

Reliability Assessment Commitment Process (RAC)

A. Introduction

Most ISOs/RTOs have a reliability backstop tool that enables them to ensure sufficient resources are available and online to cover forecast load. The Midwest ISO has established a set of procedures in the tariff (Module C, Section 40.1) to address this required need, called the Reliability Assessment Commitment Process (RAC)¹. The Midwest ISO minimizes the commitment cost of resources in the RAC process while operating the grid within applicable reliability standards.

B. The RAC Process: definition and rationale

The Midwest ISO performs a Day-Ahead RAC process after the Day-Ahead Energy Market has been run and has established final Day-Ahead schedules. The Day-Ahead Market clears based only on the bids, offers, self schedules and bilateral schedules that Market Participants (MP) have submitted, without regard to the Midwest ISO's load forecast. In the event that the Day-Ahead Market closes significantly below the Midwest ISO's load forecast and adequate resources have not been committed to meet that forecast, the RAC process provides a reliability backstop to enable the Midwest ISO to commit additional supply if needed to meet the system load forecast and reserve requirements in compliance with NERC and RRO reliability criteria, as well as local reliability needs.

The Midwest ISO is responsible for utilizing this reliability tool, rather than allocating such responsibilities to each of the Balancing Area Operators, for the following reasons:

- The need to commit additional resources to ensure enough supply is online to meet forecast load is best analyzed on a system-wide basis by the Midwest ISO in conjunction with the administering of Day-Ahead and Real-Time Energy Markets;
- The potential exists for significant improvements in reliability and efficiency if the RAC process is conducted by the Midwest ISO on a system-wide basis throughout the Midwest ISO Region, rather than on a Balancing Area basis; and
- The Midwest ISO is in the best position to understand and implement potential energy market improvements to reduce the utilization of the RAC process.

¹ Additional material on the RAC process is contained in section 3 of the BPM for Energy Markets.

C. RAC principles

The following principles have guided development of this RAC process:

- The RAC process should allow the Midwest ISO to commit the capacity it deems necessary to reliably operate the grid at the least commitment cost;
- The RAC process should have a transparent and equitable implementation process;
- The RAC process is not intended to create any 'new' markets outside of the existing proposed energy markets; and
- The RAC process should be incentive compatible with the Midwest ISO's proposed Day-Ahead and Real-Time Energy Markets;

D. RAC determination

The RAC process ensures that sufficient resources are available and on-line to meet demand and reserve requirements projected by the Midwest ISO for each hour of the next operating day. The RAC process employs a security-constrained unit commitment (SCUC) algorithm.

The Midwest ISO utilizes a methodology in its RAC process containing the following characteristics.

1. Timing

The RAC process occurs sequentially after the closing and publishing of Day-Ahead Market results. The RAC process starts at 1700 hours EST and closes at 2000 hours EST.

2. MISO Market Notice

After publishing Day-Ahead Market results, at 1700 hours EST, MISO will publish its most recent load forecast for each hour of the operating day, as well as final summed Day-Ahead schedules for load. This will give MPs the opportunity to offer resources into the RAC process as described below.

3. Offer Submission

From 1700 hours EST through 1800 hours EST, MPs can submit offers as described below for consideration by MISO in its RAC process.

4. MISO Notification

MISO will commit selected units through its RAC process and notify these units by 2000 hours EST of the day before the operating day.

5. RAC Participation

Network Resources (“NR”), as the term is defined in the Midwest ISO’s TEMT (Module A), must offer all available capacity into the RAC process. Other resources can voluntarily offer into the RAC process.

6. RAC Offer Data

Offer data must include any start up, no load offers and incremental energy offers, as well as physical operating characteristics of the generating resource.

7. RAC Selection Process

The Midwest ISO will select resources to meet its procurement target while minimizing commitment costs, which considers start-up offers, no-load offers and offers at minimum load only.

8. RAC Procurement Target

MISO will select resources in the RAC process to meet 100 percent of the difference between the MISO Adjusted Demand Forecast and the Total Operable Capacity available from the Day-Ahead Market, for each hour of the operating day.

9. Adjusted Demand

MISO’s Adjusted Demand is its total forecast demand for each hour in the operating day plus capacity needed for reserves less the sum of expected Schedule changes prior to Real-Time operations, energy expected to be available in the Real-Time Energy Markets, and the capacity of Quick Start Units.

10. Total Operable Capacity

Total Operable Capacity looks at generation resources that have Day-Ahead Schedules that are expected to operate in the Operating Day. For these generation resources with Day-Ahead schedules that are expected to produce energy in Real-Time, the Economic Maximum plus any indicated reserve amounts are summed across all units, for each hour of the operating day.

11. Quick Start Units

The capacity available from CTs, GTs or other Quick Start Units will count directly against MISO’s procurement target.

12. Respecting Resource Characteristics.

The Midwest ISO will minimize commitment costs subject to respecting the physical operating characteristics of each selected unit, including minimum run times, ramping capability, start times, and other characteristics.

13. Regulation and Operating Reserve Requirements.

The Midwest ISO will aggregate projected regulation and operating reserve requirements from each Balancing Area and compare it with resources scheduled to provide regulation and operating reserves through the Day-Ahead Market or resources indicated by BAs reserved for such purposes. The Midwest ISO will commit any additional resources necessary to meet the reserve requirements as part of its reliability process in RAC.

14. Incremental RAC.

After the close of the RAC process at 2000 hours EST on the day before the operating day, the Midwest ISO may undertake an irregular intra-Day RAC process to select and commit additional resources at minimal commitment costs, to ensure reliability of the grid. This additional RAC process would occur due to changes in system conditions, changes in the load forecast or additional resource outages.

E. RAC compensation

All units committed by the Midwest ISO will be guaranteed recovery of start-up and no load offers, net of market profits earned during the commitment cycle. If a resource's costs as reflected in its Offer, including start-up, no load and the integral of its energy offer up to its dispatch point, are greater than the revenue reflected through its LMP received, then the MP representing the resource will receive a Revenue Sufficiency Guarantee credit equal to the shortfall.

F. RAC scheduling and dispatch

Market Participants with resources selected and committed by the Midwest ISO in its RAC process must adhere to MISO instructions on when to start up and operate at minimum load, to the extent feasible, and must submit an energy offer for the remaining capacity from minimum load levels to economic max in the Real-Time Energy Market.

G. RAC cost allocation

Costs associated with the RAC process will be borne by MPs who exhibit deviations (additional load or reduced generation) from Day-Ahead schedules. This cost allocation process is consistent with the way PJM and ISO_NE do their

cost allocations. Section D of Attachment A of the BPM for Market Settlements provides additional detail.

H. Some questions addressed

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