

Planning Year 2026-2027

Wind and Solar Capacity Credit Report

February 2026

Highlights

- For Planning Year 2026-2027, the Wind seasonal class average capacity values are as follows:
  - 18.2% for Summer 2026
  - 23.0% for Fall 2026
  - 30.9% for Winter 2026-2027
  - 19.3% for Spring 2027
- Solar default seasonal capacity credits in Planning Year 2026-2027 are 50% for all seasons, with the exception of Winter 2026-2027 for which the solar default capacity credit is 5%.

Table of Contents

Executive Summary 3

Wind 3

Solar 4

MISO System-Wide Wind ELCC Study 6

Probabilistic Analytical Approach 6

LOLE Model Inputs & Assumptions 8

MISO System-Wide Seasonal Wind ELCC Results 8

Details of Wind Capacity by CPNode 9

Correlated Peak Load and Wind Availability 9

Deterministic Analytical Technique 14

Wind CPNode Equations 18

Wind CPNode Capacity Credit Results 19

Appendix 24

Class Average Deliverability Curves for New Wind Resources 24

Class Average Deliverability Curves for New Solar Resources 25

References 26

Executive Summary

Since 2009, MISO has conducted a process to determine the capacity value for the increasing fleet of wind generation in the MISO system. The MISO process, as developed and vetted through the MISO stakeholder community, consists of a two-step method. The first step utilizes a probabilistic modeling approach to calculate the MISO system-wide seasonal Effective Load Carrying Capability (ELCC) values, representing the seasonal capacity contributions of the operational wind fleet in the MISO footprint. The second step employs a deterministic approach using the historical availability of each wind resource during seasonal peak demand periods to allocate the MISO system-wide seasonal ELCC values across all operational wind Commercial Pricing Nodes (CPNodes) in the MISO system to determine the unique Seasonal Accredited Capacity (SAC) values for each wind CPNode.

Seasonality was first introduced to the wind capacity credit study applicable for Planning Year 2023-2024 to better capture the resource contributions of the wind fleet beyond just the annual, Summer-focused peak period. Seasonal ELCC is measured during the probabilistic Loss of Load Expectation (LOLE) study process in setting Resource Adequacy Requirements and is also used in accreditation in two ways:

1. Establish the seasonal class average accreditation a new wind resource will receive when the resource does not have at least 8 data points per season when gathering each wind resource's availability data during historical coincident system peak hours post the Commercial Operation Date (COD).

2. Deterministically allocate the total fleet-wide wind SAC, per season, across the operational wind fleet on a pro-rata basis dependent on the individual performance of each wind resource during identified historical seasonal peak hours. The "Deterministic Analytical Technique" section describes the details of the deterministic allocation methodology.

The FERC-accepted Intermittent Deliverable ICAP tariff changes from October 2020 results in slightly higher fleet-wide wind SAC versus the ELCC modeling. This fleet-wide wind SAC is allocatable for each season of Planning Year 2026-2027. To the extent that the individual wind CPNodes have demonstrated deliverability, SAC may be converted to Zonal Resource Credits (ZRCs) in the MISO Planning Resource Auction (PRA) to meet Resource Adequacy Requirements.

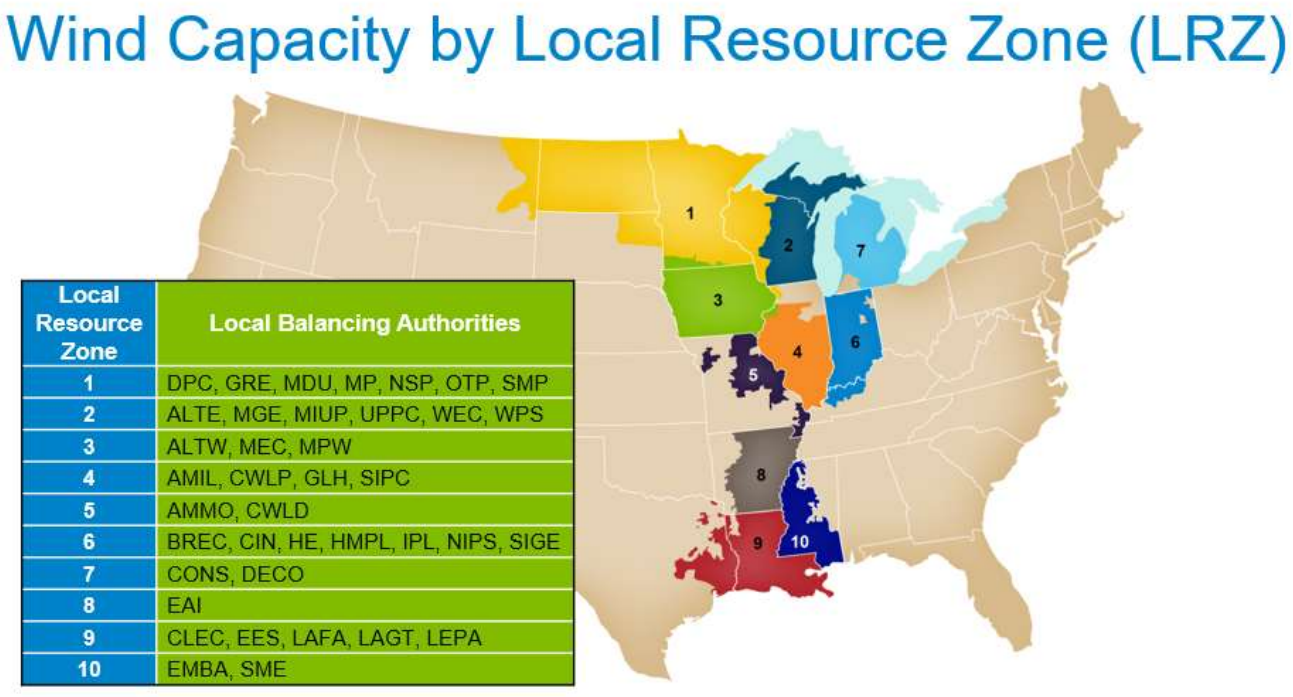
Wind

There are 284 active front-of-meter wind units as of February 2026. The capacity credits of the 284 individual wind CPNodes are considered proprietary information—however, upon request to MISO, the capacity credit details for individual wind CPNodes are available to the associated Market Participants or can be accessed directly from the Module E Capacity Tracking Tool (MECT), under the Confirm SAC screen by pressing the button labeled "Intermittent Deliverability". Figure 1-1 geographically illustrates the ten MISO Local Resource Zones (LRZs). The values shown in Table 1-1 have been combined for LRZs 5, 6, 8, & 10 so that proprietary information would not be revealed. LRZ 9 does not have a front-of-meter wind unit as of February 2026.

Solar

New solar resources with less than 30 consecutive days of metered output will receive the default solar capacity credits of 50% for Summer, Fall, and Spring, while the Winter solar default capacity credit is 5%. Existing solar resources are accredited based on their performance during specific seasonal peak hours as outlined in Appendix V of the MISO Resource Adequacy BPM-011-r32, detailing how accreditation is determined from average performance during hours ending 15, 16, & 17 for Summer, Fall, and Spring, and hours ending 8, 9, 19, & 20 for Winter.

As of February 2026, there are 20,383 MW of total Registered Maximum Output (RMax) of front-of-meter solar resources registered in the MISO Commercial Model, representing a 29% increase from the year prior. MISO will continue to use the existing deterministic accreditation methodology described in the prior paragraph for the 2026-2027 MISO PRA.



