



EIM Offer Rule Technical Workshop Resource Sufficiency Evaluation Update

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Agenda

- Resource Sufficiency Evaluation
- Updates
 - Bid Range Capacity Test
 - Flex Ramp sufficiency Test

Resource Sufficiency Evaluation- Recap

- Received feedback from prior discussions
- Reviewed and Analyzed feedback
- Implemented several changes

Why Perform Resource Sufficiency Evaluation

- Resource sufficiency evaluation addresses real-time leaning prior to start of EIM for the trade hour
- Under/Over-scheduling Penalty incentivizes balanced base schedules
- Flexible ramp sufficiency test ensures EIM Entity can meet their requirements, based on diversity benefit, independently before start of market optimization across EIM footprint
 - Ensures sufficient ramp capability is available in the real-time markets

Resource Sufficiency Evaluation - Tests

- Balancing Test
- Bid Range Capacity Tests
- Feasibility Test
- Flex Ramp Sufficiency Test

Balancing Test

- Comparison of base schedules (for EIM generating and inertia resources) with hourly demand forecast
 - Pass: BAA imbalance within 1%
 - Fail: BAA imbalance greater than 1%
 - Over-scheduling / under-scheduling penalty if actual demand delta is above 5%



Capacity Test

- Comparison of aggregate incremental/decremental energy bid range from EIMPRs with BAA imbalance between base schedules and demand forecast and historical hourly inter-tie deviations
 - Pass: sufficient capacity
 - Fail: insufficient capacity
 - Limit EIM transfer at least restrictive of either the previous hour last dispatch or at hourly base schedules on ETSR
 - Automatically results in failure of Flex Sufficiency Test

Capacity Test – Updates

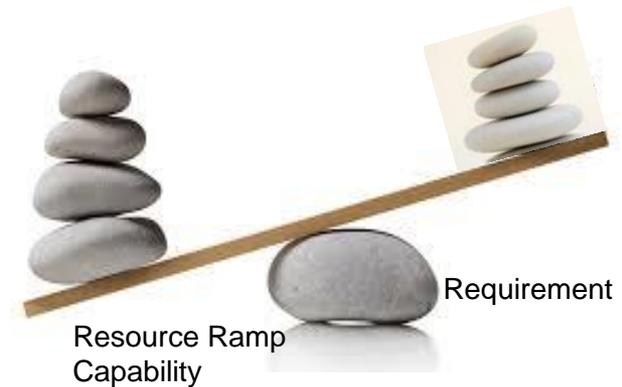
- Use two histograms for historical Net Import deviations
 - Absolute Scheduling Deviation
 - Relative Scheduling Deviation
- Both relative low percentile and absolute percentile is used to calculate additional capacity requirements
- Implemented on January 1, 2018

EIM BAA Feasibility Test

- Identify transmission constraint violations due to base schedules in EIM BAAs
 - Pass: no transmission constraint violations
 - Fail: transmission constraint violations identified

