

 California ISO	Reliability Coordinator Procedure	Procedure No.	RC0630
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Outage Coordination Process		Distribution Restriction: None	

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1. Purpose

The purpose of the Outage Coordination Process document is to:

- Address NERC Reliability Standard IRO-017-1,
- Describe the applicable functional entity roles and responsibilities,
- Provide for timely coordination and conflict resolution of transmission and generation outages within the ISO RC Area, and
- Achieve and maintain Bulk Electric System (BES) reliability.

2. Applicability

ISO RC's Outage Coordination Process is applicable to the following entities:

- Reliability Coordinators (RC):
ISO RC and other neighboring reliability coordinators will ensure TOPs and BAs communicate and coordinate outages throughout the Outage Coordination process. RCs will be required to communicate and coordinate intertie outages with one another.
- Balancing Authorities (BA):
BAs will ensure generation outages are communicated and coordinated on behalf of Generator Owners (GO) and Generator Operators (GOP).
- Transmission Operators (TOP):
TOPs will ensure transmission outages are communicated and coordinated on behalf of Transmission Owners (TO).

Detailed responsibilities for each functional entity are described within the Outage Coordination Process.

3. Precaution and Limitations


Although this outage coordination process document allows for timely coordination and conflict resolution of planned work, real-time system conditions and ensuring reliability therein will always take precedence. NERC Reliability Standards grants RC, BA, and TOP Operators the authority and responsibility to make real-time decisions. These real-time decisions and events may supersede the Outage Coordination process.

This document is not intended for training purposes and assumes users have background and understanding of transmission and/or generation Outage Coordination. This document contains the overall process to facilitate said coordination. The process depends heavily on entities utilizing good principles of Outage Coordination in the spirit of collaboration as mentioned below.

3.1. Holidays

The following holidays are recognized by the ISO RC and impact the submittal deadline for the short range window as described in Section 12.3 Short-Range Study Window:

- New Year's Day,

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- Memorial Day,
- Independence Day,
- Labor Day,
- Thanksgiving Day,
- Day after Thanksgiving, and
- Christmas.

BAs and TOPs may recognize additional holidays not listed above. BAs/TOPs should notify the ISO RC Outage Coordination team (up to 7 days in advance) for other holidays that their individual entity may need to refer questions or concerns regarding outage conflicts their Weekends/Holidays point of contact.

See Conflict Resolution on Weekends/Holidays for more information.

3.2. Stakeholder Process

The ISO RC will host a working group consisting of ISO RC member BAs and TOPs that meets annually, at minimum, to discuss mutually beneficial items such as challenges or suggestions for improvement. The ISO RC will initiate a stakeholder process for any changes to this document. The Outage Coordination Working Group should provide the foundation for members of this stakeholder process.

3.3. TTC Submissions


TTC limits are not submitted as part of this Outage Coordination process unless they represent an SOL value or a stability limitation. TTC limits may be submitted as part of an operating plan regardless if they represent an SOL value or not.

3.4. Transmission Planning Assessments

This document does not specifically address Transmission Planning assessments as referenced in NERC IRO-017-1 R3 and R4. These Planning Assessments are not considered for the purposes of Outage Coordination under this process document.

NERC IRO-017-1 R3 requires each Planning Coordinator and Transmission Planner to provide its Planning Assessment to the impacted Reliability Coordinator. This requirement is addressed by the ISO RC data request process.

Similarly, NERC IRO-017-1 R4 requires each Planning Coordinator (PC) and Transmission Planner (TP) to jointly develop solutions with its Reliability Coordinator for identified issues or conflicts in its Planning Assessment for the Near-term Transmission Planning Horizon. This requirement is addressed by the ISO RC data request process. PCs and TPs should include long term outages in the Planning Assessment, and shall coordinate with the ISO RC on any issues/conflicts identified in the Planning Assessment.

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4. Principles of Outage Coordination

This section describes the principles and practices that govern Outage Coordination behavior. Entities are expected to follow these principles and practices. For Outage Coordination to be effective, it is imperative that RCs, TOPs, BAs, GOs and GOPs work together collaboratively to ensure that the Interconnection is reliable.

Properly planned and coordinated outages allow maintenance and capital work to be performed while maintaining reliability within operating criteria limits. Conversely, work that is not coordinated, scheduled, and/or planned properly may have a negative impact on reliability.


TOPs and BAs are expected to coordinate with neighboring and impacted entities when submitting their outages to ISO RC. Entities will have developed internal protocols and mechanisms to support overall Outage Coordination within the interconnection. This includes Outage Coordination with other neighboring TOPs and BAs that may be in a different RC footprint.

These impacts include, but are not limited to:

- If a transmission outage impacts the import and/or export capability of one or more BA(s), the TOP is expected to coordinate with the impacted BA(s) to ensure the outage is acceptable and reliable,
- If a transmission outage impacts the transfer capability of a major WECC Path, the TOP is expected to coordinate with the impacted parties to ensure the outage is acceptable and reliable,
- Operating plans that affect another BA/TOP facility/equipment, and
- Generator or Transmission outage or curtailment scheduling.

Best practices that are encouraged within the ISO RC footprint include:

- Coordinate and collaborate with the ISO RC and with impacted entities to resolve issues for any outage in the *Conflicts Identified* state.
- Support other BA and TOP studies/assessments.
- Outage Coordination can take place outside of WebOMS between BAs/TOPs.
- Communications/notifications should include the appropriate WebOMS Outage ID for reference purposes.
- Efforts should be made to keep outage durations “reasonable” in order to allow for other outages to be taken. For longer duration outages, entities will collaborate to allow for conflicting outages.
- Support developing, revising, and communicating Operating Plans both internally and externally when impacted.
- TOPs and BAs will plan with enough lead time to develop and coordinate peer-reviewed operating plans.
- Opportunity and urgent outages shall not be abused. Real-time Operators need to be able to focus on managing and operating the power system; not administering poor outage scheduling practices.

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Part of real-time operations is urgent and forced outages. TOPs and BAs should make reasonable efforts to ensure urgent and forced outages are resolved as timely as possible in order to prevent cancellation of planned work.

5. Outage Coordination Tool


ISO RC uses WebOMS as the primary mechanism for data necessary to support the Outage Coordination Process. It is expected that all required entities submit outages to WebOMS through one of three options:

- 1) Via the WebOMS User Interface (WebUI),
- 2) WebOMS Application Programming Interface (API), or
- 3) Use of an adapter provided by ISO RC.
 - a. ISO RC customers may use their existing Coordinated Outage System (COS) web service to submit outage information to ISO OMS system. (ISO will map COS data structure to WebOMS data structure through an adapter.) See ISO RC for more details.
 - b. Eventually, adapter users will need to use either the WebUI or API. ISO RC will provide adequate notice as to when the adapter option will be retired.
 - c. This document references WebOMS as the primary outage management system even if an entity submits using a COS adapter.

5.1. Required Outage Information

Outage requests cover many different types of work, but must provide the following information in order to support assessment/studies and coordination:

- Outage start/end dates/times,
- Estimated time to restore (or return to service),
- Equipment/Facilities “out-of-service”,
- Clearance or switching boundaries,
- Description of work to be performed,
- Name of requesting BA/TOP,
- Supporting operating plan(s) as needed,
- Nature of Work (as defined by WebOMS),
- Outage Type (or outage flags as defined by WebOMS, optional),
- Outage status (including confirmation, optional),
- Continuous vs. Non-Continuous (optional; default to Continuous), and
- Related or Linked requests (optional).

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6. General Requirements and Responsibilities

6.1. Overall Outage Submission Responsibility

Outage submission is a TOP and BA responsibility. TOPs are responsible for submission of transmission outages, and BAs are responsible for submission of generation outages.

All BES facilities within the ISO RC footprint shall have their designated/registered NERC BA(s) and/or TOP(s) entity documented with the ISO RC Outage Coordination team.


