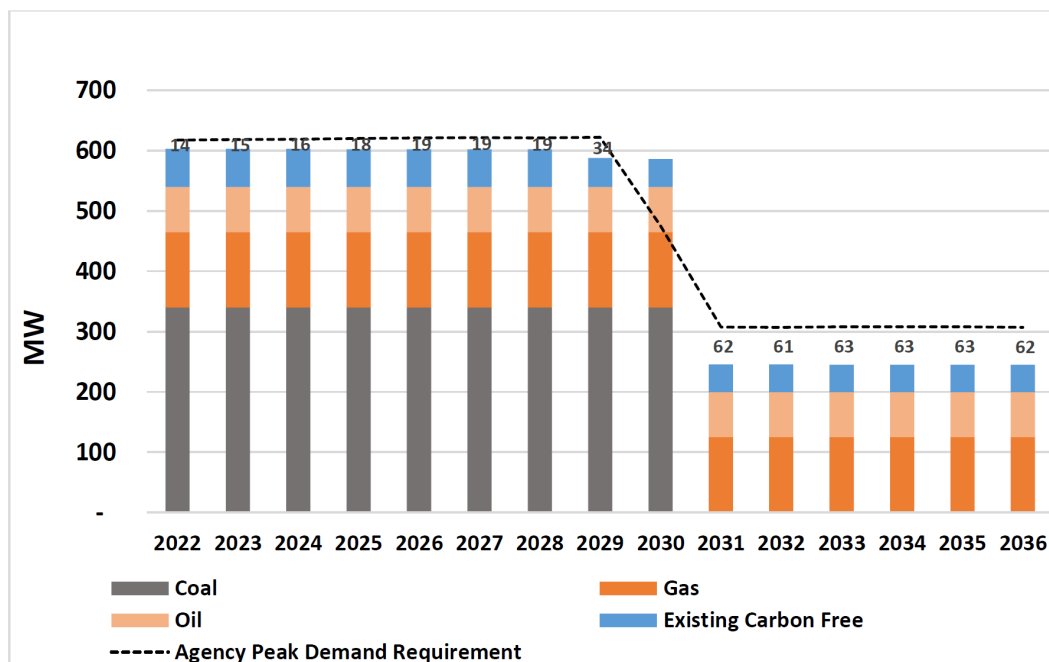
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<sup>39</sup> Id., pp. 8-1 to 8-12

<sup>40</sup> Id., pp. 7-1 to 7-11

the expiration of the Agency’s power sales contracts with Austin Utilities and Rochester Public Utilities.<sup>41</sup> After 2030, the Agency’s energy need is predicted to increase by only 0.1 percent annually. Additionally, SMMPA reports its load forecast shows demand increasing 0.1 percent annually until 2029, then dropping by 50 percent and remaining flat through the duration of the IRP.<sup>42</sup> Chart 5<sup>43</sup> displays the Agency’s forecasted demand requirements (i.e., Base Load Forecast) compared to its current generation resources.

**Chart 5: Resource and Capacity Requirements – Before Additions<sup>44</sup>**



The Agency’s capacity projections show a need of 14 to 19 MW in the near-term due primarily to changes that MISO plans to implement in the resource planning and accreditation rules in the 2023 timeframe.<sup>45</sup>

<sup>41</sup> Id., p. 8-1

<sup>42</sup> The forecasted decline in growth for both energy and demand are the result of AU and RPU’s expiring contracts. SMMPA’s CROD arrangements with both AU and RPU involve capping the maximum demand or capacity SMMPA provides those members. However, SMMPA continues to serve all the energy growth that occurs except for energy during the few hours per year their load is above CROD. In other words, the load forecast prior to 2030 includes energy growth for both AU and RPU. Because of the economies of Austin and Rochester, the rate of load growth in those communities is greater than in most of the other SMMPA member communities. Therefore, when the growth rates of AU and RPU are removed from the forecast after 2030, the lower growth rate reflects the economies of the remaining 16 SMMPA members.

<sup>43</sup> The demand requirement in Chart 7 includes approximately two percent surplus above the MISO requirement due to uncertainties in the process used by MISO to calculate the future reserve requirements.

<sup>44</sup> Initial Filing, Chart 8-1, p. 8-2

<sup>45</sup> Id., p. 8-8

When the model encounters a year with insufficient reserves – total generation must serve peak demand plus a reserve requirement – Aurora will choose additional generation from the resource options SMMPA made available to the model. The future resource options which were available for the model to choose were:

- 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; and
- 50 MW battery installation in lieu of conventional generation.

SMMPA states that its Aurora model determined the most economical method of meeting that need is the addition of 6 MW of diesel generation, and 8 to 11 MW of short-term capacity purchases. The model also shows a need for 6 MW of additional diesel generation approaching 2030. This additional 12 MW of conventional generation is expected to produce very little energy as it will only be run in emergency situations, and thus is also not expected to have an impact on the Agency's percent of carbon-free energy generated.<sup>46</sup>

Aside from this, the Agency's plan in the next five years is to continue to operate and maintain its existing fleet of generation resources while continuing to offer DSM and energy conservation programs to meet CIP's annual energy savings goal of 1.5 percent. SMMPA states that there are no major or costly projects planned at Sherco 3 over the next 5 years, and the Agency does not foresee additional need for retirement or replacement of any of its existing resources.<sup>47</sup>

### **Long-Range Plan**

The most significant changes in the long-range plan are the planned retirement of Sherco 3 and the expiration of the Agency's power sales contracts with Austin Utilities and Rochester Public Utilities on March 31, 2030. Because these departures will reduce the Agency's load by more than 50 percent, the Agency projects needing to replace only 61 to 63 MW of its 360 MW share of Sherco 3.<sup>48</sup>

As noted previously, in addition to the retirement of Sherco 3 and the departure of AU and RPU, the Agency's plan accounts for:

- The retirement of Agency-owned wind turbines in 2025 (8.5 MW);

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<sup>46</sup> Id.

