
 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

## Table of Contents

Purpose.....	1
1. Responsibilities.....	1
2. Scope/Applicability.....	1
3. Procedure Detail.....	1
3.1. Agreements with Neighboring RCs.....	1
3.2. Outage Coordination.....	1
3.3. Voltage Control.....	2
3.4. Mitigating System Emergencies.....	2
3.4.1. Energy and Capacity Emergencies.....	3
3.4.2. IROL Exceedances that Impact Neighboring RCs.....	3
3.4.3. Other Transmission Emergencies.....	4
3.4.4. Frequency Excursions.....	4
3.5. Other Required Notifications.....	5
3.6. Plan Review and Distribution.....	5
4. Supporting Information.....	6
Operationally Affected Parties.....	6
References.....	6
Definitions.....	6
Version History.....	7
5. Periodic Review Procedure.....	7
Appendix.....	7
RC0330 List of RC-RC Ties (Restricted).....	7

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
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## Purpose

Provide guidelines for communicating and coordinating operations with neighboring Reliability Coordinators to ensure the reliability of the WECC Interconnection.

## 1. Responsibilities

- Reliability Coordinator (RC) Operator
- CAISO Procedures Control Group

## 2. Scope/Applicability

- Addresses RC Operator Communications with neighboring RCs. Complete RC Operator actions involving System Emergencies, Energy and Capacity Emergencies, and Transmission Emergencies are described in RC0410 - System Emergencies. Full mitigating actions for SOLs and IROLs are described in RC0310 - Mitigating SOL and IROL Exceedances. Full mitigating actions for frequency excursions are described in RC0210 - Monitoring Frequency and BA Performance.

## 3. Procedure Detail


### 3.1. Agreements with Neighboring RCs

The CAISO Reliability Coordinator and other Reliability Coordinators operating in the WECC Interconnection, have a shared responsibility to maintain system reliability in the WECC Interconnection. Operating agreements are in place to facilitate communication, notification, exchange of information, and coordination of actions. Preferred communication will be via phone and the Reliability Coordinator Information System (RCIS). Communication may also be done by Email, NERC Hotline, or satellite phones. For a list of ties with neighboring RCs refer to Appendix 1: List of RC-RC Ties.

### 3.2. Outage Coordination

The CAISO RC, will ensure notification and coordination with a neighboring RC for scheduled and forced outages (including RAS outages) impacting the neighboring RC's area.

Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>• <b>Review</b> next-day scheduled outages during the nightly review process for outages with shared interconnection facilities with neighboring RCs. <ul style="list-style-type: none"> <li>○ <b>Notify</b> neighboring RCs of any planned outages of facilities affecting a shared intertie.</li> <li>○ <b>Notify</b> neighboring RCs of any planned RAS outages affecting their area.</li> </ul> </li> </ul>

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>○ <b>Ensure</b> planned outages of neighboring RCs that affect the CAISO RC Area are included in CAISO RC Operational Planning Analysis for the next day<sup>1</sup>.</li> <li>● <b>Notify</b> neighboring RCs of forced outages (including RAS outages) that affect shared facilities or neighboring RC Areas. Notification should be made as soon as practical and without delay.</li> <li>● Upon receiving notification from neighboring RC of an outage affecting BA(s)/TOP(s) within the CAISO RC Area:               <ul style="list-style-type: none"> <li>○ <b>Notify</b> affected BAs and TOPs within the CAISO RC Area.</li> <li>○ <b>Ensure</b> neighboring RC forced outages are included in the Real-Time Assessments.</li> </ul> </li> </ul>

### 3.3. Voltage Control

The CAISO RC will ensure notification and coordination of actions that may impact adjacent RC Areas for voltage control, including coordination of reactive resources<sup>2</sup>.

Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>● <b>Maintain</b> situational awareness of system voltages and reactive reserves.</li> <li>● <b>Ensure</b> CAISO RC Area voltages are operating within established voltage limits.</li> <li>● <b>Notify</b> neighboring RCs of declining voltages or excessive reactive flows and mitigation plan. If necessary, coordinate the switching of voltage support equipment, to ensure that CAISO RC Area is not adversely affecting neighboring RC Areas.</li> </ul>

### 3.4. Mitigating System Emergencies

The CAISO RC Operator should coordinate with neighboring RCs to resolve System Emergencies that could impact each RC Area. Each impacted RC shall operate as though the emergency exists during each instance where RCs disagree on the existence of an emergency<sup>3</sup>. The following actions taken to mitigate System Emergencies pertain to coordination with neighboring RCs (for full list of mitigating actions, see RC0410-System Emergencies).


Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>● <b>Notify</b> affected neighboring RCs upon identification of an expected or actual Emergency in the CAISO RC Area. This may be done via phone, conference call, or RCIS, depending on the nature and potential impact to neighboring RCs. Make this notification without delay and within 30 minutes of the identification of the Emergency<sup>4</sup>.</li> </ul>

<sup>1</sup> IRO-008-2 R2

<sup>2</sup> IRO-014-3 R1. 1.3.

<sup>3</sup> IRO-014-3 R4

<sup>4</sup> EOP-11-1 R5

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

**Reliability Coordinator Actions**

- **Notify** BA(s)/TOP(s) in RC Area via phone or the Grid Messaging System (GMS) upon notification that a neighboring RC is experiencing a System Emergency and requests help from the CAISO RC Area. Request contact from BA or TOP if they are able to provide assistance. Coordinate assistance with RC Area BA(s)/TOP(s) and neighboring RCs.
- **Assist** neighboring RCs, if requested and able, provided that the requesting RC has implemented its Emergency procedures, unless such actions cannot be physically implemented or would violate safety, equipment, regulatory, or statutory requirements<sup>5</sup>
- **Work** with neighboring RCs to resolve System Emergencies.
- **Implement** action plan according to procedures, to resolve the Emergency, even if there is a disagreement with a neighboring RC that the Emergency exists<sup>6</sup>.
- **Implement** the most conservative course of action if a mutually-agreed-upon course of action cannot be developed.

**3.4.1. Energy and Capacity Emergencies**

CAISO RC shall work with neighboring RCs to assist in the arrangement of Emergency Assistance for BAs within each RC Area that are experiencing Energy or Capacity Emergencies.

**Reliability Coordinator Actions**

- **Notify** neighboring RCs via RCIS upon declaring an Energy Emergency Alert (EEA) for a BA in the CAISO RC Area. Discuss situation with neighboring RCs and request that they notify their RC Area BAs which are able to provide Emergency Assistance to contact the energy-deficient BA. Make this notification without delay, and within 30 minutes of the identification of the Emergency
- **Monitor** RCIS for notification of EEAs in neighboring RC Areas. Upon request of neighboring RC, notify CAISO RC Area BAs (via GMS) that any BA that can provide Emergency Assistance should contact the energy-deficient BA to provide assistance.

**3.4.2. IROL Exceedances that Impact Neighboring RCs**


CAISO RC will work with neighboring RCs to keep all affected entities informed of Interconnection Reliability Operating Limit (IROL) exceedances that impact other RC Areas. When necessary and if able, CAISO RC will coordinate with neighboring RCs to mitigate IROLs that affect each other's Areas.

**Reliability Coordinator Actions**

- **Maintain** awareness of all Interchange with neighboring RCs that could develop into an IROL.

<sup>5</sup> IRO-014-3 R7

<sup>6</sup> IRO-014-3 R6

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

**Reliability Coordinator Actions**

- **Monitor** CAISO RC Area for approaching IROL exceedances that may affect neighboring RC Areas.
- **Notify** neighboring RCs as soon as practical and without delay, upon exceeding an IROL. If necessary, coordinate with neighboring RCs to resolve IROLs so that the magnitude and duration of an IROL exceedance is mitigated within the IROL's  $T_v$  based on the Real-time Assessment<sup>7</sup> (see RC0310-Mitigating SOL and IROL Exceedances).

**3.4.3. Other Transmission Emergencies**

Other Transmission Emergencies can develop within the CAISO RC Area or neighboring RC Area. CAISO RC should work with neighboring RCs by making timely notifications, requesting assistance if needed, and offering assistance if requested.

**Reliability Coordinator Actions**

- **Notify** adjacent RCs by phone of any declaration of a Transmission Emergency by a CAISO RC Area TOP. Make this notification without delay, and within 30 minutes of the identification of the Emergency. Request assistance if it can be provided by entities within the neighboring RC Area.
- **Notify** CAISO RC Area entities via GMS upon request for assistance from a neighboring RC Area. If an RC Area BA or TOP is able to provide assistance, coordinate assistance between CAISO RC Area BA/TOP and neighboring RC Area.


**3.4.4. Frequency Excursions**

Frequency excursions affecting the Western Interconnection can originate in different RC Areas, but because of limited visibility, their origin might not be easily identified. Due to the potential severity of a frequency excursion, it is critical that once their origin is identified, that information is disseminated to all RCs in the area as quickly as possible.