TOPs and BAs may delegate their responsibility to submit outages to another NERC registered functional entity (such as the equipment owner or operator (i.e., GO, GOP, or TO)). All entities must agree and the decision must be documented with the ISO RC Outage Coordination team. However, this does not absolve the BA and/or TOP of other obligations under the Outage Coordination Process.

6.2. TOP Responsibilities

- 6.2.1. The TOP that operates a given Facility/equipment is responsible for requesting an outage/derate on that transmission Facility/equipment. Outage submission responsibility is not a function of Facility/equipment ownership.
- 6.2.2. For jointly operated transmission Facilities/equipment, it is the responsibility of the TOP performing work to submit/manage the request. If both TOPs are performing separate work on the jointly operated Facility, then both TOPs will be required to submit an outage request for the work they are performing on that equipment.
- 6.2.3. If a TOP requires an outage on equipment they do not operate (i.e., line crossing), the operating TOP submits the outage request on behalf of the TOP performing work.
- 6.2.4. When a *Forced* outage occurs on a jointly operated Facility, the associated TOPs are expected to coordinate and agree on who will submit the outage to WebOMS. It is acceptable for this coordination and agreement to happen when the *Forced* outage occurs. The expectation is that one of the two TOPs submits the *Forced* outage to WebOMS.
- 6.2.5. If a transmission outage necessitates or results in a generator outage or reduction, the TOP is expected to coordinate with the BA to ensure the outage is acceptable and reliable. The BA is still responsible for submitting the resulting generation outage (when performing work) or derate as a separate request. Note: See WebOMS for functionality to “link” related requests. At a minimum, entities should refer to related request as part of the work description.
- 6.2.6. The TOP submitting the request is the responsible TOP for updating and maintaining the request in WebOMS.

6.3. BA Responsibilities

- 6.3.1. Generator request submission is the responsibility of the BA in whose BA Area the generator resides, based on BA Area metered boundaries. Outage/Derate request submission responsibility is not a function of generator ownership.
- 6.3.2. Unit outages need to be submitted to WebOMS if the unit is unavailable (i.e., maintenance and/or construction) and cannot be called upon for use. Note: ISO RC’s

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IRO-010-2 Data Specification provides a mechanism to obtain necessary data for unit commitment, unit output limitations and projected unit dispatch.

- 6.3.3. Generator derates need to be submitted to WebOMS if the individual unit or aggregate plant capacity is reduced by more than 50 MW. Note: Refer to WebOMS manual on how to submit individual unit vs. aggregate plant capacity derates.
- 6.3.4. Generator must-runs are not required to be submitted to WebOMS, but run the risk of being denied due to system conflicts if not assessed/studied appropriately.
- 6.3.5. If a generation outage necessitates or results in a transmission outage (i.e., generator step up transformer or isolating breaker, etc.), the BA is expected to coordinate with the TOP to ensure the outage is acceptable and reliable. The TOP is still responsible for submitting the resulting transmission outage or as a separate request.
- 6.3.6. The BA submitting the request is the responsible BA for updating and maintaining the request in WebOMS.

7. Communication Notifications

7.1. BA and TOP Contact Information


Each TOP and BA within the ISO RC footprint shall provide and maintain the following contact information so that issues or questions may be addressed directly to the correct personnel. It is acceptable to provide a common email address and phone number.

- Outage Coordination
- Operations Engineering
- Operations Center
- Weekend/Holiday Point of Contact


7.2. Communication Updates

Below is a summary of instances for when the ISO RC will provide notice. For Pre-OPA and OPA conditions, please refer to the ISO RC OPA process document for more detail.

Item	Completion Date	Description	Format
Short Range Deadline Reminder	7 calendar days prior to the submission deadline	Unconfirmed outages in danger of missing deadline.	Reminder email to requesting BA/TOP summarizing list of unconfirmed outages.
Long-, Mid-, and Short- Range Deadline Reminder	7 calendar days prior to the submission deadline	Outages in <i>Conflicts Identified</i> state in danger of missing deadline.	Reminder email to requesting BA/TOP summarizing list of outages in <i>Conflicts Identified</i> state.

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Item	Completion Date	Description	Format
Long-, Mid-, and Short- Range Conflicts Identified	As identified	To impacted BA(s)/TOP(s) when outage enters <i>Conflicts Identified</i> state or if equipment operator causing/resulting in the violation/conflict.	Notification email to impacted parties. WebOMS status updated to <i>Conflicts Identified</i> . Description of contingency and resulting violation provided.
Long- and Mid-Range Study Results	End of the calendar month	Study is completed and results posted online. (Individual results will be released as available and request's WebOMS status updated.)	WebOMS status is updated for each studied request. Detailed study results made available online.
Short-Range Study Results	Within 3 business days of Short-Range submission deadline	Study is completed and results posted online. (Individual results will be released as available and request's WebOMS status updated.)	WebOMS status is updated for each studied request. Detailed study results made available online.
Pre-OPA Study Results	By 0800 PPT on D+2 and D+3	Study is completed and results posted online.	Detailed study results made available online.
Pre-OPA Conflicts Identified	As identified	To impacted BA(s)/TOP(s) when outage enters <i>Conflicts Identified</i> state or if equipment operator causing/resulting in the violation/conflict.	Notification email to impacted parties. WebOMS status updated to <i>Conflicts Identified</i> . Description of contingency and resulting violation provided. Note: Pre-OPA results being made available on weekend/holiday will result in a phone call too.
OPA Study Results	By 1400 PPT on D+1	Study is completed and results posted online.	Detailed study results made available online.

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Item	Completion Date	Description	Format
OPA Conflicts Identified	As identified	To impacted BA(s)/TOP(s) when outage enters <i>Conflicts Identified</i> state or if equipment operator causing/resulting in the violation/conflict.	Email and phone call to impacted parties. WebOMS status updated to <i>Conflicts Identified</i> . Description of contingency and resulting violation provided.

8. Outage Coordination Process Scope

8.1. Facilities/Equipment Scope

The Outage Coordination Process provides a mechanism to allow for engineering analysis/study of planned work to support reliability throughout the operations time horizon.


Outage categories listed below are considered in-scope for engineering analysis/study and are subject to the Outage Coordination Process timelines and requirements as described.

In-Scope Facilities/Equipment for Engineering Studies
<ul style="list-style-type: none"> • BES transmission and/or generation equipment/facilities (as defined by NERC) <ul style="list-style-type: none"> ○ Out of service (outages) ○ Derates (or changes to defined SOL)¹ • BES/non-BES necessary for BES voltage control • BES Remedial Action Scheme (RAS), non-RAS automatic schemes, or protection systems when functionality is affected (i.e., when normal fault clearing zones are impacted) or Contingency definitions are impacted • BES generating unit Automatic Voltage Regulators (AVR), BES Power System Stabilizers (PSS) or BES alternative voltage controlling device² • Non-BES transmission or generation Facilities or equipment that are identified by the RC, TOP, or BA as having an impact on the reliability of the BES • Path or Facility TTC limits if part of an operating plan

There are items that are submitted to WebOMS per ISO RC's IRO-010-2 Data Specification, but are considered out-of-scope per the Outage Coordination Process as those categories are not necessarily included in the engineering analysis/study.

¹ Derates may also be referred to as outages in this process document. Both a derate and an outage are considered "requests" to perform work.

² AVR and PSS equipment outages are generally communicated real-time.

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Note that submitting entities may provide *Informational* outage submissions to communicate information that might improve situational awareness for enhanced reliability. Informational outages are considered out-of-scope, but should be submitted as soon as possible. Entities may decide to submit other informational type requests not listed below to further enhance coordination and situational awareness.

Out-of- scope items **required** to facilitate real-time situational awareness are listed below. These items are required to be submitted although possibly out of scope for engineering studies.

