

 California ISO	Reliability Coordinator Procedure	Procedure No.	RC0620
		Version No.	1.0
		Effective Date	7/01/2018
Operations Planning Analysis (Next Day)		Distribution Restriction: None	

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Summary of Document

This document is a guideline for NERC Standard IRO-008-2 Operations Planning Analysis for the Reliability Coordinator. This document addresses a number of subjects related to CAISO RC Next Day (OPA) and coordination between CAISO RC as well as TOPs and BAs within its footprint.

1. Case Development
2. Review Time of Studies
3. Input Data for Case Building
 - BES Equipment Outages in scope for CAISO RC Outage Coordination
 - Communication of derates in scope for Outage Coordination
 - Load forecast
 - Scheduled generation dispatch
 - Scheduled Interchange
 - Remedial Action Scheme (RAS) in scope for CAISO RC SOL Methodology document
 - Credible Contingency List in scope for CAISO RC SOL Methodology document
 - Case Export/Sharing
4. Study Process and Coordination
5. OPA Result and Operating Plan Format

1. Case Development


This document describes two different study timelines being used for the CAISO RC: Pre-OPA and OPA. The CAISO RC is capable of producing these cases on a daily basis, including weekends and holidays.

1.1. Pre-OPA

The Pre-OPA timeline is defined as the D+2 and D+3 studies.

For example: on Monday, D+2 study results which reflect the expected system conditions on Wednesday, and the D+3 study results will reflect the expected system conditions on Thursday. The ISO RC will normally develop 24 hourly cases per day (i.e. one case for each of the 24 hours of the D+2 and D+3):

- Start from System Intact cases (which has default switch positions as TOPs and BAs provide through Full Network Model process and any topology changes through WebOMS).
- Apply outages from WebOMS within CAISO RC footprint in scope for Outage Coordination document.
- Apply neighboring RCs outages in accordance with RC to RC seam agreement and in scope for Outage Coordination document.
- Apply hourly load forecast of the day.

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- Apply hourly Interchange Schedule from WECC Interchange Tool (WIT).
- Adjust the generation accordingly per load forecast and WIT data.

1.2. OPA

The OPA timeframe is defined as the next day. For example: on Monday, the OPA study will analyze the expected system conditions on Tuesday. The ISO RC will normally develop 24 hourly cases (i.e. one case for each of the 24 hours of the next day) as follow:

- Start from System Intact case (which has default switch positions as TOPs and BAs provide through Full Network Model process or any topology changes through WebOMS).
- Apply outages from WebOMS within CAISO RC footprint in scope for Outage Coordination document.
- Apply neighboring RCs outages in accordance with RC to RC seam agreement and in scope for Outage Coordination document.
- Apply hourly load forecast of the day.
- Apply hourly Interchange Schedule from WIT.
- Adjust the generation accordingly per load forecast and WIT data.

If the following data is not available, the ISO RC will utilize the historic system performance data based on EMS State Estimator values. BAs/TOPs are highly encouraged to provide the data mentioned below to improve the CAISO RC base case quality and avoid invalid study results:

- Hourly load forecast,
- Hourly generation dispatch, and
- Hourly Interchange (WIT) data.

The ISO also performs Voltage Stability Analysis within the OPA timeframe for pre-defined areas of concern as it is defined and collaborated between the CAISO RC and impacted TOPs

2. Review Time of Studies

For the Pre-OPA timeframe, the cutoff time for the Pre-OPA window will be 5PM PPT of the day before of the study. All outages need to be in confirmed status, with exceptions for Opportunity, Urgent, Forced and Operational outages in accordance with Outage Coordination process requirements. CAISO RC will normally perform D+3 studies based on D+4 data after the cutoff time. CAISO RC will provide the Pre-OPA reviewed results between 0000-0800 PPT to TOPs. CAISO RC will notify and try to resolve any potential issues with affected TOPs.

