

Schedule 53A
Extended Seasonal Accredited Capacity Calculation

I. Applicability

A. Implementation Date of Schedule 53A

The provisions of this Schedule 53A, except Subsection I.B Effective Date of Reporting Requirement, shall be effective on June 1, 2027 for implementation beginning with Planning Year 2028-2029 and continuing thereafter. The Transmission Provider shall make a filing to remove the currently effective Schedule 53 from the Tariff to be effective June 1, 2028.

B. Effective Date of Reporting Requirement

Commencing on September 1, 2024, the Transmission Provider will publish indicative results pursuant to the provisions set forth in this Schedule 53A. Such indicative results shall be published prior to the applicable Planning Resource Auction for Planning Year 2025–2026, and the two Planning Years thereafter, as further described in the Business Practices Manual for Resource Adequacy.

C. Resource Classes

The term “Resource Class” as used in this Schedule 53A shall mean a group of Capacity Resources, except External Resources, determined based on fuel type and similar operating characteristics whose Resource Class-level UCAP has been determined based on the LOLE analysis and is further described in this Schedule 53A. All Capacity Resources, except External Resources, shall be assigned to one of the Resource Classes identified in this section for purposes of executing the two-step resource accreditation methodology defined in this Schedule 53A and determining the Planning Reserve Margin

Requirement, as set forth in Module E-1. A DRR-Type I or DRR-Type II that is a Behind the Meter Generation facility, and that qualifies as a Capacity Resource shall be assigned to an applicable Resource Class below. A DRR-Type I that interrupts or controls demand shall be accredited pursuant to Section VI below. Resource Classes shall include:

Gas	Storage
Combined Cycle	Solar
Coal	Wind
Reservoir Hydro	Run-of-River Hydro
Nuclear	Biomass
Pumped Storage	Oil
Dual Fuel Oil/Gas	

Market Participants that register a Resource as Dual Fuel Oil/Gas shall be required to attest to the performance of both components of the Resource pursuant to the requirements set forth in the Business Practices Manual for Resource Adequacy.

Additional details regarding Resource Classes shall be included in Transmission Provider's Business Practices Manual for Resource Adequacy. The Transmission Provider will provide a mapping of each Capacity Resource to one of the above Resource Classes based on the registration within the Transmission Provider's commercial model, Power GADS registration, and data submitted to the Energy Information Administration, as applicable, as further set forth in the Business Practices Manual for Resource Adequacy. The mapping of Resource Classes will be provided as per the schedule listed in the Transmission Provider's Business Practices Manual for Resource Adequacy. Any dispute regarding Resource Class assignment must be submitted to the Transmission

Provider in writing within ten (10) Business Days from the date such assignment was provided to the Market Participant. The Transmission Provider will make a final determination of the Resource Class assignment within ten (10) Business Days of the submission of the dispute. The factors the Transmission Provider will use to evaluate such disputes include, but are not limited to, registration within the Transmission Provider's commercial model, Power GADS registration, and data submitted to the Energy Information Administration, as applicable, as further set forth in the Business Practices Manual for Resource Adequacy.

II. General

Seasonal Accredited Capacity (SAC) for a Capacity Resource, except an External Resource, will be determined pursuant to this Schedule 53A. The resources accredited pursuant to this Schedule 53A, as described above, are hereinafter referred to as "Schedule 53A Resources".

The SAC calculation for Schedule 53A Resources will be performed using a two-step process. First, the Resource Class-level UCAP will be determined by the method described in section II.A. Second, the Resource Class-level UCAP will be allocated amongst the individual resources in the Resource Class using the individual resource performance during Tier 1 and Tier 2 Hours based on the prior three years of operational performance as described in section II.B.

