3724 West Avera Drive
PO Box 88920
Sioux Falls, SD 57109-8920
Telephone: 605.338.4042
Fax: 605.978.9360
www.mrenergy.com

June 19, 2024

VIA EMAIL

Steve Kahl, Executive Secretary/Director of Administration
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505

RE: MRES 2024 Ten-Year Plan

Dear Mr. Kahl:

Missouri River Energy Services (MRES) for itself and as agent for Western Minnesota Municipal Power Agency (Western Minnesota) submits this Ten-Year Plan, pursuant to NDCC 49-22-04. This report was prepared in accordance with the North Dakota Public Service Commission's Guidelines for compliance with the requirements of NDCC 49-22-04.

If you have any questions regarding this Ten-Year Plan, please contact me at 605-338-4042 or tasha.altmann@mrenergy.com.

Sincerely,

Tasha Altmann

Tasha Altmann, ACP
Advanced Certified Paralegal, Legal

1 PU-24-239 Filed 06/19/2024 Pages: 18
2024 Ten-Year Plan Report
Missouri River Energy Services (MRES)
Tasha Altmann, ACP

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PO Box 88920
Sioux Falls, SD 57109-8920
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Missouri River Energy Services North Dakota Ten-Year Plan

2024

Submitted to the
North Dakota Public Service Commission

June 19, 2024

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Table of Exhibits

INTRODUCTION

Missouri Basin Municipal Power Agency, doing business as Missouri River Energy Services (MRES), is a not-for-profit, joint-action agency that provides power, energy, transmission, and related services to its 61 Member communities in Iowa, Minnesota, North Dakota, and South Dakota. All 61 of the MRES Members have long-term power sales agreements with MRES and also are entitled to receive a wide range of energy-related services. MRES is governed by a 13-member Board of Directors elected by and from its Member communities.

Western Minnesota Municipal Power Agency (Western Minnesota) owns fossil-fuel electric generating facilities in Iowa, South Dakota and Wyoming, hydropower generation in Iowa, and wind generation in Minnesota. Pursuant to a long-term contract between Western Minnesota and MRES, MRES has exclusive rights to the output of these facilities to meet its power supply obligations to its Members.

MRES for itself and as agent for Western Minnesota submits this Ten-Year Plan, pursuant to NDCC 49-22-04. MRES prepared this Ten-Year Plan in accordance with the North Dakota Public Service Commission's (Commission) Guidelines for compliance with the requirements of NDCC 49-22-04.

SECTION A: Existing Energy Conversion Facilities

MRES does not own or operate any energy conversion facilities in North Dakota. Currently, the largest MRES generation resources are a 282 MW share of Laramie River Station (LRS), a coal plant located near Wheatland, Wyoming, and the three-unit Exira Station located near Atlantic, Iowa, with a total rating of 140 MW. MRES energy conversion facilities also include the Watertown Power Plant (WPP), an oil-fired combustion turbine located in Watertown, South Dakota, with a summer rating of 45.9 MW. Lastly, MRES owns and operates nine wind turbines located near Marshall, Minnesota, and four wind turbines located just west of Worthington, Minnesota. The combined rated output of the units totals 22.6 MW. MRES energized Red Rock Hydroelectric Project (RRHP), an electric generating plant at the existing Red Rock Reservoir and Dam on the Des Moines River in Iowa in 2021. The dam is owned by the federal government and operated by the U.S. Army Corps of Engineers. The project is owned by Western Minnesota and is operated by MRES. RRHP is designed to generate at 43.1 MW electricity, and up to 55 MW at times of high reservoir levels.

MRES has no plans to retire any of its existing energy conversion facilities within the next ten years.

SECTION B: Energy Conversion Facilities Under Construction

MRES does not have any energy conversion facilities under construction in North Dakota.

SECTION C: Proposed Energy Conversion Facilities on Which Construction is Intended Within the Ensuing Five Years

MRES does not propose to start construction on any energy conversion facilities in North Dakota within the ensuing five years.

SECTION D: Proposed Energy Conversion Facilities During the Next Ten-Year Time Period

MRES has no proposed energy conversion facilities as defined by Chapter 49-22-03 of the North Dakota Century Code.