For the OPA timeframe, the cutoff time for the OPA window will be 8AM PPT of the day of the study. All outages need to be in confirmed status, with exceptions for Opportunity, Urgent, Forced and Operational outages in accordance with Outage Coordination process requirements. CAISO RC will normally provide raw results by 2PM PPT for the next day. An additional set of analyzed results will normally be provided by 4PM PPT of the same day. It is anticipated that unless a forced outage or unexpected load or generation pattern occurs, any issues will be resolved prior to the OPA timeframe.

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3. Input Data for Case Building

The following data are required for Pre-OPA and OPA studies. They are described in greater detail in the IRO-010 Data Exchange requirement.

(Note: For the study input data, the CAISO RC will specify the frequency of the data submission [e.g. daily, weekly, etc.] the amount of data that can be submitted [multiple days at a time], and a cutoff time for submission [e.g. 8AM PPT of the current day to meet the OPA cutoff]).

3.1. BES Equipment Outages and Non-BES Equipment Outages that impact BES

All scheduled relevant outages in the CAISO RC area and neighboring RC area will be modeled in accordance with the Outage Coordination process and RC-to-RC seam agreement.

3.2. Communication of Derates

Communication of derates on generation, transmission equipment or TTC is in accordance with Outage Coordination process document.

3.3. Load Forecast

CAISO RC will use the hourly load forecast for the next four calendar days provided by BAs, or alternatively, the historic system performance data based on EMS State Estimator values, if the BA provides no input data. Per BA/TOP's request, CAISO RC will consider defining new sub-areas to improve the scaling load and OPA study results. However, this process will need to be reviewed by the CAISO RC and TOP modeling groups, to align with network model submission process requirements.

(FNM BPM:

https://bpmcm.caiso.com/BPM%20Document%20Library/Managing%20Full%20Network%20Model/Managing%20Full%20Network%20Model%20BPM%20Version%209_redline.pdf)

3.4. Scheduled Interchange

CAISO RC will use the hourly Interchange forecast for the next four calendar days from WIT, together with hourly load forecast provided by BAs. Alternatively, CAISO RC will use the historic system performance data based on EMS State Estimator values if the BA provides no input data for base case building.

3.5. Scheduled Generation Dispatch

CAISO RC will utilize hourly generation forecast for next four calendar days provided by BAs. Alternatively, CAISO RC will use the historic system performance data based on EMS State Estimator values if the BA provides no input data. BAs and TOPs should also identify critical units (limited or must-run units) for CAISO RC Pre-OPA and OPA studies.

3.6. Credible Contingencies and Protection Schemes

CAISO will model credible Contingencies, RAS and special protection schemes provided by the TOPs in scope for SOL Methodology document.

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4. Study Process and Coordination

4.1. Pre-OPA

- The CAISO RC's Pre-OPA study includes a three calendar day-ahead D+3 study and two calendar day-ahead D+2 study for each hour. Each calendar day, CAISO RC performs D+3 and D+2. The starting base case for building Pre-OPA case is all lines in service with a seasonally normal open and close status of RC's node breaker model provided by BAs/TOPs.
- Normally, 24 hourly cases that are consistent with best available information described in Section 3 are studied for Pre-OPA. TOP/BAs can optionally submit more granular load and generation forecast data for D+3 and D+2 Pre-OPA to increase the accuracy of the RC's pre-OPA process.
- The CAISO RC case creation process cutoff time for the Pre-OPA study window will be 5PM PPT on the day before the study is performed.
- CAISO RC will provide the D+3 and D+2 results and studied cases between 0000-0800 PPT for BAs'/TOPs' review.

4.2. OPA


- The CAISO RC performs a one calendar day-ahead D+1 study by creating a case for each hour. Each calendar day, the ISO RC performs D+1 studies. The Outage Coordination Process requires the D+1 study to include any expected system condition, including outages of any outage type, that were not previously confirmed as part of the Short-Range study window process.
- The CAISO RC OPA case creation process cutoff time for outages to be considered for the OPA study window will be 8 AM PPT on the day of study (D+1). Studied cases and raw OPA results, will typically be available for TOP/BA's review by 2 PM PPT. It will take additional time for the ISO RC to process the raw OPA results. The processed OPA results will generally be available around 4 PM PPT.

