



# Capacity Demonstration Results

Planning Year 2023/24

Case No. U-20590

March 27, 2020

**MPSC Staff**

# Contents

- Executive Summary ..... iii
- Background ..... 1
- Pre-Demonstration Process ..... 1
- Capacity Demonstration Filings ..... 2
- Overview of Zonal Adequacy ..... 2
  - MISO – Local Resource Zone 7 ..... 4
    - Prompt Year (PY 2020/21) ..... 6
    - Compliance Year (PY 2023/24) ..... 7
    - Interim Years (PY 2021/22 & PY 2022/23) ..... 7
    - Noteworthy for MISO Local Resource Zone 7 ..... 7
  - MISO – Local Resource Zone 2 ..... 12
    - Noteworthy for MISO Local Resource Zone 2 ..... 12
  - MISO – Local Resource Zone 1 ..... 13
  - PJM – Indiana Michigan Power Company ..... 13
- LSE Capacity Demonstration Results (PY 2023/24) ..... 15
  - Demand Response ..... 16
  - ZRC Contracts ..... 17
  - AES Load Switching ..... 17
  - LSE Compliance with Capacity Demonstration Requirements ..... 18
- Other Issues ..... 18
- Conclusion and Recommendations ..... 18
- Appendix A ..... 19

## Executive Summary

All Michigan load serving entities (LSE) required to file capacity demonstrations with the Michigan Public Service Commission (MPSC) for planning year 2023/24 pursuant to MCL 460.6w and the August 2019 Commission Order in Case No. U-20590 have filed. Staff has audited the filings, contracts and other materials and finds that all Michigan LSEs have satisfied the capacity demonstration requirements and have procured appropriate levels of resources for planning year 2023/24.

Staff projects that the Midcontinent Independent System Operator, Inc. (MISO) Local Resource Zone (LRZ) 7, which consists of the lower peninsula of Michigan, excluding Indiana Michigan Power Company's (I&M) service territory in the southwest corner of the state will have sufficient resources to meet its local clearing requirement (LCR) for the 2020/21 prompt year as well as 2023/24 demonstration year based on the capacity demonstration filings and MISO publications at the time of this report. However, the margins for LRZ 7 with respect to its LCR are projected to be slim and small deviations to resources and/or requirements could leave LRZ 7 short of its LCR. For MISO LRZ 1 and LRZ 2 in Michigan's Upper Peninsula, Staff doesn't have comprehensive enough data to accurately project zonal capacity positions because the majority of these two zones are located in other states not subject to MCL 460.6w. Based on the most recent Organization of MISO States (OMS) Survey, both LRZ 1 and LRZ 2 are projected to have sufficient capacity in 2020 as well as in 2024.<sup>1</sup> Additionally, Staff projects that the I&M service territory in Michigan, which is in PJM Interconnection LLC (PJM), will have sufficient levels of resources available to meet PJM's requirements.

While Staff has seen stagnant growth in aggregated Demand Response (DR) from last year's numbers, it is predicted that these registrations into MISO will grow in the near future. As a result, Staff asks that the Commission support the establishment of procedures or a methodology to facilitate communication between Aggregators of Retail Customers (ARC), Alternative Electric Suppliers (AES), incumbent utilities and Staff when aggregated DR is dispatched on MISO's coincident peak. This is necessary to accurately account for the change in Peak Load Contribution (PLC) if DR resources are dispatched on peak.

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<sup>1</sup> [2019 OMS-MISO Survey Results](#) released in June 2019 revised in August, 2019, accessed 03/26/2020.

## Background

On September 15, 2017 in Case No. U-18197, the Commission directed all Michigan LSEs to file capacity demonstrations annually pursuant to MCL 460.6w. This report outlines the results of the capacity demonstrations filed for planning year 2023/24 as directed by the Commission in Case No. U-20590 and represents the third annual capacity demonstration report, the prior two being filed in Case No. U-18441 and Case No. U-20154, respectively. In Case No. U-20590, the Commission ordered<sup>2</sup> rate regulated electric utilities<sup>3</sup> to submit capacity demonstrations by December 2, 2019 for the 2023/24 planning year and AESs,<sup>4</sup> cooperatives,<sup>5</sup> and municipal utilities<sup>6</sup> to submit capacity demonstrations in the same docket for the 2023/24 planning year, on or before February 11, 2020.

The purpose of these demonstrations is to ensure that each electric utility owns or has contractual rights to capacity sufficient to meet its capacity obligations as set by the MISO, PJM, or the Commission, as required by MCL 460.6w.

## Pre-Demonstration Process

Similar to the previous years, Staff offered LSEs the opportunity to meet with Staff to discuss the capacity demonstration requirements and review relevant materials prior to the final filing deadlines discussed above. A significant number of LSEs met with Staff and clarified the process before filing reports in the docket. Staff found that the pre-filing consultations were helpful in resolving questions prior to filing. Staff will continue to offer pre-filing consultations each year in order to resolve potential issues prior to the filing deadlines.

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<sup>2</sup> [August 8, 2019 MPSC Order](#) in Case No. U-20590, accessed 03/23/2020.

<sup>3</sup> Alpena Power Company, Consumers Energy Company, DTE Electric Company, Indiana Michigan Power Company, Northern States Power Company-Wisconsin, Upper Michigan Energy Resources Corporation, Upper Peninsula Power Company, and Wisconsin Electric Power Company.

<sup>4</sup> AEP Energy Inc, Calpine Energy Solutions LLC f/k/a Noble Americas Energy Solutions LLC, CMS ERM Michigan LCC, Constellation NewEnergy Inc, Dillon Power LLC, Direct Energy Business LLC, Direct Energy Services, EDF Energy Services LLC, Eligo Energy MI, LLC., Energy International Power Marketing Corporation, Energy Services Providers Inc., FirstEnergy Solutions, Interstate Gas Supply LLC, Just Energy Solutions Inc, Liberty Power Delaware LLC, Liberty Power Holdings LLC, MidAmerican Energy Services LLC, Nordic Energy Services LLC, Plymouth Rock Energy LLC, Spartan Renewable Energy, Texas Retail Energy LLC, U.P. Power Marketing LLC, and Wolverine Power Marketing Cooperative Inc.

<sup>5</sup> Bayfield Electric Cooperative, Cloverland Electric Cooperative, Thumb Electric Cooperative, and Wolverine Power Supply Cooperative.