Out-of-Scope Facilities/Equipment ³ for Engineering Studies
<ul style="list-style-type: none"> • BES generation must run (not part of an operating plan or reliability must run) • System topology changes <ul style="list-style-type: none"> ○ New facilities being placed into service ○ Facilities being removed from service permanently ○ Planned insertion/bypass of series compensation as part of outage • Telemetry Equipment <ul style="list-style-type: none"> ○ Requiring manual EMS or RTCA adjustment/input ○ Communication channels impacting system protection that may result in EMS alarms

8.2. Outage Duration Threshold

1. Outages/Derates expected to have a continuous duration of 30 minutes or more require submission to WebOMS.
2. Outages lasting less than 30 minutes generally are not required to be submitted unless:
 - Outage requires an Operating Plan to facilitate
 - BA/TOP wish to submit for awareness purposes, or
 - Outage meets one-at-a-time (OAT) requirements described below.

8.3. One-at-a-Time (OAT) Outages


OAT outages are a subset of *Planned* outages that are available for use by the BA/TOP. The purpose of the OAT outage is for the BA/TOP to be able to perform work on numerous elements of similar Facilities/equipment at a single station without having to maintain the required outage requests that would normally be associated with each element.

Due to the difference in impact an OAT generator outage might have versus that of a Transmission outage, there are separate submission criteria for generation and transmission outages.

8.3.1. Generation OAT Requests

1. OAT generator outages are individual unit outages taken sequentially at a single generating Facility where the individual units have similar operating characteristics (e.g. available

³ May not be in-scope for engineering studies, but submitted for coordination and informational purposes

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capacity, ramp rate and start time) and are connected at the same kV level.

2. Individual generation unit outages may last longer or shorter than 30 minutes as part of an OAT generation outage request.
3. OAT unit outages will not overlap at any point during the outage sequence. The next unit in the sequence will come out of service after the previous unit has been returned to service. The amount of time between individual unit outages in sequence shall be minimized and work shall progress continuously until the OAT outage sequence has been completed.
4. A single OAT outage request shall be entered into WebOMS with each individual unit being identified.

8.3.2. Transmission One-at-a-time (OAT) Requests


Transmission OAT requests are created to provide real-time situational awareness for activity at a single station.

1. When field crews are expected to implement very short-duration outages on multiple Facilities/equipment within a station (for example, breaker exercises or line washing), the TOP may submit a single OAT outage representing all of those very short-duration outages with a similar equipment type at the station rather than submitting an individual outage for each Facility/equipment.
2. While outages with a duration of less than 30 minutes are not required for submission to WebOMS as described in the Outage Duration Submission Threshold section above, it is expected that a OAT transmission outage be submitted even for very short-duration outages (including outages that only last for a few minutes) when multiple Facilities/equipment within a station are expected to be removed from service in succession. This ensures awareness that such activity is expected to occur. Transmission OAT outages that are less than 30 minutes are informational outages. However, if a utility wants these outages to be studied, they should be submitted as planned outages.
3. Transmission OAT outages are intended to apply to very short-duration outages and are not intended to apply to Facility/equipment outages that have a duration of several hours or more. If individual outages within a Transmission OAT outage sequence are expected to have a continuous duration of 30 minutes or more, that outage is expected to be submitted separately and not as part of an OAT request.
4. If, during the course of the OAT outage work, it is discovered that a Facility/equipment cannot be returned to service due to unexpected issues, the TOP is expected to submit an individual forced outage for the Facility/equipment as soon as possible.

8.4. Continuous vs. Non-Continuous Requests

When a BA or TOP enters an outage in WebOMS, the submitter must specify whether the outage will be out of service continuously or if this outage will be taken daily. WebOMS will default to all outages being continuous unless they are changed by the submitter. Below are definitions for each category.

1. Continuous Outage – A Facility/equipment outage that will remain out of service for the duration of the specified start date/time and end date/time. This is the default category when entering a new outage.
2. Non-Continuous Outage – A Facility/equipment outage that will not be out of service for the duration of the specified start date/time and end date/time. An example of a non-continuous

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outage would be a multi-day outage where work is performed during the day and the equipment is returned to service at night.

Note: *Non-continuous outages could be “rejected” for a single day. This “one day rejection” will not impact the overall outage priority date. See WebOMS manual for more information regarding continuous vs. non-continuous functionality.*

9. Outage Types

Outage types in alphabetical order: Forced, Informational, Operational, Opportunity, Planned, and Urgent. The Outage types and their priorities are described in the sections below.

9.1. Outage Type Descriptions

9.1.1. Forced Outage

Forced Outage – Facility/equipment that is removed from service real-time with limited or no notice.

Submission requirements for *Forced* outages:

1. Submit to WebOMS as soon as possible, the expectation is no later than 30 minutes after the Forced outage began; however, a System Operator’s first priority is to address the operating issue. There may be instances where outages cannot be submitted within 30 minutes due to prevailing emergency conditions.
2. Forced outages that have (or are expected to have) a continuous duration of less than 30 minutes do not require submission to WebOMS. Forced outages that have a continuous duration of 30 minutes or more are required to be submitted to WebOMS even if they are submitted after the fact.
3. Submissions are required to have a scheduled end time based on the best information available at the time. It is expected that submitters update the scheduled end time of a Forced outage as information becomes available.

9.1.2. Informational Outage


Informational Outage – Facility/equipment outage that is entered for informational reasons including increased situational awareness, for BA/TOP internal purposes or to satisfy the RC Data Specification where WebOMS is the mechanism for communicating the information.

Submission requirements for *Informational* outages:

1. No specific requirements for the Outage Coordination Process. Reference the RC Data Specification where WebOMS is the mechanism for communicating the information.
2. No specific requirement to include these outages within engineering studies.

9.1.3. Operational Outage

Operational Outage – Transmission Facility/equipment that is removed from service in the normal course of maintaining optimal or reliable system conditions but remains available if needed upon short notice. (This outage type may be either planned or real-time. Work is not being performed on the equipment/facility, but may be part of an operating plan.)

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Submission requirements for *Operational outages*:

1. No work is being performed on this equipment/facility. It remains ready to return to service with short notice.
2. Submit to WebOMS as soon as possible. Submitters should attempt to submit *Operational* outages within 30 minutes after the Operational outage is identified if in real-time. Reference the Same-Day and Real-Time Outage Update Requirements section for more information.
3. If an *Operational* request is needed as a mitigation, impacted TOPs should coordinate with one another to submit the request. Note: If part of a planned outage, it should be included with that request; not separately if possible. (If not, still need to link/group outage cards in WebOMS or include a reference in the work description.)

9.1.4. Opportunity Outage

Opportunity Outage – A Facility/equipment outage that can be taken due to a change in system conditions, weather or availability of field personnel.

Opportunity outages did not meet the short range window requirements.

Special requirements for *Opportunity outages*:

1. *Opportunity* outages must be studied/evaluated by the TOP, BA and/or RC as required against other existing *Submitted* and *Confirmed* outages.
2. *Opportunity* outages that cause reliability issues or conflict with other *Submitted* or *Confirmed* outages of a higher priority cannot be implemented.
3. *Opportunity outages should have an emergency return time of 8 hours or less*. This allows for unforeseen conflict resolution during the OPA process and avoids cancelling planned work.
4. Same-day and real-time *Opportunity* outages may be allowed at the discretion of the RCSO. These outages must be coordinated and studied by the TOP and the RCSO prior to implementation.
5. *Opportunity* outages may include an operating plan at the discretion of the RC.

Submission requirements for *Opportunity* outages:

1. Should be submitted to WebOMS with as much advance notice as possible and before OPA lock-down time, or their allowance will be at the discretion of the RCSO. Reference the OPA Window Process section for more information on the OPA process.

9.1.5. Planned Outage


Planned Outage – Facility/equipment outage with enough advance notice to meet short range submittal requirements.

Submission requirements for *Planned outages*:

1. Reference Study Window Process section for submission requirements of *Planned* outages.

9.1.6. Urgent Outage

Urgent Outage – Facility/equipment that is known to be operable, yet carries an increased risk of a *Forced* outage occurring. Facility/equipment remains in service until personnel, equipment

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and/or system conditions allow the outage to occur.

