



California ISO

Transmission Induced Generator Outages:

White Paper

December 7, 2018

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1. Executive Summary

Pursuant to section 40.9.3.4(d) of the tariff, generator outages caused by *forced* transmission outages are considered exempt from the Resource Adequacy Availability Incentive Mechanism (RAAIM). The CAISO does not apply the same exemption for transmission-induced generation outages caused by *planned* transmission outages. The Board-approved policy adopting RAAIM was that “resource outages will be excluded from the availability incentive process if an outage is beyond the resource’s control.”¹ The CAISO now acknowledges that this transmission-induced generation outages caused by planned and CAISO-approved transmission outages should also be considered RAAIM exempt. As a result, the CAISO intends to file a tariff amendment at FERC to clarify that the RAAIM exemption applies whether the transmission outage is planned or forced; either way the generation outage is outside the generator’s control.

2. Stakeholder Engagement Plan

Date	Milestone
Dec 7	White paper
Dec 12	Stakeholder call
Dec 21	Comments due on white paper
Late Dec/Early Jan	File tariff amendment at FERC

3. Problem Statement

Transmission outages can disconnect generation from the CAISO controlled grid in circumstances where a generating unit has a single connection to the CAISO grid. The CAISO typically submits a transmission-induced outage card for the generator in such cases. In this scenario there are thus two separate outages—a transmission outage and a generation outage. Pursuant to section 40.9.3.4(d) of the tariff and accompanying provisions in the Outage Management BPM, generator outages caused by forced transmission outages are exempt from RAAIM. The CAISO tariff does not permit the same RAAIM exemption for transmission-induced generation outages caused by planned transmission outages.

The normal practice for assessing these outages includes:

1. Assessment of the transmission system security (based on the transmission topology);
2. Assessment of the CAISO BA resource adequacy.

¹ Reliability Services Initiative, Draft Final Proposal Addendum, Feb. 27, 2015, p. 46. Available at,

If there is no issue in the transmission system but there would be a RA shortage if the generator were on outage, then the Customer Interface for Resource Adequacy (CIRA) application notifies the Scheduling Coordinator (SC) that it must provide RA substitution. The CAISO then has two options in the event that substitute RA capacity is not provided. First, if the RA resource does not provide substitute capacity, the CAISO could let the planned transmission outage proceed, in which case the generator would also be on outage and would get potential RAIM charges. Alternatively, if the generator fails to provide substitute capacity by the seven-day substitution deadline, the CAISO could disapprove the planned transmission outages.

Review and disapproval of outages due to RA shortage is a manual process and is not transparent between PTO and SC. These late transmission outage disapprovals cause significant impacts to the PTOs and SCs:

- PTOs are concerned about their ability to schedule transmission outages with certainty and have expressed concern about potentially not being able to complete what they view as critical maintenance work;
- Disapprovals with 7 days prior-notice may impact efficient allocation of crews and resources required to perform maintenance work;²
- PTOs have no visibility into CIRA to view if transmission outages could cause a shortage of RA and lack of generation resource being substituted that could result in cancellation of transmission outage.

The Scheduling Coordinators of the RA resources potentially impacted by the planned transmission outages typically have not provided substitute capacity because they have no incentive to do so. This is particularly true if they can anticipate that the CAISO ultimately will disapprove the transmission outage.

4. Proposed Resolution

The current tariff only recognizes generator outages caused by forced transmission outages as exempt. The CAISO recognizes that this situation can create negative outcomes not just for PTOs and LSEs, but also for the CAISO. In reviewing the status quo, the CAISO concluded that it can be addressed under existing policies. Specifically, the Board-approved policy adopting RAIM was that "resource outages will be excluded from the availability incentive process if an outage is beyond the resource's control."³ The CAISO acknowledges that transmission-induced generation outages caused by planned and CAISO-approved transmission outages should also be considered RAIM exempt. As a result, the CAISO will file a tariff amendment at FERC to clarify that transmission induced generator outages for planned and CAISO approved transmission outages will be RAIM-exempt outages.

² The 7-day notice period is tied to the period of time allowing SC to find RA substitution.

³ Reliability Services Initiative, Draft Final Proposal Addendum, Feb. 27, 2015, p. 46. Available at,

Specifically, the CAISO proposes to make the following modification to section 40.9.3.4(d) of its tariff (changes highlighted in red):

Exclusions from RAIM for certain Outage types. The RAIM Availability Assessment excludes the capacity, duration, and must-offer requirement for local and/or system Resource Adequacy Capacity or Flexible RA Capacity on a Forced Outage in a nature of work category relating to an administrative action by the resource owner, a cause outside of the control of the resource owner, or a short-term use limitation, as those categories are specified in the Business Practice Manual. **The RAIM Availability Assessment also excludes the capacity, duration, and must-offer requirement for local and/or system Resource Adequacy Capacity on a Maintenance Outage caused by a Transmission outage.**

This modification means that resources that go on outage because of any type of transmission outage will not be subject to RAIM charges. Finally, the CAISO is conducting a holistic review of RAIM and outage/substitution needs in the RA Enhancements stakeholder initiative. Any additional longer-term changes needed on this matter will be addressed as part of that process.

5. Next Steps

The CAISO will discuss this issue paper with stakeholders during a stakeholder meeting on December 12, 2018. Stakeholders are asked to submit written comments by December 21, 2018 to initiativecomments@caiso.com.