



Intertie Deviation Settlement

Addendum to Draft Final Proposal

January 7, 2018

Introduction

The CAISO held a stakeholder call on December 19, 2018 to discuss the draft final proposal for the Intertie Deviation Settlement (IDS) initiative. Material pertaining to the initiative and stakeholder meetings can be found at:

<http://www.aiso.com/informed/Pages/StakeholderProcesses/IntertieDeviationSettlement.aspx>.

During the call, stakeholders requested additional information to understand the correlation and potential benefits between the intertie deviation settlement initiative and then EIM resource sufficiency evaluation. The ISO agreed to look into this further and is posting the addendum as a result.

As a preface to this addendum, the ISO reminds stakeholders that the objective of the intertie deviation settlement initiative was to incentivize delivery of intertie resources in the CAISO balancing authority area. While its proposal will result in more accurate inputs to the resource sufficiency evaluation (as described below), stakeholders should view these improvements as a tangential benefit as opposed to the primary objective of the proposal.

IDS and the Resource Sufficiency Evaluation

The IDS proposal introduces market changes that will incentive the delivery of awarded energy on the interties. One of these changes requires hourly block intertie resources to submit an E-Tag with a transmission profile in order to receive a schedule in the fifteen minute market (FMM). Therefore, if an hourly block resource does *not* submit an E-Tag transmission profile by T-40, the intertie resource will receive a schedule of 0 MW for the operating hour until a tag is submitted prior to a future FMM run.

The resource sufficiency evaluation consists of four tests (balancing test, capacity test, feasibility test, and flexible ramping sufficiency test), conducted prior to the start of each hour, to ensure EIM entities can independently balance their schedules without leaning on the EIM. The following describes how the IDS proposal will interact with the flexible ramping sufficiency test and the capacity test. The balancing test and the feasibility test are not discussed because they are not impacted by the intertie deviation settlement proposal.

Flexible Ramping Sufficiency Test

The flexible ramping sufficiency test compares the ramping capability of the EIM entity's resources (participating resources, non-participating resources, and intertie resources) to a flexibility requirement. This requirement ensures adequate ramping is available to meet schedule changes that may occur throughout the hour. If the EIM entity's resources do not have adequate ramping capability, the EIM transfers are frozen. Because this test includes intertie schedules, it is important to ensure that intertie schedules that are counted towards the flexible ramping requirement are supported by E-Tags resulting in the delivery of energy.

The final resource sufficiency evaluation occurs at T-40. Stakeholders have previously complained that this timeline does not correlate with the existing timeline for ISO intertie schedules. Based on the existing market structure, it is possible for ISO hourly block intertie resources to be scheduled in the hour ahead scheduling process (HASP) with the assumption of being available; this results in an FMM schedule even if the scheduling coordinator has not yet submitted an E-Tag and/or does not deliver the scheduled energy. Stakeholders have identified that this would result in the ISO counting intertie schedules towards meeting the flexible ramping requirement even though the intertie energy may not materialize.

The intertie deviation settlement proposal will now ensure the market only awards hourly block intertie resources in the FMM if a transmission profile exists by T-40. Therefore, the FMM will no longer assume delivery nor count this supply towards the flexible ramping requirement if an E-Tag transmission profile does not exist. This eliminates the current concern of the ISO counting hourly block intertie resources towards meeting the flexible ramping requirement when the hourly block intertie resource may not materialize. Additionally, the use of the transmission profile at T-40 for hourly block resources creates alignment with the existing rule of needing a transmission profile at T-40 for fifteen-minute dispatchable resources. The CAISO can now ensure that intertie schedules used in the flexible ramping test do have an E-Tag submitted.

The final resources sufficiency test is performed during the RTPD5 run. In order for the flexible ramping test to avoid counting energy that may not materialize, the advisory schedule used in the EIM will equal the transmission profile at T-40 for the entire hour.

*Market logic used to determine **advisory schedules** for hourly block intertie resources.*

FMM Binding Interval of Operating Hour	Time of Operating Hour	RTPD #	Logic Used to Determine Binding Award
1	00 – 15	5	E-Tag transmission profile at T-40
2	15 – 30	4	E-Tag transmission profile at T-40
3	30 – 45	7	E-Tag transmission profile at T-40
4	45 – 00	6	E-Tag transmission profile at T-40

As indicated in the policy proposal, the final binding schedule will be determined based on the following logic.