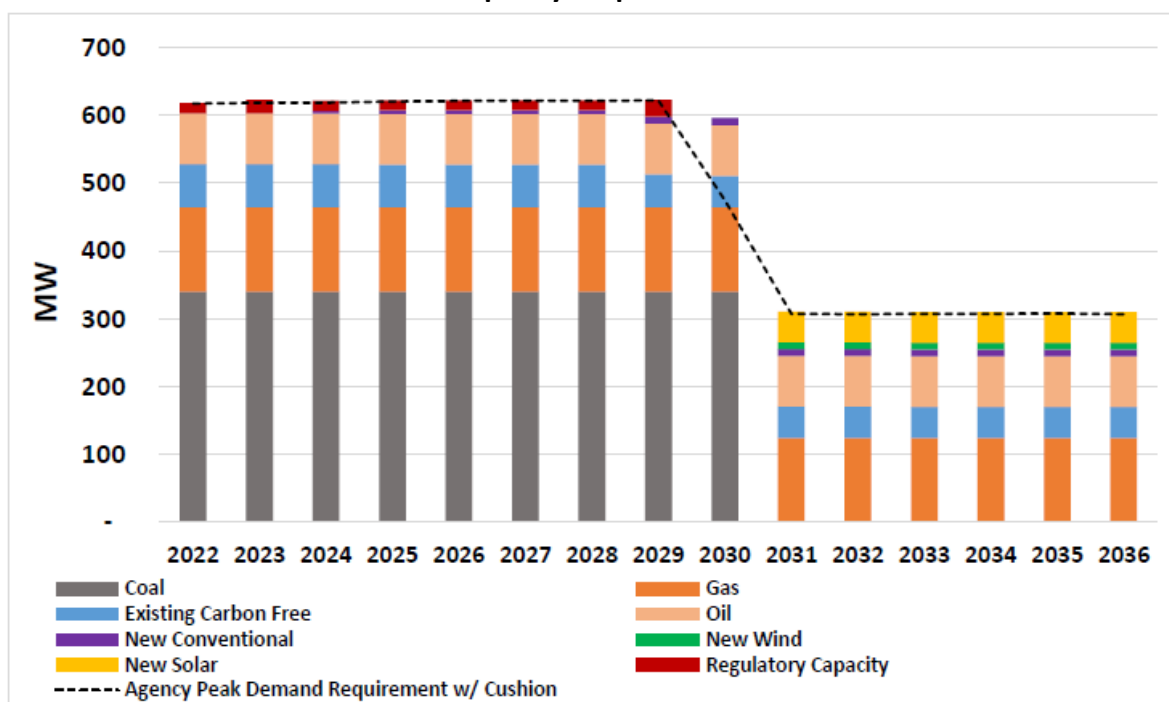
<sup>47</sup> Id., 8-9

<sup>48</sup> Id., 8-1

- The expiration of its Wapsipinicon Wind contract in 2029 (100.5 MW), which is nearly half of SMMPA's total renewable resource mix;
- The expiration of the Olmsted Waste to Energy Facility contract in 2030 (8.7 MW); and
- The retirement of the Mora landfill gas generator in 2032 (1 MW).

SMMPA's preferred plan would add 225 MW of new solar resources and 50 MW of new wind resources in 2031 to meet its long-term capacity requirements. Chart 6 displays the resource mix of the Preferred Plan.<sup>49</sup>

**Chart 6: Resource and Capacity Requirements – Preferred Plan<sup>50</sup>**



ii. Base Case Alternatives and Sensitivity Cases

SMMPA selected its preferred plan from seven different base case alternatives, each of which represented the use of different generating resources and varying levels of carbon-free energy penetration. The seven alternatives were tested under several sensitivity conditions and the cumulative net present values (NPV) of each alternative were compared under each condition. These sensitivity conditions are intended to

<sup>49</sup> Note that the values in Chart 6 reflect the resources' MISO-accredited capacity; because MISO's wind resources, for example, had a 16.7% capacity credit in the 2021-22 Planning Year, SMMPA's total carbon-free resources (indicated by the blue bar) will be much higher in nameplate capacity terms than in the UCAP, or unforced capacity, values assigned by MISO.

<sup>50</sup> Id. Chart 8-2, p. 8-5

simulate events outside of SMMPA's control that deviate from the Agency's assumptions about future conditions and that would have a noticeable effect on its resource alternatives. The variables considered in the sensitivity analysis included:

- High locational marginal prices (LMP) and high natural gas prices
- Low LMPs and low natural gas prices
- Low load forecast
- Low load forecast combined with low LMPs
- High load forecast
- High load forecast combined with low LMPs
- High and very high externality costs
- High and very high renewable contract prices
- No MISO capacity credit for future renewable resources
- Extreme weather conditions
- High new renewable contract prices combined with low LMPs

The first base case (P1) is known as the "Optimal Model" and was developed by performing a long-term optimization run using the Aurora planning model, which identified the optimal resource mix with the lowest overall cost. The Optimal Model contained a generation portfolio that was roughly 75 percent carbon free by adding 275 MW of new solar after Sherco 3 retires in 2030 and 12 MW of diesel engines prior to 2030, but no wind.

SMMPA's Preferred Case, Case P2, was created to be similar to the optimal model but replaced 50 MW of new solar additions in the Optimal model with wind (for a total of 225 MW of solar rather than 275 MW of solar in P1, the Optimal Case). SMMPA states that 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 percent solar and 40 percent wind.

Two 64 percent carbon-free alternatives (P3 and P4) and two 50 percent carbon free alternatives (P7 and P8) were developed to determine if a lower percentage of carbon-free generation might be more economical under certain sensitivity cases.

Case P6 was developed to test the feasibility of adding no additional conventional generation. This model resulted in a 92 percent carbon free portfolio. While this alternative does satisfy the MISO requirements for capacity planning, there are times in which it does not provide enough energy to hedge all Agency load.

Finally, P5 was developed to simulate a situation in which Sherco 3 was not retired. This case confirmed that the retirement of Sherco 3 is still economical under the various sensitivity cases.

Tables 4 and 5 below depict the discussion above and show the new resources added under each of the base case alternatives. The tables also present the NPV of each alternative under various sensitivities and the relative difference in NPV compared to the Optimal Model case. Gold boxes designate lowest cost options.