SECTION E: Existing Transmission Facilities (Electric)

MRES is a joint owner in the CapX2020 Fargo-Monticello transmission line project.[1] The Fargo-Monticello project is a 345 kV transmission line between the expanded Monticello substation near Monticello, Minnesota, the Quarry substation northwest of St. Cloud, Minnesota, the expanded Alexandria MRES substation near Alexandria, Minnesota, and the Bison substation west of Fargo, North Dakota. The facilities were fully energized in 2015. About 34.9 miles of the Fargo-St. Cloud project is in North Dakota.

Additional information can be found at https://gridnorthpartners.com/projects/.

SECTION F: Existing Transmission Facilities (Pipeline)

Not applicable to MRES.

SECTION G: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Electric)

None known at this time.

SECTION H: Proposed Transmission Facilities on Which Construction is Intended Within the Ensuing Five Years (Pipeline)

Not applicable to MRES.

[1] MRES held rights to as much as 11% of the Fargo Project. MRES chose to assign its rights to Western Minnesota Municipal Power Agency (Western Minnesota). While Western Minnesota is the owner of the 11% share of the CapX Fargo project, it will continue to be associated with MRES and the overall utility operations are unchanged.

SECTION I: Proposed Transmission Facilities During the Next Ten-Year Period (Electric and Pipeline)

None known at this time.

SECTION J: Regional Coordination

MRES closely coordinates its transmission planning with other organizations to ensure cost-effectiveness and grid reliability in the region. MRES is a member of and participates directly in several regional entities:

- The Midcontinent Independent System Operator (MISO), which administers a tariff providing for regional transmission services, energy and ancillary services markets, and resource adequacy requirements. MISO also has responsibilities for regional transmission planning, coordination, and expansion. MRES is a transmission owning member and market participant. MISO conducts Sub-regional Planning Meetings (SPMs) at least three times each year to provide for coordination of transmission concerns and proposed projects among utilities and other interested stakeholders. MISO's transmission expansion plans (MTEP-2023 being the most-recent approved plan) are also available at their website. Further information about MISO is available on-line at https://www.misoenergy.org/planning/transmission-planning/mtep#t=10&p=0&s=&sd=, see "MTEP23 – Current Cycle" expandable area.

  MISO is also working on a Long-Range Transmission Plan (LRTP) to develop a transmission roadmap for the long-term horizon including with a focus on buildout in the western part of MISO with Tranche 2 projects expected to be approved by the MISO board by the end of 2024. Tranche 1 was approved in July 2022 by the MISO board and consists of 18 transmission projects involving approximately 2,000 miles of new and upgraded high voltage transmission. In addition**,** MISO and Southwest Power Pool (SPP) are collaborating on a Joint Targeted Interconnection Queue Study (JTIQ) that may result in additional transmission being built to facilitate resolving transmission concerns across the seams for generation interconnection projects.

- SPP, which administers a tariff providing for regional transmission services, energy and ancillary services markets, and resource adequacy requirements. SPP also has responsibilities for regional transmission planning, coordination, and expansion. MRES participates in the SPP Integrated Transmission Planning process and other planning processes. Further information about the SPP Reliability Planning is available at https://spp.org/engineering/transmission-planning/**.**

- The Midwest Reliability Organization (MRO), a non-profit organization of regional utilities with responsibilities to ensure compliance with mandatory reliability standards by entities who own, operate, or use the interconnected, international Bulk Power System, conduct assessments of the grid's ability to meet electricity demand in the region, and analyze regional system events. Further information about MRO is available on-line at **www.midwestreliability.org** and about the North American Electric Reliability Corporation (NERC) at **www.nerc.com**.

- The Minnesota Transmission Owners (MTO) group, a consortium of 16 sponsoring utilities and three participating government agencies, fulfills the utilities' statutory obligations for transmission planning in the state of Minnesota. These obligations include the development of the Minnesota Biennial Transmission Plan, as well as studies associated with meeting the Minnesota Renewable Energy Standard (RES) requirements. Further information about the MTO group is available at www.minnelectrans.com.

MRES has no other recommended measures for regional coordination beyond the activities described here in Section J.