<sup>6</sup> City of Escanaba, City of Stephenson, City of Wakefield, Croswell Light and Power Department, Daggett Electric Department, Michigan Public Power Agency, Michigan South Central Power Agency, Newberry Water and Light Board, and WPPI Energy.

## Capacity Demonstration Filings

On or before December 2, 2019, capacity demonstration filings were received from Alpena Power Company, Consumers Energy Company, DTE Electric Company, Indiana Michigan Power Company, Northern States Power Company, Upper Michigan Energy Resources Corporation (UMERC), and Upper Peninsula Power Company (UPPCO). The majority of the LSEs filed confidential information under seal as part of the electric utilities' filings. Staff reviewed this information and met with LSEs as needed.

On or before February 11, 2020, capacity demonstration filings were received from Calpine Energy Solutions, LLC., Constellation New Energy Inc., Direct Energy Business, Spartan Renewable Energy Inc., UP Power Marketing, Wolverine Power Marketing Cooperative Inc., City of Escanaba, City of Stephenson, City of Wakefield, Croswell Light and Power Department, Daggett Electric Department, Michigan Public Power Agency, Michigan South Central Power Agency, Newberry Water and Light Board, WPPI Energy, Thumb Electric Cooperative, and Wolverine Power Supply Cooperative. First Energy Solutions Corp, Just Energy Solutions Inc., and Cloverland Electric Cooperative filed their capacity demonstrations on February 12, 2020. Bayfield Electric Cooperative Inc. filed its capacity demonstration on February 17, 2020. Staff confirms receipt of capacity demonstration filing information from, or on behalf of, all LSEs currently serving load in Michigan.

Several AESs filed letters in Case No. U-20590 indicating that they are currently not serving customers in Michigan.<sup>7</sup> Staff confirms that all licensed AESs in Michigan have either filed capacity demonstrations or a letter indicating that they are not currently serving Michigan load.

Staff conducted an audit for each capacity demonstration filing received and requested additional information from the LSE when necessary. Staff has reviewed all contracts included in capacity demonstrations from AES's as well as most of the contracts from co-ops, electric utilities, and municipalities.

## Overview of Zonal Adequacy

As alluded to above, there are two regional transmission operators (RTO) in Michigan; MISO and PJM. The majority of Michigan's load is located in MISO. The exception is the southwest corner of the Lower Peninsula which is I&M's service territory located within the PJM RTO. PJM and MISO have different resource adequacy constructs and capacity obligations. PJM has a mandatory three-

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<sup>7</sup> Eligo Energy MI, LLC., Liberty Power Holdings LLC, Liberty Power Delaware LLC, Nordic Energy Services LLC, Plymouth Rock Energy LLC, Interstate Gas Supply LLC, Dillon Power LLC, Energy International Power Marketing Corporation, MidAmerican Energy Services LLC, EDF Energy Services LLC, Texas Retail Energy LLC, Energy Services Providers Inc., and AEP Energy Inc.

year forward capacity construct for its LSEs.<sup>8</sup> MISO's capacity construct is for the upcoming year (prompt year) only. Both MISO and PJM LSEs are subject to the requirements of MCL 460.6w requiring sufficient capacity for four years forward: in this case, for planning year 2023/24. PJM LSEs can demonstrate sufficiency simply by providing evidence that the LSE is in compliance with its PJM obligations. MISO LSEs must demonstrate sufficient resources to meet its current prompt year requirement four years forward. For this reason, the majority of this section is focused on MISO.

MISO establishes capacity obligations for all LSEs based on peak load forecasts and a planning reserve margin percentage necessary to meet the North American Electric Reliability Corporation's (NERC) Loss of Load Expectation (LOLE) standard of 1 day in 10 years. LSEs within MISO can meet their capacity requirements either through a Fixed Resource Adequacy Plan (FRAP) or through the Planning Resource Auction (PRA). The PRA is a residual market for LSEs that choose not to use the FRAP or do not have enough capacity resources, either owned or purchased bilaterally, to satisfy their capacity obligations, and thus need to purchase additional resources.

Within MISO's resource adequacy construct, there are two key resource requirements that must both be satisfied to meet the 1 day in 10 years LOLE standard: Planning Reserve Margin Requirement (PRMR) and LCR. The PRMR is determined through LOLE modeling based on the coincident MISO peak forecast and resources adjusted as necessary to meet the 1 in 10 standard. PRMR resources are not location specific, i.e. they can come from outside an LSE's zone. Individual LSEs are responsible for their own share of the zone's PRMR. The ability to use imports to meet PRMR makes it highly likely all zones will meet this requirement. Failure to meet PRMR would only occur if there were not enough resources available within all of MISO's footprint or the resource need for a particular zone exceeded the zone's ability to import capacity.

Of greater interest to Staff is the LCR. The LCR is the minimum amount of capacity for an LRZ required to be located within the LRZ to meet the loss of load standard fully accounting for the LRZ's ability to import. The LCR requirement is for the zone as a whole as opposed to a requirement for individual LSEs. There is no LCR requirement applicable to individual LSEs in Michigan pursuant to MCL 460.6w at this time. The LCR is determined by performing a LOLE analysis on each zone individually to determine the Local Reliability Requirement (LRR), which is the amount of resources a zone would need to meet the loss of load standard if it were separated from the rest of MISO. Separately, an import study is performed to determine the Zonal Import Ability (ZIA) for each zone. For LRZ 7, the ZIA is currently (and historically) equal to the capacity import limit (CIL) and the terms are often treated synonymously. The ZIA is then subtracted from the LRR to determine the LCR. If an LRZ doesn't have enough resources to meet its LCR (or PRMR)

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<sup>8</sup> PJM's Base Residual Auction is currently suspended. See below for more discussion on this issue. Also, please note, the timing of MISO's and PJM resource adequacy constructs don't align perfectly. PJM's base residual auction, originally intended to occur in May/June 2020, for PY 2023/24 is referred to as being "three years forward" but constitutes the same planning year at issue in U-20590 and the same planning year "four years forward" in MISO's resource adequacy construct (March/April 2020 auction for PY 2020/21).

the PRA clearing price would be set at the Cost of New Entry (CONE) for that year. CONE changes from year to year but for reference, PY 2019/20 CONE was \$243.37/MW-Day or ~\$89,000/MW-year for LRZ 7. The PRA clearing price being set at CONE would have economic ramifications (LRZ 7 cleared at ~10% of CONE in PY 2019/20) and would provide a signal to stakeholders with responsibilities regarding resource adequacy within the zone. However, it is important to note that MISO's resource adequacy construct is based on probabilistic determinations and failure to meet the requirements of the resource adequacy construct would not mean that the LRZ in question will experience a loss of load event. It simply means the probability of such a loss of load event would exceed the generally accepted criteria that govern the resource adequacy planning process.

