

9.3.6 Maintenance Outage Planning

The changes below will be effective July 1, 2018 so that CAISO can incorporate the outages in the CRR processes for 2019]

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9.3.6.1 CRR Transmission Maintenance Outage Plan

By July 1 of each year, each Operator or Scheduling Coordinator shall provide the CAISO with a CRR Transmission Maintenance Outages plan that includes the proposed schedule of CRR Transmission Maintenance Outages it plans to take in the following year. The plan shall pertain to the Operator's transmission facilities that comprise the CAISO Controlled Grid. The Participating TOs shall develop the plan in consultation with the UDCs interconnected with that Participating TO's system and the plan shall account for each UDC's planned maintenance requirements. The plan shall include the following information for each transmission facility:

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- (a) the identification of the facility and location;
- (b) the nature of the proposed Maintenance Outage;
- (c) the preferred start and finish date for each Maintenance Outage; and
- (d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

Either the CAISO, pursuant to Section 9.3.7, or an Operator or Scheduling Coordinator, subject to Section 9.3.6.11, may at any time request a change to an Approved Maintenance Outage. An Operator or Scheduling Coordinator may, as provided in Section 9.3.6.3, schedule with the CAISO a Maintenance Outage on its system, subject to the conditions of Sections 9.3.6.4.1, 9.3.6.8, and 9.3.6.9.

9.3.6.2 Proposed Schedule of Maintenance Outages

By October 15 of each year, ~~Each each~~ Operator or Scheduling Coordinator shall, ~~by not later than October 15 each year,~~ provide the CAISO with a proposed schedule of all **known** Maintenance Outages it wishes to undertake in the following ~~year~~ **at the time of submission**. The proposed schedule shall include all **known planned outages** of the Operator's transmission facilities that comprise the CAISO Controlled Grid and Generating Units subject to a Participating Generator Agreement, Net Scheduled PGA, or Pseudo-Tie Participating Generator Agreement (including its Reliability Must-Run Units). In the case of a

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While CAISO may argue this is existing language, and thus does not need to change, this language does not clearly comport with existing practice. Currently, only known outages planned far enough in advance (such as Long Range planned outages) are communicated through the October 15th Proposed Schedule of Maintenance Outages.

This language could be interpreted as CAISO requiring that all outages the UDC wishes to take the following year must be included in the proposed schedule to take those outages, and that if an UDC doesn't provide this information, it is not following the tariff. This is not a reasonable requirement.

Participating TO's transmission facilities, that proposed schedule shall be developed in consultation with the UDCs interconnected with that Participating TO's system and shall take account of each UDC's planned maintenance requirements. The nature of the information to be provided and the detailed Maintenance Outage planning procedure shall be established by the CAISO. This information shall include:

The following information is required for each Generating Unit of a Participating Generator:

- (a) the Generating Unit name and Location Code;
- (b) the MW capacity unavailable;
- (c) the scheduled start and finish date for each Outage; and
- (d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

The following information is required for each transmission facility:

- (a) the identification of the facility and location;
- (b) the nature of the proposed Maintenance Outage;
- (c) the preferred start and finish date for each Maintenance Outage; and
- (d) where there is a possibility of flexibility, the earliest start date and the latest finish date, along with the actual duration of the Outage once it commences.

Either the CAISO, pursuant to Section 9.3.7, or an Operator or Scheduling Coordinator, subject to Section 9.3.6.11, may at any time request a change to an Approved Maintenance Outage. An Operator or Scheduling Coordinator may, as provided in Section 9.3.6.3, schedule with the CAISO a Maintenance Outage on its system, subject to the conditions of Sections 9.3.6.4.1, 9.3.6.8, and 9.3.6.9.

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9.3.6.3.2 Transmission Maintenance Outages

[The changes below will be effective July 1, 2018. This is just a clarification of existing authority]

An Operator or Scheduling Coordinator shall submit a request for a Maintenance Outage or a request to change an Approved Maintenance Outage for transmission facilities on its system in advance of the start date for the Outage, as follows:

1. An Operator or Scheduling Coordinator ~~shall~~may, upon thirty (30) days notice in advance of the first day of the month the Outage is proposed to be scheduled (or within the notice period in the Operating Procedures posted on the CAISO Website), schedule with the CAISO a CRR Transmission Maintenance Outage for transmission facilities on its system, subject to the conditions of Sections 9.3.6.4.1, 9.3.6.8, 9.3.6.9, and 36.4.3.
2. An Operator or Scheduling Coordinator shall submit a request for a Planned Transmission Maintenance Outage or a request to change an Approved Maintenance Outage to the CAISO no less than eight days prior to the start date for the Outage, subject to the provisions of Sections 9.3.6.3.2, 9.3.6.4.1, 9.3.6.8, and 9.3.6.9. The CAISO timeline for submitting the required advance notice is calculated excluding the day the request is submitted and the day the Outage is scheduled to commence. Submission of a request for a Planned Transmission Maintenance Outage or a request to change an Approved Maintenance Outage no less than eight days prior to the start of the Outage does not guarantee that the Reliability Coordinator will complete any separate Outage approval process it may conduct in time for the Outage to commence on the requested date. Additional detail on the relationship between the CAISO Outage approval timeline and the Reliability Coordinator approval timeline is available in the Business Practice Manuals. This requirement does not preclude submission of a request for a forced outage under Section 9.3.10.3 where immediate corrective action is needed because equipment has failed in service, is in danger of imminent failure, or is urgently needed to protect personnel.
3. If an Operator or Scheduling Coordinator submits a request for a Planned Transmission Maintenance Outage or a request to change an Approved Maintenance Outage seven days or less prior to the start date for the Outage, the CAISO may, at its discretion, reject the request as untimely, or approve the request as an Unplanned Transmission

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The choice to use the word "may" rather than "shall" was intentional to recognize that not all maintenance outage information is known, even 30-60 days prior to the start of the outage. This can be due to weather, permitting issues, other forced outages, etc. which can impact planned work.

It is possible to interpret this language to mean that if the outage is not provided 30 days in advance of the month, only forced outages could be taken on equipment that could impact the CRR model. This indicates that the CAISO is discouraging planning preventative outages less than 30 days before the month. That is, instead of submitting outages less than 30 days, it seems that this language is encouraging UDCs to wait until forced outage conditions occur if the work cannot be planned 30 days in advance. Please confirm this change in CAISO transmission outage policy.

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Maintenance Outage provided that the CAISO has adequate time to analyze the request before the Outage begins and the analysis determines that: (i) the Outage is necessary for reliability; (ii) system conditions and the overall Outage schedule provide an opportunity to take the facilities out of service without a detrimental effect on the efficient use and reliable operation of the CAISO Controlled Grid and without disrupting efficient market operations; and (iii) the Outage has not already commenced as a Forced Outage. The CAISO will consider Unplanned Transmission Maintenance Outages in the order the requests are received.

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36.4 FNM for CRR Allocation and CRR Auction

[The changes below will be effective July 1, 2018 so that CAISO can incorporate the outages in the CRR processes for 2019; most changes are clarifications and clean ups]

The CAISO shall prepare the CRR FNM that it will use in the CRR Allocation and CRR Auction consistent with the following requirements.

36.4.1 Adjustments to the FNM in Preparing the CRR FNM

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When the CAISO conducts its CRR Allocation and CRR Auction, the CAISO shall use the most up-to-date DC FNM, which is based on the AC FNM used in the Day-Ahead Market.

36.4.1.1 Seasonal Available CRR Capacity

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The CAISO shall base tThe Seasonal Available CRR Capacity ~~shall be based~~ on the DC FNM, taking into consideration the following, all of which are discussed in the applicable Business Practice Manual:

- (i) any long-term scheduled transmission Outages, including planned outages submitted pursuant to Section 9.3.6:
- (ii) TTC adjusted for any long-term scheduled derates;
- (iii) a downward adjustment due to TOR or ETC as determined by the CAISO; and
- (iv) the impact on transmission elements used in the annual CRR Allocation and Auction of:

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(a) ~~_____~~ transmission Outages or derates that are not scheduled at the time the CAISO conducts the Seasonal CRR Allocation or Auction determined through a methodology that calculates the breakeven point for revenue adequacy based on ~~historical~~ Outages and derates~~;~~ and

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(b) ~~_____~~ known system topology changes, both as further defined in the Business Practice Manuals.