SECTION K: Environmental Information

a. Impact of Changing Environmental Regulations

Environmental sensitivity is a basic component of the MRES mission, and compliance with statutory and regulatory requirements applicable to generation resources and future transmission facilities is a priority. MRES constantly monitors state and federal environmental matters and developments, particularly those in the areas of air quality and emissions from generating resources, to assess potential impacts to MRES operations and ensure compliance with applicable laws and regulations. MRES takes a comprehensive approach to monitoring statutes and regulations applicable to the various generating facilities within its power supply portfolio, as well as proposed laws, regulations, and judicial decisions that may alter the regulatory regime for existing resources, potential generation portfolio additions, and transmission issues. To ensure comprehensive coverage of issues, MRES actively collaborates with several engineering and legal professional consultants, as well as state and national industry associations. In addition, MRES manages operations of its resources to ensure that the generating plants are in compliance with current and known future requirements.

b. General Environmental Matters

Air, water, and land quality are all of keen interest to MRES, and the staff manages a wide range of environmental issues regarding the generation and delivery of electricity. MRES regularly monitors air quality topics including those governed by the Clean Air Act (CAA) to reduce carbon dioxide (CO_2) emissions from existing and new power plants, Regional Haze, the rules and revisions to National Ambient Air Quality Standards (NAAQS), and other such matters.

Equally important, MRES also actively follows developments relating to surface and ground water, including those related to defining the Waters of the United States governed by the Clear Water Act, coal combustion residual (CCR) (also known as coal ash) regulations, and other substantive environmental issues. MRES closely monitors litigation challenging any of these measures, as well as the remands and subsequent rulemakings (if any) that might result.

As a transmission-owning member of MISO and SPP, MRES also participates in regulatory matters governed by the Federal Energy Regulatory Commission, NERC, MRO, Electricity Information Sharing & Analysis Center, and other national and regional entities. Actions of these organizations could potentially directly or indirectly impact environmental issues, and MRES utilizes both staff and consultants to monitor and participate in these organizations.

SECTION L: Projected Demand for Service

Projected Demand.

MRES forecasted peak demand and energy requirements are provided in Exhibit 1.

Manner and Extent of Meeting Projected Demand.

Over the last several years, MRES has made progress in addressing its capacity shortfall in the MISO market. With the completion of the Red Rock Hydroelectric Project, and the addition of several long-term Purchase Power Agreements, MRES is well less than 70 MW capacity deficit through 2029. MRES will continue to seek opportunities to enter agreements with potential capacity suppliers and continue to investigate additional peaking capacity projects to further reduce the capacity deficit.

Another important task in the short term is to continue assisting members with implementing their Demand-Side Management (DSM) and conservation activities. For the Minnesota Members, this means maintaining concerted activities to pursue DSM measures to meet the Minnesota Energy Conservation and Optimization Program requirements. While Minnesota has this additional requirement, MRES offers and promotes all of the same programs to each of its member cities, regardless of which state they are located in.

Wind, solar, or other renewable resources will continue to be investigated along with the purchase of Renewable Energy Certificates (RECs), as needed, to ensure that MRES will meet the goals established by the Board of Directors of achieving both the Minnesota RES as it expands and meeting any renewable energy objectives established in Iowa, North Dakota, and South Dakota.

Further, MRES will continue its efforts to participate in activities at both the federal and state levels to develop enforceable and workable regulations to reduce CO_2 in an effort to minimize the potential reliability and economic impacts of such emission regulations. MRES is committed to active and constructive engagement on this vital issue to ensure a reasonable approach to carbon reduction and environmental stewardship, while also balancing the needs of consumers for reliable and affordable electricity to power the clean energy future.

In summary, during the next ten years MRES has a need for additional generation capacity and renewable resources. The renewable energy resources might include the purchase or lease of renewable generation or the purchase of RECs. Once that need is met, under both

SPP and MISO Base Case conditions, additional needs may be met through further development of DSM and conservation activities.

Load Centers.

MRES is a member-based, joint-action agency that provides power supply, transmission, and related services to its Member municipalities in Iowa, Minnesota, North Dakota, and South Dakota. Fifty-eight of the sixty-one Members receive power supply under long-term Power Sale Agreements (S-1 Agreement).[2] All MRES S-1 Members purchase power supply from MRES in an amount necessary to supplement the fixed amount of their respective allocations of federal hydroelectricity based on individual long-term contracts between each S-1 Member and the Western Area Power Administration (WAPA). The three remaining Members each have individual and distinct long-term power supply agreements with MRES,[3] and only one of those Members also has an allocation of federal hydropower and a WAPA contract.