Local Resource Zone	Local Balancing Authorities
1	DPC, GRE, MDU, MP, NSP, OTP, SMP
2	ALTE, MGE, MIUP, UPPC, WEC, WPS
3	ALTW, MEC, MPW
4	AMIL, CWLP, GLH, SIPC
5	AMMO, CWLD
6	BREC, CIN, HE, HMPL, IPL, NIPS, SIGE
7	CONS, DECO
8	EAI
9	CLEC, EES, LAFA, LAGT, LEPA
10	EMBA, SME

Figure 1-1: MISO Local Resource Zones (LRZs) and Local Balancing Authorities (LBAs)

Planning Year 2026-2027 — Summer							
Metric	MISO	Zone 1	Zone 2	Zone 3	Zone 4	Zones 5, 6, 8, & 10	Zone 7
Registered Max (MW)	31,450	8,728	997	13,404	2,692	2,007	3,622
Total SAC (MW)	5,964	1,681	146	2,799	473	306	559
Average Credit %	17.5%	17.4%	13.8%	19.5%	16.8%	13.9%	14.7%
Wind CPNode Count	281	102	13	100	18	12	36
Planning Year 2026-2027 — Fall							
Metric	MISO	Zone 1	Zone 2	Zone 3	Zone 4	Zones 5, 6, 8, & 10	Zone 7
Registered Max (MW)	31,015	8,728	997	13,404	2,392	1,872	3,622
Total SAC (MW)	7,455	2,606	158	3,753	271	203	464
Average Credit %	22.8%	27.0%	14.9%	26.3%	11.0%	9.6%	13.6%
Wind CPNode Count	279	102	13	100	17	11	36
Planning Year 2026-2027 — Winter							
Metric	MISO	Zone 1	Zone 2	Zone 3	Zone 4	Zones 5, 6, 8, & 10	Zone 7
Registered Max (MW)	31,315	8,728	997	13,404	2,692	1,872	3,622
Total SAC (MW)	9,883	2,942	289	4,548	687	424	993
Average Credit %	30.0%	30.0%	28.0%	32.5%	26.4%	22.2%	28.3%
Wind CPNode Count	280	102	13	100	18	11	36
Planning Year 2026-2027 — Spring							
Metric	MISO	Zone 1	Zone 2	Zone 3	Zone 4	Zones 5, 6, 8, & 10	Zone 7
Registered Max (MW)	31,315	8,728	997	13,404	2,692	1,872	3,622
Total SAC (MW)	6,318	1,981	168	2,798	497	319	555
Average Credit %	19.3%	20.8%	15.5%	20.2%	17.8%	17.2%	15.3%
Wind CPNode Count	280	102	13	100	18	11	36

Table 1-1: Distribution of Wind Capacity by LRZ

MISO System-Wide Wind ELCC Study

Probabilistic Analytical Approach

The probabilistic measure of load not being served is known as Loss of Load Probability (LOLP) and when this probability is summed over a period, e.g. one year, it is known as Loss of Load Expectation (LOLE). The industry accepted metric for what has been considered a reliable system has been the "no more than 1 day in 10 years" criteria for LOLE. This measure is more often expressed as 0.1 day/year, as one year is the period of time for which the LOLE index is calculated.

Effective Load Carrying Capability (ELCC) is defined as the amount of incremental load a resource can dependably and reliably serve, while also considering the probabilistic nature of generation shortfalls and time-varying electric demand as driving factors to load not being served. ELCC has been used in the determination of capacity value for generation resources as far back as 1966 when L.L. Garver demonstrated the use of loss of load probability mathematics in the calculation of ELCC[1].

To measure the ELCC of a particular resource, the reliability effects need to be isolated for the resource in question from all other sources. This is accomplished by calculating the LOLE of two different cases: one *with* and one *without* the resource. Inherently, the case *with* the resource should be more reliable and consequently have fewer days per year of expected loss of load (smaller LOLE).

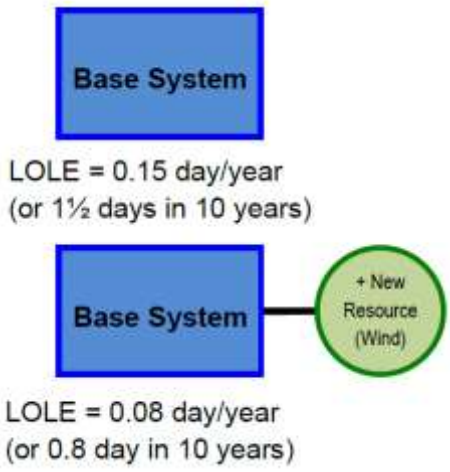


Figure 2-1: Example System *with* & *without* New Resource

[1] Garver, L.L.; , "Effective Load Carrying Capability of Generating Units," Power Apparatus and Systems, IEEE Transactions on, vol.PAS-85, no.8, pp.910-919, Aug. 1966

The new resource in the example shown in Figure 2-1 made the system 0.07 days/year more reliable, but there is another way to express the reliability contribution of the new resource besides the change in LOLE. This way requires establishing a common baseline reliability level and then adjusting the load in the two cases (*with* and *without* the new resource) to this common LOLE level. A common baseline that is chosen is the industry-accepted reliability metric of 1 day in 10 years (or 0.1 day/year) LOLE.

With each case being at the same reliability level, as shown in Figure 2-2, the only difference between the two cases is the load adjustment values that were used to reach reliability. The difference between the adjustments for both cases is the amount of ELCC expressed in load or megawatts, which is 300 MW (100 minus -200) for the new resource in this example. This number may be divided by the Registered Maximum Output (RMax) of the new resource and then expressed in percentage form. The new resource in the ELCC example system in Figure 2-2 has an ELCC of 30% of the resource's nameplate capacity.

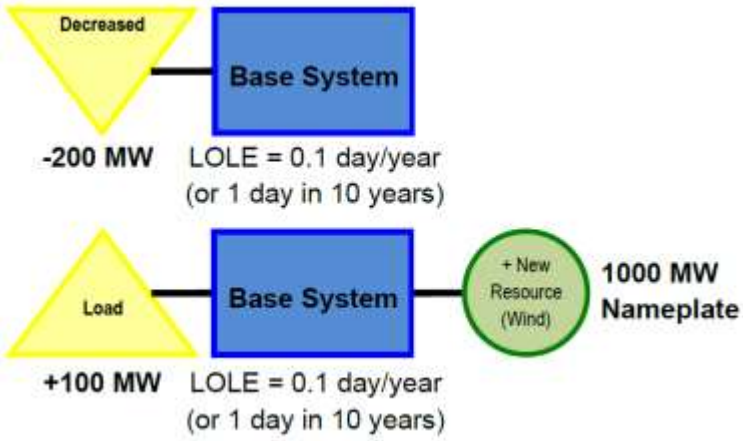


Figure 2-2: ELCC Example System at the Same LOLE

The methodology illustrated in the simple example of Figure 2-2 was utilized as the analytical approach for the determination of the MISO system-wide ELCC of the wind resources in the much more complex MISO system.

ELCC is an industry-wide commonly used methodology for determining the capacity value of wind[2]. Starting with Planning Year 2028-2029, MISO will be transitioning the accreditation of wind resources, and all other generation resource types, to the Direct Loss of Load (DLOL) methodology that accredits resources based on their availability during times of highest reliability risk.

[2] Keane, A.; Milligan, M.; Dent, C.J.; Hasche, B.; D'Annunzio, C.; Dragoon, K.; Holttinen, H.; Samaan, N.; Soder, L.; O'Malley, M.; , "Capacity Value of Wind Power," Power Systems, IEEE Transactions on , vol.26, no.2, pp.564-572, May 2011

LOLE Model Inputs & Assumptions

MISO applies the ELCC calculation methodology by utilizing the Strategic Energy & Risk Valuation Model (SERVM) program by PowerGEM to calculate seasonal ELCC values by modeling the MISO system both with and without wind resources. This model consists of the following major inputs:

1. Resource capabilities of conventional resources
    a. Seasonal Generator Verification Test Capacity (GVTC)
    b. Seasonal generator forced outage rates (EFORd)
    c. Annual generator planned maintenance outage rates
    d. Extreme cold weather forced outage adders (zonal and resource type-specific)
2. Hourly zonal load profiles
3. Hourly zonal renewable profiles
4. External support, both firm and non-firm
5. Load Modifying Resources (Behind-the-Meter Generation and Demand Resources)

The outage rates utilized for modeling conventional resources in the LOLE model are calculated from the Generator Availability Data System (GADS) that MISO uses to collect historical operational performance data.

For the MISO Planning Year 2026-2027 Wind Capacity Credit Study, the hourly zonal concurrent load and wind shapes over the most recent 30 years of data utilized in LOLE study modeling were used to calculate the seasonal wind ELCC values for the wind fleet in MISO on a system-wide basis.

MISO System-Wide Seasonal Wind ELCC Results

Table 2-1 details the results of the LOLE study modeling ELCC analysis. Fleet-wide wind ELCC is calculated by multiplying the seasonal ELCC percentages by the allocatable fleet-wide wind RMax from the seasonal deterministic allocation. More details regarding the LOLE study analysis can be found in the 2026-2027 LOLE Study Report here.

	Wind Nameplate (MW)	Adjustment Difference	Wind ELCC (%)	Wind ELCC (MW)
Summer	29,338	5,325	18.2%	5,325
Fall	29,358	6,760	23.0%	6,760
Winter	30,111	9,300	30.9%	9,300
Spring	30,111	5,815	19.3%	5,815

Table 2-1: LOLE Study Wind ELCC Modeling Results

Details of Wind Capacity by CPNode

Correlated Peak Load and Wind Availability

As a result of FERC accepting the Intermittent Deliverable ICAP tariff changes (FERC Docket No. ER20-2005), a slightly higher fleet-wide wind SAC is allocatable. This is determined by the resulting SAC total from the summation (at the resource level) of the larger of two fleet-wide allocation methodologies. The methodologies being the addition or omission of curtailments to the settled output during each of the 24 sampled peaks for each seasonal allocation lookback. The amount of SAC at each CPNode that can qualify for the seasonal Planning Resource Auction under Module E-1 is subject to the deliverability procured for each resource.

