
	<b>Reliability Coordinator Procedure</b>	<b>Procedure No.</b> RC0330
		<b>Version No.</b> 3.0
		<b>Effective Date</b> 4/01/2021
<b>Coordination with Neighboring Reliability Coordinators</b>		<b>Distribution Restriction: None</b>

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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. Communications with neighboring RCs will follow all communication protocols described in RC0110 – Communication Protocols up to and including “Three-Part Communication”. 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

RC West 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 Grid Messaging System (GMS), but may also be done via messaging systems, Reliability Coordinator Information System (RCIS), 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 RC West will ensure notification and coordination with neighboring RCs for scheduled and forced outages (including RAS outages) impacting each other’s RC’s area. Each RC should analyze those outages to determine the reliability effects on their own RC Area and should discuss any potential impacts. While RCs do not have the authority to cancel each other’s outage except for Tie Line Facilities interconnecting the two RC Areas, the RCs should work together to resolve any identified outage conflicts. This may include providing remedial steps to be taken in advance of the outage or the possibility of rescheduling. Consideration should be given to submittal times and criticality.

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Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>• <b>Review</b> next-day scheduled outages with neighboring RCs during the nightly review process for outages affecting each other's RC Area. <ul style="list-style-type: none"> <li>○ <b>Notify</b> neighboring RCs of any planned outages of facilities affecting shared interties.</li> <li>○ <b>Notify</b> neighboring RCs of any planned transmission, generation, communication, or RAS outages affecting their area.</li> <li>○ <b>Ensure</b> planned outages of neighboring RCs that affect the RC West Area are included in RC West Operational Planning Analysis and coordinated Operating Plan for the next day.</li> <li>○ <b>Discuss</b> and <b>resolve</b> any identified outage conflicts with neighboring RCs according to their individual RC Coordination Agreements.</li> </ul> </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>• <b>Notify</b> neighboring RCs of any planned or forced outage schedule changes (both before and after work has started) that may affect neighboring RC Areas.</li> <li>• Upon receiving notification from neighboring RC of an outage affecting BA(s)/TOP(s) within the RC West Area: <ul style="list-style-type: none"> <li>○ <b>Notify</b> affected BAs and TOPs within the RC West Area.</li> <li>○ <b>Ensure</b> neighboring RC forced outages are included in Real-Time Assessments.</li> </ul> </li> </ul>

### 3.3. Voltage Control

The RC West will ensure notification and coordination of actions that may impact adjacent RC Areas for voltage control, including coordination of reactive resources.<sup>1</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> RC West 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 RC West Area is not adversely affecting neighboring RC Areas.</li> <li>• <b>Log</b> all communication and actions taken to mitigate voltage issues between RC Areas.</li> </ul>

<sup>1</sup> IRO-014-3 R1. 1.3.

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### 3.4. Mitigating System Emergencies

The RC West Operator should coordinate with neighboring RCs to resolve System Emergencies that could impact each other’s RC Area. Communications with neighboring RCs while mitigating system emergencies will follow communication protocols described in [Operating Procedure RC0110 Communication Protocols](#), up to and including using “Three-Part Communication”. 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 RC West Area.<sup>2</sup> This may be done via phone, conference call, GMS, 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.</li> <li>• <b>Notify</b> 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 RC West 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.</li> <li>• <b>Operate</b> as though the emergency exists during each instance where RCs disagree on the existence of an emergency.<sup>3</sup></li> <li>• <b>Develop</b> plan to resolve Emergencies in the RC West Area upon identifying any Emergency even during instances where there is disagreement between the RC West and impacted RCs on the existence of an Emergency.<sup>4</sup> (See <a href="#">Operating Procedures RC0410 System Emergencies</a> and <a href="#">RC0310 Mitigating SOL and IROL Exceedances</a>).</li> <li>• <b>Implement</b> the action plan developed by the RC that identified the Emergency during instances where there is disagreement on the existence of an Emergency, unless such actions would violate safety, equipment, regulatory, or statutory requirements.<sup>5</sup></li> <li>• <b>Assist</b> 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>6</sup></li> <li>• <b>Work</b> with neighboring RCs to resolve System Emergencies.</li> <li>• <b>Implement</b> the most conservative course of action if a mutually-agreed-upon course of action cannot be developed.</li> <li>• <b>Log</b> all communications and actions taken to mitigate System Emergencies between RC Areas.</li> </ul>