Twenty-eight Members, representing about half of the MRES energy sales, are located within MISO. The remaining 33 Members are located within SPP. In regard to the five MRES Members located in North Dakota, two are within SPP, and the remaining three are within MISO. Most MRES and WAPA generation resources are within SPP.

Fuel Sources and Transportation.

Laramie River Station burns Powder River Basin sub-bituminous coal that is transported to the plant by rail.

Exira Station has three combustion turbines used for peaking purposes. These units use natural gas as their primary fuel and No. 2 fuel oil as a back-up fuel. Natural gas is transported to the plant by pipeline and fuel oil is transported by truck.

The Watertown Power Plant is an electric power generating facility utilizing a simple cycle combustion turbine that uses No. 2 fuel oil. The fuel oil is transported to the plant by truck.

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[2] "S-1 Members" are the 58 Member cities of MRES that have each executed a Power Sale Agreement (S-1) under which MRES has the obligation to provide all the supplemental power needs of those Members, that is, each Member's power supply needs in excess of their allocation of federal hydropower from WAPA.

[3] "Non S-1 Members" are the three member cities of Atlantic and Pella, Iowa, and Hutchinson, Minnesota. Atlantic has a WAPA contract and associated hydropower allocation.

Exhibit 1

Projected Capacity Needs and Current Resources

Separate Analysis for SPP vs MISO Areas

On October 1, 2015, WAPA and other transmission owners in the Upper Midwest transferred functional control of its transmission system to the SPP market area, including facilities that serve MRES Member load. As a result, all MRES loads and resources are located within either the MISO or the SPP markets.

MRES resource planning assumes the planning reserve requirement as defined by SPP for all MRES load in SPP, along with the MISO resource adequacy requirements for load in MISO. Only resources within the same regional transmission organization (RTO), or that have appropriate firm transmission in place from another RTO, may be used to meet the capacity requirements in an RTO. MRES has very limited transmission rights between the two RTO regions. In order to calculate the overall resource requirements, the capacity expansion modeling was divided into separate models for each RTO region.

As a first step, the total load forecasts for MRES Members, as well as the DSM potential results, and capacity resources were divided between the SPP and MISO regions.

The graphs included in this Exhibit 1 show the MRES capacity requirements for the 61 member cities listed previously in this document, split into the two areas. The capacity requirement is defined as peak demand, minus conservation activities, reductions for load diversity, and additions for losses and planning reserve requirements. The graphs also show the resources used to meet these requirements, with MRES having a capacity deficit in MISO and a capacity surplus in SPP.

MISO

The following purchase transactions are included in this Ten-Year Plan as increases in resource capacity in the MISO region:

- Purchase from UMMEG of 20 MW of capacity for the years 2024 through 2030, and 3.3 MW for the years 2024 through 2030.
- Purchase from RPU of 26 MW of capacity for the years 2024 through 2031.
- Purchase from NextEra of 90 MW for the years 2024 through 2025, 115 MW for the years 2026 through 2031, and 65 MW for the years 2032 through 2039.