**Table 4: Base Case and Sensitivity Analysis at Normal Loads<sup>51</sup>**

| Base Cases                          | Sherco Economic Dispatch | 50% Carbon Free<br>50 MW New Oil | 50% Carbon Free<br>50 MW New Gas | 64% Carbon Free<br>25 MW New Oil | 64% Carbon Free<br>25 MW New Gas | Optimal Model<br>75% Carbon Free<br>12 MW new Oil | Preferred Plan<br>81% Carbon Free<br>12 MW new Oil | 92% Carbon Free<br>No New<br>Conventional |
|-------------------------------------|--------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|--|---|
|                                     | Portfolio Run            | Portfolio Run                    | Portfolio Run                    | Portfolio Run                    | Portfolio Run                    | Optimal Case                                      | Preferred Case                                     | Portfolio Run                             |
|                                     | P5                       | P7                               | P8                               | P3                               | P4                               | P1  | P2   | P6  |
| Coal (MW)                           | 367                      |                                  |                                  |                                  |                                  |   |  |   |
| New Gas (MW)                        |                          |                                  | 50                               |                                  | 25                               |   |  |   |
| New Oil (MW)                        |                          | 50                               |                                  | 25                               |                                  |   |  |   |
| New QS (MW)                         | 12                       | 12                               | 12                               | 12                               | 12                               | 12  | 12   |   |
| New Wind (MW)                       |                          |                                  |                                  | 25                               | 25                               |   | 50   | 75  |
| New Solar (MW)                      |                          | 100                              | 100                              | 150                              | 150                              | 275   | 225  | 250                                       |
| Pct Carbon Free                     | 36%                      | 50%                              | 50%                              | 64%                              | 64%                              | 75%   | 81%  | 92%                                       |
| Base Case                           | P5                       | P7                               | P8                               | P3                               | P4                               | P1  | P2   | P6  |
| Accumulated NPV 2050                | 1,464,408                | 1,241,592                        | 1,264,615                        | 1,219,224                        | 1,230,736                        | 1,184,904   | 1,194,336  | 1,197,185                                 |
| (Better)/Worse from 'Optimal Model' | 279,504                  | 56,688                           | 79,710                           | 34,320                           | 45,831                           | -   | 9,432  | 12,280                                    |
| High LMP & Gas Price - 50% High     | P29                      | P31                              | P32                              | P27                              | P28                              | P25   | P26  | P30                                       |
| Accumulated NPV 2050                | 1,505,967                | 1,363,908                        | 1,386,938                        | 1,317,462                        | 1,328,977                        | 1,261,559   | 1,262,203  | 1,243,708                                 |
| (Better)/Worse from 'Optimal Model' | 244,408                  | 102,349                          | 125,379                          | 55,903                           | 67,419                           | -   | 645  | (17,850)                                  |
| Low LMP & Low Gas Price - 50% Low   | P37                      | P39                              | P40                              | P35                              | P36                              | P33   | P34  | P38                                       |
| Accumulated NPV 2050                | 1,176,443                | 977,640                          | 1,000,655                        | 979,130                          | 990,638                          | 966,397   | 984,596  | 1,008,852                                 |
| (Better)/Worse from 'Optimal Model' | 210,047                  | 11,243                           | 34,258                           | 12,734                           | 24,241                           | -   | 18,200   | 42,456                                    |
| High Externality                    | P58                      | P60                              | P61                              | P56                              | P57                              | P54   | P55  | P59                                       |
| Accumulated NPV 2050                | 1,475,686                | 1,249,710                        | 1,272,726                        | 1,227,339                        | 1,238,847                        | 1,193,015   | 1,202,447  | 1,205,258                                 |
| (Better)/Worse from 'Optimal Model' | 282,670                  | 56,695                           | 79,711                           | 34,324                           | 45,832                           | -   | 9,432  | 12,243                                    |
| Very High Externality               | P66                      | P68                              | P69                              | P64                              | P65                              | P62   | P63  | P67                                       |
| Accumulated NPV 2050                | 1,487,964                | 1,263,228                        | 1,286,203                        | 1,240,835                        | 1,252,322                        | 1,206,492   | 1,215,924  | 1,218,497                                 |
| (Better)/Worse from 'Optimal Model' | 281,472                  | 56,736                           | 79,710                           | 34,342                           | 45,830                           | -   | 9,431  | 12,004                                    |
| High PPA - 34.1% High               | P74                      | P76                              | P77                              | P72                              | P73                              | P70   | P71  | P75                                       |
| Accumulated NPV 2050                | 1,464,408                | 1,255,871                        | 1,278,894                        | 1,248,818                        | 1,260,330                        | 1,224,173   | 1,242,815  | 1,245,663                                 |
| (Better)/Worse from 'Optimal Model' | 240,236                  | 31,698                           | 54,721                           | 24,645                           | 36,157                           | -   | 18,642   | 21,490                                    |
| Extra High PPA - 68.2% High         | P98                      | P100                             | P101                             | P96                              | P97                              | P94   | P95  | P99                                       |
| Accumulated NPV 2050                | 1,464,408                | 1,270,150                        | 1,293,173                        | 1,278,412                        | 1,289,923                        | 1,263,441   | 1,291,292  | 1,329,362                                 |
| (Better)/Worse from 'Optimal Model' | 200,968                  | 6,710                            | 29,733                           | 14,971                           | 26,483                           | -   | 27,852   | 65,921                                    |
| Extreme Weather (Outside of Aurora) | NA                       | NA                               | NA                               | NA                               | NA                               | NA  | NA   | NA  |
| Accumulated NPV 2050                | 1,475,840                | 1,288,226                        | 1,311,249                        | 1,265,238                        | 1,276,749                        | 1,231,000   | 1,239,526  | 1,241,954                                 |
| (Better)/Worse from 'Optimal Model' | 244,840                  | 57,226                           | 80,249                           | 34,238                           | 45,749                           | -   | 8,526  | 10,954                                    |
| 75% Low LMPs and 34.1% High PPA     | P90                      | P92                              | P93                              | P88                              | P89                              | P86   | P87  | P91                                       |
| Accumulated NPV 2050                | 1,027,010                | 855,476                          | 878,487                          | 884,211                          | 895,717                          | 891,945   | 923,738  | 958,698                                   |
| (Better)/Worse from 'Optimal Model' | 135,065                  | (36,469)                         | (13,458)                         | (7,734)                          | 3,772                            | -   | 31,793   | 66,754                                    |