A. Resource Class-level UCAP and ICAP Calculation

Resource Class-level UCAP in a Season will be determined by calculating the combined expected availability and performance of all resources within that Class during Critical Hours from the probabilistic LOLE analysis, as set forth in Module E-1, using the

following steps:

1. For each hour of a Season for all iterations included in the LOLE analysis, calculate margin as the difference between available generation (including net imports) and load.

$$\text{margin} = \sum \text{generation} - \text{load} + \text{net imports}$$

2. Identify all hours with margin that is equal to or less than three percent (3%) of the load for the hour in each Season. This includes two subsets of hours: (i) all loss of load hours (all hours with unserved energy); and (ii) low-margin hours, where there was no loss of load, but less than three percent (3%) positive margin.
3. Within each Season, identify the maximum positive margin from all the hours selected in step 2 above.
4. For each hour of a Season identified in step 2 above, calculate effective margin using margin and maximum margin.

$$\text{effective margin} = \text{Max}(\text{margin}) - \text{margin}$$

5. For each Season, limit total hours used for Resource Class-level UCAP calculation to 1,950 hours, if applicable, based on the following criteria:
 - i. Select all loss of load hours (all hours with unserved energy). If there are more than 1,950 loss of load hours in a Season, no low-margin hour is selected, and all loss of load hours will be used in the calculation.

- ii. If there are less than 1,950 loss of load hours in a Season, select low-margin hours, beginning with the smallest margin until the cap is reached or until all low-margin hours within the Season have been selected. The complete set of hours, *i.e.*, all loss of load hours plus applicable low-margin hours, selected in this step are referred to as “Critical Hours”.

6. For each Season, calculate normalized weight for each Critical Hour using: (i) the probability associated with the load forecast error scenario the selected Critical Hour belongs to, and (ii) the effective margin calculated in step 4 above.

$$weight = \frac{p(lfe) \cdot effective\ margin}{\sum_h p(lfe) \cdot effective\ margin}$$

Where,

$p(lfe)$ is the probability of the associated load forecast error that is included in the LOLE analysis to account for economic load uncertainty.

7. Finally, for each Season and Resource Class, the Resource Class-level UCAP is calculated as weighted average availability of all Resources within the Resource Class across all Critical Hours using weights calculated in step 6 above.

The seasonal Resource Class-level ICAP will be calculated as the sum of the seasonal ICAP values of all Resources in the Resource Class.

B. Resource-level Extended Seasonal Accredited Capacity Calculation

A two-tiered weighting structure is used to calculate Extended Seasonal

Accredited Capacity for Schedule 53A Resources. Outage exemptions for planned outages and exemptions for any operating limitations, such as thermal, voltage, or stability limits referenced in the BPM for Outage Operations, provided by the Transmission Provider or Transmission Operator to preserve the reliability of the Transmission System, that modify the must offer obligation set forth in Section 69A.5.a will be factored into calculating the tiers of a Schedule 53A Resource's Extended Seasonal Accredited Capacity.

III. Tier 1 and Tier 2 Planned Outage Exemption Requirements

Generator Planned Outages will be evaluated for Tier 1 and Tier 2 exemptions based on the following requirements. Only full (Out-of-Service) Generator Planned Outages or full (Out-of-Service) Proposed Generator Planned Outages shall be eligible for the Tier 1 and Tier 2 planned outage exemptions set forth below. Resources in the Solar Resource Class shall not be eligible for Tier 1 and Tier 2 Planned Outage Exemptions for Generator Planned Outages and Proposed Generator Planned Outages that are scheduled during nighttime hours for each Season. Nighttime hours will be defined by Local Resource Zone, as set forth in the Business Practices Manual for Resource Adequacy.

Generator Outage Submission Criteria	Maintenance Margin ≥ 0 for duration of outage	Maintenance Margin < 0 for any day in the duration of outage
>120 days prior to outage start date, and >120 days from end of previous outage for unit	Exempt Tier 1 & 2	Exempt Tier 1 Only
>120 days Prior to Outage Start date and <120 days from end of Previous outage for unit or Outage submitted between 31-119 days Prior to outage start date	Exempt Tier 1 Only	No Exemption

14-30 days prior to outage start date and passes No Harm Test	Exempt Tier 1 Only	No Exemption
Outage moved per MISO request	Exempt Tier 1 & 2 (Weather, forced outages, other conditions in BPM-008)	Exempt Tier 1 & 2 (Weather, forced outages, other conditions in BPM-008) at Transmission Provider's discretion or Tier 1 only at Transmission Provider's discretion

A. Tier 2 Planned Outage exemptions

- i. The Generator Owner or Generator Operator: (a) schedules its first Generator Planned Outage 120 days or more in advance of the outage start date and 120 days or more beyond the end date of any previously scheduled outages for the generator unit; and (b) the Proposed Generator Planned Outage is to occur entirely during a period in which there is adequate Maintenance Margin at the time advance notice of the outage is provided to the Transmission Provider. There is adequate margin when the Maintenance Margin is greater than or equal to zero megawatts after subtracting the megawatts of the requested Proposed Generator Planned Outage. The request shall be determined based on highest queued request.
- ii. The Generator Owner or Generator Operator reschedules its Generator Planned Outage at the Transmission Provider's request: (a) the Proposed Generator Planned Outage is to occur 120 days or more in advance of the outage start date and 120 days or more beyond the end date of any previously scheduled outages for the generator unit; and (b) Generator Planned Outage has inadequate Maintenance Margin at time of submittal

and moves to a time of adequate Maintenance Margin.