In addition to the required compliance year (PY 2023/24), most demonstrations filed included updates for the 2020/21 planning year through the 2022/23 planning year. These updates are voluntary and were not provided by all LSEs<sup>9</sup>. Staff appreciates the efforts made by LSEs to provide updated capacity resource data for these years as it allows Staff to update zonal resource adequacy projections for the prompt year, interim years, as well as the compliance year. It is important to note that the compliance year capacity obligations (PY 2023/24) that are demonstrated for in this case are based off an LSE's prompt year (PY 2020/21) requirement. Changes to load, resources, and MISO procedures in the upcoming years can lead to discrepancies between an LRZ having sufficient capacity to meet its four-year forward Michigan requirements and not having enough capacity to meet MISOs requirements when the prompt year arrives.

## **MISO – Local Resource Zone 7**

Figure 1 shows a comparison of LRZ 7 aggregated resources and MISO resource adequacy requirement projections for the next 4 years. These numbers represent Staff's current projection based on the capacity demonstration filings and MISO publications at the time of this report although, the information is subject to change for all years, including PY 2020/21. Unless otherwise noted resources and resource requirements in this report are in Unforced Capacity (UCAP) Megawatts (MW), equal to Zonal Resource Credits (ZRCs).

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<sup>9</sup> The required demonstrations for planning years 2020/2021 and 2021/2022 was made in the 2018 capacity demonstration (Case No. U-18441). The required demonstration for planning year 2022/23 was made in the 2019 capacity demonstration (Case No. U-20154).

**Figure 1: U-20590 Results - LRZ 7 Capacity Position (ZRCs)**

Line #		PY 2020/21	PY 2021/22	PY 2022/23	PY 2023/24
1	Planning Reserve Margin Requirements (PRMR)	21,945	21,847	21,749	21,650
2	Local Reliability Requirement (LRR)	25,051	25,021	24,991	24,961
3	Capacity Import Limit (CIL)	3,200	3,200	3,200	3,200
4	Zonal Import Ability (ZIA)	3,200	3,200	3,200	3,200
5	Local Clearing Requirement (LCR)	21,851	21,821	21,791	21,761
6	Total Owned	16,865	17,193	16,999	16,936
7	Total PPA Contracts	2,753	2,098	2,304	2,493
8	Total ZRC Contracts	608	564	691	822
9	Total Qualified Demand Response	1,352	1,424	1,507	1,558
10	Total Resources (Line 6 + Line 7 + Line 8 + Line 9)	21,578	21,278	21,498	21,809
11	LCR Demonstrated Position (Line 10 - Line 5)	-273	-542	-293	48
12	PRMR Demonstrated Capacity Position (Line 10 - Line 1)	-368	-569	-251	159
13	Net Undemonstrated Zone 7 Capacity	346	391	264	132
14	Anticipated LCR Position (Line 11 + Line 13)	73	-152	-30	180
15	Anticipated PRMR Capacity Position (Line 12 + Line 13)	-21	-178	13	291

(1) PY 2020 PRMR from Preliminary PRA Data. PY 2023 PRMR calculated using the peak demand forecast from the 2020-21 LOLE Study Report and multiplying by the coincidence factor (95%) and reserve margin (108.8%). PY 2021 & PY 2022 calculated through interpolating PY 2020 & PY 2023.

(2) PY 2020 LRR from Preliminary PRA Data. PY 2023 LRR from the 2020-21 LOLE Study Report. PY 2021 & PY 2022 calculated through interpolating PY 2020 & PY 2023.

(3) PY 2020 CIL from the 2020-21 LOLE Study Report, held constant at prompt year value per MISO recommendation.

(4) PY 2020 ZIA from the MISO Preliminary PRA data, held constant at prompt year value per MISO recommendation

(5)  $LRR - ZIA = LCR$

(6-10) Zone 7 resources included in capacity demonstrations sorted by resource type.

(11) LCR position based on demonstrated resources only.

(12) PRMR position based on demonstrated resources only.

(13) Net Undemonstrated Zone 7 Capacity is Staff's attempt to reconcile the capacity demonstration resources with the MISO PRA. There are resources located in Zone 7 that Staff anticipates will be in the PRA that were not included in any capacity demonstration as well as a small amount of resources included in the capacity demonstration that Staff expects are no longer available due to recent events.



*(14) LCR Position after accounting for undemonstrated Zone 7 Capacity.*

*(15) PRMR position after accounting for undemonstrated Zone 7 capacity. A negative value means the Zone will need to import resources to meet its requirement. A positive value means the Zone may import resources based on economics but will not need to in order to meet its PRMR.*

### **Prompt Year (PY 2020/21)**

For the prompt year (PY 2020/21), based on preliminary PRA data, Staff expects LRZ 7's PRMR to be 21,945 ZRCs and the LCR to be 21,851 ZRCs. The total LRZ 7 resources included in demonstration filings for the prompt year is 21,578 ZRCs, which would result in the zone being short of the LCR by 273 ZRCs. However, based upon independent information, Staff is aware of capacity resources in Zone 7 that were not included in capacity demonstration filings. Staff projects that an additional 346 ZRCs in LRZ 7, beyond what has been demonstrated for LRZ 7, will be available for the prompt year. Based on the demonstrated resources and projected undemonstrated resources Staff anticipates LRZ 7 will exceed its LCR by approximately 73 ZRCs for the 2020/21 planning year.

Line 12 of Figure 1 outlines the capacity position of LRZ 7 relative to the PRMR. Based on Staff's analysis of LSE filings in this docket, when only demonstrated generation resources physically located within LRZ 7 are considered, there is an expected shortfall of approximately 368 ZRCs in the 2020/21 planning year with respect to the PRMR. With the inclusion of the undemonstrated resources, Staff expects that LRZ 7 will meet its planning year 2020/21 PRMR without importing any ZRCs. While Staff projects that LRZ 7 will meet its prompt-year PRMR without imports, it is likely that some amount of imports will occur in the PRA based upon the relative economics. As a point of reference, the 2019/20 MISO PRA results indicate that LRZ 7 imported 164 ZRCs even though it could have met the PRMR without any imports.