**\*Gold Boxes Designate Lowest Cost Option**

<sup>51</sup> Id., Table 7-1a, p. 7-3

**Table 5: High and Low Load and No Market Capacity Sensitivity Cases<sup>52</sup>**

| Sensitivity (\$000)                                      | Sherco Economic Dispatch | 50% Carbon Free 50 MW New Oil | 50% Carbon Free 50 MW New Gas | 64% Carbon Free 25 MW New Oil | 64% Carbon Free 25 MW New Gas | Optimal Model 75% Carbon Free 12 MW new Oil | Preferred Plan 81% Carbon Free 12 MW new Oil | 92% Carbon Free No New Conventional |
|--|--------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---|--|-------------------------------------|
| Base Case  | P5                       | P7                            | P8                            | P3                            | P4                            | P1  | P2   | P6                                  |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' | 1,464,408<br>279,504     | 1,241,592<br>56,688           | 1,264,615<br>79,710           | 1,219,224<br>34,320           | 1,230,736<br>45,831           | 1,184,904<br>-                              | 1,194,336<br>9,432                           | 1,197,185<br>12,280                 |
| Low Load - 5% low  | P13                      | P15                           | P16                           | P11                           | P12                           | P9  | P10  | P14                                 |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' | 1,413,427<br>243,896     | 1,221,223<br>51,692           | 1,244,246<br>74,715           | 1,194,119<br>24,588           | 1,205,630<br>36,099           | 1,169,531<br>-                              | 1,167,011<br>(2,520)                         | 1,144,344<br>(25,187)               |
| Low Load - Low LMPs & NG                                 |                          |                               |                               |                               |                               | P41   | P42  | P43                                 |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' |                          |                               |                               |                               |                               | 932,670<br>-                                | 936,645<br>3,975                             | 955,207<br>22,537                   |
| High Load - 5% High                                      | P21                      | P23                           | P24                           | P19                           | P20                           | P17   | P18  | P22                                 |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' | 1,542,236<br>271,478     | 1,327,488<br>56,730           | 1,350,511<br>79,753           | 1,305,119<br>34,361           | 1,316,630<br>45,872           | 1,270,758<br>-                              | 1,280,231<br>9,473                           | 1,268,817<br>(1,941)                |
| High Load - Low LMPs & NG                                |                          |                               |                               |                               |                               | P44   | P106   | P45                                 |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' |                          |                               |                               |                               |                               | 1,031,814<br>-                              | 1,050,055<br>18,241                          | 1,113,082<br>81,267                 |
| No Capacity Credit for Wind & Solar Post 20              | P82                      | P84                           | P85                           | P80                           | P81                           | P78   | P79  | P83                                 |
| Accumulated NPV 2050 (Better)/Worse from 'Optimal Model' | 1,464,408<br>220,849     | 1,261,145<br>17,585           | 1,284,167<br>40,608           | 1,258,327<br>14,767           | 1,269,839<br>26,279           | 1,243,560<br>-                              | 1,252,992<br>9,432                           | 1,255,839<br>12,280                 |

**\*Gold Boxes Designate Lowest Cost Option**

### iii. Selecting the Preferred Plan

Case P2 was chosen as SMMPA's preferred plan case for several reasons. First, P2 was one of two cases<sup>53</sup> that achieved the SMMPA 2.0 strategic initiative's goal of an 80 percent carbon-free energy portfolio by 2030.

Second, when compared the NPV of other cases under various sensitivity conditions, P2 was a close second to the Optimal model under most of the sensitivities and was less volatile than the No New Conventional Generation alternative (P6).

Finally, P2's renewable resource mix of 60 percent solar and 40 percent wind was determined by SMMPA to provide the most reasonable economic hedge against rising energy market prices to the Agency's load from new resources with the lowest amount of excess generation from new resources. SMMPA notes:

Generation and load paired together generally offset swings in market prices. If prices decrease, the load pays less and the generation pays less. However, load not paired with generation and generation not paired with load are both unhedged price takers exposed to changes in market prices. Generation purchased under a non-dispatchable power purchase agreement that is in excess of a utility's load is exposed to economic losses if the market price is less than the cost of the contract price. Reducing the potential for excess non-dispatchable generation reduces economic risk.<sup>54</sup>

<sup>52</sup> Id., Table 7-1b, p. 7-4

<sup>53</sup> The other case to achieve an 80 percent carbon free energy portfolio by 2030 was P6, the "No new conventional generation" case.

<sup>54</sup> Initial Filing, p. 7-2



While the Optimal Model was the lowest cost option among the base case alternatives, as well as under nine of the thirteen sensitivity cases, it did not achieve SMMPA 2.0's 2030 energy portfolio goal. On the other hand, P6 (the no new conventional generation case), did achieve SMMPA 2.0's 2030 energy portfolio goal and is the least expensive option in certain scenarios, but introduces greater risk of **not** resulting in a least cost plan. Notably, P6 would be the most, or second most expensive plan under five of the sensitivity conditions.<sup>55</sup>

Additionally, SMMPA explained that the percentage of carbon-free energy produced that would serve the Agency's load is lower with P6 (no diesel generators) than with P2 (12 MW of diesel generators). In other words, a larger percentage of P6's carbon free generation would be over-generating compared to P2.<sup>56</sup> Again, this excess generation can pose a risk to the agency similar to unhedged load as it is 100 percent exposed to market prices which can be less than the cost of generation and can even go negative at times.<sup>57</sup> This could result in substantial cost risk to SMMPA's members, and so the lower amount of excess generation offered by P2 was preferred.

#### ***I. Environmental Stewardship.***<sup>58</sup>

This section describes several federal and state environmental initiatives and regulations that affect the cost and/or ability of SMMPA to provide power to its members. SMMPA discusses each of the following initiatives and regulations in this section:

- Acid Rain Program
- Cross State Air Pollution Rule
- Regional Haze rule (phase 1 and 2)
- Mercury and Air Toxics Standards rule
- Minnesota Next Generation Energy Act (GHG reduction goals)
- Maximum Achievable Control Technology (MACT) for Reciprocating Engines

In addition, SMMPA provides information in this section on its efforts to restore/increase pollinator habitat within its member communities and describes the Agency's role in deploying EV charging infrastructure in its members' service territories.