*Market logic used to determine **binding schedules** for hourly block intertie resources.*

FMM Binding Interval of Operating Hour	Time of Operating Hour	RTPD #	Logic Used to Determine Binding Schedule
1	00 – 15	5	MIN(HASP schedule, ADS accepted value, E-Tag transmission profile)
2	15 – 30	4	MIN(HASP schedule, ADS accepted value, E-Tag transmission profile)
3	30 – 45	7	E-Tag energy profile
4	45 – 00	6	E-Tag energy profile

The correlation between the market and E-Tag information is shown below. **Scenario 1** includes an hourly block resource with a HASP schedule of 100 MW, but the HASP schedule is not supported by an E-Tag. In this scenario, the advisory and binding awards are 0 MW for all four intervals of the operating hour. **Scenario 2** includes an hourly block resource with a HASP schedule of 100 MW, but the HASP schedule is not supported by an E-Tag until T-20. In this scenario, the advisory and binding awards are 0 MW until the FMM recognizes the E-Tag. Once the FMM recognizes the E-Tag, it creates a binding schedule equal to the E-Tag energy profile. The FMM runs approximately 37.5 minutes before every interval.

SCENARIO 1: Determination of advisory and binding schedules for hourly block resources if no E-Tag transmission profile is submitted.

Interval of Operating Hour	1	2	3	4
HASP schedule	100 MW	100 MW	100 MW	100 MW
T-40 E-Tag Transmission Profile = 0 MW	0 MW Binding	0 MW Advisory	0 MW Advisory	0 MW Advisory
T-22.5 E-Tag Transmission Profile = 0 MW	X	0 MW Binding	0 MW Advisory	0 MW Advisory
T-7.5 E-Tag Transmission & Energy Profile = 0 MW	X	X	0 MW Binding	0 MW Advisory
T+7.5 E-Tag Transmission & Energy Profile = 0 MW	X	X	X	0 MW Binding

SCENARIO 2: Determination of advisory and binding schedules for hourly block resources if an E-Tag is submitted at T-20.

Interval of Operating Hour	1	2	3	4
HASP schedule	100 MW	100 MW	100 MW	100 MW
T-40 E-Tag Transmission Profile = 0 MW	0 MW Binding	0 MW Advisory	0 MW Advisory	0 MW Advisory
T-22.5 E-Tag Transmission Profile = 0 MW	X	0 MW Binding	0 MW Advisory	0 MW Advisory
T-7.5 E-Tag Transmission & Energy Profile = 100 MW	X	X	100 MW Binding	0 MW Advisory
T+7.5 E-Tag Transmission & Energy Profile = 100 MW	X	X	X	100 MW Binding

In scenario 2, the E-Tag was submitted after the first two FMM runs of the operating hour. The advisory schedule is 0 MW because the ISO has no assurance the E-Tag would be submitted prior to the NAESB E-Tagging deadline of T-20. It is there appropriate to use an advisory schedule of 0 MW so the supply is not included the flexible ramping test. If the E-Tag is ultimately submitted at the NAESB deadline, the FMM market will recognize the energy profile and appropriately award the binding schedule of 100 MW for the last two intervals of the hour. As is done today, this logic will respect transmission constraints to avoid over-scheduling of intertie resources.

Capacity Test

The capacity test compares aggregate incremental/decremental energy bid range from EIM participating resources to the EIM entity's imbalance between base schedules and demand forecast. If the EIM entity has sufficiency capacity to meet the imbalance, the entity passes. If the EIM entity does not have sufficiency capacity, the EIM entity fails the capacity test and EIM transfers are limited. Failure of the capacity test will automatically result as a failure to the flexible ramping test.

The capacity test must account for potential undelivered intertie energy that may increase the capacity needs for the EIM entity. To accomplish this, a histogram of historical hourly intertie deviations are calculated and added to the capacity requirement. This ensures that even if a particular EIM entity has historically high levels of undelivered intertie energy, they are still able to meet the imbalance between base schedules and the demand forecast. For EIM entities, the histogram compares base schedules submitted at T-40 to final E-Tags submitted at T-20. Since the CAISO does not submit base schedules, the CAISO histogram compares the HASP schedule of hourly block intertie resources to the E-Tag at T-20. Therefore, if an intertie resource does not have an E-Tag submitted to support its HASP schedule at T-20, it will not only be excluded from counting towards the flexible ramping test (as explained above), it will also be used in histogram and will increase the capacity test requirement. There is no change being proposed to the calculation of historical intertie declines.

In addition, since hourly block resources will not receive an FMM schedule when the capacity test is performed during the RTPD5 run, only supply from intertie resources that have submitted a transmission profile by T-40 will count towards passing the capacity test. Just as with the flexible ramping test, the IDS proposal also improves the capacity test by not assuming intertie supply will be delivered if an E-Tag is not submitted with a supporting transmission profile.