Urgent outages allow Facilities to be removed from service at an optimal time for overall system reliability. For *Urgent* outages, the work may or may not be able to wait for the Short-Range outage window.

Submission requirements for *Urgent* outages:

1. *Urgent* outages should be submitted to WebOMS with as much advance notice as possible.
2. An *Urgent* outage must have a justification of its urgency documented in the BA/TOP comments section of the outage submission.

9.2. Outage Type Priority

The outage types are listed below in their order of priority for conflict resolution purposes from top to bottom. Reasonable attempts should be made to accommodate and allow for planned outages.

1. Forced Outage Urgent Outage
3. Operational Outage
4. Planned Outage
5. Opportunity Outage
6. Informational Outage

10. Study and Assessment Requirements

See Appendix A: Definitions for difference between assessment and study.

BAs, TOPS, and the RC are expected perform studies/assessments to ensure that the BES will be in a reliable pre- and post-Contingency state while an outage is in effect. These studies/assessments are performed throughout the Long-Range, Mid-Range, Short-Range and OPA study windows to identify, evaluate, and mitigate potential reliability risks.


TOPs and BAs will provide Operating Plans, if necessary, to document any mitigation measures for real-time Operations.

10.1. Performance Requirements

Acceptable system performance is required during outage conditions as described in ISO RC's SOL Methodology. The SOL Methodology describes the pre- and post-Contingency performance requirements that the BES must exhibit while the outage is in effect regardless of outage duration. Any outage that has not been proven to demonstrate acceptable pre- and post-Contingency performance through studies as required by the Outage Coordination Process cannot be implemented.

10.2. Study/Assessment Requirements


Outages being planned for implementation must meet acceptable system performance as stated in the ISO RC's SOL Methodology. These assessments/studies will include the following

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criteria/requirements:

1. An assessment/study must be performed prior to submitting a new request.
 - a. This intent of this initial assessment is to review the new proposed outage against existing submitted outages to avoid potential conflicts.
 - b. There is no limit to how far in advance an outage request may be submitted. However, the first formal ISO RC study for outage conflicts does not occur until 3-4 months in advance of the outage start date.⁴
2. A BA assessment or TOP study must be performed prior to a BA/TOP *Confirming* an outage.
 - a. Studies must demonstrate that the proposed system topology can meet acceptable pre- and post-contingency conditions as defined by the ISO RC's SOL Methodology.
 - b. BA/TOP/RC studies should simulate projected loading and generation dispatch based on the best available information. This may include seasonal cases for long-range studies.
 - c. TOPs determine the study complexity level needed to verify that acceptable pre- and post-Contingency system performance can be achieved while the outage is implemented.
 - i. The level of complexity of TOP studies/assessments will vary depending on the type and number of simultaneous outages and on the unique challenges and reliability issues posed by the outages.
 - ii. It is left to the judgment of the TOP to determine what level of engineering scrutiny is appropriate for a given situation.
3. BA/TOP/RC assessments/studies should include all WebOMS requests, known to impact that area, that are not currently in the *Cancelled, Denied, or Completed* state.
 - a. BA/TOPs may limit their assessment/studies to requests deemed impactful to their operational area (based on engineering judgement) but run the risk of late cancellation due to unforeseen conflicts.
 - b. Short duration outages should be accounted for by impacted BAs/TOPs/RCs during the assessment/study process. Failure to include short duration outages may result in late cancellation due to unforeseen conflicts.
 - c. Studies might include all outages occurring during the studied timeframe (i.e., for hourly studies, all outages occurring during the study timeframe may or may not be captured regardless if they last the full hour). Entities may also choose to take a representative time-based snapshot.
 - d. BA/TOP/RC assessments/studies should include outages from another RC's footprint that are known to be impactful.
4. If the outage requires an outage-specific Operating Plan, the submitting BA/TOP is responsible for documenting and communicating the Operating Plan in a timely manner. Reference the Operating Plan Requirements section for more information on the development and communication of outage-specific Operating Plans. If the RC and BA/TOP

⁴ If RC-to-RC conflict resolution depends on RC Approval, then additional long range studies will be required for more than 3-4 months out.

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studies do not agree and no technical inaccuracy can be identified, the most conservative study should prevail.

10.3. Operating Plan Requirements

Operating Plans may contain any outage restrictions or mitigating actions needed to ensure BES reliability real-time or for engineering studies to demonstrate acceptable system performance.

TOP and BA Responsibilities

1. When TOP studies indicate that acceptable pre- and post-Contingency performance cannot be achieved during the outage without taking some form of mitigating action or making changes to the system (for example: load limits, re-dispatch, reconfiguration, schedule adjustments or transfer limitations utilized as part of an Operating Plan), an outage-specific Operating Plan must accompany the confirmed outage.
 - a. Note: TTC limits are required if part of an operating plan.
 - b. Submitting BA/TOPs will be responsible for submitting operating plans to mitigate outage conflicts in a timely manner.
 - c. Operating Plans must be specific and relevant. The intent is to avoid submittals of large, 100+ page company operating procedures that do not have a direct reference to the relevant information and necessary steps. It is unacceptable to submit a large company operating procedure without referencing the outage specific circumstances.
2. BA/TOP studies must demonstrate that if the Operating Plan is followed, acceptable pre- and post-Contingency performance will be expected to be achieved during the outage.
3. The submitting BA/TOP is expected to assume ownership of working with impacted TOPs, BAs and the ISO RC on the development and coordination of the outage-specific Operating Plan, including any pre-outage system requirements.
4. The submitting BA/TOP is expected to obtain the necessary agreements from other impacted TOPs and/or BAs to perform their roles and functions in the outage-specific Operating Plan.

ISO RC Responsibilities


1. ISO RC studies must demonstrate that if the Operating Plan is followed, acceptable pre- and post-Contingency performance will be expected to be achieved during the outage. If ISO RC studies indicate that the Operating Plan does not render acceptable pre- and post-Contingency performance during the outage, the ISO RC is expected to coordinate with the impacted BA(s), TOP(s), and/or RC(s) to resolve the issue. If the issue cannot be resolved, the outage may not proceed and will be *Denied*.

11. Outage Statuses

The possible outage statuses include:

BA/TOP Controlled Status Options:

- Submitted,
- Confirmed (checkbox), and

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- Cancelled.

RC Controlled Status Options:

- RC Approved,
- Conflicts Identified,
- Denied,
- Implemented, and
- Completed.

11.1. Outage State Descriptions

- Submitted – Submission date will be considered for purposes of conflict resolution. TOP studies may be underway, but are not completed; however, an assessment has been completed. Expectation for BA and TOP studies/assessments to include neighboring outages in this state. An outage in this state will be automatically changed to the *Denied* state if the BA/TOP does not *Confirmed* prior to the Short-Range submission deadline. The BA/TOP is responsible for confirming the outage in WebOMS.
- Confirmed (checkbox) – TOP studies or BA assessments completed and no conflicts or reliability concerns were identified. If required, an Operating Plan must be included in the outage when confirming outage. The BA/TOP is responsible for setting this outage state. Outages (except Forced) must be confirmed prior to RC Short Range and RC OPA studies.
- RC Approved – Outages in this state have been studied by the ISO RC and were found to create no conflicts or reliability concerns. The RC is responsible for setting this outage state.
- Conflicts Identified – Outages in this state have been studied by the ISO RC in the ISO RC Long-Range, ISO RC Mid-Range, ISO RC Short-Range, and/or ISO RC OPA study window(s) and were found to create reliability issues. Outages in this state need to be rescheduled, *Cancelled* or have identified issues resolved prior to the end of the ISO RC study window or they will be moved to the *Denied* state. The ISO RC is responsible for setting this outage state. ISO RC will notify impacted parties as described in the Communication Notification section.
- Denied – Outages in this state have been studied by the ISO RC in the ISO RC Long-Range, ISO RC Mid-Range, ISO RC Short-Range, and/or ISO RC OPA study window(s). Reliability issues were identified by the ISO RC and the issue was unable to be collaboratively resolved between the ISO RC and the BA/TOP prior to the end of the study window. Outages in this state will need to be rescheduled by the submitting BA/TOP. The ISO RC is responsible for setting this outage state.
- Implemented – An outage that is currently in progress based on the scheduled start date/time. This status is controlled by WebOMS.
- Completed – An outage that has been completed based on the scheduled end date/time. This status is controlled by WebOMS.
- Cancelled – Outages that have been *Cancelled* by the submitting BA or TOP.