4.3. RC's Pre-OPA & OPA Case Development and Review Results

The base cases will be developed based on the most recent available input data information according to the study timelines:

- Transmission and generation outages,
- Generation, transmission and TTC derates,
- Load and generation forecasts submitted by BAs/TOPs,
- Scheduled Interchange in WIT,
- Credible Contingencies and associated RAS/SPS, and
- Transmission special setups (seasonal or condition-based).

Generation will be set to the load forecast data and utilize the official Interchange data from WIT to model the generation; or, generation will be set to the generation forecast and adjusted, based on the data set by load forecast plus the official Interchange data from the WIT.

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Pre-OPA and OPA base case development are basically the same in terms of input data.

The base case and report creation is highly automated for efficiency, but the CAISO RC OE will validate the results and produce the final report with comments or mitigation plans, either available in the outage card in WebOMS or developed during the review and coordination process with BAs/TOPs.

4.4. ISO RC Coordination with TOP/BAs Based on Pre-OPA or OPA Results

- If a SOL/IROL exceedance is identified per SOL Methodology for a particular outage, the RC will change the outage state to “Conflicts Identified”.
- During the course of the CAISO RC Pre-OPA process, if the RC encounters any new SOL/IROL exceedance, the RC will proactively notify impacted TOP/BAs by email for Monday-Thursday. However, CAISO will notify BAs/TOPs by email and phone for Friday-Sunday.
- During the course of the CAISO RC OPA process, if the RC encounters any new SOL/IROL exceedance per CAISO SOL methodology, the RC will proactively notify impacted TOP/BAs by emails and phone calls. CAISO will also initiate conference calls if multiple entities need to be involved to resolve the issue.
- TOP/BAs should resolve SOL/IROL exceedance communicated from RC as soon as practical to ensure the outages are not denied by RC.
- If TOP/BAs don’t resolve the “Conflicts Identified” outages, WebOMS will automatically change those outages to “Denied” in accordance with Outage Coordination process.
- Pre-OPA and OPA outage conflict resolution process shall be consistent with the conflict resolution process identified under the Outage Coordination process.
- TOP and RC will coordinate different OPA results to identify different study assumptions.

Note: CAISO RC will use one email address/exploder per entity for email notification and CAISO will use individual contact numbers provided by entities through the Outage Coordination process.

5. OPA Result and Operating Plan Format

The CAISO RC will provide the Pre-OPA and OPA cases in PSSE RAW format. The cases will be posted to the CAISO RC website after results have been verified. The CAISO RC will also provide their OPA results and Operating Plan in Excel spreadsheet format, or a different format similar to Excel format.

TOPs may determine the format for providing their OPA results and Operating Plan that is appropriate and best fits the individualized study needs of their system. However, TOPs should have clear and complete information in their Operating Plan for any outage causing an issue/constraint, along with an associated mitigation plan for RC and neighboring impacted entities for efficient coordination. If the TOPs are using the standard Operating Procedure or Seasonal Study Report as an Operating plan, they should specify which section/page of the document should be utilized for that particular outage and related constraint.

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6. Posting of OPA Results and Next Day Operating Plans

The CAISO RC will provide a website where the CAISO RC and the TOPs can share their OPA results, Operating Plans, and study cases. Additionally, the site will include the ability for users to upload or download multiple files at once. When a user uploads OPA results and Next Day Operating Plans, the following examples of information will be required from the entity:

- Name of the file,
- Contact information,
- Study duration,
- External entity impact indication, and
- Operating Plan indication (if applicable for OPA results).

As a best practice, and in the best interest of all the members, the ISO RC expects all entities to do their due diligence, and to upload their OPA study results by 4PM PPT.

7. Stakeholder Process for Any Changes in OPA Process

The CAISO RC will initiate Stakeholder Process with BAs/TOPs for any changes in the OPA document or study process.

Operationally Affected Parties

Shared with Public.

Version History

Version	Change	Date
1.0	Approved by Steering Committee.	9/26/18

8. Periodic Review Procedure

Appendix

No references at this time.