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<sup>55</sup> The sensitivity conditions include Low LMP, Low Gas Price – 50% Low, Extra High PPA – 68.2% high, 75% Low LMPs and 34.1% High PPA, Low Load – Low LMPs & NG, and High Load – Low LMPs & NG. (Staff notes that the final two sensitivity conditions listed were only tested on three cases).

<sup>56</sup> SMMPA explains in its IRP that non-dispatchable renewable generation such as wind and solar will produce energy in excess of the Agency's demand. As the amount of non-dispatchable renewable generation increases, the percentage of incremental carbon free resources serving the agency's load decreases (more assets are over-generating). SMMPA stated that with a roughly 80 percent carbon-free generating portfolio a higher percentage of the incremental carbon free resources will go towards serving the Agency's load than will be over generating. If the Agency's portfolio of carbon free energy were to approach 90 percent, a higher percentage of incremental carbon free resources will be over generating as opposed to serving the Agency's load.

<sup>57</sup> Id., p. 8-6

<sup>58</sup> Id., p. 9-1 to 9-8



**J. Exhibits 1-6:**

- Trade Secret Existing Generating Resource Data
- Future Supply-Side Resource Data
- 2020 SMMPA Member DSM-Conservation Savings
- 2020 and 2021 SMMPA Direct Load Control (DLC) Notification
- 2020 SMMPA Member DLC Participation
- 2021 SMMPA Energy Management Program Summary.

**V. Comments**

**A. Department of Commerce.**

The Department recommends that the Commission accept SMMPA's 2022-2036 IRP. As a part of its analysis, the Department reviewed:

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

A summary of the Department's comments is provided below.

**i. SMMPA's Forecast**

Given the Department's resource constraints, it 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, and so the Department concludes that SMMPA's forecast is reasonable for planning purposes. The Department recommends that the Commission accept SMMPA's energy and demand forecast for this IRP.

**ii. Assessment of SMMPA's historical DSM achievements**

The Department analyzed three years of data for calendar years 2018-2020 and compared 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 in order to ascertain the accuracy of SMMPA's projected DSM portfolio energy savings performance as presented in its IRP.<sup>59</sup> Tables 6 and 7 below provide the projected and actual savings taken from

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<sup>59</sup> Department Comments, p. 13

SMMPA's 2017 and 2021 IRPs and display the difference between the two for the years in question, respectively.

**Table 6: SMMPA's Proposed and Actual Energy Savings Achievements, 2018 – 2020<sup>60</sup>**

| 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<sup>61</sup>**

| 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               |

The Department's analysis shows that 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 service included in its portfolio of offerings.<sup>62</sup> The Department recommends that the Commission accept SMMPA's proposed energy savings averaging 32,302 MWh per year.

The Department conducted a comprehensive analysis of the projected demand savings from SMMPA's 2017 IRP and the actual demand savings as reported in the Agency's

<sup>60</sup> Id., Table 6, p. 14

<sup>61</sup> Id., Table 7, p. 14

<sup>62</sup> Id.

2021 IRP for the years 2018 – 2020. The results of this analysis are provided below in Table 8.

**Table 8: Comparing SMMPA’s Actual and Projected Demand Savings 2018-2020<sup>63</sup>**

| 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  |

The Department notes that SMMPA’s incremental DSM and conservation demand savings have underperformed against goals, but the demand savings from incremental

<sup>63</sup> Id., Table 9, p. 17

member direct load control (DLC) programs have outperformed expectations keeping the actual total annual incremental peak demand savings on the system within 5.8 percent of predicted annual savings on average.<sup>64</sup> Through conversations with SMMPA, the Department found 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. The Department recommends that the Commission accept SMMPA's projected energy and demand savings goals from CIP investments and the Agency's and members' direct load control programs.

*iii. SMMPA's Compliance with the Renewable Energy Standard*

In reviewing SMMPA's IRP and the Agency's 2021 Renewable Energy Certificate (REC) Retirement Report,<sup>65</sup> the Department reports that 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>66</sup> The Department notes that in its 2021 REC Retirement Report, SMMPA states that its MWh surplus will grow to 1,228,641 MWh by 2025. In conclusion, the Department finds that SMMPA has procured or contracted sufficient resources and has a reasonable plan to utilize banked RECs to remain in compliance into the 2040 timeframe, and recommends the Commission accept the Agency's proposal to comply with RES requirements over the planning period.

*iv. Providing a Reliable System*

The Department notes that 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. However, the Department has been made aware of compounding issues that could impact SMMPA's reliability.

1. **MISO Capacity Shortage.**<sup>67</sup> The Department notes that MISO's planning reserve auction (PRA) results show that it is facing a capacity shortage due to states in the central region of MISO procuring insufficient capacity to meet their needs. This shortage could make it difficult for SMMPA to purchase the small amounts of capacity the Agency planned on purchasing in its IRP, but it will certainly make the purchases more expensive.

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<sup>64</sup> Id., p. 17

<sup>65</sup> See SMMPA 2021 REC Retirement Report. Docket No. E999/PR-22-12

<sup>66</sup> Department Comments, p. 22

<sup>67</sup> Id., p. 23

2. **EPA’s Federal Implementation Plan (FIP).** On February 28, 2022, the Administrator of the U.S. Environmental Protection Agency (EPA) signed a proposed FIP to assure that 26 states, including Minnesota, do not significantly contribute to problems attaining and maintaining the 2015 Ozone National Ambient Air Quality Standards (NAAQS) in downwind states.