Fleet-wide wind SAC is allocated across the existing and in-service front-of-meter wind resources based on their historical performance during seasonal peak. This is calculated by multiplying the seasonal wind ELCC % determined from the LOLE Study modeling by the total Registered Maximum Output of the existing and in-service front-of-meter wind fleet. A selection of the top 8 coincident system unique-day peak hours for each Planning Year over a period of the most recent 3 Planning Years is the basis for the 24 sample points for each seasonal allocation lookback. Tables 3-1, 3-2, 3-3, and 3-4 are a listing of the total system wind availability at the time of each of the 24 daily coincident system peak loads pertaining to each seasonal allocation.

Hour Ending EST of Daily Peak	Wind Registered Max (MW)	Estimated Curtailment (MW)	Wind Availability at Daily Peak Load [1] (MW)	Wind Availability % of Registered Max at Daily Peak Load [1]	Daily Peak Load (MW)	Year	Planning Year Daily Peak Rank
7/25/2023 16:00	30,025	1,731	8,904	29.7%	122,147	2023	2
7/27/2023 16:00	30,025	1,813	7,808	26.0%	120,118	2023	3
7/28/2023 16:00	30,025	1,949	6,198	20.6%	118,895	2023	4
8/3/2023 17:00	30,025	1,746	2,314	7.7%	117,435	2023	5
8/22/2023 16:00	30,025	1,514	7,942	26.5%	117,110	2023	6
8/23/2023 16:00	30,025	1,654	9,537	31.8%	124,229	2023	1
8/24/2023 16:00	30,025	1,919	3,785	12.6%	115,297	2023	7
8/25/2023 16:00	30,025	1,894	5,442	18.1%	115,011	2023	8
7/15/2024 16:00	30,974	2,125	8,268	26.7%	115,246	2024	2
7/29/2024 17:00	30,974	1,888	1,934	6.2%	111,610	2024	7
7/30/2024 16:00	30,974	2,018	6,115	19.7%	112,826	2024	5
7/31/2024 16:00	30,974	2,182	4,893	15.8%	114,877	2024	3
8/1/2024 15:00	30,974	1,766	7,764	25.1%	112,270	2024	6
8/5/2024 16:00	30,974	2,202	11,310	36.5%	111,474	2024	8
8/26/2024 16:00	30,974	2,391	5,506	17.8%	120,276	2024	1
8/27/2024 15:00	30,974	1,974	3,759	12.1%	114,460	2024	4
6/22/2025 17:00	31,450	6,935	21,921	69.7%	115,450	2025	8
6/23/2025 15:00	31,450	2,255	12,554	39.9%	117,445	2025	3
7/23/2025 16:00	31,450	2,090	10,259	32.6%	116,939	2025	5
7/24/2025 16:00	31,450	2,065	3,734	11.9%	116,974	2025	4
7/27/2025 17:00	31,450	1,716	4,987	15.9%	116,116	2025	7
7/28/2025 17:00	31,450	2,039	4,273	13.6%	118,589	2025	2
7/29/2025 16:00	31,450	1,765	1,866	5.9%	118,847	2025	1
8/8/2025 16:00	31,450	2,756	15,599	49.6%	116,760	2025	6
System-Wide Average Summer Peak Metric Capacity Factor				**23.8%**			
Note 1 **Curtailed MW has been added to settlement MW for DIRs only**							

Table 3-1: Historical Wind Availability Correlated with Summer Peak

Hour Ending EST of Daily Peak	Wind Registered Max (MW)	Estimated Curtailment (MW)	Wind Availability at Daily Peak Load [1] (MW)	Wind Availability % of Registered Max at Daily Peak Load [1]	Daily Peak Load (MW)	Year	Planning Year Daily Peak Rank
9/1/2022 16:00	28,836	2,690	7,222	25.0%	106,754	2022	1
9/2/2022 15:00	28,836	1,833	7,121	24.7%	102,936	2022	3
9/7/2022 16:00	28,836	1,685	4,012	13.9%	99,134	2022	8
9/8/2022 16:00	28,836	1,264	14,418	50.0%	99,389	2022	5
9/16/2022 16:00	28,836	1,814	5,763	20.0%	94,411	2022	8
9/19/2022 16:00	28,836	1,998	10,481	36.3%	102,888	2022	4
9/20/2022 16:00	28,836	2,294	12,282	42.6%	105,449	2022	2
9/21/2022 13:00	28,836	1,919	15,160	52.6%	99,161	2022	6
9/1/2023 16:00	30,025	1,461	12,318	41.0%	97,640	2023	6
9/2/2023 17:00	30,025	1,716	17,209	57.3%	98,039	2023	5
9/3/2023 16:00	30,025	1,594	13,330	44.4%	104,755	2023	3
9/4/2023 16:00	30,025	2,348	16,912	56.3%	107,425	2023	2
9/5/2023 16:00	30,025	2,462	13,285	44.2%	111,057	2023	1
9/6/2023 15:00	30,025	1,628	14,525	48.4%	98,896	2023	4
10/2/2023 16:00	30,025	1,808	12,949	43.1%	95,810	2023	7
10/3/2023 16:00	30,025	3,077	19,210	64.0%	93,968	2023	8
9/5/2024 16:00	31,015	1,680	9,867	31.8%	95,075	2024	7
9/15/2024 16:00	31,015	1,833	6,626	21.4%	93,652	2024	8
9/16/2024 16:00	31,015	4,284	11,283	36.4%	99,714	2024	3
9/17/2024 16:00	31,015	4,897	15,300	49.3%	98,072	2024	5
9/18/2024 16:00	31,015	3,050	15,105	48.7%	99,539	2024	4
9/19/2024 16:00	31,015	3,144	11,497	37.1%	104,011	2024	1
9/20/2024 16:00	31,015	1,728	4,527	14.6%	102,452	2024	2
9/21/2024 15:00	31,015	3,252	13,798	44.5%	95,540	2024	6
System-Wide Average Fall Peak Metric Capacity Factor				**39.5%**			
Note 1 **Curtailed MW has been added to settlement MW for DIRs only**							

Table 3-2: Historical Wind Availability Correlated with Fall Peak

Hour Ending EST of Daily Peak	Wind Registered Max (MW)	Estimated Curtailment (MW)	Wind Availability at Daily Peak Load [1] (MW)	Wind Availability % of Registered Max at Daily Peak Load [1]	Daily Peak Load (MW)	Year	Planning Year Daily Peak Rank
12/19/2022 18:00	29,347	1,676	5,900	20.1%	91,625	2022	7
12/22/2022 20:00	29,347	1,123	19,663	67.0%	95,974	2022	3
12/23/2022 18:00	29,347	1,112	19,520	66.5%	105,916	2022	1
12/24/2022 9:00	29,347	1,651	17,262	58.8%	97,415	2022	2
1/30/2023 16:00	29,597	1,840	9,633	32.5%	90,706	2023	8
1/31/2023 19:00	29,597	1,380	13,354	45.1%	92,100	2023	6
2/1/2023 8:00	29,597	1,688	12,460	42.1%	92,464	2023	5
2/3/23 8:00	29,597	1,823	6,527	22.1%	93,900	2023	4
1/14/2024 19:00	30,790	1,467	14,555	47.3%	92,014	2024	6
1/15/2024 19:00	30,790	1,266	18,344	59.6%	101,386	2024	3
1/16/2024 9:00	30,790	1,594	19,735	64.1%	103,488	2024	1
1/17/2024 8:00	30,790	1,615	16,669	54.1%	103,247	2024	2
1/18/2024 8:00	30,790	1,996	5,068	16.5%	91,086	2024	8
1/19/2024 19:00	30,790	1,477	15,425	50.1%	93,523	2024	5
1/20/2024 9:00	30,790	1,809	6,596	21.4%	95,665	2024	4
1/21/2024 9:00	30,790	2,392	19,482	63.3%	91,639	2024	7
1/20/2025 8:00	31,315	1,774	12,079	38.6%	102,498	2025	4
1/21/2025 19:00	31,315	4,181	21,830	69.7%	104,723	2025	1
1/22/2025 8:00	31,315	1,932	20,308	64.9%	104,365	2025	2
1/23/2025 8:00	31,315	2,116	15,618	49.9%	98,661	2025	8
1/24/2025 8:00	31,315	2,540	17,203	54.9%	99,697	2025	5
2/19/2025 19:00	31,315	1,434	14,667	46.8%	99,285	2025	7
2/20/2025 8:00	31,315	1,805	11,297	36.1%	102,817	2025	3
2/21/2025 8:00	31,315	2,111	12,998	41.5%	99,663	2025	6
System-Wide Average Winter Peak Metric Capacity Factor				**47.2%**			
Note 1 **Curtailed MW has been added to settlement MW for DIRs only**							