- iii. The Transmission Provider may, at its discretion, grant a Tier 2 Planned Outage exemption if the Generator Owner or Generator Operator reschedules its Generator Planned Outage at the Transmission Provider's request due to weather, forced outages, or other conditions listed in the Business Practices Manual for Outage Operations without regard to how many days in advance the outage was submitted or whether there was projected to be adequate Maintenance Margin for the duration of the outages.

B. Tier 1 Planned Outage exemptions

- i. The Generator Owner or Generator Operator receives a Tier 2 Planned Outage exemption under section A.i above.
- ii. The Generator Owner or Generator Operator: (a) schedules its first Generator Planned Outage 120 days or more in advance of the outage start date and 120 days or more beyond the end date of any previously scheduled outages for the generator unit; and (b) the Proposed Generator Planned Outage is to occur during a period when there is inadequate Maintenance Margin at the time the outage is provided to the Transmission Provider. There is inadequate margin when the Maintenance Margin is less than or equal to zero megawatts, for any day of outage, after subtracting the megawatts of the requested Proposed Generator Planned Outage. The request shall be determined based on highest queued request.

- iii. Subsequent generator unit outage requests 120 days or more in advance and/or Generator Owners or Generator Operators Generator Planned Outage less than 120 days in advance and at least 31 days in advance of outage start date. Proposed Generator Planned Outage to occur entirely during a period in which the generator unit has an adequate projected margin, at the time the outage is provided to the Transmission Provider. There is adequate margin when the Maintenance Margin is greater than or equal to zero megawatts after subtracting the megawatts of the requested Proposed Generator Planned Outage. The request shall be determined based on highest queued request.
- iv. Generator Owners or Generator Operators Generator Planned Outage less than 31 days in advance and at least 14 days in advance of outage start date. A Proposed Generator Planned Outage to occur entirely during a period the generator unit has an adequate Maintenance Margin at the time the outage is provided to the Transmission Provider and the outage passes the No Harm Test. There is adequate margin when the Maintenance Margin is greater than or equal to zero megawatts after subtracting the megawatts of the requested Proposed Generator Planned Outage. The request shall be determined based on highest queued request.
- v. Generator Owner or Generator Operator reschedules its Generator Planned Outage at the Transmission Provider's request due to inadequate Maintenance Margin for the duration of outage, at the time the outage is provided to the Transmission Provider. Maintenance Margin is less than zero megawatts after

subtracting the megawatts of the requested Proposed Generator Planned Outage. This requirement does not include outages submitted less than 14 days in advance of the start date.

- vi. The Transmission Provider may, at its discretion, grant a Tier 1 Planned Outage exemption if the Generator Owner or Generator Operator reschedules its Generator Planned Outage at the Transmission Provider's request due to weather, forced outages, or other conditions listed in Business Practices Manual for Outage Operations without regard to how many days in advance the outage was submitted or whether there was projected to be adequate Maintenance Margin for the duration of the outages.

C. No Harm Tests

Outages submitted between 14 to 30 days of start date will be evaluated for final approval and exemption status together. The No Harm Tests include, but are not limited to, outage approval, compliance with all applicable operation guides, review of possible conflicting outages or system conditions, and system capacity (Maintenance Margin, Multiday Operational Margin, 30-day margin). It also includes the criteria outlined in the Business Practices Manual for Generator Outage.

D. Limitation Provided by Transmission Provider or Transmission Operator

The Transmission Provider will grant the equivalent of a Tier 2 Planned Outage exemption if a Schedule 53A Resource is provided an operating limitation, such as thermal, voltage, or stability limits referenced in the BPM for Outage

Operations, provided by the Transmission Provider or the Transmission Operator to preserve the reliability of the Transmission System, that is lower than the must offer obligation described in Section 69A.5.a.