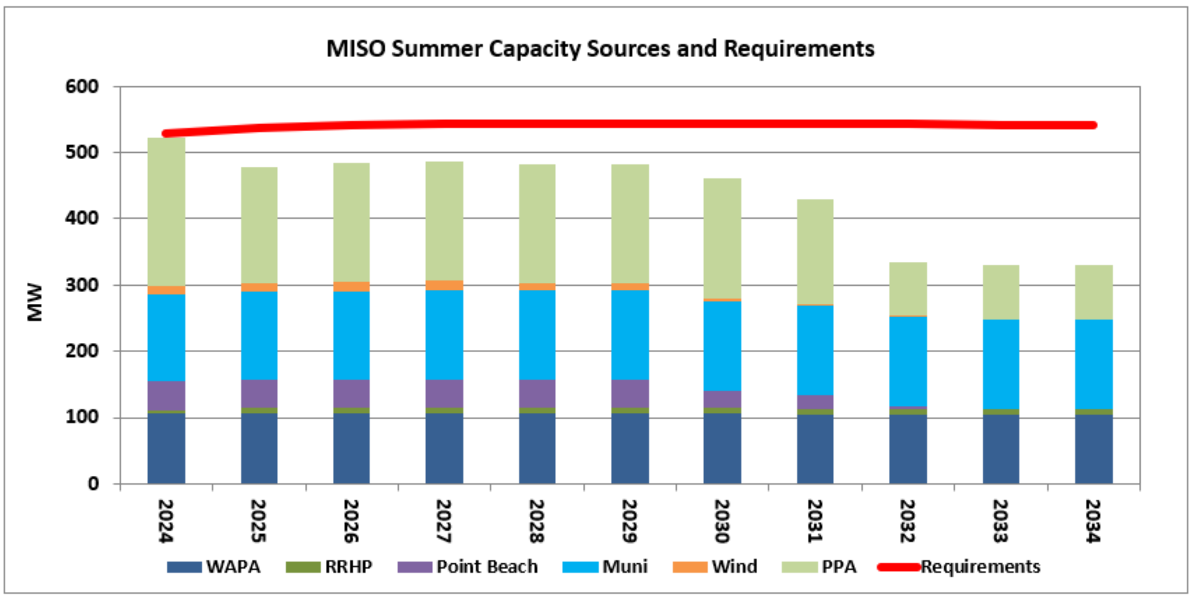
MRES continues to pursue opportunities to purchase firm capacity in MISO. To the extent MRES remains capacity deficit in each upcoming year, the deficiency must be purchased in the annual MISO capacity auction. The cost of such auction capacity could be very low, as it has been in recent years, or very high as it was in 2022. While many contracts have been added in recent years, it is the intent of MRES to further investigate firm capacity purchases in MISO over time to eliminate most or all of its annual capacity auction purchases.

In the short-term, exposure to the capacity auction presents a manageable cost risk and allows flexibility in the event of greater-than-anticipated reduction in demand. MRES actively manages its energy risk by evaluating whether to lock in additional bilateral capacity purchases or pay the auction price for this shortfall for every year. MRES has a formalized policy to manage such risks, and the implementation of that policy is subject to monthly review by its Risk Oversight Committee. The actual amount of shortfall will be affected by any load forecast error or the loss (or gain) of retail customers.

The Ten-Year Plan assumes that new resources can be added (through ownership of new or purchase of existing capacity) to avoid forecasted capacity deficits. Since MISO has a seasonal capacity requirement, both summer and winter data are shown below:

MISO Summer Capacity Sources and Requirements (1) (2)

Year	WAPA	RRHP	Point Beach	Muni	Wind	PPA (3)	Capacity	Requirements (4)	Surplus
2024	106.0	5.3	44.1	129.6	13.3	224.3	522.6	529.6	-7.0
2025	106.0	8.0	44.1	131.3	13.3	175.2	477.9	537.6	-59.7
2026	106.0	8.0	44.1	133.0	13.3	180.2	484.6	542.5	-57.9
2027	106.0	8.0	44.1	134.7	13.3	180.2	486.3	542.6	-56.3
2028	106.0	8.0	44.1	134.7	10.3	180.2	483.3	542.6	-59.3
2029	106.0	8.0	44.1	134.7	10.3	180.2	483.3	542.8	-59.5
2030	106.0	8.0	26.8	134.7	4.9	180.2	460.6	543.0	-82.4
2031	104.9	8.0	22.0	134.7	0.9	158.2	428.7	542.9	-114.2
2032	104.9	8.0	4.7	134.7	0.9	82.2	335.4	542.7	-207.3
2033	104.9	8.0	0.0	134.7	0.9	82.2	330.7	542.4	-211.7
2034	104.9	8.0	0.0	134.7	0.9	82.2	330.7	542.3	-211.6