With the thin margins discussed above (especially with respect to the LCR) any changes to forecasts or resources after LSEs filed in this case, but prior to the MISO PRA could result in LRZ 7 not having enough resources to meet the requirements. This would mean the auction clearing price would be set at CONE. This is possible even though all LSEs sufficiently demonstrated resources for PY 2020/21 in 2018 (Case No. U-18441), because of changes to resources, load, and MISO procedures since 2018. A clear example of these changes is the LRZ 7 LCR. The 2018 LCR for LRZ was 20,628 ZRCs<sup>10</sup> and at that time staff projected the LCR for PY 2020/21 to be 20,717 ZRCs<sup>11</sup>. The actual LCR for PY 2020/21 is 21,851 ZRCs, 1,134 ZRCs higher than Staff projected in 2018.

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<sup>10</sup> [2018/2019 PRA Results](#), accessed 3/26/20.

<sup>11</sup> [MPSC Staff Report Case No. 18441](#) filed 3/6/18, accessed 3/26/20

## Compliance Year (PY 2023/24)

Staff used the 2020/21 LOLE study report to project requirements for future planning years. These requirements are based on the best available information and are subject to change. The projected PRMR for LRZ 7 for the compliance year (PY 2023/24) is 21,650 ZRCs. Staff determined this number by taking the forecasted peak demand for LRZ 7 in PY 2023/24 (20,931 MW) and accounting for LRZ 7's coincidence factor of 95.07% and the MISO reserve margin of 8.8%. This is a reduction of 295 ZRCs from the prompt year PRMR. Using the LOLE Study Report LRR for PY 2023/24 of 24,961 ZRCs and assuming the ZIA remains constant at 3,200, results in a projected LCR of 21,761 ZRCs for LRZ 7 in PY 2023/24.

Based on the resources included in the capacity demonstration filings for PY 2023/24 (21,809 MW) as well as Staff's estimate (132 MW) of additional LRZ 7 capacity that was not included in the demonstrations and the projected requirements, Staff projects LRZ 7 to have a surplus of 180 MW compared to the projected LCR.

## Interim Years (PY 2021/22 & PY 2022/23)

Figure 1 also includes data and projections for the interim years, PY 2021/22 & PY 2022/23. This information is derived using the same methodology as described for the compliance year, interpolating as necessary because the LOLE Study Report didn't provide specific LRZ analysis for the interim years. Comparing those projected requirements to the demonstrated and undemonstrated resources in LRZ 7, results in a capacity shortfall of 152 ZRCs in PY 2021/22 and a shortfall of 30 ZRCs in PY 2022/23 compared to the projected LCRs. This information is based on the best information currently available to Staff, but includes several assumptions and, again, is subject to change. Likely changes include; new forecasts, unknown resource additions or subtractions, changes in generator performance, increased or decreased zonal import ability and/or changes to MISO requirements.

## Noteworthy for MISO Local Resource Zone 7

### 1. Capacity Requirements

Capacity requirements for LRZ 7 for the prompt year as well as future years have not changed significantly from last year's capacity demonstration report.

**LRR:** The LRR represents the amount of resources required for a particular zone to meet the 1 day in 10 years loss of load standard when modeled as an island (no imports). LRZ 7 had an LRR of 25,023 MWs in the 2019/20 PRA Results. The Preliminary PRA Data for PY 2020 for LRZ 7 shows an LRR of 25,051 MWs. The 2020/21 LOLE Report projects the LRR for PY 2023/24 to be 24,961 MWs.

**CIL / ZIA:** The ZIA is defined as the ability of an LRZ to import capacity from areas outside of that LRZ. In LRZ 7 the ZIA is equal to the CIL. The 2020 CIL/ZIA

is 3,200 compared to 3,211 in 2019. MISO has recommended Staff assume a constant CIL/ZIA for future year projections.

**LCR:** The LCR is the difference between the LRR and the ZIA. The LCR represents the minimum amount of resources that must be located within a specific zone for that zone to meet the reliability standard. The Preliminary PRA Data for 2020 shows and LCR of 21,851 ZRCs. Last year’s LCR was 21,812 ZRCs. Using an the 2020/21 LOLE Report LRR of 24,961 MWs and assuming a ZIA of 3,200 MW results in a projected LCR of 21,761 MW for PY 2023/24.

## 2. Historical Requirements

Figure 2 below shows data from the annual MISO LOLE study reports for LRZ 7. These numbers typically change slightly prior to the PRA but can be used to see how the capacity requirements have changed over time. Changes in these requirements can have economic and reliability impacts and will continue to be monitored. The preliminary PRA data for 2020 shows a slight decrease in the LRR (25,051 ZRC) and the LCR (21,851 ZRC) compared to the 2020 LOLE Report.<sup>12</sup>

**Figure 2: Annual MISO LOLE Report Data**

Source	LRR	CIL	LCR (ZRCs)
MISO 2013 LOLE Report	25,305	4,576	20,729
MISO 2014 LOLE Report	24,815	3,884	20,931
MISO 2015 LOLE Report	24,710	3,813	20,897
MISO 2016 LOLE Report	24,715	3,813	21,309
MISO 2017 LOLE Report	24,654	3,320	21,334
MISO 2018 LOLE Report	24,545	3,785	20,760
MISO 2019 LOLE Report	24,845	3,211	21,634
MISO 2020 LOLE Report	25,370	3,200	22,170

The available data from recent PRA results and LOLE reports, as described above, shows a decreasingly small margin between the PRMR and LCR for LRZ 7 as shown in Figure 3.

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<sup>12</sup> Figure 1 is based off the best available information at the time of this report. Generally, future years are reported from the latest MISO LOLO Study Report and prompt year data is from more recent Preliminary PRA Data. This may lead to minor differences between Figure 1 and Figure 2.

**Figure 3: MISO LRZ 7 LCR & PRMR Comparison**

Year	LCR	PRMR	ECIL	Source
PY 2013/14	21055	22702	1647	PRA Results
PY 2014/15	21293	22998	1705	PRA Results
PY 2015/16	21442	22679	1237	PRA Results
PY 2016/17	20851	22406	1555	PRA Results
PY 2017/18	21109	22295	1186	PRA Results
PY 2018/19	20628	22121	1493	PRA Results
PY 2019/20	21812	21976	164	PRA Results
PY 2020/21	21851	21945	94	Preliminary PRA Data
PY 2021/22	21821	21847	26	MPSC Staff Projection
PY 2022/23	21791	21749	-42	MPSC Staff Projection
PY 2023/24	21761	21650	-111	MPSC Staff Projection

The difference between a zones PRMR and its LCR is sometimes referred to as Effective Capacity Import Limit (ECIL). The ECIL is not a MISO defined term and is not representative of a physical import limitation. The ECIL is a product of the MISO resource adequacy construct and is an import limitation only within the constraints of the construct. In order to meet the loss of load standard and avoid the auction clearing price being set at CONE, a zone must have enough resources located within the zone to meet its LCR even if the LCR exceeds the PRMR.