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11.2. Outage State Confirmation Requirements

Due to the real-time nature of certain states, there may be confusion as to the requirement to confirm a particular outage. Please see table below.

State	Confirmation and Approval	Comments
Forced	No	Occurs real-time without permission
Urgent	Yes	Outages should be studied/confirmed prior to starting the outage. BA/TOP/RC confirmation may be verbal depending on the timeline.
Operational	Yes	Outages should be studied/confirmed prior to starting the outage. BA/TOP/RC confirmation may be verbal depending on the timeline.
Opportunity	Yes	Must be confirmed and approved within WebOMS.

12. Study Windows

The Outage Coordination Process is characterized by the following study windows:

1. Long-Range Study Window
2. Mid-Range Study Window
3. Short-Range Study Window
4. OPA Window
5. Real-time Window


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Figure 1: Outage Lifecycle below illustrates a typical progression through the study window processes prior to real-time.

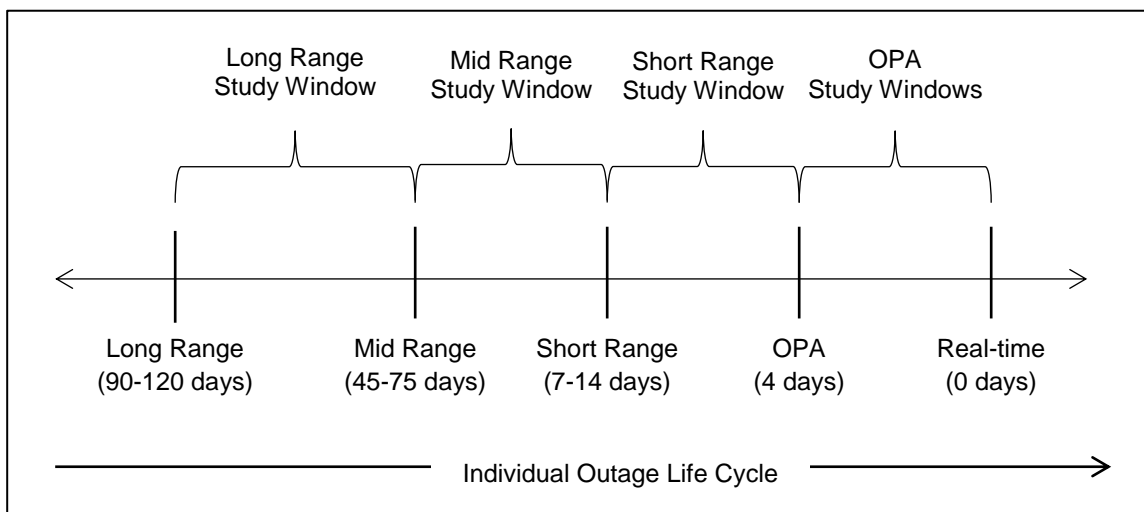


Figure 1: Outage Lifecycle

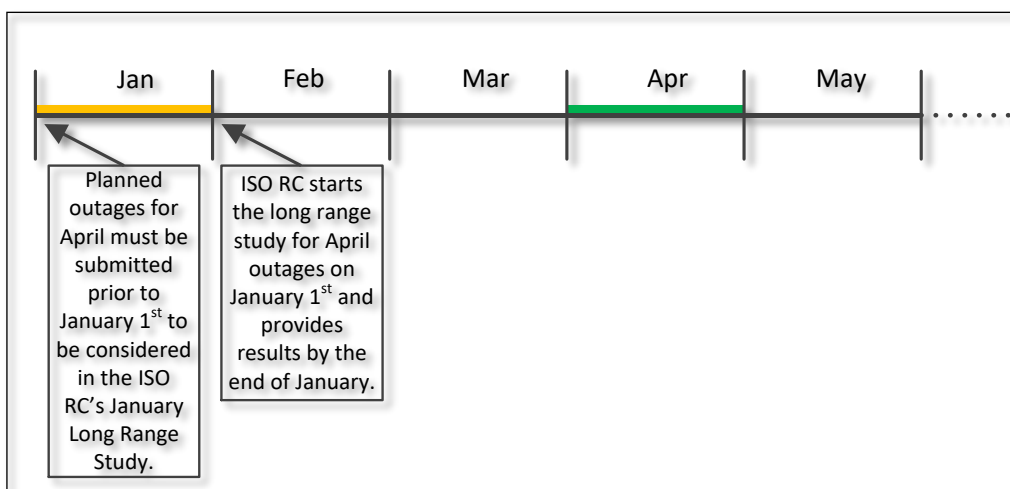
12.1. Long-Range Study Window


The Long-Range study window process will be **optional** for TOPs and BAs. Non-Informational or short duration requests submitted per the requirements below should be considered for inclusion in the study.

Submission Timeline:

The *Long-Range Study* window will begin three (3) months prior to the start of the month being studied. For the example below, outages must be submitted prior to 0001 on January 1st if occurring during the month of April in order to be included in the *Long-Range Study*. (This will be February 1st for outages occurring in May and so on.)

Figure 2: Long-Range Study Window Example



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BA/TOP Responsibilities:

1. TOPs and BAs are expected to perform their assessments/studies and submit the WebOMS request prior to the *Long-Range Study* window submission deadline if they wish to participate.
2. The deadline will be at 0001 on the first day of the month three months prior to the study's timeframe (e.g., 0001 on January 1st for the example above).
3. Requests that did not successfully demonstrate acceptable system performance will be placed in *Conflicts Identified* status. TOPs/BAs will have until the start of the *Mid-Range Study Window* to resolve these conflicts and/or post an Operating Plan.
 - a. BA/TOP will re-submit their outage request after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.

ISO RC Responsibilities

1. Perform monthly studies for qualifying requests that are not in the Cancelled or Denied state by the *Long-Range* study window deadline (e.g. January 1st for April outages).
 - a. Any non-informational or short duration request submitted by the submission deadline will be considered for inclusion in the monthly RC *Long-Range Study* window process. (Regardless if BA/TOP wishes for their request to be included in the study.)
2. ISO RC will provide study results throughout the calendar month and no later than the end of the calendar month (e.g. January 31st for April outages.)
3. During the course of the monthly ISO RC *Long-Range Study* process, if the ISO RC studies show no reliability conflicts, the ISO RC will change the request status to *RC Approved*.
4. During the course of the monthly ISO RC study process, if the ISO RC encounters any reliability conflicts with the outage, the ISO RC will change the state of the outage to *Conflicts Identified*. The ISO RC will coordinate with impacted BAs and/or TOPs to address outage conflicts. The ISO RC will do its due diligence to reach out to BAs and/or TOPs as soon as possible to allow time for a coordinated resolution.
5. If the reliability conflicts cannot be addressed prior to the *Mid-Range Study* submission deadlines, the ISO RC will change the state of the outage to *Denied*.

Please see Figure 3: Long-Range Study Window Process Flowchart which describes the relationship of the applicable outage states and the actions needed by the BAs, TOPs and/or RC.