Table 3-3: Historical Wind Availability Correlated with Winter Peak

Hour Ending EST of Daily Peak	Wind Registered Max (MW)	Estimated Curtailment (MW)	Wind Availability at Daily Peak Load [1] (MW)	Wind Availability % of Registered Max at Daily Peak Load [1]	Daily Peak Load (MW)	Year	Planning Year Daily Peak Rank
3/14/2023 7:00	29,933	2,414	11,906	39.80%	83,588	2023	7
3/20/2023 7:00	29,933	2,837	21,096	70.50%	88,370	2023	3
5/22/2023 18:00	30,025	1,535	5,098	17.00%	83,580	2023	8
5/23/2023 17:00	30,025	1,663	3,135	10.40%	87,960	2023	4
5/24/2023 16:00	30,025	1,563	11,629	38.70%	84,335	2023	6
5/29/2023 17:00	30,025	1,369	9,958	33.20%	86,238	2023	5
5/30/2023 16:00	30,025	1,675	8,956	29.80%	98,393	2023	2
5/31/2023 16:00	30,025	1,709	12,315	41.00%	101,839	2023	1
5/18/2024 17:00	30,974	3,483	16,510	53.30%	84,214	2024	7
5/19/2024 17:00	30,974	2,231	12,636	40.80%	87,688	2024	3
5/20/2024 17:00	30,974	2,224	6,559	21.20%	92,144	2024	2
5/21/2024 16:00	30,974	2,581	18,053	58.30%	94,090	2024	1
5/22/2024 16:00	30,974	1,571	16,322	52.70%	86,780	2024	4
5/23/2024 16:00	30,974	2,220	17,276	55.80%	87,204	2024	5
5/24/2024 15:00	30,974	4,444	19,458	62.80%	86,571	2024	6
5/30/2024 17:00	30,974	1,893	14,734	47.60%	82,588	2024	8
3/5/2025 19:00	31,315	1,974	22,377	71.5%	80,059	2025	8
3/6/2025 8:00	31,315	1,833	10,728	34.3%	82,715	2025	5
4/28/2025 17:00	31,315	3,533	26,186	83.6%	80,474	2025	7
5/13/2025 17:00	31,315	1,516	10,699	34.2%	85,175	2025	4
5/14/2025 17:00	31,315	1,571	15,121	48.3%	90,057	2025	2
5/15/2025 16:00	31,315	5,190	23,794	76.0%	95,451	2025	1
5/16/2025 16:00	31,315	4,098	25,159	80.3%	87,568	2025	3
5/20/2025 16:00	31,315	1,970	14,571	46.5%	82,429	2025	6
System-Wide Average Spring Peak Metric Capacity Factor				**47.8%**			
Note 1 **Curtailed MW has been added to settlement MW for DIRs only**							

Table 3-4: Historical Wind Availability Correlated with Spring Peak

Deterministic Analytical Technique

To account for the diverse generation profile of numerous wind CPNodes throughout the MISO system (284 front-of-meter wind resources as of February 2026), a deterministic approach that accounts for historical performance during unique-day system peak demand hours is used to equitably allocate the seasonal fleet-wide wind SAC to all registered and in-service wind CPNodes. While evaluation of all CPNodes captures the benefit of geographic diversity, it is also important to assign the capacity credit of wind at the individual CPNode locations to recognize the capacity contributions of each individual wind resource. In a market, it is important to convey where wind resources tend to provide more capacity value, and how the location and corresponding relative performance of each wind CPNode relates to the contribution of wind ELCC to system-wide reliability.

For Summer 2026, the system-wide wind seasonal ELCC percentage value of approximately 18.2% multiplied by the in-service wind Registered Maximum Output (RMax) of 31,450 MW results in 5,964 MW of allocatable system-wide seasonal wind capacity. New wind CPNodes that do not have historical output data would receive the class-average seasonal wind capacity credit of 18.2%. The seasonal allocation lookback period for Summer 2026 included the top 8 coincident unique-day system peaks for Summer 2023, Summer 2024, and Summer 2025.

For Fall 2026, the system-wide wind seasonal ELCC percentage value of approximately 23.0% multiplied by the in-service wind Registered Maximum Output (RMax) of 31,015 MW results in 7,455 MW of allocatable system-wide seasonal wind capacity. New wind CPNodes that do not have historical output data would receive the class-average seasonal wind capacity credit of 23.0%. The seasonal allocation lookback period for Fall 2026 included the top 8 coincident unique-day system peaks for Fall 2022, Fall 2023, and Fall 2024.

For Winter 2026-2027, the system-wide wind seasonal ELCC percentage value of approximately 30.9% multiplied by the in-service wind Registered Maximum Output (RMax) of 31,315 MW results in 9,883 MW of allocatable system-wide seasonal wind capacity. New wind CPNodes that do not have historical output data would receive the class-average seasonal wind capacity credit of 30.9%. The seasonal allocation lookback period for Winter 2026-2027 included the top 8 coincident unique-day system peaks for Winter 2022-2023, Winter 2023-2024, and Winter 2024-2025.

For Spring 2026, the system-wide wind seasonal ELCC percentage value of approximately 19.3% multiplied by the in-service wind Registered Maximum Output (RMax) of 31,315 MW results in 6,318 MW of allocatable system-wide seasonal wind capacity. New wind CPNodes that do not have historical output data would receive the class-average seasonal wind capacity credit of 19.3%. The seasonal allocation lookback period for Spring 2026 included the top 8 coincident unique-day system peaks for Spring 2023, Spring 2024, and Spring 2025.

Seasonal fleet-wide wind capacity is distributed across the individual allocatable wind CPNodes under two allocation techniques, or resource-share calculations: one with curtailments and one without curtailments added to each individual wind resource's output during seasonal peak. These two techniques yield two slightly different capacity values for each wind resource with each resource being granted the larger of the two allocated capacity values. A wind resource's allocatable portion of the fleet-wide wind capacity is referred to as its Total SAC.

The next step is to determine how much of the Total SAC each wind resource is granted from the resource-share calculations is eligible to be converted into ZRCs—but before that can be calculated, the demonstrated deliverability of the wind resource must be known. Deliverability is determined in accordance with Module E-1 (section 69A.3.1.g) of the MISO Tariff. At a high level, deliverability of a wind resource is quantified as the combination of existing Network Resource Interconnection Service (NRIS) and Energy Resource Interconnection Service with a valid Transmission Service Request (ERIS w/ TSR). Transmission Service can be in the form of either Network Integration Transmission Service (NITS) or Point-to-Point (PTP). Transmission Service must be valid for the entire season(s) that the Market Participant would be seeking to convert SAC to ZRCs.

Historic availability has been tracked for each wind CPNode over the top 8 unique-day seasonal peak hours for the most recent 3 Planning Years for a total of 24 sampled peaks pertaining to each seasonal lookback period. The average capacity factor for each CPNode during all 24 (*8 hours x 3 Planning Years*) historical seasonal peak hours is called the *Peak Performance Capacity Factor* (also referred to as the $PKmetric_{CPNode}$) for that CPNode. The capacity factor over those 24 hours and the RMax of each CPNode are the basis for allocating the fleet-wide wind capacity to the allocatable CPNodes. If the market start date of the CPNode was after the start of the seasonal allocation lookback period, the hours before the market start date are excluded and just the hours after the market start date are used. A wind resource must have at least 8 data points in the lookback period to be a part of the allocation. If the wind resource has less than 8 for a given season, the wind resource will receive class average accreditation.

The Total SAC for a wind resource is distributed into two categories for the purpose of determining the amount of capacity eligible for conversion into Zonal Resource Credits (ZRCs), either convertible SAC or undeliverable SAC. To calculate convertible SAC, which is eligible to be converted into ZRCs, a *Deliverability Adjusted Capacity Factor* is first applied. The *Deliverability Adjusted Capacity Factor* uses historical peak observances of a wind resource and is calculated by 'capping' historical wind availability during peak load observances to the resource's demonstrated deliverability and then dividing by the resource's RMax. The *Peak Performance Capacity Factor* utilizes identical historical peak observances divided by the resource's RMax but does not cap those observances by the resource's demonstrated deliverability.

$$\text{Convertible SAC} = \text{Total SAC} * \frac{\text{Deliverability Adjusted Capacity Factor}}{\text{Peak Performance Capacity Factor}}$$

The remaining Total SAC that is left after calculating convertible SAC is considered the undeliverable SAC.