### 3. Capacity Resource Changes

In addition to expected variation in each generating unit’s unforced capacity from year to year, there were a few other noteworthy resource changes this year as compared to last year’s report.

#### **Ludington Upgrades**

Consumers Energy Company and DTE Electric Company plan to continue upgrades to the Ludington Pumped Storage facility to help support intermittent resources and provide a price hedge against variable market energy prices. The units began undergoing a maintenance overhaul upgrade in 2015, one unit at a time. As of the filing of DTE’s Integrated Resource Plan (IRP) in Case No. U-20471, four of the unit upgrades had been completed. A fifth was completed in May 2019. According to DTE’s IRP, the \$800 million upgrade project to replace each of the six unit turbines in the facility is on schedule to be completed in 2020.<sup>13</sup> Work began on Ludington

<sup>13</sup> MPSC Case No. U-20471, Direct Testimony of Laura J. Mikulan, Exhibit A-3, p. 287.

3, the last unit to be upgraded, in April of 2019 and is expected to be completed by April of 2020, adding 24 ZRCs.<sup>14</sup>

In September 2019, Wolverine Power Supply Cooperative filed a complaint with MISO claiming that the rules governing the PRA were unjust and unreasonable and that the auction failed to establish appropriate price signals.<sup>15</sup> This complaint was due, in part, to the ability of the last of the 6 Ludington units to be offered in as a capacity resource while unavailable during the upgrade. On October 26, 2019, MISO submitted a filing proposing revisions to its tariff to limit the ability of resources to participate in the auction if the resource is expected to have full or partial outages for any 90 (or more) of the first 120 calendar days in the planning year. Federal Energy Regulatory Commission (FERC) accepted MISO's tariff. As Wolverine indicated its support for the tariff, the case was dismissed as moot on January 30, 2020.<sup>16</sup>

### **Increased Utility Demand Response Programs**

Three LRZ 7 LSEs disclosed in their respective capacity demonstration filings new or increasing DR programs for their retail customers. 184 MW of new or increased DR programs were reported by these LSEs in LRZ 7 for the prompt planning year.

### **Demand Response Aggregation**

Pursuant to a Commission Order in Case No. U-18369, the Commission affirmed that AESs may offer DR programs to their customers through a curtailment service provider (CSP) or third-party aggregator.<sup>17</sup> The Commission made this determination in the context of finding that it will continue to review DR programs offered by AESs as part of the capacity demonstration process.

As the Relevant Electric Retail Regulatory Authority (RERRA), the Commission approved the aggregation of 71.4 MWs of DR to be offered into the 2020 MISO capacity market, which is the same as what was approved for the previous year. While still a relatively small percentage of the total capacity, it is expected that aggregated DR will grow in future years. Staff continues to work with CSPs, ARC and MISO to ensure that aggregated DR's PLCMM is properly accounted for when dispatched on MISO's coincident peak. In many cases, the AES is unaware that a

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<sup>14</sup> MPSC Case No. U-20590, Consumer's Energy Company's Capacity Demonstration for Planning Years 2020 Through 2023, p. 1.

<sup>15</sup>FERC Case No. EL19-102, [Wolverine Power Supply Cooperative, Inc. v. Midcontinent Independent System Operator, Inc.; Notice of Complaint](#), Issued October 17, 2019, Accessed 03/23/2020.

<sup>16</sup> FERC Case No. EL19-102, FERC Order Accepting Tariff Filing and Dismissing Complaint as Moot, Docket No. EL19-102, Issued January 30, 2020.

<sup>17</sup> [September 15, 2017 MPSC Order](#) in Case No. U-18369, p. 5, accessed 03/23/2019.

customer has offered its DR resource to an ARC, therefore when reporting its PLC, does not know if the DR was called on during MISO's coincident peak. Similarly, the Electric Distribution Company (EDC, the incumbent utility) is also unaware when this aggregated DR is dispatched and unable to make the necessary PLC adjustments, per MISO's tariff.<sup>18</sup> Staff recommends that the Commission support Staff establishing a procedure for communication between the ARC, AES, utility and Staff if aggregated DR is dispatched during the previous coincident peak until such time MISO implements requirements and procedures. This issue is currently being discussed at MISO and may result in tariff modifications subject to FERC approval.<sup>19</sup>

### **Potential MISO Load Modifying Resource (LMR) Changes**

With the increased utilization of LMRs in the MISO footprint, MISO has realized the need to review the capacity accreditation to LMRs given the varying characteristics of these resources. While stakeholder discussions are still ongoing, MISO expects to file this proposal at FERC in late April of 2020.<sup>20</sup> MISO categorizes utility DR programs, aggregated DR, and behind the meter generators (BTMG) (such as large industrial customer and municipal utility generators) as LMRs. MISO currently awards all LMRs the same capacity credit if they can meet the minimum requirements of responding to five events a year over a minimum three-month (June, July and August) period given twelve hours of notice. Documentation is required for resources that meet these minimum requirements, with less documentation required for resources with greater availability and shorter notification times. In addition, LMRs are required to submit a performance test, unless they opt out and are instead subject to a 3x penalty in the case of underperformance during an emergency event.<sup>21</sup> The proposed updates would pro-rate the capacity credit based on the availability to respond to calls (for example: 5-9 calls = 80% credit, 10+ calls = 100% credit) and require a six-hour or less lead-time for LMRs to respond to Maximum Generation events. Currently there are approximately 2,200 MW of LMRs in Michigan LRZ 7 alone. Based on preliminary MISO calculations in its Module E Capacity Tracking Tool, this change would lead to a reduction in the total capacity credit of LMRs in LRZ 7 by 936 MWs, assuming MISO has the correct information and no action is taken by the Michigan Commission or market participants.<sup>22</sup>

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<sup>18</sup> Per MISO's [Tariff](#) Module E-1, Section 69A.1.2.