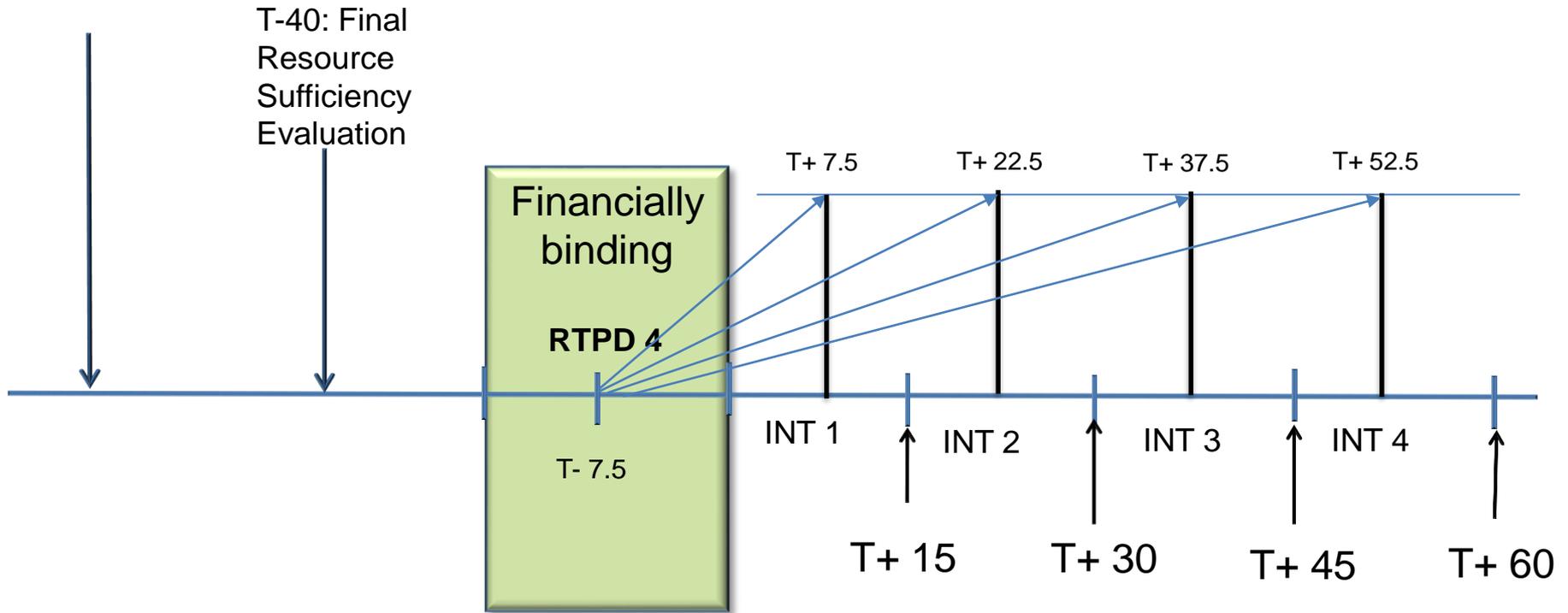
Flex Ramp Sufficiency Test

- Comparison of flex ramp requirements (constructed with several components) with individual resource ramp capabilities (includes inter-ties, non-participating resource and participating resources)
 - Pass: resource ramp capabilities are above the requirements
 - Fail: resource ramp capabilities are below the requirements
 - limit EIM transfer at least restrictive of either the previous hour last dispatch or at hourly base schedules on ETSR



Flex Ramp Sufficiency Test

T-52.5 RTPD 4 optimization horizons



Flexible Ramping Sufficiency Test Updates

- Freeze VER forecast between T-55 and T-40 Test - Implemented on December 12, 2017
- Flexible Ramp requirements for BAAs are now posted on OASIS - Implemented on December 22, 2017
- Resource Ramp Capacity Information is posted on CMRI – Implemented on April 4, 2018

EIM changes need to align with ISO day-ahead market

- EIM base schedules are currently hourly consistent with ISO's current day-ahead scheduling granularity
- With DAM enhancements implementation, base schedules will now be submitted with 15-minute granularity
 - This includes EIM non-participating resources
- 15-minute base schedules result in changes to:
 - Resource sufficiency evaluation (Balance & Flexibility)
 - Over/under scheduling penalties

Resource sufficiency evaluation ensures EIM entities don't lean on others capacity, flexibility or transmission

- Currently, performed hourly if any test is failed, EIM transfers cannot exceed prior hour's level.
- Propose to consider each 15-minute interval individually
 - Still perform prior to operating hour to identify which intervals will be “frozen”
 - If a 15-minute interval test is failed, hold transfers at previous 15-minute interval binding result within the hour

Over / under scheduling penalty will align with 15-minute base schedules

- Determine if penalty should apply each 15-minute interval
- Penalty only applies for 15-minute interval not entire hour
- Under extended DAM, this penalty is no longer applicable because EDAM participants can't determine how much imbalance is settled in EIM/RTM

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