IV. Resource Adequacy Hours

Resource Adequacy (RA) Hours represent the periods of highest risk and greatest need during a Season and throughout the year. They include hours during Maximum Generation Emergency declarations and the hours when the operating margin, a measure of available supply capacity above demand and reserve requirements, is at its lowest.

Resource Adequacy Hours will be identified based on an evaluation of the three (3) most recent completed years using the period beginning September 1st and ending August 31st, which will be used to determine Resource Adequacy Hours for each Season (Seasonal RA Hours). Seasonal RA Hours will be determined for the First Planning Area and Second Planning Area separately. The RA Hours determined in subpart IV.A & IV.B below are the only RA Hours that will be used to calculate Tier 2 ISAC in subpart VI.B below. Where certain Seasonal RA Hours do not apply for a Resource due to a Tier 2 Planned Outage exemption or for periods where the Resource was not designated for RAR under Module E-1 of the Tariff or the Resource does not otherwise have 65 RA Hours identified for the Season per subpart IV.A.iii then a Seasonal RA Hour Deficiency exists. To address the Seasonal RA Hour Deficiency, a seasonal Resource Class-level UCAP as a percentage of the corresponding seasonal Resource Class-level ICAP will be multiplied by the Resource's ICAP and the product will be applied for purposes of determining ISAC for only the deficient Seasonal RA Hours.

A. Seasonal RA Hours. Seasonal RA Hours will include a target of 65 hours for

each Season consisting of:

- i. All operating hours during any declared Maximum Generation Emergency in a Season, excluding any operating hour where a Resource has a Tier 2 Planned Outage exemption or has periods where the Resource was not designated for RAR under Module E-1 of the Tariff. If more than 65 of such hours exists for any Season, all will be considered Seasonal RA Hours, and;
- ii. If there are fewer than 65 hours identified for the Season in Section IV.A.i above, additional hours will be identified up to a total of 65 starting with those hours with the lowest Operating Margin that is below a threshold of 25 percent excluding any operating hour where a Resource has a Tier 2 Planned Outage exemption or has periods where the Resource was not designated for RAR under Module E-1 of the Tariff, and;
- iii. If 65 hours have still not been identified, then a Seasonal RA Hours Deficiency exists which is the number of hours less than 65 for any Season.

- B. Seasonal Non-RA Hours. Seasonal Non-RA Hours will consist of all hours not included in Section IV.A.i-iii. If a Resource has a Tier 1 and/or Tier 2 Planned Outage exemption for any of the operating hours identified as Seasonal Non-RA Hours or has periods where the Resource was not designated for RAR under Module E-1 of the Tariff, such hours will not be included in the applicable Seasonal Accredited Capacity calculation.

- C. Tier 1 Planned Outage exemptions apply only to Non-RA Hours. Tier 2 Planned Outage exemptions apply for both RA Hours and Non-RA Hours referenced in this Schedule 53A.

V. Operating Margin Calculation

The Operating Margin is determined using historical information to identify Seasonal RA Hours and Annual RA Hours within the three (3) most recent periods beginning September 1st and ending August 31st.

Operating Margin Equation

$$\text{Operating Margin (\%)}_j = \frac{\text{Online margin (MW)}_j + \text{offline margin (12 - hour lead time)}(\text{MW})_j}{\text{Real Time (RT) Load (MW)}_j}$$

Where:

$$\text{Online margin (MW)}_j = \sum_{\text{unit } i \text{ in region } j} (\text{EmergencyMax}_i - \text{Energy MW}_i - \text{cleared operating reserve}_i)$$

For all Resources online and under normal dispatch control.

$$\text{Offline margin (MW)}_j = \sum_{\text{unit } i \text{ in region } j} \text{Emergency Max}_i - \text{cleared offline supplemental reserve(MW)}_j$$

For Resources where all of the following is true: (i) Resource is Offline; (ii) it's cold-start lead-time is less than or equal to 12 hours; and (iii) is not on outage.

VI. Seasonal Accredited Capacity Calculation

- A. Tier 1 Intermediate SAC (ISAC) is calculated as the sum of hourly real time availability, or Targeted Demand Reduction Level for DRR-Type 1, during each

of the Resource's Seasonal Non-RA Hours, divided by the total number of Seasonal Non-RA Hours for each Season within the three (3) most recent periods beginning September 1st and ending August 31st.