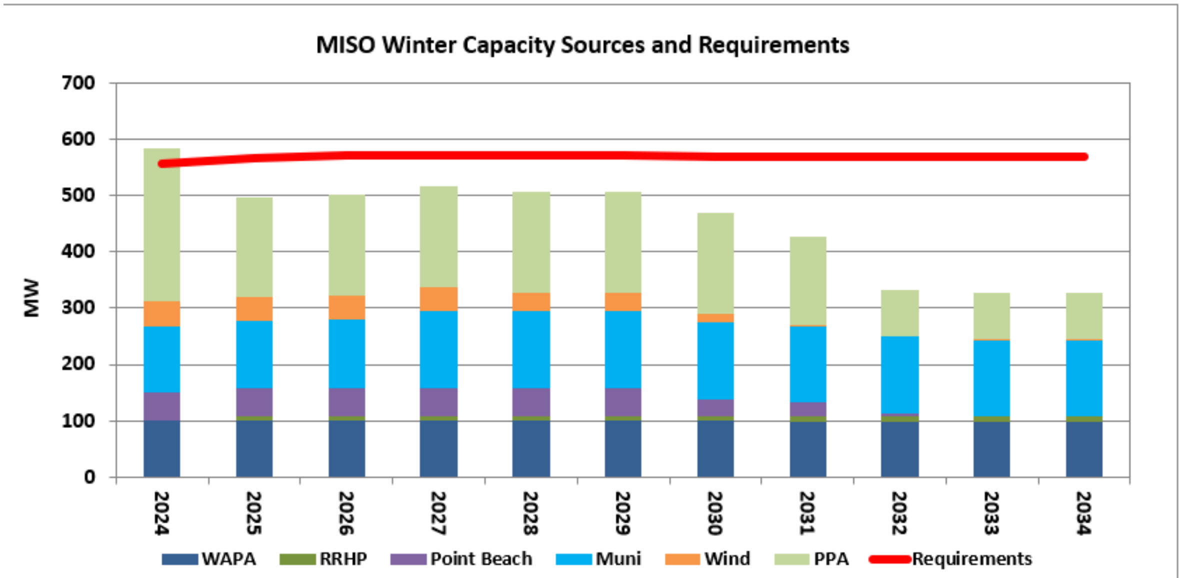
(1) All MISO capacity values are UCAP,with the units derated according to the MISO method.

(2) Capacity forecast was last updated August 2023.

(3) Net transactions include purchases from NextEra, UMMEG, RPU, Avangrid, and GRE (for WLMR), capacity contracts between Atlantic and MEC, and other short-term PPAs.

MISO Winter Capacity Sources and Requirements [1] [2]

Year	WAPA	RRHP	Point Beach	Muni	Wind	PPA [3]	Capacity	Requirements [4]	Surplus
2024	100.0	0.0	49.7	118.6	43.4	272.6	584.3	557.3	27.0
2025	100.0	8.0	49.7	119.9	43.4	174.9	495.9	565.5	-69.6
2026	100.0	8.0	49.7	121.2	43.4	179.9	502.2	571.1	-68.9
2027	100.0	8.0	49.7	136.6	43.4	179.9	517.6	570.8	-53.2
2028	100.0	8.0	49.7	136.6	33.9	179.9	508.1	570.6	-62.5
2029	100.0	8.0	49.7	136.6	33.9	179.9	508.1	570.5	-62.4
2030	100.0	8.0	30.2	136.6	15.7	179.9	470.4	570.4	-100.0
2031	98.9	8.0	24.8	136.6	2.1	157.9	428.3	570.0	-141.7
2032	98.9	8.0	5.3	136.6	2.1	81.9	332.8	569.5	-236.7
2033	98.9	8.0	0.0	136.6	2.1	81.9	327.5	569.0	-241.5
2034	98.9	8.0	0.0	136.6	2.1	81.9	327.5	568.6	-241.1



(1) All MISO capacity values are UCAP,with the units derated according to the MISO method.

(2) Capacity forecast was last updated August 2023.

(3) Net transactions include purchases from NextEra, UMMEG, RPU, Avangrid, and GRE (for WLMR), capacity contracts between Atlantic and MEC, and other short-term PPAs.

SPP

The largest resources are the MRES share of LRS, the only MRES coal resource, located near Wheatland, Wyoming, and Exira Station, a natural gas peaking plant located near Atlantic, Iowa.