36.4.1. Monthly Available CRR Capacity

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~~The CAISO shall base t~~The Monthly Available CRR Capacity ~~shall be based~~ on the DC FNM, taking into consideration:

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(i) ~~(i)~~ any scheduled transmission Outages known at least thirty (30) days in advance of the start of that month as submitted for approval consistent with the criteria specified in ~~Section 36.4.3;~~

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(ii) ~~(ii)~~ adjustments to compensate for the expected impact of Outages that are not required to be scheduled thirty (30) days in advance, including unplanned transmission Outages;

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(iii) ~~(iii)~~ adjustments to restore Outages or derates that were applied for use in calculating Seasonal Available CRR Capacity but are not applicable for the current month;

(iv) ~~(iv)~~ any new transmission facilities added to the CAISO Controlled Grid that were not part of the DC FNM used to determine the prior Seasonal Available CRR Capacity and that have already been placed in-service and energized at the time the CAISO starts the applicable monthly process;

(v) ~~(v)~~ TTC adjusted for any scheduled derates or Outages for that month;

(vi) ~~(vi)~~ a downward adjustment due to TOR or ETC as determined by the CAISO;

(vii) ~~(vii)~~ adjustments for possible unscheduled flow at the Interties, and

(viii) ~~(viii)~~ any adjustments necessary to account for possible adjustments to Transmission Constraints pursuant to Section 27.5.6 (f).

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~~For the first monthly CRR Allocation and CRR Auction for CRR Year One, to account for any planned or unplanned Outages that may occur for the first month of CRR Year One,~~

~~the CAISO will derate all flow limits, including Transmission Interface limits and normal thermal limits, based on statistical factors determined as provided in the Business Practice Manuals.~~

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36.4.3 Outages that may Affect CRR Revenue; Scheduling Requirements

36.4.3.1 Submission Timelines

~~Pursuant to As provided in Section 9.3.6.3.2, an Operator or Scheduling Coordinator shall submit CRR Transmission Maintenance Outages Outages that may have a significant effect upon CRR revenue adequacy must be submitted to the CAISO for approval no less than thirty (30) days in advance of the first day of the month in which the Operator or Scheduling Coordinator proposes to begin the Outage is proposed to begin. Pursuant to Section 9.3.6.1, Operators or Scheduling Coordinators shall also provide their CRR Transmission Maintenance Outages plan by July 1 of each year, for outages it plans to take in the following year.~~

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36.4.3.2 CRR Transmission Maintenance Outage

~~CRR Transmission Maintenance Outages are those Outages that may have a significant effect upon CRR revenue adequacy, which are defined as in terms of the type of facility and the planned duration of the Outage. Outages of the types of transmission facilities described below that extend beyond a twenty-four (24) hour period must be submitted for CAISO approval consistent with this 30-day advance submittal requirement. The types of outages that affect transmission facilities on the CAISO Controlled Grid to which this 30-day advance submittal and approval requirement applies consist of transmission facilities that:~~

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- (a) are rated above 200 kV; or
- (b) are part of any defined flow limit as described in a CAISO Operating Procedure; or
- (c) were out of service in the last three (3) years and for which the CAISO determined a special flow limit was needed for real-time operation.

CRR Transmission Maintenance Outages consist only of outages that: (1) meet the criteria specified above; (2) involve system configuration changes that affect power flow in the CRR DC FNM; and (3) extend beyond a twenty-four (24) hour period.

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~~A list of the transmission facilities that satisfy criteria (b) and (c) above is provided in the Operating Procedures. The list will be initially created in collaboration with the respective Participating TOs and will be reviewed by the CAISO in collaboration with the Participating TOs on an annual basis and revised as appropriate; provided, however, that the CAISO will ultimately determine the lines that are included in the list. The list will be reviewed by the CAISO on an annual basis and revised as appropriate.~~ The following types of Outages need not be submitted for approval within this thirty-day time frame and will not be designated as Forced Outages if they otherwise comply with the requirements in Section 9.3.6: (1) Outages previously approved by CAISO that are moved within the same calendar month either by the CAISO or by request of the Participating TO; and (2) Outages associated with CAISO-approved allowable transmission maintenance activities during restricted maintenance operations as covered in CAISO Operating Procedures.

36.4.3.3 Operating Procedures

A list of the transmission facilities that satisfy criteria (b) and (c) in Section 36.4.3.32 is provided in the Operating Procedures. The CAISO will review the list annually in collaboration with the Participating TOs or will revise the list as appropriate; provided, however, that the CAISO will ultimately determine the lines that are included in the list.