- B. Tier 2 ISAC is calculated as the sum of hourly real time availability, or Targeted Demand Reduction Level for DRR-Type 1, for the Resource's Seasonal RA Hours, plus the product of: seasonal Resource Class-level UCAP as a percentage of the corresponding Resource Class-level ICAP will be multiplied by the Resource's ICAP multiplied by the Seasonal RA Hour Deficiency; divided by the total number of Seasonal RA Hours plus the Seasonal RA Hour Deficiency for each Season within the three (3) most recent periods beginning September 1st and ending August 31st. For any Seasonal RA Hour where a Resource is offline and the sum of the Resource's Start-Up Time and Start-Up Notification Time Offers exceeds 24 hours, the Resource's hourly real time availability, or Targeted Demand Reduction Level for DRR-Type 1, will be set to zero (0).
- C. For Resources required to submit GVTC values and for purposes of paragraphs A and B above, the hourly real time availability, or Targeted Demand Reduction Level for DRR-Type 1, will be capped at the currently effective GVTC value of the Resource. If a Resource is committed for a portion of its ICAP due to partial clearing, the partial clearing will not reduce the values in the Offers considered in the accreditation calculations, which will be capped at the currently effective GVTC value of the Resource.
- D. In the case of an increase in generating Capacity of a Generation Resource, for

purposes of paragraphs A through C above, the historical values for the hourly real time availability will be adjusted up for those hours prior to such increase going into effect as set forth in the Business Practices Manual for Resource Adequacy.

E. RA Hours will receive a greater weight than non-RA hours.

F. ISAC will be calculated using the following equation:

$$ISAC = ISAC_{Tier1_value} \times ISAC_{Tier1_weighting} + ISAC_{Tier2_value} \times ISAC_{Tier2_weighting}$$

Where Tier 1 weighting equals twenty percent (20%) and Tier 2 equals eighty percent (80%).

G. Resource Class-level ISAC is the sum of individual resource ISAC values within the Resource Class. The calculation of the Resource Class-level UCAP and Resource Class-level ISAC will exclude Resources that have yet to qualify for the applicable PRA at the time of these calculations and include those in both the relevant LOLE study and ISAC calculations.

H. The SAC for each Resource, except DRR-Type I that interrupts or controls demand, will be calculated as its pro-rata share of the Resource Class-level UCAP based on its individual ISAC value using the following equation:

$$SAC_i = Resource\ Class\text{-}Level\ UCAP * \frac{Resource\ ISAC_i}{Resource\ Class\text{-}level\ ISAC}$$

for each resource, *i*.

The SAC for DRR-Type I that interrupts or controls demand will be set equal to its ISAC.

I. The Transmission Provider will post initial values for ISAC, SAC, Resource

Class-level UCAP, and Resource Class-level ISAC (“Initial SAC Posting”), for each Season, by December 15 prior to the applicable Planning Resource Auction.

Any dispute related to the initial ISAC values shall be submitted to the Transmission Provider in writing within thirty (30) Calendar Days of such posting. The Transmission Provider will post final values for ISAC, SAC, Resource Class-level UCAP, and Resource Class-level ISAC (“Final SAC Posting”), for each Season, by February 15 prior to the applicable Planning Resource Auction. No changes will be made to the Final SAC values following the February 15 posting, unless the Resource Class-level ISAC changes more than three percent (3%) and at least 30 MW. If Resource Class-level ISAC changes more than three percent (3%) and at least 30 MW, the Transmission Provider will post adjusted Final SAC values by March 1 prior to the applicable Planning Resource Auction.

VII. New Resources or Resources with Insufficient Performance Data

New Resources or existing Resources that do not have at least 60 days of Real-Time offered availability when designated for RAR over the last three (3) years for each Season (Summer, Fall, Winter, Spring) will have a SAC based on its respective seasonal Resource Class-level UCAP as a percentage of the corresponding Resource Class-level ICAP will be multiplied by the Resource’s ICAP. Resources on a Catastrophic Generator Outage during a Season they are designated for RAR may elect to use a SAC based on its respective Resource Class’s UCAP percentage multiplied by its ICAP the next time it is accredited for that Season provided all of its committed ZRCs were replaced with uncleared ZRCs and that it has

successfully returned from the Catastrophic Generator Outage.