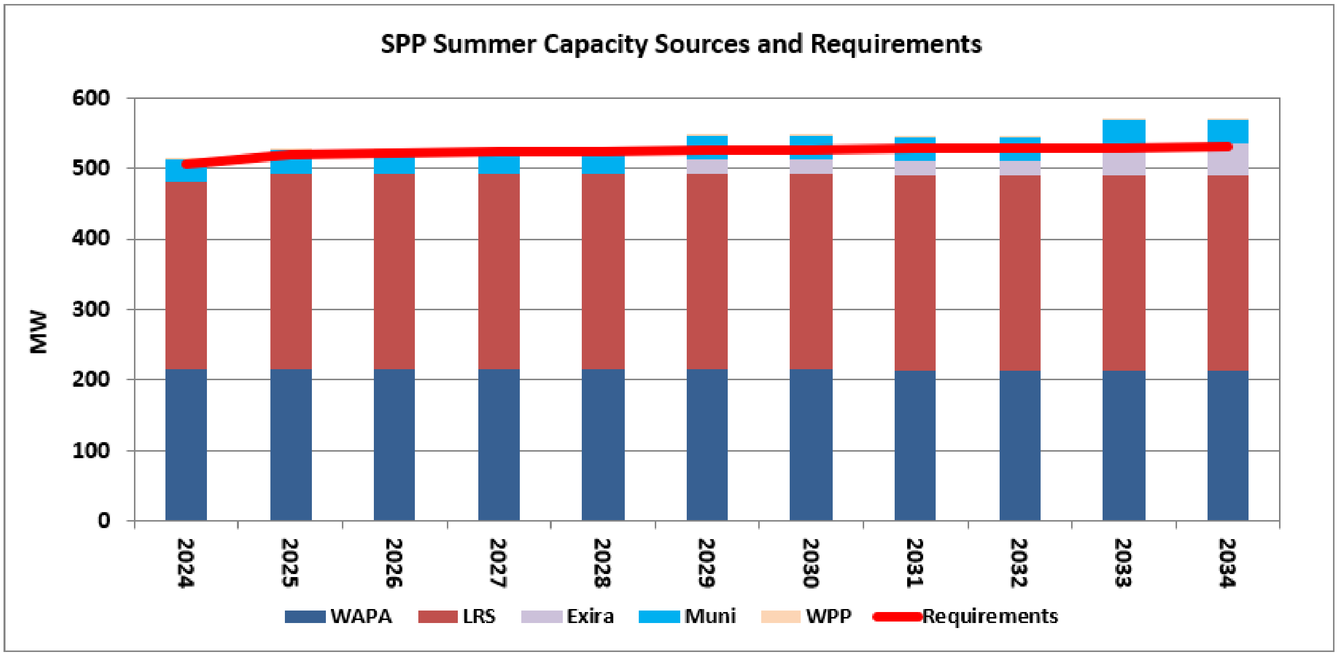
The following capacity sales transactions are included in this Ten-Year Plan as reductions in resource capacity of WPP (Watertown Peaking Plant) and Exira in the SPP region:

- Sale to Basin Electric Power Cooperative of 185 MW of capacity for the years 2024 through 2028, 165 MW from 2029 through 2032, and 140 MW from 2033 through 2035.

SPP has recently adopted a seasonal construct and has proposed a significant change to the capacity accreditation formula as well as the reserve margin calculation. The net impact is a significant tightening, with the result being a smaller capacity surplus or a larger capacity deficit. The rules are not currently finalized, but the data below represents a reasonable approximation:

SPP Summer Capacity Sources and Requirements [1] [2]

Year	WAPA	LRS	Muni	Exira [3]	WPP [3]	Capacity	Requirements [4]	Surplus
2024	216.2	264.0	33.2	0.0	0.3	513.7	505.0	8.7
2025	216.2	276.0	33.2	0.0	0.3	525.7	518.7	7.0
2026	216.2	276.0	33.2	0.0	0.3	525.7	522.3	3.4
2027	216.2	276.0	33.2	0.0	0.3	525.7	523.4	2.4
2028	216.2	276.0	33.2	0.0	0.3	525.7	524.4	1.3
2029	216.2	276.0	33.2	20.0	0.3	545.7	525.5	20.2
2030	216.2	276.0	33.2	20.0	0.3	545.7	526.7	19.0
2031	214.5	276.0	33.2	20.0	0.3	544.0	527.6	16.4
2032	214.5	276.0	33.2	20.0	0.3	544.0	528.4	15.6
2033	214.5	276.0	33.2	45.0	0.3	569.0	529.0	40.0
2034	214.5	276.0	33.2	45.0	0.3	569.0	529.8	39.2



(1) All SPP units are not derated, per SPP rules. Included the summer peaks and unit ratings, as SPP currently has no penalty for winter capacity deficits.