<sup>2</sup> IRO-014-3 R3

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

<sup>4</sup> IRO-014-3 R5

<sup>5</sup> IRO-014-3 R6

<sup>6</sup> IRO-014-3 R7

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### 3.4.1. Energy and Capacity Emergencies

RC West 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
<ul style="list-style-type: none"> <li>• <b>Notify</b> neighboring RCs via RCIS and GMS upon declaring an Energy Emergency Alert (EEA) for a BA in the RC West 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</li> <li>• <b>Monitor</b> RCIS and GMS for notification of EEAs in neighboring RC Areas. Upon request of neighboring RC, notify RC West Area BAs (via GMS) that any BA that can provide Emergency Assistance should contact the energy-deficient BA to provide assistance.</li> <li>• <b>Log</b> all communications and actions performed to mitigate Energy and Capacity Emergencies between the RC West Area and neighboring RC Areas.</li> </ul>

### 3.4.2. SOL and IROL Exceedances that Impact Neighboring RCs

RC West will work with neighboring RCs to keep all affected entities informed of all System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances that impact each other's RC Areas, and when necessary, coordinate in their mitigation.

Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>• <b>Maintain</b> awareness of all Interchange with neighboring RC Areas that could develop into an SOL or IROL exceedance.</li> <li>• <b>Monitor</b> RC West Area for approaching SOL and IROL exceedances that may affect neighboring RC Areas.<sup>7</sup></li> <li>• <b>Notify</b> neighboring RCs without delay if Real-time Assessment shows that a neighboring RC Area's Facilities are contributing to an SOL or IROL exceedance in the RC West Area.</li> <li>• <b>Notify</b> neighboring RCs without delay if Real-time Assessment shows that a RC West Area's Facilities are contributing to an SOL or IROL exceedance in the neighboring RC Area.</li> <li>• <b>Notify</b> neighboring RCs as soon as practical and without delay, upon exceeding an IROL. <ul style="list-style-type: none"> <li>○ If necessary, <b>coordinate with</b> neighboring RCs to resolve IROLs so that the magnitude and duration of an IROL exceedance is mitigated within the IROL's T<sub>v</sub></li> </ul> </li> </ul>

<sup>7</sup> In monitoring transmission facilities both in pre-and post-contingency monitoring, the RC West's Real-Time Contingency Analysis (RTCA) simulates all internal single and credible multiple contingency as well as the external contingencies documented in RC West Operating Procedure RC0330B Contingency Monitored for Neighboring RC Area.

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Reliability Coordinator Actions
<p style="text-align: center;">based on the Real-time Assessment<sup>8</sup> (see RC0310-Mitigating SOL and IROL exceedances and appropriate Operating Guides).</p> <ul style="list-style-type: none"> <li>• <b>Assist</b> neighboring RCs to alleviate SOL exceedances in the neighboring RCs Area when requested by the neighboring RC.</li> <li>• <b>Operate</b> to the more conservative limits during instances when there is a disagreement between the RC West and neighboring RC.</li> <li>• <b>Operate</b> per operating plan/mitigation of the RC who experiencing an emergency when there is a disagreement between the RC West and neighboring RC.</li> <li>• <b>Log</b> all communications and actions taken between the RC West and neighboring RC to mitigate SOL and IROL exceedances between each other's RC Areas.</li> </ul>

### 3.4.3. Other Transmission Emergencies

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


Reliability Coordinator Actions
<ul style="list-style-type: none"> <li>• <b>Notify</b> neighboring RCs of any declaration of a Transmission Emergency by a RC West 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.</li> <li>• <b>Notify</b> RC West 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 RC West Area BA/TOP and neighboring RC Area.</li> </ul>