The Department states that the 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, and would impact some Minnesota utilities’ coal and gas units.<sup>68</sup> The Department reports that the EPA FIP, proposed to become effective in May 2023, 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> emissions limits by 2026. 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 department notes that this assumption would impact Sherco 3.<sup>69</sup>

According to the Department, the 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 NO<sub>x</sub> control for the remaining limited life of a unit, or changed retirement plans might have on customer costs or system reliability.<sup>70</sup> In response to Department information requests, SMMPA states that an engineering estimate prepared several years ago suggests the cost of installing SCR will be well over \$100 million.<sup>71</sup> The Department notes that Xcel has separately stated that the installation of SCR on Sherco 3 would be inappropriate and not cost-effective. While responding to a Department information request, SMMPA noted that it has significant concerns about the impact of the proposed FIP on its ability to provide reliable and affordable capacity and energy to its members, and that given the capacity shortfall in MISO it would be extremely difficult to replace the Agency’s share of the Sherco 3 unit and its associated energy production should the proposed FIP result in limited operations or a forced early retirement of Sherco 3.<sup>72</sup>

The Department, like SMMPA and other electric utilities in Minnesota, concludes that the EPA’s seasonal ozone proposal is unreasonable because:

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<sup>68</sup> Id., p. 23

<sup>69</sup> The EPA’s proposed FIP does not require installation of SCRs, but assumes that coal units that currently do not have SCR installed would be able to install SCRs in time for the 2026 ozone season (May to September). Coal units that do not have SCR installed, optimized, and operating by the start of the 2026 ozone season would potentially incur an economic operating disadvantage due to reduced allowance allocation, and would have to either purchase additional allowances or limit operations during the ozone season.

<sup>70</sup> Department Comment, p. 24

<sup>71</sup> SMMPA response to Department Information request #7

<sup>72</sup> SMMPA response to Department information request #10

- The FIP does not consider that Sherco 3 is scheduled for retirement in 2030.
- 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. The proposed FIP applies to the states of 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.

The Department also agrees that the proposed FIP does not consider state commission approved IRPs. However, the Department notes that the Minnesota Pollution Control Agency, in response to the EPA's disapproval of Minnesota's State Implementation Plan, believes that the modeling completed by the 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, making it uncertain if the final version of the proposed FIP will include Minnesota.<sup>73</sup>

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.

v. Assessment of Progress in Meeting Minnesota's Greenhouse Gas (GHG) Reduction Goals

The Department notes in its analysis 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 emission reduction goals. 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. The calculation used by SMMPA also does not account for carbon emissions associated with energy purchased from the spot market. The Department states that SMMPA did not meet the State's GHG reduction goal for 2015 but is projected to experience an 89 percent reduction in its GHG emissions by 2025 compared to the 2005 baseline, which exceeds Minnesota's GHG emissions reduction goal of 30 percent by 2025 compared to a 2005 baseline.<sup>74</sup>

According to the Department, the method used by SMMPA to calculate progress towards Minnesota's GHG reduction goals is different from the "Minnesota ratepayer methodology" recommended by the Department. The ratepayer methodology is described by the Department in its comments:

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<sup>73</sup> Department Comments, p. 27

<sup>74</sup> Id., 29

- Start with emission from utility-owned generation,
- Add emissions from utility purchases,<sup>75</sup> and
- Subtract CO<sub>2</sub> emissions from sales from utility-owned generation.

The Department states that although SMMPA's analysis of its GHG emissions does not comply with the retail ratepayer methodology, the Department considers the Agency's analysis reasonable for its present IRP. However, the Department also notes concern about Minnesota's utilities using different methodologies to measure progression towards the state's GHG emission reduction goals, stating that it "undermines any meaningful measurement of the state's progress in achieving greenhouse gas reduction goals."<sup>76</sup>

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

**B. LIUNA Minnesota & North Dakota.**

LIUNA Minnesota & North Dakota believe the approach taken in the IRP is reasonable but think that further information is needed on what efforts, if any, SMMPA plans to make to mitigate negative socioeconomic impacts associated with the retirement of Sherco 3.<sup>77</sup> Specifically, LIUNA requests to know how the loss of associated jobs and business opportunities to Minnesota might be offset by efforts to maximize local economic benefit or planned investment in solar and wind energy. LIUNA was unable to find a discussion of the organization's plans for procurement of 225 MW of solar and 50 MW of wind generation, and would suggest that SMMPA consider providing information similar to that provided by Xcel Energy in the company's IRP, which also addressed the retirement of Sherco 3 but included plans to mitigate job and economic losses through investment in construction of renewable energy and transmission with a priority for local workers and creation of union apprenticeship opportunities. LIUNA recommends SMMPA consider similar planning efforts and comments as a part of its current IRP.

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<sup>75</sup> 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.

<sup>76</sup> Department Comments, p. 30

<sup>77</sup> LIUNA Minnesota/North Dakota Comments, p.1

## VI. Reply Comments

In their reply comments, SMMPA addressed LIUNA's concerns about the impacts on the local economy due to the planned Sherco 3 closure but reiterated that all of Sherco's staff are employees of Xcel Energy. For that reason, SMMPA defers questions relating to employment matters at Sherco 3 to Xcel Energy. However, SMMPA explained that they had an opportunity to meet with LIUNA's representative in July 2022 to discuss LIUNA's comments and concerns. The conversation was described by SMMPA as "friendly and productive" and discussion topics included the proposed retirement of Sherco 3, SMMPA's plan for significant wind and solar additions, progress that has been made by renewable developers in using local labor, and LIUNA's desire to continue to increase the use of local labor to construct renewable energy projects.<sup>78</sup> While SMMPA recognizes and appreciates LIUNA's concerns, they do not believe any further additions or modifications to SMMPA's IRP are warranted.

## VII. Staff Analysis

### A. Guide to the Decision Options

All parties agree that the Commission should accept SMMPA's IRP. The Department's recommendations include options both to accept the IRP as well as individual components of the IRP, as listed below:

1. Accept SMMPA's 2022-2036 IRP.
2. Accept SMMPA's energy and demand forecast for this IRP.
3. Accept SMMPA's proposed energy savings averaging 32,301 MWh per year.
4. Accept SMMPA's proposal to comply with RES requirements over the planning period.
5. Accept SMMPA's analysis of its progress toward meeting Minnesota's GHG reduction goal for this IRP.
6. Within 180 days of the EPA's issuance of its final order of the Federal Implementation Plan (FIP) – also referred to as the "Good Neighbor Rule" – SMMPA, Minnesota Power, and Xcel should 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.
7. Parties shall 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.

For reasons discussed below, of these recommendations from the Department, staff suggests the Commission adopt either Option 1 only, or Options 1 and 3.