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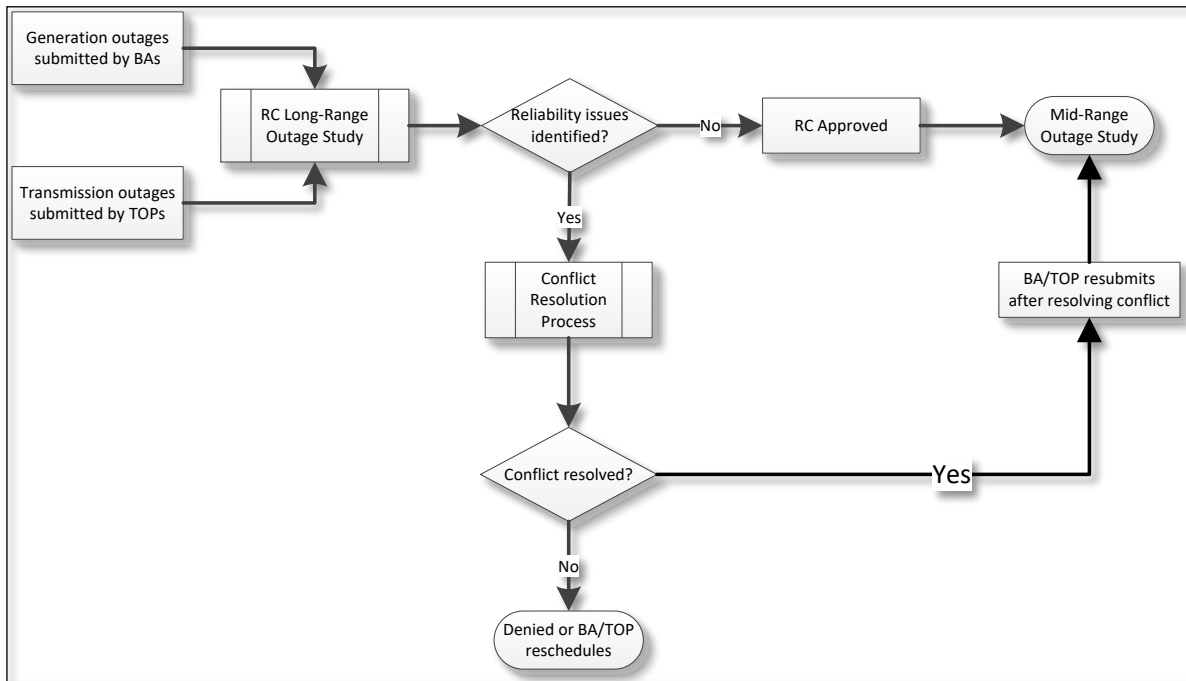



Figure 3: Long-Range Study Window Process Flowchart

12.2. Mid-Range Study Window

The *Mid-Range* study window process will be **optional** for TOPs and BAs. Non-Informational requests submitted per the requirements below will be included in the study.

Submission Timeline:

The *Mid-Range Study* window will begin on the 15th of the month approximately forty-five (45) days prior to the start of the month being studied. For the example below, outages occurring in April must be submitted prior to 0001 on February 15th in order to be included in the *Mid-Range Study*. (This will be March 15th for outages occurring in May and so on.)

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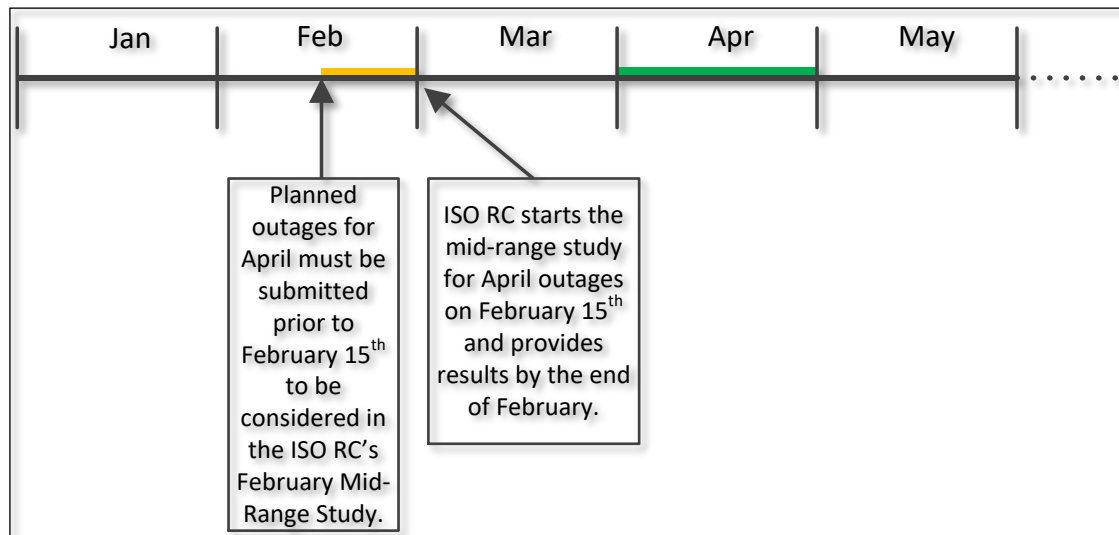



Figure 4: Mid-Range Study Window Example

BA/TOP Responsibilities:

1. TOPs and BAs are expected to perform their assessments/studies and submit the WebOMS request prior to the *Mid-Range Study* window submission deadline if they wish to participate. (This may be the same assessment/study performed for the long-range window.)
2. The deadline will be at 0001 on the 15th day of the month – approximately 45 days prior to the study's timeframe (e.g., 0001 on February 15th for the example above).
3. Requests that did not successfully meet acceptable system performance will be placed in *Conflicts Identified* status. TOPs/BAs will have until the start of the *Short-Range Study* Window to resolve these conflicts and/or post an Operating Plan.
 - a. BA/TOP will re-submit their outage request after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.

ISO RC Responsibilities

1. Requests still in the *Conflicts Identified* from the *Long-Range Study* window will be placed in *Denied* status.
2. Perform monthly studies for qualifying requests that are not in the Cancelled, Denied, or Conflicts Identified state by the *Mid-Range* study window deadline (e.g. February 15th for April outages).
 - a. Any non-informational or short duration request submitted by the submission deadline will be considered for inclusion in the monthly RC *Mid-Range Study* window process. (Regardless if BA/TOP wishes for their request to be included in the study.)
3. ISO RC will provide study results throughout the calendar month and no later than the end of the calendar month (e.g. February 28th for April outages.)
4. During the course of the monthly ISO RC *Mid-Range Study* process, if the ISO RC studies show no reliability conflicts, the ISO RC will change the request status to *RC Approved*.

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5. During the course of the monthly ISO RC study process, if the ISO RC encounters any reliability conflicts with the outage, the ISO RC will change the state of the outage to *Conflicts Identified*. The ISO RC will coordinate with impacted BAs and/or TOPs to address outage conflicts. The ISO RC will do its due diligence to reach out to BAs and/or TOPs as soon as possible to allow time for a coordinated resolution.
6. If the reliability conflicts cannot be addressed prior to the *Short-Range Study* submission deadlines, the RC will change the state of the outage to *Denied*.

Please see Figure 5: Mid-Range Study Window Process Flowchart which describes the relationship of the applicable outage states and the actions needed by the BAs, TOPs and/or RC.