### 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
<ul style="list-style-type: none"> <li>• <b>Notify</b> neighboring RCs as soon as practical and without delay via GMS of any frequency excursion outside of Frequency Trigger Limits (FTL) caused by BAs in the RC West Area.</li> </ul>

<sup>8</sup> IRO-009-2 R3


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Reliability Coordinator Actions
<p>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.</p> <ul style="list-style-type: none"> <li>○ FTL High: 60.068 Hz</li> <li>○ FTL Low: 59.932 Hz</li> <li>● <b>Update</b> affected RCs of BA mitigation plan and progress after discussion with the responsible BA(s) in RC West Area.</li> <li>● <b>See</b> Procedure RC0210-Monitoring Frequency and BA Performance for a full list of mitigation actions.</li> <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 RC West Area.</li> </ul>

### 3.5. Other Required Notifications

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

Reliability Coordinator Actions
<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>○ Real-time Assessments that show a neighboring RC's Facilities are contributing to or impacted by a reliability issue within the RC West Area (and when mitigated),</li> <li>○ Any other event that, in the judgment of the RC West, could impact a neighboring RC.</li> </ul> </li> </ul>

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### 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>9</sup>

Procedures Control Group
<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>

## 4. Supporting Information

### Operationally Affected Parties


Shared with the Public, and in addition with AESO, BCRC and SPP RC.

### References

NERC Requirements	COM-002-4; EOP-011-1; IRO-009-2 R3; IRO-014-3 R1-R7.
BA/TOP Operating Procedure	
Operating Procedures	<a href="#">RC0110 Communications Protocols</a> <a href="#">RC0140 Guidelines for Sending Messages Across RC Seams</a> <a href="#">RC0210 Monitoring Frequency and Balancing Authority Performance</a> <a href="#">RC0310 Mitigating SOL and IROL Exceedances</a> <a href="#">RC0410 System Emergencies</a>

<sup>9</sup> IRO-14-3 R2




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## 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)	<p>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. System Operating Limits are based upon certain operating criteria. These include, but are not limited to:</p> <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.


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Term	Description
Emergency	Any abnormal system condition that requires automatic or immediate manual action to prevent or limit the failure of transmission facilities or generation supply that could adversely affect the reliability of the Bulk Electric System.
Real-time Assessment	An evaluation of system conditions using Real-time data to assess existing (pre-Contingency) and potential (post-Contingency) operating conditions. The assessment shall reflect applicable inputs including, but not limited to: load, generation output levels, known Protection System and Special Protection System status or degradation, Transmission outages, generator outages, Interchange, Facility Ratings, and identified phase angle and equipment limitations. (Real-time Assessment may be provided through internal systems or through third-party services.)

## Version History

Version	Change Description	Date
1.0	Approved by Steering Committee.	9/26/18
1.1	Updated review criteria in Section 5. No change to procedure.	2/14/19
1.2	Updated to incorporate Peak-CAISO RC Coordination Agreement. Corrected other minor errors.	4/19/19
2.0	Annual Review: Replaced CAISO RC with RC West and updated to RC West logo. Sections 3.1, 3.4, 3.4.1 & 3.4.4: Updated preferred communications methods from RCIS to GMS. Section 3.4.3: Minor update to first bullet. Other References Section: added reference to RC0140. Minor format and grammar updates.	6/24/20
2.1	Added a footnote and a new bullet item to Section 3.4.2.	7/01/20
3.0	Annual Review: Section 3.4: Minor update to RC West procedure references. Section 4: Updated Operationally Affected Parties and NERC Requirements. Appendix Section: Added new RC0330C procedure. Minor format and grammar updates.	4/01/21

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## 5. Periodic Review Procedure

### Review Criteria & Incorporation of Changes

There are no specific review criteria identified for this document.

### Frequency

Review at least once every fifteen months.<sup>10</sup>

## Appendix

RC0330A List of RC-RC Ties (Restricted)

RC0330B Contingency Monitored for Neighboring RC Area

RC0330C SPP-RC West Pseudo-Tie Arrangement for Grady Wind Generation

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<sup>10</sup> IRO-014-3 R2.1