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36.13 CRR Auction

The CAISO shall conduct CRR Auctions on an annual and monthly basis subsequent to each annual and monthly CRR Allocation process. Candidate CRR Holders may bid to purchase and may acquire CRR Obligations, and may sell CRRs, through the CAISO's annual and monthly CRR Auctions in accordance

with the provisions of this Section 36.13. ~~The CAISO shall settle~~ CRR Auction results ~~shall be settled~~ as provided in Section 11.2.4.3.

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36.13.4 Bids in the CRR Auctions

The changes below will be effective September 1, 2018 to apply to the annual and monthly CRR auctions that take place in 2018 but that apply in 2019.

Market Participants will submit Bids to purchase CRRs ~~shall be submitted~~ in accordance with the requirements set out in this Section 36.13.4 and as further specified in the applicable Business Practice Manuals. Once submitted to the CAISO, CRR bids may not be cancelled or rescinded by the Market Participant after the CRR Auction is closed. Market Participants may bid ~~to buy for~~ Point-to-Point CRRs ~~and bid to sell. Point-to-Point CRRs that they previously acquired through preceding CRR Allocation or CRR Auction processes.~~ Each bid ~~to buy or sell for~~ a Point-to-Point CRR shall specify:

- (a) The associated month or season and time of use period;
- (b) The associated CRR Source and CRR Sink;
- (c) A monotonically non-increasing piecewise linear bid curve in quantities (denominated in thousandths of a MW) and prices (\$/MW).

Bid prices in all CRR bids may be negative. ~~Sales of CRRs in the CRR Auctions are accomplished through the submission of a CRR bid to procure a counterflow CRR of the CRR to be liquidated. If such bids for sale of CRRs are cleared through the CRR Auction, the entitlements rights of the CRR Holder that sold the CRR in this manner are effectively liquidated.~~

36.13.5 Eligible Sources and Sinks for CRR Auction

Allowable CRR Sources for CRRs acquired ~~/sold~~ in the CRR Auction will be ~~generator PNodes/APNodes, Scheduling Points, and Trading Hubs, LAPS, MSS-LAPS and Sub-LAPS.~~ Allowable CRR Sinks for CRRs acquired ~~/sold~~ in the CRR Auction will be ~~PNodes, Scheduling Points, Trading Hubs, LAPS, MSS-LAPS and Sub-LAPS.~~ Eligible Market Participants may only submit CRR bids that have the following CRR Source and Sink combinations: (1) from a generator Pnode/APNode to a LAP, MSS LAP, Sub-LAP, a

Trading Hub, or a Scheduling Point; or (2) from a Trading Hub to a LAP, MSS LAP, Sub-LAP, or a Scheduling Point; or (3) from Scheduling Point to a LAP, MSS LAP, Sub-LAP, or Trading Hub.

36.13.6 Clearing of the CRR Auction

The SFT used to clear the CRR Auction will utilize the same DC FNM and optimization algorithm as the corresponding CRR Allocation, except that nominations to the CRR Auction will have associated price-quantity bid curves. The CRR Auction SFT will use the bid prices in determining which CRRs to award when not all nominations are simultaneously feasible, will select the set of simultaneously feasible CRRs with the highest total auction value as determined by the CRR bids, and will calculate nodal prices at each PNode of the DC FNM. In the event that there are two (2) or more identical bids for a specific combination of CRR Source and CRR Sink that affect an overloaded constraint, the CRR Auction optimization cannot distinguish these bids based on either effectiveness or price and therefore the CRR Auction optimization will award each CRR bidder a pro rata share of the CRRs that can be awarded based on the bid MW amounts. Based on the nodal prices calculated by the CRR Auction SFT, the CRR Market Clearing Price per MW for a specific CRR in most cases will equal the nodal price at the CRR Source minus the nodal price at the CRR Sink. In certain anomalous cases as further described in the Business Practice Manuals, the CRR Market Clearing Price will be based on the CRR MWs cleared and the shadow price for each binding constraint at the specified location.

36.13.7 Announcement of CRR Auction Results

Within five (5) Business Days after the close of a CRR Auction, the CAISO shall post the results. The results shall include but are not limited to the MW quantity, the CRR Source and CRR Sink for each CRR awarded, the nodal prices calculated by the CRR Auction SFT, and the parties to whom the CRRs were awarded. The CAISO shall not disclose prices specified in any CRR bid.

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Appendix A

Master Definition Supplement

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- CRR Transmission Maintenance Outage

An Outage that may have a significant effect upon CRR revenue adequacy as defined in [Section 36.4.3](#).

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