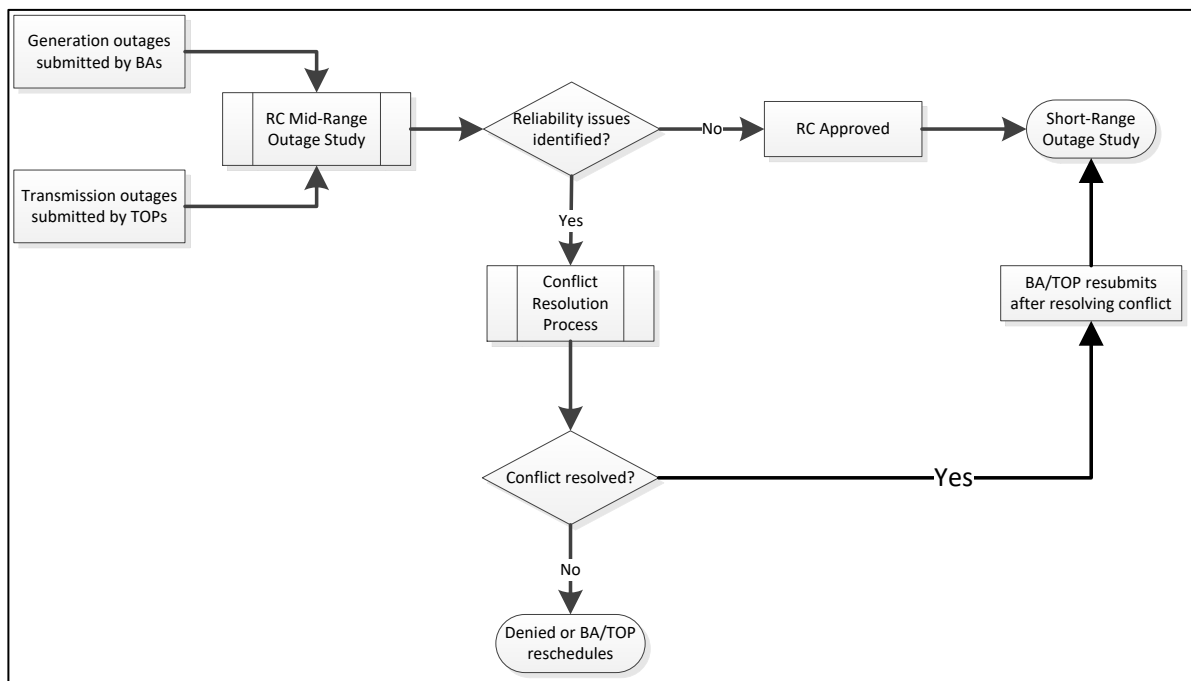


Figure 5: Mid-Range Study Window Process Flowchart


12.3. Short-Range Study Window

The *Short-Range* study window process will be **mandatory** for TOPs and BAs.

All planned requests must be assessed/studied and *Confirmed* prior to the start of the *Short-Range Study* window process. Any outage/derate submitted after the deadline may not be submitted as *Planned*.

Submission Timeline:

The *Short-Range* study window will begin approximately one (1) week prior to the start of the week being studied. Planned outages whose start dates occur between Monday and Sunday are to be submitted on a rolling weekly basis by the Monday prior at 0001.

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Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
11	12	13	14	15	16	17
Planned outages in yellow colored week should be submitted by 0001 on Monday						
18	19	20	21	22	23	24
Planned outage start time (Monday)	Planned outage start time (Tuesday)	Planned outage start time (Wednesday)	Planned outage start time (Thursday)	Planned outage start time (Friday)	Planned outage start time (Saturday)	Planned outage start time (Sunday)


Figure 6: Short-Range Timeline (Monday Submission) illustrates this outage submission deadline without holidays. Figure 7: Short-Range Timeline (Monday Holiday Example) and Figure 8: Short-Range Timelines (Thursday and Friday Holiday Example) illustrate the outage submission deadline when holidays are included. Note: Holidays are included to allow for additional business days on which conflict resolution may take place.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
11	12	13	14	15	16	17
Planned outages in yellow colored week should be submitted by 0001 on Monday						
18	19	20	21	22	23	24
Planned outage start time (Monday)	Planned outage start time (Tuesday)	Planned outage start time (Wednesday)	Planned outage start time (Thursday)	Planned outage start time (Friday)	Planned outage start time (Saturday)	Planned outage start time (Sunday)

Figure 6: Short-Range Timeline (Monday Submission)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
				Planned outages in yellow colored week should be submitted by 0001 on Friday		
11	12	13	14	15	16	17
Holiday						
18	19	20	21	22	23	24
Planned outage start time (Monday)	Planned outage start time (Tuesday)	Planned outage start time (Wednesday)	Planned outage start time (Thursday)	Planned outage start time (Friday)	Planned outage start time (Saturday)	Planned outage start time (Sunday)

Figure 7: Short-Range Timeline (Monday Holiday Example)

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Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
			Planned outages in yellow colored week should be submitted by 0001 on Thursday			
11	12	13	14	15	16	17
			Holiday	Holiday		
18	19	20	21	22	23	24
Planned outage start time (Monday)	Planned outage start time (Tuesday)	Planned outage start time (Wednesday)	Planned outage start time (Thursday)	Planned outage start time (Friday)	Planned outage start time (Saturday)	Planned outage start time (Sunday)


Figure 8: Short-Range Timelines (Thursday and Friday Holiday Example)

TOP Responsibilities:

1. TOPs and BAs are expected to perform their assessments/studies and submit the WebOMS request in the *Confirmed* state prior to the *Short-Range Study* window submission deadline.
 - a. Requests that are not *Confirmed* prior to the *Short-Range Study* window deadline will be placed in the *Denied* state by the RC.
2. The deadline will be at 0001 on the Monday prior (not including holidays as noted above) for the following week.
3. Requests that do not successfully meet acceptable system performance will be placed in *Conflicts Identified* status. BAs/TOPs will have until the start of the *OPA D+1 Study Window* to resolve these conflicts and/or post an Operating Plan.
 - a. BA/TOP will re-submit their outage request after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.

ISO RC Responsibilities

1. Requests still in the *Conflicts Identified* from the *Mid-Range Study* window will be placed in *Denied* status.
2. Perform weekly studies for qualifying requests that have been submitted in the *Confirmed* state by the Short-Range study window deadline.
 - a. Any non-informational or short duration request submitted in the *Confirmed* state by the submission deadline will be considered for inclusion in the RC *Short-Range Study* window process.
 - b. RC will aim to provide raw study results by the end of the third business day. This may not include any proposed mitigation strategies.
3. During the course of the weekly ISO RC *Short-Range Study* process, if the ISO RC studies show no reliability conflicts, the RC will change the request status to *RC Approved*.
4. During the course of the weekly ISO RC *Short-Range Study* process, if the RC encounters any reliability conflicts with the outage, the RC will change request status to *Conflicts Identified*. The ISO RC will coordinate with impacted BAs and/or TOPs to address outage

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conflicts. The RC will do its due diligence to reach out to BAs and/or TOPs as soon as possible to allow time for a coordinated resolution.

- Coordinate with the BA and TOP as necessary for the development of outage-specific Operating Plans.

Please see Figure 9: Short-Range Study Window Process Flowchart which describes the relationship of the applicable outage states and the actions needed by the BAs, TOPs and/or RC.