Optionally, the undeliverable SAC can become eligible to be converted into ZRCs by procuring firm Transmission Service. Figure 3-1 represents the conversion of SAC to ZRCs at the resource level as a block diagram.

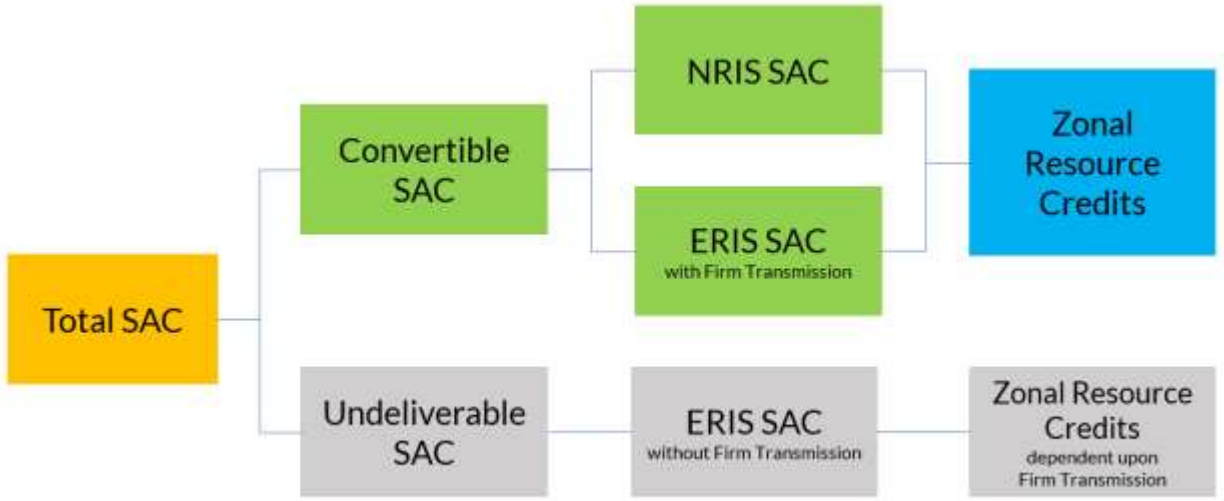


Figure 3-1: Block Diagram of Conversion of Total Seasonal Accredited Capacity to Zonal Resource Credits

Each wind resource will have unique Convertible SAC values generated based on its past performance and deliverability, which indicates the level of firm Transmission Service necessary to obtain a given level of ZRCs. The resource-specific deliverability curves (described on the following page) illustrate how much SAC is convertible at varying amounts of deliverability.

An example and further explanation are shown in Figure 3-2 below:

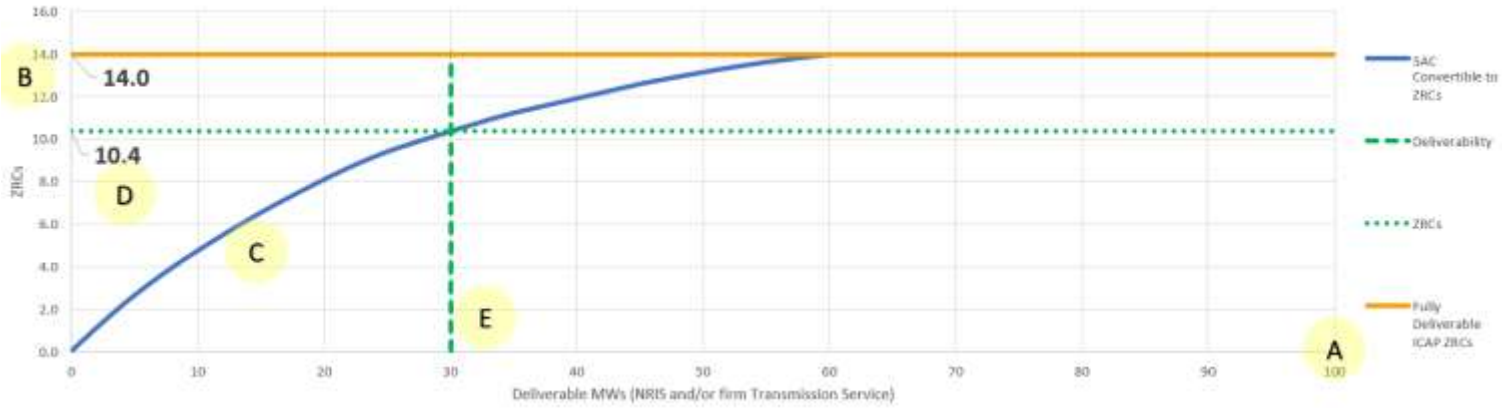


Figure 3-2: ZRC Deliverability Curve Chart

Where:

A: Equals the Registered Maximum Output of the resource (RMax). In this example, this resource is 100 MW.

B: Total SAC that can potentially be converted into ZRCs. This also represents the resource-specific share of the fleet-wide wind ELCC capacity. This value is based on the size and performance of the resource.

C: This is the Convertible SAC function which is the resource's Total SAC multiplied by the ratio of its *Deliverability Adjusted Capacity Factor* divided by its *Peak Performance Capacity Factor*. Convertible SAC varies depending on the amount of demonstrated deliverability of the resource.

D: This is the resulting Convertible SAC value for a corresponding demonstrated deliverability amount in MW.

E: This is the Deliverable example value. The point at which E intersects C provides the amount of ZRCs the Market Participant would obtain based on the size, performance, and demonstrated deliverability of the resource. Undeliverable SAC is the difference between Total SAC and Convertible SAC.

Wind CPNode Equations

Registered Maximum (RMax) is the MISO Commercial Model term for the nameplate capacity of a resource. The relationship of the wind capacity rating to a CPNode's RMax value and Capacity Credit percent is expressed as:

$$(\text{Wind Capacity Rating})_{\text{CPNode n}} = \text{RMax}_{\text{CPNode n}} \times (\text{Capacity Credit \%})_{\text{CPNode n}} \quad (1)$$

Where $\text{RMax}_{\text{CPNode n}}$ = Registered Maximum nameplate capacity of the wind facility at the CPNode n. The right most term in expression (1), the $(\text{Capacity Credit \%})_{\text{CPNode n}}$, can be replaced by the expression (2):

$$(\text{Capacity Credit \%})_{\text{CPNode n}} = K \times (\text{PKmetric}_{\text{CPNode n}}\%) \quad (2)$$

PKmetric is a capacity factor calculation, measuring performance over the unique-day system peak demand hours for each seasonal lookback period for each of the two resource-share allocation techniques.

Where the K value for each seasonal allocation technique was found by obtaining the PKmetric at each CPNode over the applicable seasonal allocation lookback period, and solving expression (3):

$$K = \frac{\text{ELCC}}{\sum_{1}^{n} (\text{RMax}_{\text{CPNode n}} \times \text{PKmetric}_{\text{CPNode n}})} \quad (3)$$

Total SAC is the greater-of value when comparing the two resulting Capacity Credit % values from both resource-share allocation techniques.

Table 3-5 lists the K values for each season under each of the two allocation techniques, curtailments included, and curtailments not included.

Season	Technique 1: with Curtailments	Technique 2: without Curtailments
Summer	0.762186	0.840166
Fall	0.588052	0.644167
Winter	0.661410	0.691460
Spring	0.403499	0.440269

Table 3-5: Seasonal K Values by Allocation Technique

This results in the sum of the MW ratings calculated for the CPNodes equal to the system-wide Summer ELCC SAC of MW. The values in (3) pertaining to Technique 1 for Summer 2026 are:

ELCC = 5,708.24 MW

$\sum RMax_{CPNode\ n} \times PKmetric_{CPNode\ n} = 7,489.30$ MW

Therefore: K = 0.762186 = 5,708.24 / 7,489.30

Wind CPNode Capacity Credit Results

Figures 3-3, 3-4, 3-5, & 3-6 show how the system-wide seasonal wind ELCC percentages compare with the individual seasonal wind capacity credit percentages for the 284 active wind CPNodes, as of the 1st quarter of 2026. This reflects implementing the deterministic allocation formulas referred to earlier in this section to allocate the fleet-wide seasonal wind capacity credit across the CPNodes based on their individual performance during seasonal peak. The wind CPNodes have been sorted by their individual capacity credit percentages. The capacity credit percentage is applied to each wind resource's RMax to provide the maximum amount of SAC that is convertible to ZRCs in each seasonal auction period of the 2026-2027 MISO Planning Resource Auction. Each wind resource's demonstrated deliverability is considered when determining its respective amount of SAC that qualifies for Zonal Resource Credits.