**Reliability Coordinator Actions**

- **Notify** neighboring RCs as soon as practical and without delay via RCIS of any frequency excursion outside of Frequency Trigger Limits (FTL) caused by BAs in the CAISO RC Area. Include the time of the event and a general cause (e.g. loss of resource, system-wide over-generation). Do not be specific as to which resource or BA.
  - FTL High: 60.068 Hz
  - FTL Low: 59.932 Hz
- **Update** affected RCs of BA mitigation plan and progress after discussion with the responsible BA(s) in CAISO RC Area.
- **See** Procedure RC0210-Monitoring Frequency and BA Performance for a full list of mitigation actions.

<sup>7</sup> IRO-009-2 R3

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

<b>Reliability Coordinator Actions</b>
<ul style="list-style-type: none"> <li>• <b>Notify</b> and <b>coordinate</b> with neighboring RCs, if it is determined that the cause of the frequency excursion is outside of the CAISO RC Area.</li> </ul>

### 3.5. Other Required Notifications

CAISO RC shall notify neighboring RCs of other events that may impact the neighboring RC Areas.


<b>Reliability Coordinator Actions</b>
<ul style="list-style-type: none"> <li>• <b>Notify</b> neighboring RCs of any of the following events that may affect their RC Area: <ul style="list-style-type: none"> <li>○ Suspected sabotage,</li> <li>○ Extreme Weather,</li> <li>○ Geomagnetic Disturbance issues,</li> <li>○ Data Exchange,</li> <li>○ Loss of Communications and/or Tools,</li> <li>○ Facility Evacuation,</li> <li>○ Coordinating Restoration,</li> <li>○ Arming or degradation of Remedial Action Schemes (RAS),</li> <li>○ Coordination of information exchange to support reliability assessments,</li> <li>○ Any other event that, in the judgment of the CAISO RC, could impact a neighboring RC.</li> </ul> </li> </ul>

### 3.6. Plan Review and Distribution

Each RC shall maintain its Operating Procedures for activities that require notification or coordination of actions that may impact adjacent RC Areas.<sup>8</sup>

<b>Procedures Control Group</b>
<ul style="list-style-type: none"> <li>• <b>Review</b> and update annually with no more than 15 months between reviews.</li> <li>• <b>Obtain</b> written agreement from all RCs required to take actions.</li> <li>• <b>Distribute</b> to all RCs that are required to take indicated action(s) within 30 days of an update.</li> </ul>

<sup>8</sup> IRO-14-3 R2

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b>	RC0330
		<b>Version No.</b>	1.0
		<b>Effective Date</b>	7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>	

## 4. Supporting Information

### Operationally Affected Parties

CAISO RC

BAs and TOPs

Neighboring RCs


### References

NERC Requirements	IRO-009-2 R4; IRO-014-3 R1- R7.
BA/TOP Operating Procedure	
Other References	RC0210 - Monitoring Frequency and BA Performance RC0310 - Mitigating SOL and IROL Exceedances CAISO RC0410 - System Emergencies

### Definitions

The following terms capitalized in this Operating Procedure when used are defined below:

Term	Description
Interconnection	A geographic area in which the operation of Bulk Power System components is synchronized such that the failure of one or more of such components may adversely affect the ability of the operators of other components within the system to maintain Reliable Operation of the Facilities within their control. When capitalized, any one of the four major electric system networks in North America: Eastern, Western, ERCOT and Quebec.
Remedial Action Schemes (RAS)	A scheme designed to detect predetermined System conditions and automatically take corrective actions that may include, but are not limited to, adjusting or tripping generation (MW and MVar), tripping load, or reconfiguring a System(s)
System Operator on mitigating System Operating Limit (SOL)	The value (such as MW, MVar, amperes, frequency or volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.

 <b>California ISO</b>	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 1.0
		<b>Effective Date</b> 7/1/2019
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

Term	Description
	System Operating Limits are based upon certain operating criteria. These include, but are not limited to: <ul style="list-style-type: none"> <li>• Facility Ratings (applicable pre- and post-Contingency Equipment Ratings or Facility Ratings),</li> <li>• Transient stability ratings (applicable pre- and post-Contingency stability limits),</li> <li>• Voltage stability ratings (applicable pre- and post-Contingency voltage stability)</li> <li>• System voltage limits (applicable pre- and post-Contingency voltage limits.</li> </ul>
Interconnection Reliability Operating Limit (IROL)	A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading outages that adversely impact the reliability of the Bulk Electric System.
Reliability Coordinator (RC) Area	The collection of generation, transmission, and loads within the boundaries of the Reliability Coordinator. Its boundary coincides with one or more Balancing Authority Areas.

### Version History

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

## 5. Periodic Review Procedure

### Appendix

RC0330A List of RC-RC Ties (Restricted)