<sup>19</sup> As of March 5, 2020, MISO has incorporated draft Module E-1 language that will likely resolve the EDC information and data sharing barrier, if approved.

<sup>20</sup> Per MISO's [Tariff](#) Module E-1, Section 69A.3.5.

<sup>21</sup> Per MISO's [Tariff](#) Module E-1, Section 69A.3.5.

<sup>22</sup> Slide 3 of MISO's [Liaison Report](#).

## **MISO – Local Resource Zone 2**

MISO's LRZ 2 encompasses almost the entire Upper Peninsula (UP) of Michigan as well as northern and eastern Wisconsin. MISO LRZ 2 has a CIL of 1,603 ZRCs for planning year 2020/21, but MISO does not define MW capacity imports or export limits between states within the boundaries of the same MISO LRZ. Considering LRZ 2 includes LSEs from Wisconsin (not subject to MCL 460.6w), the data available to Staff for LRZ 2 from capacity demonstration filings is not comprehensive enough to project a zonal capacity position as Staff did in its analysis of LRZ 7. Never-the-less, all Michigan LSEs serving load within MISO LRZ 2 demonstrated sufficient resources to meet their requirements.

### **Noteworthy for MISO Local Resource Zone 2**

MISO determined that there are limitations to the transmission system in the UP that require generation availability to reliably serve all of the load in the UP. The Presque Isle Power Plant which previously provided generation support in the area retired in April of 2019. The plant was owned and operated by Wisconsin Electric and Power Company (WEPCo, which is now Upper Michigan Energy Resources Company (UMERC)). On October 25, 2017, The Commission issued an order approving a certificate of need application by UMERC to build two reciprocating internal combustion engine (RICE) electric generation facilities in Michigan's UP as well as a Retail Large Curtailable Special Contract between WEC Energy Group, INC (UMERC's parent company) and Tilden Mining Company L.C. The RICE units began operation in March 2019.

In its capacity demonstration, UPPCO discussed the mechanical failure and subsequent retirement of its Portage generating unit, one of its two fuel oil generators in the UP, in November of 2018. The company intends to continue operation of the Gladstone fuel oil generator and replace the Portage unit with a solar unit in the UP with a capacity of 125 MW, as approved in its IRP in Case No. U-20350.

American Transmission Company, LLC (ATC) owns and operates the two 138 kV transmission circuits that electronically connect the UP and Lower Peninsula of Michigan. Each of the two circuits consist of three cables. On April 1, 2018, the two transmission circuits tripped offline. The United States Coast Guard led an investigation into the possibility that a passing vessel caused damage to the electric cables which resulted in the two circuits tripping off-line. ATC conducted an underwater inspection of the submarine cables. As of May 1, 2018, one of the two circuits between the UP and Lower Peninsula of Michigan has been restored. There was no transmission connection between the Upper and Lower Peninsula for a short time. ATC was able to maintain system reliability for this time, given the anticipated electric load, while one of the two circuits was reconfigured and energized.

The 2019 OMS-MISO Survey results indicate an installed capacity surplus of 100 MW in the 2020/21 planning year for LRZ 2, increasing to a surplus of 200-800 MW for 2024, for LRZ

2.<sup>23</sup> Notwithstanding the localized reliability issues in the UP, the results of the OMS-MISO Survey indicate that LRZ 2 is projected to have an adequate supply of capacity resources to meet its PRMR requirements for the 2019/20/21 planning years. The UMERCE RICE unit capacity replacements and planned capacity replacements by UPPCO, along with and the plans by Cloverland Electric Cooperative and ATC to mitigate the loss of the cable at the Straits, will also have a positive impact on the resource adequacy of the region.

## **MISO – Local Resource Zone 1**

A very small fraction of Michigan’s UP load is located in LRZ 1. Northern States Power, Bayfield Electric Cooperative, and the City of Wakefield municipal utility have less than 30 MW combined in MISO LRZ 1. The 2019 OMS-MISO Survey results indicate an installed capacity surplus of approximately 1,600 MW for the 2020 planning year and a similar capacity surplus projected for 2024.<sup>24</sup> LRZ 1 is projected to have an adequate supply of capacity resources to meet its PRMR requirements for the 2020/21 planning year, as well as the next several planning years.

## **PJM – Indiana Michigan Power Company<sup>25</sup>**

As previously stated, PJM has a mandatory forward capacity market for LSEs in its service territory. LSEs in the PJM service territory meet capacity obligations either through participation in PJM’s Reliability Pricing Model (RPM) Base Residual Auction (BRA) or through PJM’s Fixed Resource Requirement (FRR) plan. As a result of a 2016 complaint, FERC found that PJM’s capacity market was unjust and unreasonable due to the Minimum Offer Price Rule’s (MOPR) failure to mitigate out of market payments that threaten the competitiveness of the PJM’s capacity market. After several years and several rounds of proposals, in December 2019 FERC rejected most of the filed solutions in favor of an expanded MOPR and directed PJM to file a compliance filing by March 18, 2020.<sup>26</sup>

Due to the uncertainty at PJM over the capacity market proceedings with FERC, PJM has not conducted a BRA since 2018 for Delivery Years 2021/2022. PJM has suspended the 2022/2023 BRA, which would have originally run in May 2019, until FERC approves its March 2020 compliance filing. The length of this delay will depend on how swiftly FERC takes action and how compressed the upcoming auction schedules are. At a minimum, several auctions will be delayed though Delivery Year 2025/2026.

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<sup>23</sup>[2019 OMS-MISO Survey Results](#) released in June 2019 revised in August, 2019, accessed 03/17/2020.

<sup>24</sup> *Id.*

<sup>25</sup> Indiana Michigan Power Company is an electric operating company of American Electric Power Company, Inc. (AEP). I&M is a wholly owned subsidiary of AEP and is operated as a single utility in the American Electric Power System (AEP System).

<sup>26</sup> [FERC Directs PJM to Expand Minimum Offer Price Rule](#), December 19, 2019, accessed 03/22/2020.



The capacity demonstration process and requirements approved by the Commission in Case No. U-20154<sup>27</sup> allow PJM LSEs to file an amended capacity demonstration two weeks after the completion of the PJM RPM BRA. In light of the pending FERC MOPR decision, I&M was unable to update its capacity demonstration last year. Staff worked with the Company this year and I&M was able to submit a capacity demonstration based on its projection of owned-resources and capacity contracts for the 2023/2024 planning-year without an updated BRA.