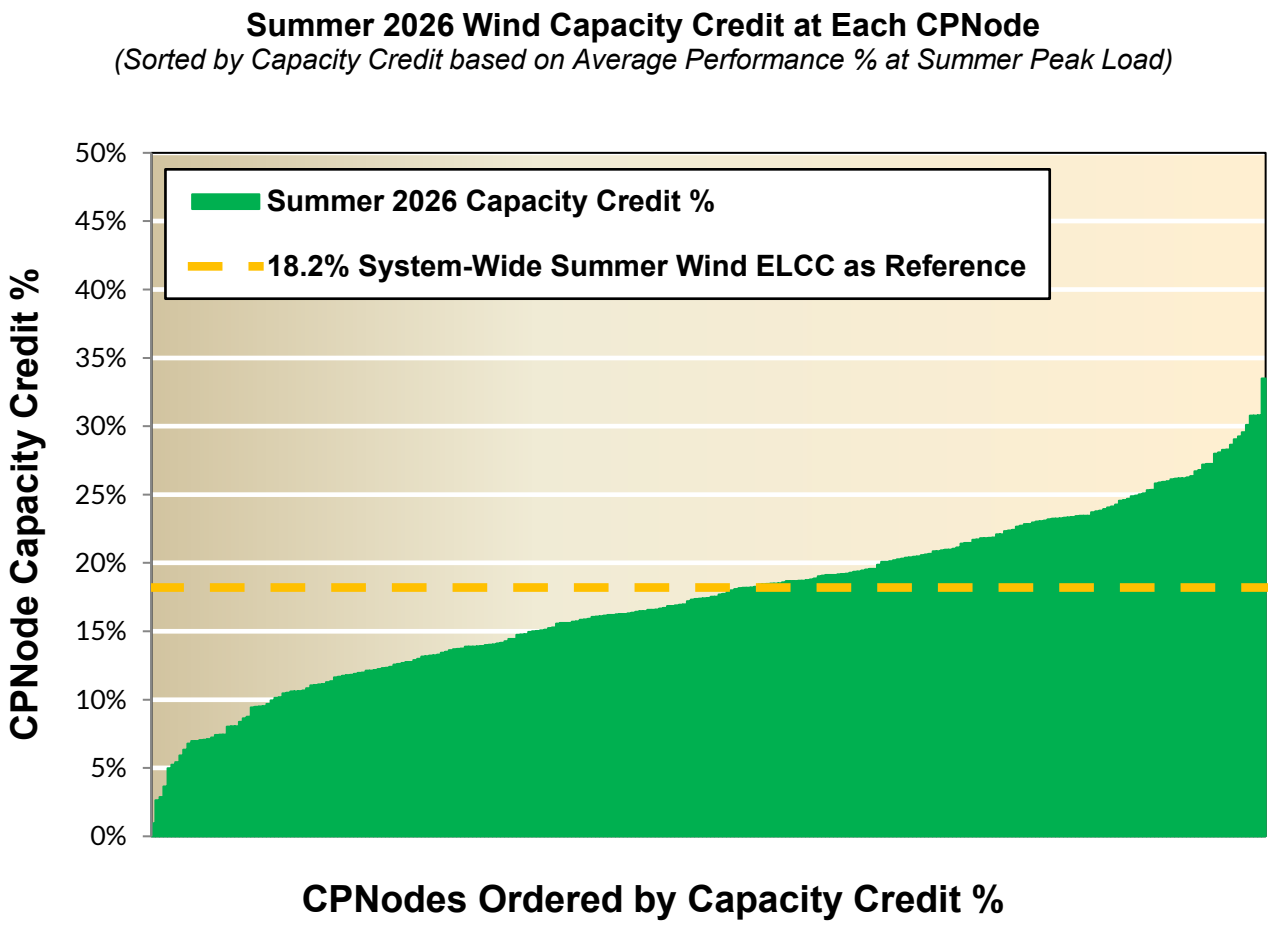


Figure 3-3: Summer 2026 Wind CPNode Capacity Credits

The individual $PKmetric_{CPNode}$ of the wind CPNodes ranged from 1.3% to 40.8%. The individual Summer 2026 wind capacity credit percentages ranged from 1.0% to 33.5%, by applying expression (2) using the applicable Summer 2026 K value pertaining to the resource-share allocation technique resulting in the higher Total SAC value for each wind CPNode.

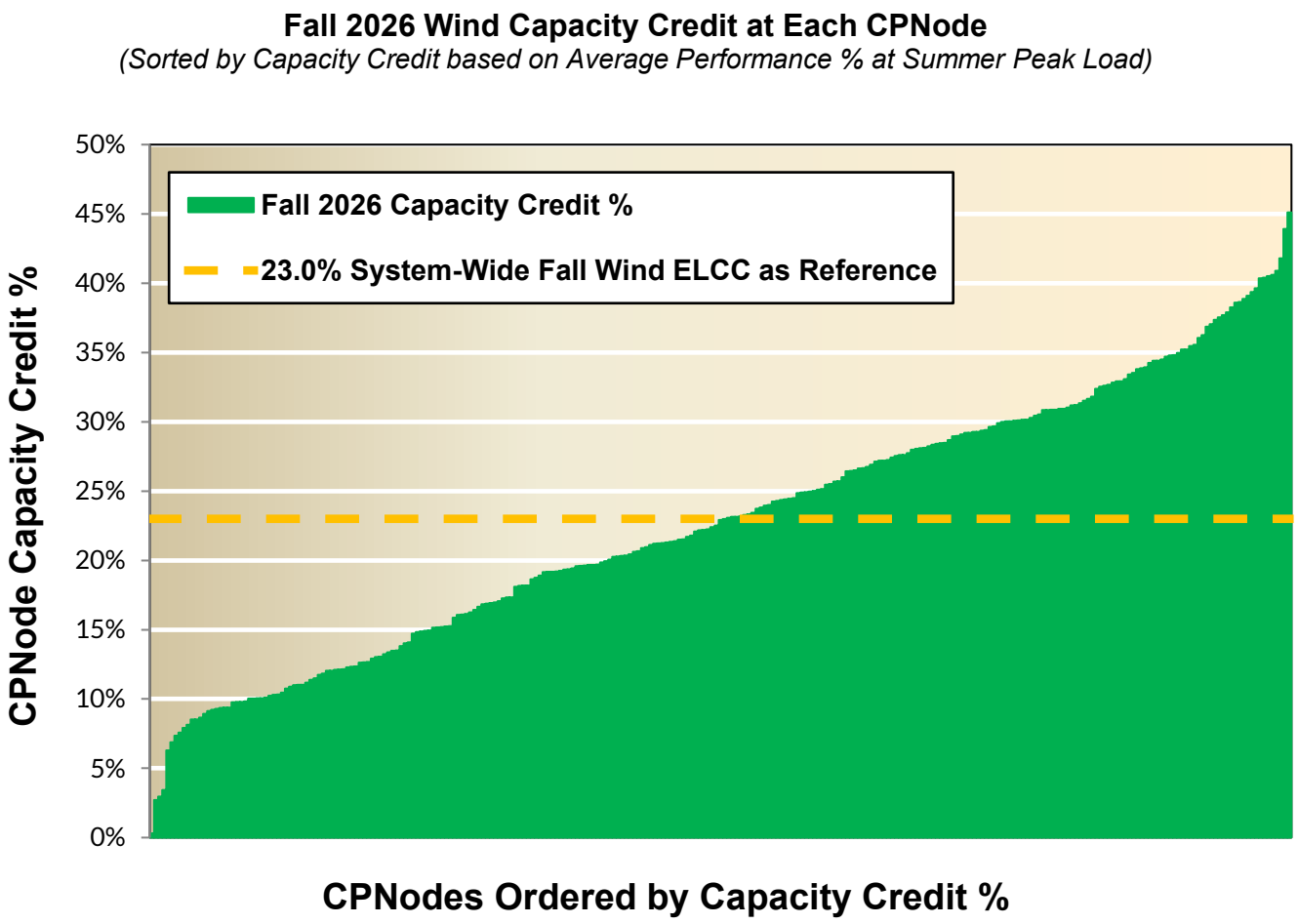


Figure 3-4: Fall 2026 Wind CPNode Capacity Credits

The individual $PKmetric_{CPNode}$ of the wind CPNodes ranged from 0.5% to 70.4%. The individual Fall 2026 wind capacity credit percentages ranged from 0.3% to 45.1%, by applying expression (2) using each wind CPNode's applicable Fall 2026 K value pertaining to the resource-share allocation technique resulting in the higher Total SAC value for each wind CPNode.

