



Memorandum

To: ISO Board of Governors and EIM Governing Body

From: Anna McKenna, Vice President of Market Policy and Performance

Date: February 2, 2022

Re: Decision on EIM Resource Sufficiency Evaluation Enhancements – Phase 1

This memorandum requires Board of Governors and EIM Governing Body action.

EXECUTIVE SUMMARY

Management proposes enhancements to the EIM’s resource sufficiency evaluation so it will more accurately assess whether a balancing authority area in the EIM is scheduling or bidding sufficient supply in the upcoming hour to meet its demand. These enhancements will also result in more appropriately allocating resource sufficiency evaluation penalty revenues. The proposed enhancements are the product of an extensive and collaborative stakeholder process conducted over the past several months to further refine the resource sufficiency evaluation following last year’s *Market Enhancements for Summer of 2021* initiative.

The resource sufficiency evaluation is intended to limit “leaning,” which is a balancing authority area’s participation in the EIM without having sufficient supply to meet its load and instead relying on EIM energy transfers. It also has a component intended to address strategic under- or over-scheduled base schedules.

The proposed enhancements to the resource sufficiency evaluation are composed of:

- Changes to the “capacity test” to more accurately count a balancing authority area’s available supply capacity.
- Changes to the “flexible ramping test” to more accurately count available resource energy ramping capability.
- Changes to more accurately account for imports and exports.
- No longer include the ISO balancing authority area in the allocation of the “balancing test” penalty revenues.

- Changes to consider certain actions balancing authority areas take outside of the ISO market.

Management also plans system enhancements to provide EIM participants with more of the data the resource sufficiency evaluation uses to test their balancing authority area. This will enable them to better ensure their balancing authority area passes the resource sufficiency evaluation and more readily identify data errors.

Because the resource sufficiency evaluation is an important element of the EIM, Management has set their implementation by summer 2022 as a priority. In addition, Management has already started stakeholder efforts to consider additional resource sufficiency evaluation enhancements.

Moved, that the ISO Board of Governors and EIM Governing Body approve the resource sufficiency enhancements as described in the memorandum dated February 2, 2022; and

Moved, that the ISO Board of Governors and the EIM Governing Body authorize Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.

BACKGROUND

The resource sufficiency evaluation tests each hour that each EIM balancing authority area has scheduled or bid sufficient supply in the ISO real-time market to meet its demand. The real-time market limits “leaning” by limiting a balancing authority area’s energy transfers in the corresponding fifteen-minute interval if it fails either the resource sufficiency evaluation’s “capacity test” or its “flexible ramping test. Depending on the nature of the failure, EIM import or export transfers will be limited to the preceding interval’s schedules.

The “capacity test” assesses whether the maximum supply capacity provided through base schedules and energy bids for a balancing authority area are sufficient to meet its forecast demand. This also currently includes an additional amount to account for uncertainty in its net demand forecast.

The “flexible ramping sufficiency test” assesses whether the energy ramping capability provided through a balancing authority area’s resources’ base schedules and energy

bids can meet its forecast 15-minute net load changes plus an additional amount to account for net load uncertainty.

The resource sufficiency evaluation's "balancing test" is to provide a financial incentive not to strategically schedule to gain from real-time market imbalance energy. For example, an EIM entity could conceivably submit base schedules that strategically gain through supply and demand price differences in imbalance energy settlement. The balancing test provides for financial penalties for EIM entities if they submit base schedules that under- or over-schedule supply relative to their actual demand. The ISO currently allocates the penalty proceeds to all the balancing authority areas participating in the EIM, including the ISO.

PROPOSAL

The following describes Management's proposed resource sufficiency evaluation enhancements and its plans to make additional resource sufficiency evaluation related data available to market participants.

Capacity Test

Management proposes three changes to the resource sufficiency evaluation's capacity test to more accurately count a balancing authority area's available supply.

The first change is to more accurately account for the capacity of resources that are offline by considering their start-up time. The capacity test currently does not consider a resource's start-up time, which can be particularly problematic following a resource outage. This can overstate available capacity as some resources can take as long as multiple hours to come online.