I&M's most recent capacity demonstration filed in Case No. U-20590 indicates that the Company plans to continue with the PJM FRR plan that allows them to opt out of participation in the PJM competitive capacity market barring any major FERC ordered changes. Based on this, I&M's capacity position should not be greatly affected by decisions resulting from FERC's MOPR. Nevertheless, this delays the Company's ability to provide, with 100% certainty, an indication of where future planning year capacity will come from to make up small differences between owned-resources and short-term market purchases.

The Commission order in Case No. U-16090 set I&M's customer choice cap amount to zero, and was subsequently reset to ten percent on February 1, 2019 pursuant to the Commission order and MCL 460.10a(1)c. On February 1, 2019, I&M began enrolling customers in its choice program and is now fully subscribed at the cap. Currently I&M is responsible for the capacity of its choice load in its FRR plan under the PJM RAA. If suppliers were to choose to self-supply capacity, then that capacity would also need to be included in I&M's FRR plan. Constellation NewEnergy Inc. is currently the only AES serving load in I&M's service territory.

Indiana Michigan Power Company's capacity demonstration indicates that it has already satisfied PJM's requirements for planning years 2019/20 through 2021/22 and that it expects to meet PJM's requirements for planning year 2023/24. I&M reports that its expectation to meet the PJM requirements for the 2023/24 planning year is due to PJM resources in July 2019, though I&M notes that the outcome of a pending decision related to its Rockport facility could impact I&M's capacity plan going forward.

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<sup>27</sup> [September 13, 2018 MPSC Order](#) in Case No. U-20154, accessed 03/14/2018.

**Figure 4: Indiana Michigan Power Company Capacity Demonstration Summary**

<b>Item</b>	<b>PY 2020/21</b>	<b>PY 2021/22</b>	<b>PY 2022/23</b>	<b>PY 2023/24</b>
Total Planning Reserve Margin (expected reserves), UCAP MW	4,339	4,325	4,386	4,386
Total Company Owned Generation, MW	4,053	3,993	4,034	3,392
Total Demand Response Resources (treated as capacity), UCAP MW	251	304	369	369
Total PPA, UCAP MW	225	223	280	625
Total Planning Resources, MW	4,529	4,520	4,684	4,386
UCAP Surplus / (Shortfall), MW	190	195	297	0

In addition to I&M's capacity demonstration, Staff also reviewed information for approximately 231.9 MW of cooperative and municipal utility obligations in the Michigan portion of PJM's territory for planning year 2023/24.

Based upon its review, Staff expects that the LSEs in the Michigan portion of PJM will continue to meet the PJM capacity obligations based on information included in individual capacity demonstrations and the current level of surplus capacity in the PJM market. With such an abundance of reserve resources, if I&M were to encounter an unanticipated shortfall in the immediate future, Staff expects that it could easily be accommodated through the procurement of some amount of these reserve resources through market purchases. As market conditions may change over time, Staff will continue to monitor the resource adequacy of the PJM region overall as well as the capacity plans of Michigan LSE's located within the PJM territory. Staff will continue to monitor I&M's capacity plans and expects to work with the Company to update its capacity demonstration after PJM's next BRA. As reaffirmed in the Company's Integrated Resource Plan filed in Case No U-20591<sup>28</sup> Staff does not anticipate I&M to have any issues meeting capacity obligations.

## **LSE Capacity Demonstration Results (PY 2023/24)**

Staff appreciates the time and effort made by all Michigan LSEs to comply with the provisions of MCL 460.6w, as well as to comply with the questions, audits, contract reviews, and requests for additional information throughout this process. The LSE capacity demonstration results are reported for planning year 2023/24 because, following the initial capacity demonstration which covered four years, only the fourth year forward is required for compliance. As previously described in its September 15, 2017 order in Case No. U-18197, the Commission requested a table be included in this report that identifies the capacity by type for each individual electric provider

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<sup>28</sup> MPSC Case No. U-20591, Direct Testimony of John Torpey, p. 15.

without revealing the identity of any specific electric provider. The requested table with a breakdown for each electric provider that filed a capacity demonstration is included as Appendix A. In addition to the breakdown by individual supplier, Staff reports the following aggregate results in Figure 5 below.

**Figure 5: Resource Breakdown (%) by Supplier Type Planning Year 2023/24**

<b>Supplier Type</b>	<b>Owned</b>	<b>DR</b>	<b>Contract - PPA</b>	<b>Contract - ZRC</b>	<b>Auction</b>
Muni/Co-Op Aggregate	79.1%	0.1%	16.6%	3.8%	0.3%
AES Aggregate	16.5%	0.0%	7.4%	75.6%	0.5%
Utility Aggregate	75.4%	9.1%	15.3%	0.0%	0.0%

### Demand Response

As part of its analysis, Staff reviewed the LSEs’ DR programs as an optional source of capacity. When used, a reduction in demand through DR programs offsets a portion of an LSE’s capacity needs. LSEs can utilize interruptible DR during critical peak times to quickly respond to bulk electric system needs which can delay future capital investment in new generation. Behavioral DR programs allow the utility to lower its peak demand forecast, thus mitigating the need for an equal of amount supply side resources.

Demand response played a prominent role in LSEs’ integrated resource plan filings, where DR is required to be considered along with traditional supply side resources for meeting capacity needs. MCL 460.6t directs Staff to complete a statewide study of DR potential in Michigan every five years, and the most current state of Michigan demand response potential study was issued on September 29, 2017.<sup>29</sup> In addition, the Commission approved Michigan Integrated Resource Planning Parameters on November 21, 2017 in Case No. U-18418 that include provisions regarding including DR options in future integrated resource plans.

By planning year 2023/24, Consumers Energy is forecasting increased DR levels to support capacity through the expansion of existing programs. The DR levels assumed in both Consumers Energy’s and DTE Electric’s integrated resource plans are reflected in their capacity demonstration filing. Consumers Energy is offering its new Bring Your Own Device program for residential customer classes to deliver and manage significant peak load reductions. DTE Electric has a forecasted growth in three of its DR programs, Dynamic Peak

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<sup>29</sup>[State of Michigan Demand Response Potential Study Technical Assessment](#), Applied Energy Group, September 29, 2017, accessed 03/22/2020.

Pricing, Programable Controllable Thermostat, and Bring Your Own Device. Staff will continue to monitor these plans and the use of DR in Michigan for the foreseeable future.