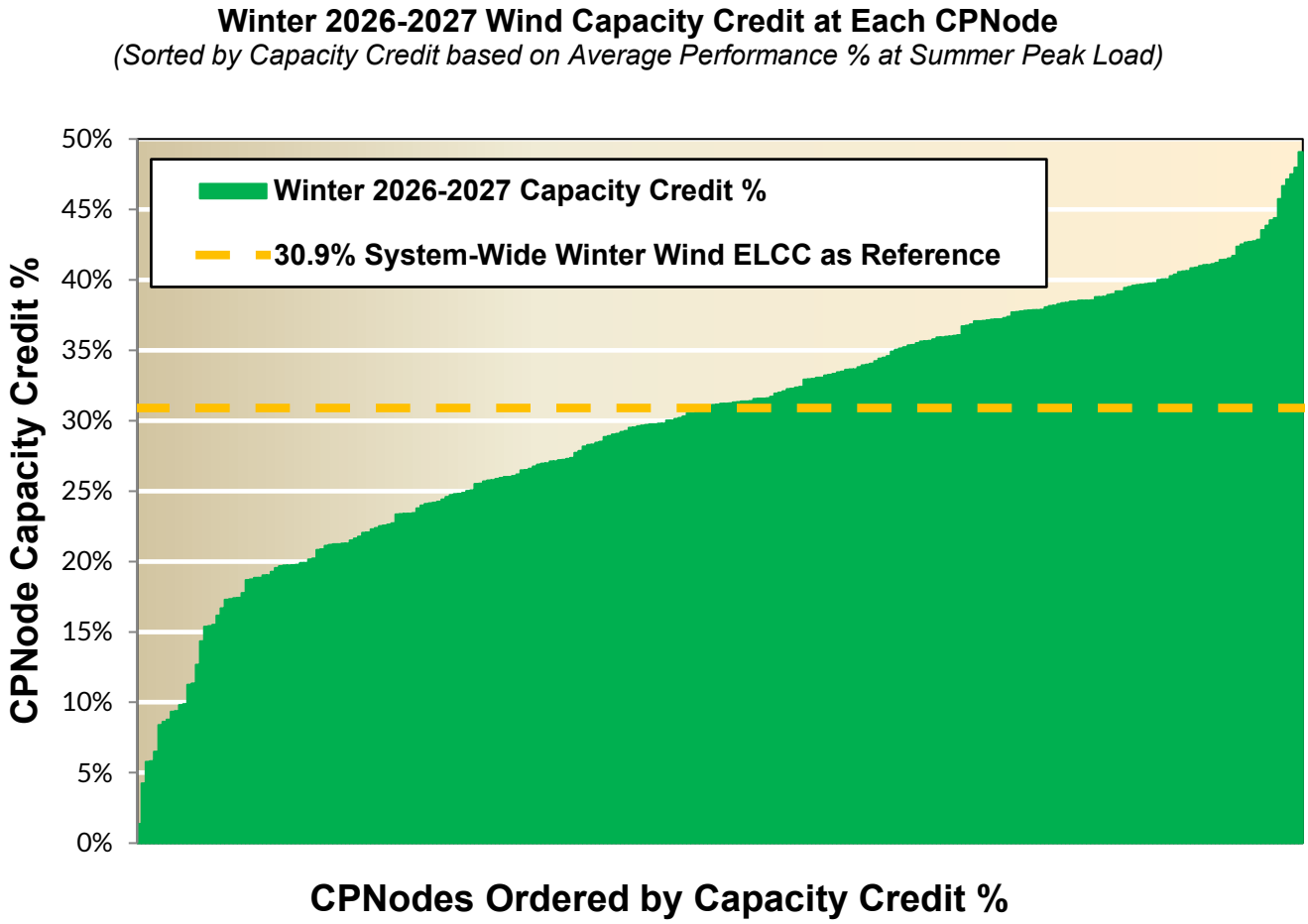


Figure 3-5: Winter 2026-2027 Wind CPNode Capacity Credits

The individual $PKmetric_{CPNode}$ of the wind CPNodes ranged from 2.1% to 72.0%. The individual Winter 2026-2027 wind capacity credit percentages ranged from 1.4% to 49.1%, by applying expression (2) using each wind CPNode's applicable Winter 2026-2027 K value pertaining to the resource-share allocation technique resulting in the higher Total SAC value for each wind CPNode.

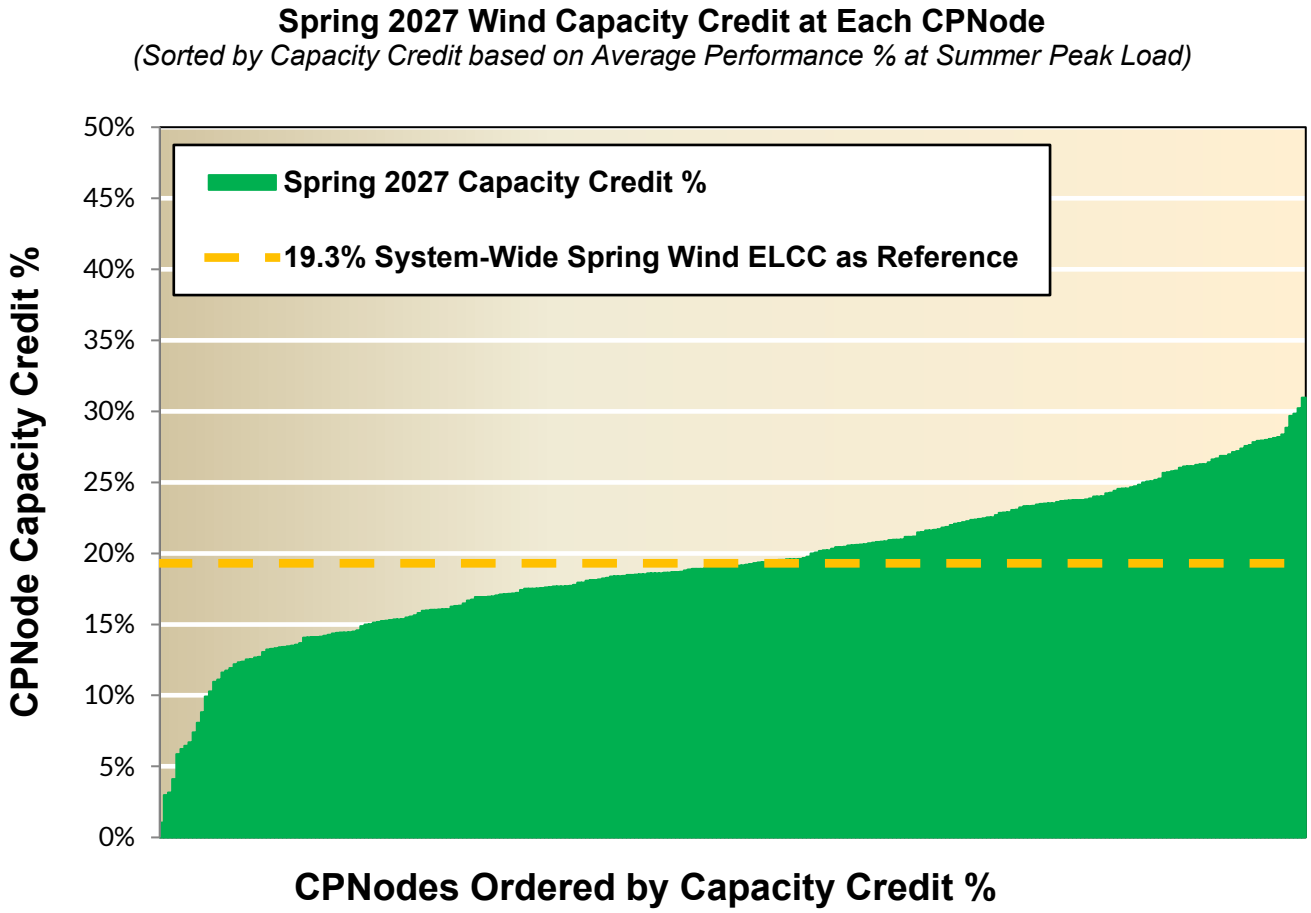


Figure 3-6: Spring 2027 Wind CPNode Capacity Credits

The individual $PKmetric_{CPNode}$ of the wind CPNodes ranged from 2.6% to 73.6%. The individual Spring 2027 wind capacity credit percentages ranged from 1.0% to 31.0%, by applying expression (2) using each wind CPNode's applicable Spring 2027 K value pertaining to the resource-share allocation technique resulting in the higher Total SAC value for each wind CPNode.