Generally speaking, the Commission does not need to accept (or in a public utility's case approve) every individual component within an IRP, unless the Commission wishes to

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<sup>78</sup> SMMPA Reply, p. 4



specifically memorialize a proposed action in its order (if, for example, a utility proposes to retire a power plant or proposed new resources in the near-term). In other words, if the Commission moves Decision Option 1, it is implied that SMMPA used a reasonable forecast and that SMMPA's IRP complies with statutory obligations, and therefore Options 2-5 are not necessary. However, since, by statute, energy efficiency is a resource, the Commission could adopt options 1 and 3.

Staff does not oppose Decision Options 2-5; but is merely noting that SMPPA's IRP can be accepted without addressing them. This was the approach taken by the Commission's October 24, 2018 order accepting SMMPA's 2017 IRP, which simply accepted the IRP and set a date for the next IRP.

Furthermore, Staff does not believe the Commission needs to adopt Decision Options 6 and 7 at this time. While Staff agrees in principle with the Department of the importance of these two issues and appreciates the Department's willingness to engage in discussions with SMMPA and other utilities on these topics, Decision Options 6 and 7 establish requirements for utilities who are not parties to this proceeding and have thus not been provided with an opportunity to respond.

Regarding Decision Option 6, the Commission could decide that it is premature to require compliance filings prior to the FIP, since – as was the case with the EPA Clean Power Plan – the final rule could change significantly from proposed rule. Moreover, if the FIP will require significant changes to approved IRPs – for instance, if Xcel and SMMPA must alter their plans for Sherco 3 – a compliance filing will be insufficient. Under this scenario, Xcel and SMMPA would likely be subject to comply with the IRP changed circumstances rule, Minn. Rule 7843.0500 subp. 5, which states:

*Subp. 5. **Changed circumstances affecting resource plans.** The utility shall inform the commission and other parties to the last resource plan proceeding of changed circumstances that may significantly influence the selection of resource plans. Upon receiving notice of changed circumstances, the commission shall consider whether additional administrative proceedings are necessary before the utility's next regularly scheduled resource plan proceeding.*

Similarly with Decision Option 7, utilities and stakeholders not parties to this proceeding have not commented on whether to convene a stakeholder process in 2023 to discuss a uniform method for GHG accounting for use in IRPs, which is a significant undertaking.<sup>79</sup> Also, since utilities already provide estimates of total GHG emissions in their IRPs, the Commission may decide that the overall time and resource constraints for Commission and Department staff outweigh the potential value added by a stakeholder proceeding.

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<sup>79</sup> Staff notes that the Department did not recommend either Decision Option 6 or 7 in Xcel's or Minnesota Power's approved and pending IRPs, respectively.

One reason the Department is making this recommendation is due to SMMPA's modeling assumption that market energy is carbon-free, and SMMPA's energy mix is 27 percent market purchases; thus, the term "carbon-free" could be slightly misleading.

Staff notes that public utilities such as Xcel and Minnesota Power *do* account for CO<sub>2</sub> emissions from market energy in their modeling, so the Commission may decide that SMMPA's lack of GHGs applied to market energy might be an issue specific to SMMPA.<sup>80</sup> Also, market energy as a percent of total generation from public utilities such as Xcel, Minnesota Power, and Otter Tail, is typically lower than SMMPA's IRP, so the Commission may decide that how utilities account for GHGs from market energy is not significantly undermining utilities' reporting of GHG reduction achievements. Taken together and along with considering the broader issue of workload and resource constraints, staff does not necessarily agree that a GHG accounting stakeholder process is needed; moreover, staff does not agree that all utilities must account for GHG emissions in the same way. Staff supports the Department, SMMPA, and ideally other utilities working toward consistent GHG accounting; however, it is premature to include that if disagreement remains the Commission will adopt a uniform method for IRPs.

If the Commission does want to proceed with Decision Options 6 and/or 7, staff cautions SMMPA's IRP is not the right docket to establish such a requirement on other utilities. For Decision Option 6, the Department has flagged this issue in Minnesota Power's IRP as well (Docket No. E015/RP-21-33). Staff recommends limiting any decision related to the FIP to SMMPA. As an alternative to Decision Option 7, the Commission could revisit the issue in the CO<sub>2</sub> Values docket, in which a Department/MPCA report is forthcoming in Docket No. E999/DI-22-236. Staff anticipates the Commission's associated docket will be before the Commission in the first half of 2023.

LIUNA's comments include a recommendation, which is Decision Option 8, regarding offsetting the loss of jobs and business opportunities due to the Sherco 3 retirement:

8. SMMPA should consider providing information similar to that provided by Xcel Energy in the company's IRP, which also addressed retirement of Sherco 3 and plans to mitigate job and economic losses through investment in construction of renewable energy and transmission with a priority for local workers and creation of union apprenticeship opportunities.

Staff notes that the employees at the Sherco plant are not SMMPA employees; they are Xcel employees, and the Commission opened a new docket in Order Point 24 of the Commission's Order in Xcel's IRP,<sup>81</sup> which stated:

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<sup>80</sup> To provide background, both Xcel and Minnesota Power, for example, include the Commission's CO<sub>2</sub> regulatory costs into the price of market energy (as an addition to the \$/MWh market price assumption), which is based on an assumed carbon intensity of energy from the MISO market. Xcel captures different carbon intensities for MISO sales and purchases; MISO sales use NSP system carbon intensity, and purchases assume a MISO average CO<sub>2</sub> rate. As noted above, Minnesota Power includes a \$/MWh regulatory cost price for market energy, but carbon emission associated with market purchases are added to the total carbon balance outside the model, based on the gas/coal mix in MISO.

<sup>81</sup> E-002/RP-19-368

24. The Commission authorizes the Executive Secretary to open a new docket regarding workers at retiring generating facilities in Minnesota, including Sherco and King.

A. Xcel—working with the Minnesota Department of Employment and Economic Development and the Energy Transition Office; the International Brotherhood of Electrical Workers, Locals 23, 160, and 949; the Minnesota Building Trades; and the Center for Energy and Environment—shall develop a comprehensive plan for supporting transitioning workers. The plan shall consider the measures outlined in the IBEW comments dated March 17, 2020, and March 21, 2021, including skills inventories, training and education, worker placement and potential early retirement buy-out scenarios. Xcel shall file the plan with the Commission no later than December 31, 2022. The plan shall include an estimated budget for each measure, timeline for implementation, and a description of additional funding needed by DEED or the Energy Transition Office, if applicable, to implement the plan.