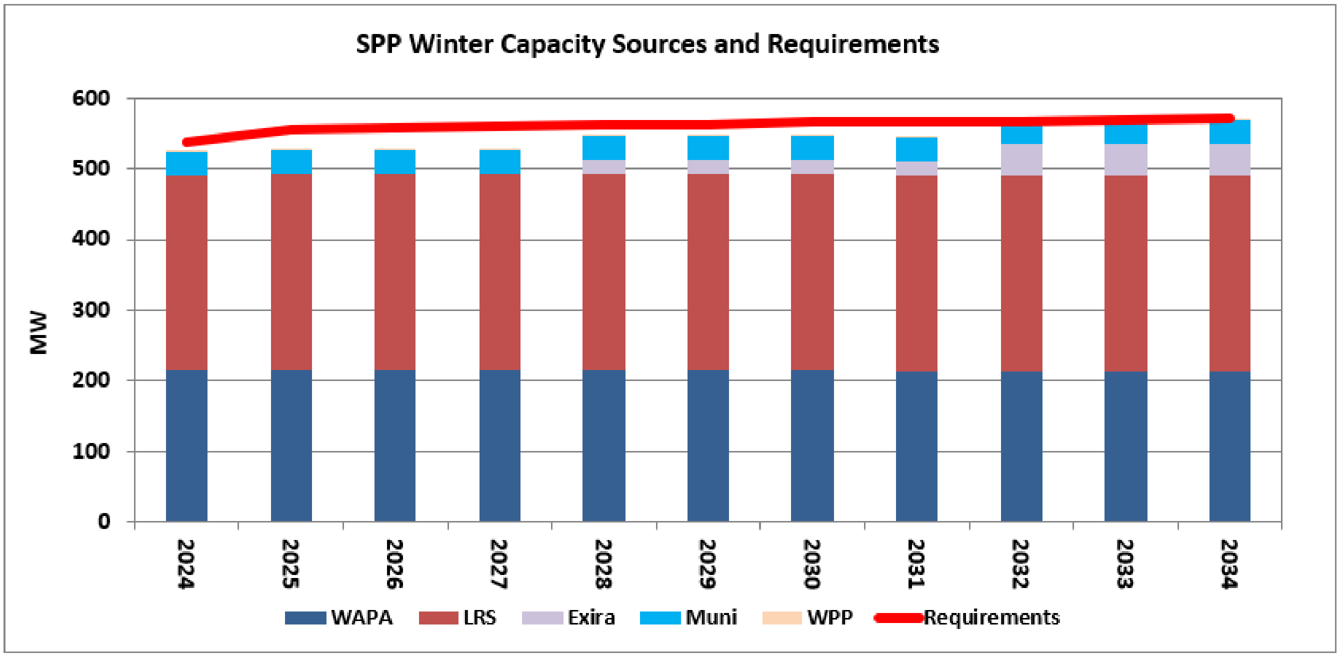
(2) Capacity forecast was last updated August 2023.

(3) Includes sale to BEPC.

(4) Requirements are measured at the time of the coincident peak, net of DSM, and include reserve margin amounts.

SPP Winter Capacity Sources and Requirements [1] [2]

Year	WAPA	LRS	Muni	Exira [3]	WPP [3]	Capacity	Requirements [4]	Surplus
2024	216.2	274.0	33.2	0.0	0.4	523.8	536.6	-12.8
2025	216.2	276.0	33.2	0.0	0.4	525.8	555.8	-29.9
2026	216.2	276.0	33.2	0.0	0.4	525.8	557.5	-31.7
2027	216.2	276.0	33.2	0.0	0.4	525.8	559.3	-33.5
2028	216.2	276.0	33.2	20.0	0.4	545.8	561.2	-15.3
2029	216.2	276.0	33.2	20.0	0.4	545.8	563.2	-17.3
2030	216.2	276.0	33.2	20.0	0.4	545.8	566.5	-20.6
2031	214.5	276.0	33.2	20.0	0.4	544.1	566.4	-22.2
2032	214.5	276.0	33.2	45.0	0.4	569.1	567.8	1.4
2033	214.5	276.0	33.2	45.0	0.4	569.1	569.3	-0.2
2034	214.5	276.0	33.2	45.0	0.4	569.1	570.7	-1.6



(1) All SPP units are not derated, per SPP rules.

(2) Capacity forecast was last updated August 2023.

(3) Includes sale to BEPC.

(4) Requirements are measured at the time of the coincident peak, net of DSM, and include reserve margin amounts.