Management proposes that the capacity test would only consider an offline resource's capacity as available if the ISO real-time market can start the resource (or multi-stage generator configuration) by the upcoming hour being tested, or if the real-time market could have started the resource by the hour being tested. It will determine this by testing whether there were bids for the resource in previous hours, in addition to the hour being assessed, that would have enabled the market to start it by the upcoming hour. It does not require resources with longer start times to be online or in the process of coming online to count in the capacity test. This approach recognizes that the real-time market commits resources based on economics and that, consequently, a longer start time resource was nonetheless available to the real-time market even if the market did not start it.

Management also proposes that the ISO would have the ability to configure in the systems that amount of longer-starting resources' capacity that the capacity test counts as available. It would be configured based on the actual amounts of capacity that turn

out to be available in the actual market outcomes. This recognizes that not all of the capacity of these resources may be available in the hour because of ramping constraints.

The second capacity test change Management proposes is to remove the additional amount that accounts for a balancing authority area's net load uncertainty from the demand forecast the capacity test uses. This additional amount to account for net load uncertainty was only recently added to the capacity test as a result of last year's *Market Enhancements for Summer 2021* policy initiative. However, the interaction of inaccuracies in the net load uncertainty calculation and the capacity test framework has produced spurious capacity test failures.

The third change Management proposes is for the capacity test to consider how charged a storage resource is when calculating its available ramping capability. This will more accurately reflect the capacity storage resources can provide, which depends on their charge.

Flexible Ramping Test

Management proposes three changes to the resource sufficiency evaluation's flexible ramping test to more accurately reflect a balancing authority area's 15-minute energy ramping needs and its resources' ramping capability.

The first change applies to the narrow circumstance that occurs under very tight supply conditions when there is insufficient supply in the real-time market for it to meet a balancing authority area's load. When this occurs, Management proposes that the flexible ramping test for the following hour adjusts the demand forecast it uses as the starting point for calculating the balancing authority area's fifteen-minute ramping needs. The starting point would be inaccurate without this adjustment.

The second change Management proposes to the flexible ramping test is for it to also consider the ramping capability provided by multi-stage generators' when they are transitioning between configurations. The capacity test already accounts for this ramping capability.

Similar to as proposed above for the capacity test, the third change Management proposes is for the flexible ramping test to consider the amount a storage resource is charged when calculating its available ramping capability.

Imports and Exports

Management proposes two changes so that the capacity and flexible ramping tests more accurately account for balancing authority area's imports and exports.

The first change pertains to which hourly intertie schedules can be used by the ISO balancing authority area in the capacity and flexible ramping tests.¹ Management proposes that the ISO exclude hourly import and export intertie schedules for which an e-tag has not been submitted by the time of the final hourly resource sufficiency evaluation run at 40 minutes before the hour. Because they do not have an e-tag by this time, these imports/exports are not likely to be delivered and the fifteen-minute market will dispatch them to zero. This rule does not apply to other EIM balancing authority areas because the ISO real-time market does not dispatch imports at their interties.

The second import/export related change Management proposes is to remove an adjustment made to a balancing authority area's available supply in the capacity and flexible ramping tests to account for scheduled imports and exports that may not be delivered. The adjustment is made by looking back at past undelivered imports and exports in the same hour over the previous three months. Analyses have shown the current methodology does not accurately predict future undelivered imports and exports. Management plans to work with stakeholders to revise the methodology in a subsequent initiative phase.

Balancing Test

Management proposes to no longer include the market participants in the ISO balancing authority area in the allocation of resource sufficiency evaluation balancing test penalty proceeds. The ISO balancing authority area is not subject to the balancing test because ISO market participants use the ISO day-ahead market instead of submitting base schedules to the real-time market. Likewise, allocating them balancing test penalty proceeds does not serve as an incentive to adjust their scheduling behavior.

Balancing Authority Area Actions

The final set of changes Management proposes is that the resource sufficiency evaluation consider certain actions balancing authority areas take outside of the ISO market.

Management proposes that EIM entities have the ability to decrease the load forecast the resource sufficiency evaluation uses for their balancing authority area to represent smaller demand response programs they dispatch outside of the ISO real-time market. The current rules only allow them to adjust their load forecast if this out-of-market demand response is at least four percent of their load.

¹ Note that these hourly import/export schedules at the ISO interties are distinct from energy transfers the EIM dispatches.