B. Beginning on December 31, 2023, and annually thereafter, Xcel shall file a detailed update on its efforts to implement the plan in coordination with CEE, DEED and the Energy Transition Office, and IBEW.

As noted previously, SMMPA filed reply comments on August 12, 2022 addressing LIUNA's recommendation, and staff agrees with SMMPA's comments.

## **B. Staff Decision Options**

Staff introduced two decision options, one which simply sets a date for the next IRP, and the other which discusses issues for SMMPA to possibly discuss in its next IRP.

### *i. Deadline for Next IRP*

The Commission's resource planning rules require that IRPs be filed every two years, which means SMMPA's next IRP filing would be due by November 30, 2023. Staff supports delaying the filing date for SMMPA's next IRP filing. In part, this is because Xcel's next IRP is due February 1, 2024, and staff believes likelihood of extension requests would be high if SMMPA were to be filed in November 2023 (SMMPA's proposed IRP had two extension requests even without any disputed issues). Therefore, staff proposes Decision Option 9, which would set a date for SMMPA to file its next resource plan on December 2, 2024. This would be roughly three years in-between IRP filings:

9. Require SMMPA to file its next resource plan no later than December 2, 2024.

ii. Issues for Next IRP

There are at least three interrelated issues described in this IRP that staff expects will be central to SMMPA's next IRP.

First, as discussed previously, SMMPA's service contracts with the cities of Austin and Rochester expire on March 31, 2030. Austin and Rochester combine to represent over fifty percent of the Agency's resource requirements.

Second, Sherco 3 is slated for a 2030 retirement date, and Sherco 3 is SMMPA's single largest generation resource. SMMPA explained that the possible impact of the retirement "depends greatly on the LMP market at the time of the loss."<sup>82</sup> If market prices increase above levels seen in recent years, "the Agency could experience significant cost increases since Sherco 3 is currently the Agency's primary hedge against large increases in the market prices."<sup>83</sup>

Third, SMMPA proposes replacing Sherco 3 with 225 MW of solar and 50 MW of wind. In addition to ensuring that SMMPA has sufficient dispatchable generation for reliability (which in this IRP is done through diesel generators and DSM), SMMPA raised possible issues with capacity accreditation for renewable resources in MISO over the long-term. SMMPA stated:

The MISO Independent Market Monitor (IMM) has indicated that future wind and solar generation resource additions may not provide any capacity benefit after some point when the grid becomes oversaturated with renewable generation and therefore may not qualify for any capacity credit. Since SMMPA may not add its new renewable resources until Sherco retires in 2030, there is a possibility that SMMPA's new renewable resources would not receive capacity credit in MISO. If this were to occur, SMMPA would need to add 50 to 75 MW of conventional generation to each of the base case alternative in order to meet MISO's capacity reserves requirements.<sup>84</sup>

While staff does not believe SMMPA's IRP insufficiently addressed these three, interrelated issues, they are important enough to be examined more thoroughly in the Agency's next IRP. For example, while SMMPA assumes it will have no obligation to provide capacity and energy to Austin and Rochester, and therefore SMMPA assumes it will only need to replace a fraction of its approximately 360 MW share of Sherco 3, the IRP does not state affirmatively that the contracts will indeed expire.

The timing of these issues is especially important for the next IRP because if the next IRP will be filed in late-2024, then the contract expirations with Austin and Rochester, Sherco 3 closure, and solar and wind additions will all be within or just outside of SMMPA's next five-year action plan.

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<sup>82</sup> Initial Filing, p. 7-10.

<sup>83</sup> Id.

<sup>84</sup> Initial Filing, p. 7-10.

To address these issues, staff offers Decision Option 10. Staff notes that the Commission may wish to have SMMPA address additional issues in the Agency's next IRP. Decision Option 10.d. is a placeholder for additional requirements.

10. In its next resource plan, SMMPA shall include a detailed discussion of the following:
  - a. SMMPA's service contracts with the cities of Austin and Rochester;
  - b. Reliability impacts and how SMMPA plans to hedge against increases in market prices as a result of the Sherco 3 retirement;
  - c. Renewable resource capacity accreditation in MISO; and
  - d. Any other issues of interest to the Commission.

## VIII. Decision Options

1. Accept SMMPA's 2022-2036 IRP. (*all parties*)
2. Accept SMMPA's energy and demand forecast for this IRP. (*all parties*)
3. Accept SMMPA's proposed energy savings averaging 32,301 MWh per year. (*all parties*)
4. Accept SMMPA's proposal to comply with RES requirements over the planning period. (*all parties*)
5. Accept SMMPA's analysis of its progress toward meeting Minnesota's GHG reduction goal for this IRP. (*all parties*)
6. Within 180 days of the EPA's issuance of its final order of the Federal Implementation Plan (FIP) – also referred to as the “Good Neighbor Rule” – require SMMPA, Minnesota Power, and Xcel to 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. (DOC)
7. Require parties to 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. (DOC)
8. Request that SMMPA consider providing information similar to that provided by Xcel Energy in the company's IRP, which also addressed retirement of Sherco 3 and plans to mitigate job and economic losses through investment in construction of renewable

energy and transmission with a priority for local workers and creation of union apprenticeship opportunities. (LIUNA)

9. Require SMMPA to file its next resource plan no later than December 2, 2024.
10. In its next resource plan, require SMMPA to include a detailed discussion of the following:
  - a. SMMPA's service contracts with the cities of Austin and Rochester;
  - b. Reliability impacts and how SMMPA plans to hedge against increases in market prices as a result of the Sherco 3 retirement;
  - c. Renewable resource capacity accreditation in MISO; and
  - d. *[Include any other issues of interest to the Commission.]*

Staff supports Decision Options 1, 9, 10. Staff is not opposed to Decision Option 3. Staff opposes Decision Options 6, 7, 8. Staff takes no position on Decision Options 2, 4, 5.