## ZRC Contracts

Last year, Staff recommended that forward ZRC contracts to be utilized for capacity demonstration purposes specify delivery of the ZRCs in the MISO Module E Capacity Tracking (MECT) tool prior to the applicable PRA auction. All new forward ZRC contracts were audited by Staff this year, and all complied with Staff's requested delivery terms, allowing Staff to audit the ZRC transfers each year prior to the PRA. Figure 5 indicates a slight decrease in the percentage of ZRC contracts utilized this year by the utilities and the AESs, and a slight increase in the amount utilized by municipal utilities and cooperatives.

An important thing to note is that ZRCs are defined in MISO's tariff and are created in the prompt year when UCAP for supply-side and demand-side resources are converted into ZRCs in the MISO MECT. ZRCs for any year further out than the prompt year are projected and don't become "real" ZRCs until the prompt year. ZRCs are fungible products that can be sold or transferred, and in some cases, sold more than once. The characteristics of ZRCs allow for them to be easily traded and tracked within the MISO MECT. MISO has a view into the source of ZRCs and transfers of those ZRCs that occur prior to the PRA in the prompt year, and those ZRC transfers are audited by Staff as a secondary check on the ZRC contracts utilized in the capacity demonstrations.

At this point in time, the overall amount of ZRC contracts included in capacity demonstration filings do not impact Staff's ability to continue to make forward resource adequacy projections on a zonal basis. Staff will continue to monitor and audit ZRC contracts and ZRC transfers within the MECT going forward.

## AES Load Switching

For this year's report, there were no AESs that were required to file an amended or supplemental capacity demonstration. Similar to last year, Staff requested that any AES who experienced load switching during this time provide a signed affidavit confirming the increase or reduction in their load compared to the PLC data provided by the utility with their capacity demonstration that contained the amount of load switching for each planning year. Each supplier contracting for additional customer load provided a copy of its affidavit confirming this transaction to the supplier that was losing the load to be accounted for in both suppliers' demonstrations. For this filing year, all of the load switching had occurred prior to the filing date.

## LSE Compliance with Capacity Demonstration Requirements

All LSEs that filed capacity demonstrations in Case No. U-20590 have met the requisite levels of planning resources for planning year 2023/24. Staff highlights a few issues that it will continue to monitor in the next section.

## Other Issues

On March 31, 2018, FirstEnergy Solutions Corp. (FES), which was granted an Alternative Electric Supplier license on January 8, 2002, filed a voluntary petition for relief pursuant to Chapter 11 of Title 11 of the United States Code. Concurrent with the March 31<sup>st</sup> filing, FES filed, with the bankruptcy court, a number of first day motions pursuant to which it sought authorization to continue operating in the normal course of business. Each of these motions were granted after hearing by the bankruptcy court. FES has continued to serve its Michigan customer base under a business as usual scenario and has filed a sufficient capacity demonstration in this case. On February 27, 2020, FES emerged from Chapter 11 bankruptcy under a new name, Energy Harbor LLC ("Energy Harbor"). Importantly, FES did not transfer or assign its license, but instead will simply operate under the new Energy Harbor name and under the same EIN/Duns number. Energy Harbor LLC will continue to honor its existing customers' contractual rights.

## Conclusion and Recommendations

All Michigan load serving entities required to file capacity demonstrations with the Michigan Public Service Commission for planning year 2023/24 pursuant to MCL 460.6w and the August 2019 Commission Order in Case No. U-20154 have filed. Staff has audited the filings, contracts and other materials and finds that all Michigan LSEs have satisfied the capacity demonstration requirements and have procured appropriate levels of resources for planning year 2023/24.

Staff appreciates the cooperation of all Michigan LSEs with respect to this process and the willingness to provide sensitive data and answer questions necessary for Staff to complete its review. Staff opines that the process continues to become more efficient for both Staff and LSEs. To help accommodate further process efficiency improvements for future capacity demonstrations Staff has the following recommendation as stated below.

Staff asks that the Commission support the establishment of procedures or methodologies to facilitate communication between ARCs, AESs, incumbent utilities and Staff when aggregated DR is dispatched on MISO's coincident peak. This is necessary to accurately account for the change in PLC if DR resources are dispatched on MISO's coincident peak. As discussed above, MISO's proposed tariff language would help to mitigate this issue, but it is unknown when MISO will receive FERC approval, therefore Staff would like to develop a process prior to MISO's coincident peak this summer.

## Appendix A

**Figure 6: Planning Year 2023/24 Resource Breakdown (%) by Individual Supplier<sup>30</sup>**

LSE	Owned	DR	Contract - PPA	Contract - ZRC	Auction
Supplier 1	49%	51%	0%	0%	0%
Supplier 2	0%	0%	78%	22%	0%
Supplier 3	33%	31%	36%	0%	0%
Supplier 4	84%	9%	7%	0%	0%
Supplier 5	0%	0%	0%	100%	0%
Supplier 6	95%	0%	4%	1%	0%
Supplier 7	95%	0%	4%	1%	0%
Supplier 8	0%	0%	99%	0%	1%
Supplier 9	67%	8%	24%	1%	0%
Supplier 10	0%	0%	0%	98%	2%
Supplier 11	83%	0%	17%	0%	0%
Supplier 12	100%	0%	0%	0%	0%
Supplier 13	0%	0%	100%	0%	0%
Supplier 14	0%	0%	0%	100%	0%
Supplier 15	9%	7%	84%	0%	0%
Supplier 16	95%	0%	4%	1%	0%
Supplier 17	0%	0%	0%	100%	0%
Supplier 18	47%	0%	11%	37%	5%
Supplier 19	65%	9%	27%	0%	0%
Supplier 20	0%	0%	0%	99%	1%
Supplier 21	0%	0%	100%	0%	0%
Supplier 22	90%	8%	1%	0%	0%
Supplier 23	0%	0%	100%	0%	0%
Supplier 24	0%	0%	0%	100%	0%
Supplier 25	33%	0%	67%	0%	0%
Supplier 26	0%	0%	100%	0%	0%
Supplier 27	0%	0%	100%	0%	0%
Supplier 28	77%	0%	0%	23%	0%
Supplier 29	0%	0%	0%	100%	0%

<sup>30</sup> Suppliers (municipal and cooperative electric utilities) that combined their capacity resources are shown as one supplier in the above figure. The total number of suppliers may vary from year to year based on changes to which suppliers combine their capacity demonstrations as well as new suppliers or suppliers no longer serving load in Michigan.