Appendix

Class Average Deliverability Curves for New Wind Resources

Class average deliverability curves were developed for new CPNode wind resources that are registering with MISO, that do not have an entire season of metered availability data, and that wish to participate in the seasonal capacity auction held at the beginning of April, known as the Planning Resource Auction (PRA). A workbook has been provided on the MISO public website under the Resource Adequacy page for Market Participants to utilize for determining the conversion of Seasonal Accredited Capacity (SAC) to Zonal Resource Credits (ZRCs) based on the new wind resource's Registered Maximum Output (RMax) in the MISO Commercial Model and its firm deliverability. Class average deliverability curves are season-specific and should be used for determining convertible SAC accordingly.

Market Participants can use these curves to calculate how much of a new wind resource's Registered Maximum Output (RMax) will be convertible to Zonal Resource Credits (ZRCs) for utilization in the PRA. A new wind resource will first have the class average seasonal wind capacity credit (for example, 18.2% for Summer 2026) applied to its RMax to get to a Total SAC value. This represents the full amount of SAC potentially convertible to ZRCs, dependent on the amount of Total Deliverability the resource has been studied for and/or requested. Along with the new wind resource's RMax, Market Participants will also need to supply the resource's total demonstrated firm deliverability, the combination of the resource's Network Resource Interconnection Service (NRIS) and Energy Resource Interconnection Service in conjunction with a valid Transmission Service Request (ERIS w/ TSR).

The class average deliverability curves for new wind resources represent normalized capacity factors during seasonal system peak demand hours of wind resources in the deterministic allocation process of the seasonal Planning Year 2026-2027 Wind Capacity Credit Study. This resource-level production data has been normalized as percentages of nameplate capacity (or RMax) to establish capacity factors on peak for each resource, and then those observances are sorted from lowest to highest to establish a capacity factor duration curve using a 2nd-order polynomial trend fit.

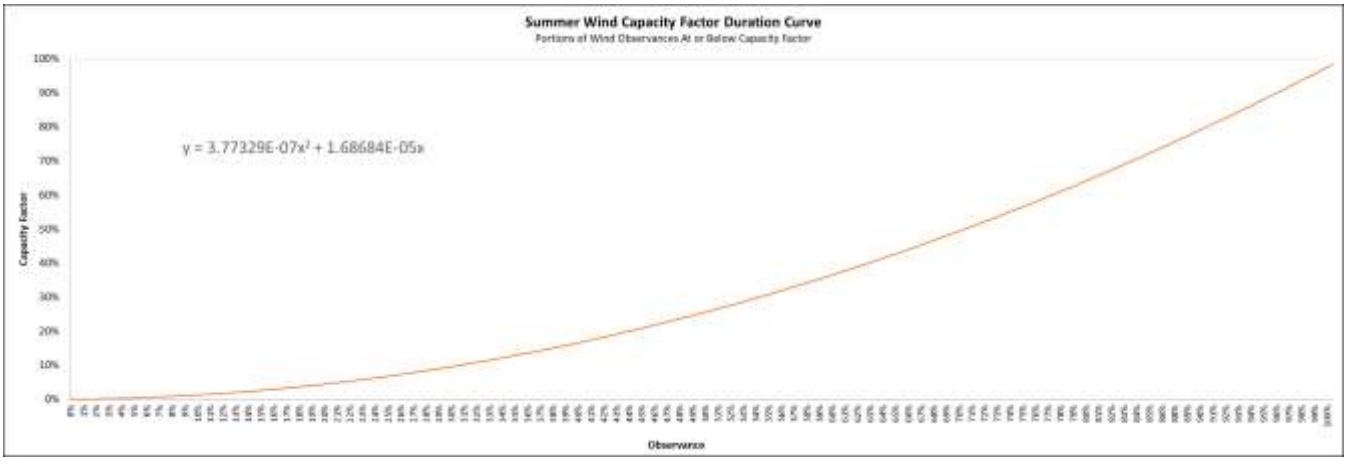


Figure 4-1: Example Class Average SAC-to-ZRC Deliverability Curve for New Wind Resources

Class Average Deliverability Curves for New Solar Resources

Class average deliverability curves were developed for new CPNode solar resources that are registering with MISO, that do not have an entire season of metered availability data, and that wish to participate in the annual capacity auction held at the beginning of April, known as the Planning Resource Auction (PRA). A workbook has been provided on the MISO public website under the Resource Adequacy page for Market Participants to utilize for determining the conversion of Seasonal Accredited Capacity (SAC) to Zonal Resource Credits (ZRCs) based on the new solar resource's Registered Maximum Output (RMax) in the MISO Commercial Model and its firm deliverability. Class average deliverability curves are season-specific and should be used for determining convertible SAC accordingly.

Market Participants can use these curves to calculate how much of a new solar resource's Registered Maximum Output (RMax) will be convertible to Zonal Resource Credits (ZRCs) for utilization in the PRA. A new solar resource will first have the class average seasonal solar capacity credit (for example, 50% for Summer 2026) applied to its RMax to get to a Total SAC value. This represents the full amount of SAC potentially convertible to ZRCs, dependent on the amount of Total Deliverability the resource has been studied for and/or requested. Along with the new solar resource's RMax, Market Participants will also need to supply the resource's total demonstrated firm deliverability, the combination of the resource's Network Resource Interconnection Service (NRIS) and Energy Resource Interconnection Service in conjunction with a valid Transmission Service Request (ERIS w/ TSR).

The class average deliverability curves for new solar resources represent normalized capacity factors during seasonal system peak demand hours of solar resources used for accreditation in the upcoming PRA. This resource-level production data has been normalized as percentages of nameplate capacity (or RMax) to establish capacity factors on peak for each resource, and then those observances are sorted from lowest to highest to establish a capacity factor duration curve using a 2nd-order polynomial trend fit.

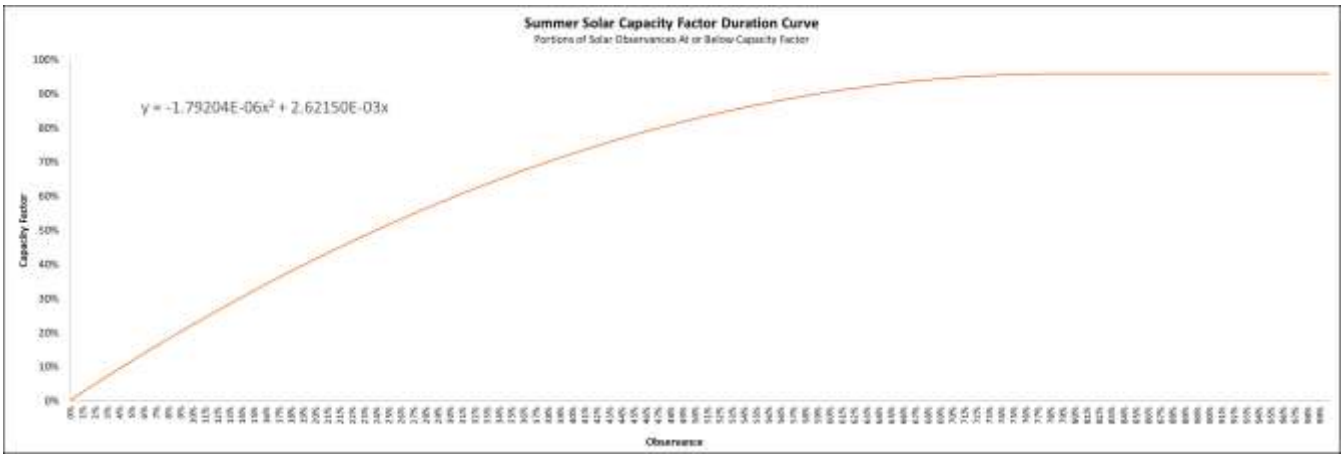


Figure 4-2: Example Class Average SAC-to-ZRC Deliverability Curve for New Solar Resources

References

- MISO Tariff
  - Module E-1 — Resource Adequacy
- MISO Business Practices Manual
  - BPM-011-r32 — Resource Adequacy
- FERC Filing & Order Acceptance
  - Intermittent Deliverable ICAP
    - Docket Nos. ER20-2005-000, ER20-2005-001
  - Seasonal Resource Adequacy Construct
    - Docket Nos. ER22-495-000, ER22-495-001
  - Direct Loss of Load (DLOL)
    - Docket No. ER24-1638
- Resource Accreditation White Paper
  - https://cdn.misoenergy.org/Resource%20Accreditation%20White%20Paper%20Version%202.1630728.pdf