Data Enhancements

Management also plans system enhancements to provide EIM entities with more of the data the resource sufficiency evaluation uses to test their balancing authority area. This includes detailed data that will allow each EIM entity to understand how the resource sufficiency evaluation considered their schedules and bids. This will enable them to better ensure their balancing authority area passes the resource sufficiency evaluation and more readily identify data errors.

STAKEHOLDER POSITIONS

Although some stakeholders may not support certain elements of Management's proposed changes outlined in this memorandum, they generally support this package of enhancements and believe it is important to move forward with them so the ISO can implement them by summer 2022. Stakeholders also generally agree that it is important for the ISO to continue to work with them to continue to address resource sufficiency evaluation related issues.

Stakeholders outside the ISO balancing authority area believe it is important to continue to explore resource sufficiency evaluation enhancements to address load conformance adjustments (*i.e.*, upward adjustment to the load forecast the real-time market uses) the ISO makes for its balancing authority area. They maintain that increased transfers resulting from these load conformance adjustments result in the ISO leaning on the rest of the EIM.

Stakeholders both inside and outside the ISO balancing authority area believe it is important to address a related issue, which is the interactions between the resource sufficiency evaluation, EIM transfers into the ISO, and hourly exports at the ISO interties. The ISO real-time market may rely on scheduling EIM transfers into the ISO to support hourly exports at the interties out of the ISO. This points to potential inequities in the resource sufficiency evaluation as the exports add to the ISO's capacity test obligations while the EIM transfers into the ISO do not count towards its supply.

Management plans to continue to work with stakeholders to address the interactions between the resource sufficiency evaluation, load conformance, and hourly exports at the interties. Additional analysis and discussion is needed because of the complex interactions between these elements. For example, although load conformance can increase EIM transfers into the ISO, it can also result in scheduling additional non-EIM import supply or starting-up internal ISO generation.

One stakeholder opposes moving forward now with Management's proposal for the resource sufficiency evaluation to only consider ISO import and export schedules for

which an e-tag has been submitted by the time of the final hourly resource sufficiency evaluation run at 40 minutes before the hour. It maintains that given the issues with the interrelationship between the resource sufficiency evaluation, EIM transfers, and hourly exports described above that potentially unfairly disadvantage the ISO in the resource sufficiency evaluation, the ISO should not move forward with this change that could make it harder for the ISO to pass the resource sufficiency evaluation.

Management believes its proposal for the resource sufficiency evaluation to not consider these imports is reasonable as they most likely will not be delivered. Management believes this is a separate issue from EIM transfers supporting exports and does not justify not making this change at this time.

Stakeholders support a resource sufficiency change for the capacity test to consider a resource's start-up time. However, some stakeholders maintain that only resources that the real-time market can start by the upcoming hour should count and that it should not count longer offline starting resources.

Management believes excluding offline longer-starting resources would be an inappropriate approach, as it would in large part result in assessing the real-time market's commitment decisions rather than the supply a balancing authority area makes available. Such an approach would also potentially incentivize inefficient market behavior such as self-scheduling resources merely to ensure passing the capacity test.

As part of this stakeholder initiative, Management considered provisions to deem a balancing authority area as failing the resource sufficiency evaluation and accordingly limit its EIM transfers under certain emergency conditions that would indicate the balancing authority area has a supply shortfall. Stakeholders provided feedback that the ISO should use clear criteria for the emergency conditions that would result in automatic failure of the resource sufficiency evaluation. Management is continuing to carefully consider the alternative criteria to trigger such failures and will take its proposal to the Board of Governors and Governing Body in March after it has completed its evaluation.

The ISO Department of Market Monitoring supports Management's proposal, stating it will more accurately reflect the capacity made available to the EIM.

The Market Surveillance Committee generally supports the proposed enhancements. They believe additional analysis is necessary before exploring additional resource sufficiency enhancements because of the complex market interactions between the resource sufficiency evaluation, EIM transfers, and imports and exports at the ISO interties. The Market Surveillance Committee's formal written opinion is included as Attachment A.

CONCLUSION

Management requests the ISO Board of Governors and the EIM Governing Body approve Management's resource sufficiency evaluation enhancements described in this memorandum. These enhancements will more accurately assess whether each balancing authority area's bid or scheduled supply is sufficient to meet its demand and they will more appropriately allocate resource sufficiency evaluation penalty revenues.