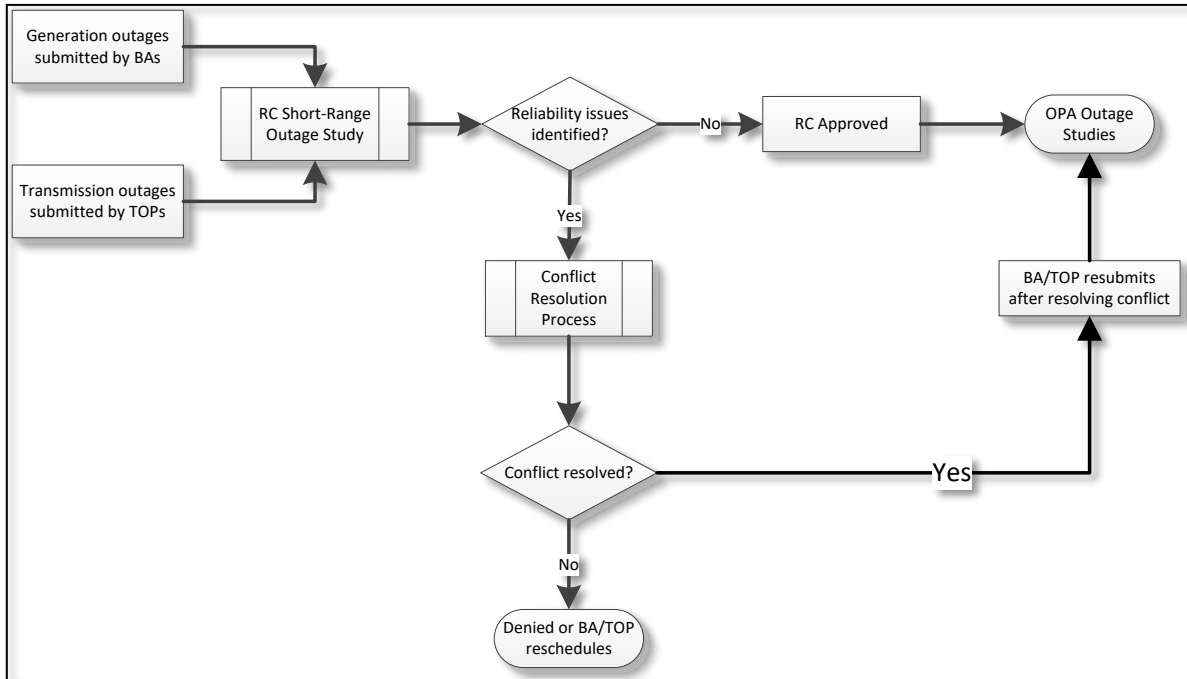


Figure 9: Short-Range Study Window Process Flowchart


12.4. OPA Study Window(s)

The OPA study window(s) are the final stage of studies prior to same-day and real-time studies/analyses. *Planned* requests should have been studied and confirmed prior to these study windows. However, real-time system conditions may differ from planned conditions due to unplanned work (including *Forced*, *Urgent*, *Operational*, and *Opportunity* requests).

The OPA window is intended to address these outages as well as to serve as a final verification to ensure that outages confirmed in the Short-Range study window process are still acceptable when studied against more accurate forecast information.

While OPAs must adhere to the NERC definition, each TOP's and ISO RC's OPA process may be different. Despite any differences, OPAs have a common goal of identifying potential SOL exceedances and/or outage conflicts for next-day operations.

Per the NERC Reliability Standards, BAs are not required to perform OPAs; however, BAs are required to have Operating Plans for next-day operations to address specific reliability issues. In a similar manner, BAs have obligations relative to the Outage Coordination Process during the OPA window.

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In the OPA window, expected system conditions – including outages – are studied both by the TOP and the ISO RC as part of their respective OPA. It is recognized that OPA processes, tools, and capabilities can vary from TOP to TOP.

Per the OPA process document, ISO RC will perform a pre-OPA⁵ study for D+2 and D+3. Results will be made available by 0800 PPT on these days. An OPA study will be performed on D+1 starting at approximately 1300 PPT with preliminary results generally being made available by 1500 PPT. These study results will include proposed market dispatch.⁶ Figure 9 illustrates the outage submission timeline during OPA study windows. For Tuesday outage, the OPA (D+1) outage submission cutoff time is 0800 on Monday. OPA raw results are posted around 1400. Pre-OPA (D+2) outage submission cutoff time is 1700 on previous Saturday and study results are posted on Sunday morning around 0800. Pre-OPA (D+3) outage submission cutoff time is 1700 on previous Friday and study results are posted on Saturday morning around 0800.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
11	12	13	14	15	16	17
				Pre-OPA (D+3) cutoff time for Outages is 1700	Pre-OPA(D+3) study raw results are posted around 0800 Pre-OPA (D+2) cutoff time for Outages is 1700	Pre-OPA(D+2) study raw results are posted around 0800
18	19	20	21	22	23	24
OPA (D+1) cutoff time for Outages is 0800 study raw results are posted around 1400	Outage day					

Figure 10: OPA Outage Submission and Result Posting Timelines

Note: As per the Communication section, conflicts identified on Friday or Saturday evening, require a phone call to the applicable Weekend/Holiday contact to support conflict resolution for pre-OPA study windows.

Submission Timeline:

All conflicts identified must be resolved and the outage re-submitted by 1700 PPT four days prior to the start of the outage. This allows the outage and the proposed operating plan to be included in the Pre-OPA D+3 study.


Pre-OPA is just “advisory” and even though entities are strongly encouraged to resolve Pre-OPA conflicts, it is not the requirement. OPA is, on the other hand, a must to resolve before mid-night of the D+1.

All outages (except Forced or Urgent), should be RC Approved by 0001 PPT day of the outage. Changes/Revisions to outage start dates/times can be found in the Revision section.

As described in the Outage Types section, *Forced*, *Operational*, *Opportunity* and *Urgent* type requests should be submitted to WebOMS with as much advance notice as possible. *Urgent*,

⁵ In this document, OPA will generally refer to D+1 through D+3.

⁶ ISO RC will perform OPA studies 7 days a week, 365 days a year.

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Operational and *Opportunity* outages could be included in OPA study window if those outages are submitted prior to the OPA study. Outages submitted afterwards will be considered in the same day or real-time study at the discretion of the RCSOs. All Outages (except Forced) must be approved by ISO RC prior to implementation.

BA/TOP Responsibilities:

1. BAs and TOPs are expected to perform their assessments/studies and submit the WebOMS request in the *Confirmed* state as soon as possible any *Operational, Opportunity, and/or Urgent requests*.
2. Submit and update Forced outage requests with best known information on estimated end time.
3. Coordinate and provide necessary Operating Plans to ensure acceptable system performance can be met prior to submitting WebOMS request.
4. Resolve any conflicts identified during Short Range study process by 1700 PPT D+4.
 - a. BA/TOP will re-submit their outage request after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.
5. Entities are strongly encouraged to resolve Pre-OPA conflicts, it is not the requirement.
 - a. BA/TOP will re-submit their outage request after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.
6. Resolve any conflicts identified during OPA study process by 0001 PPT on the outage start date.
 - a. BA/TOP will re-submit their outage request and notify the RC after resolving the identified conflict. Resubmitting does not automatically impact the outage priority date. See Revisions and Rescheduling section for more details.
 - b. Failure to resolve conflicts identified by 0001 PPT on the outage start date may result in denial by RCSO.

ISO RC Responsibilities

1. Requests still in the *Conflicts Identified* from the *Short-Range Study* window will be placed in *Denied* status at 1700 PPT on D+4.
2. Perform daily studies for qualifying requests that have been submitted in the *Confirmed* state by the OPA study window deadline.
 - a. Any non-informational and short duration request submitted in the *Confirmed* state by the submission deadline will be considered for inclusion in the ISO RC OPA Study window process.
3. During the course of the daily ISO RC OPA Study process, if the RC studies show no reliability conflicts, the RC will keep the request status as *RC Approved*.
4. During the course of the weekly ISO RC OPA Study process, if the ISO RC encounters any reliability conflicts with the outage, the ISO RC will change request status to *Conflicts Identified*. The ISO RC will coordinate with impacted BAs and/or TOPs to address outage conflicts. The ISO RC will do its due diligence to reach out to BAs and/or TOPs as soon as possible to allow time for a coordinated resolution.

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5. Coordinate with the TOP and BA as necessary for the development of outage-specific Operating Plans.
6. Prior to the end of the ISO RC OPA, the ISO RC will coordinate with impacted TOPs and BAs to address outage conflicts identified during the ISO RC OPA process. If the reliability conflicts can be resolved by 0001 of the outage day, the ISO RC will change the state of the outage to *RC Approved*.
7. If the reliability conflicts identified during the ISO RC OPA process cannot be addressed by 0001 of the outage day and the submitter has not *Cancelled* or rescheduled the outage, the RC will change the state of the outage to *Denied*. At the request of the BA/TOP, the ISO RC will collaborate with the BA/TOP to reschedule *Denied* outages to a timeframe that accommodates the outage without creating reliability issues.
8. Please see Figure 10: OPA Study Window Process Flowchart which describes the relationship of the applicable outage states and the actions needed by the BAs, TOPs and/or RC.

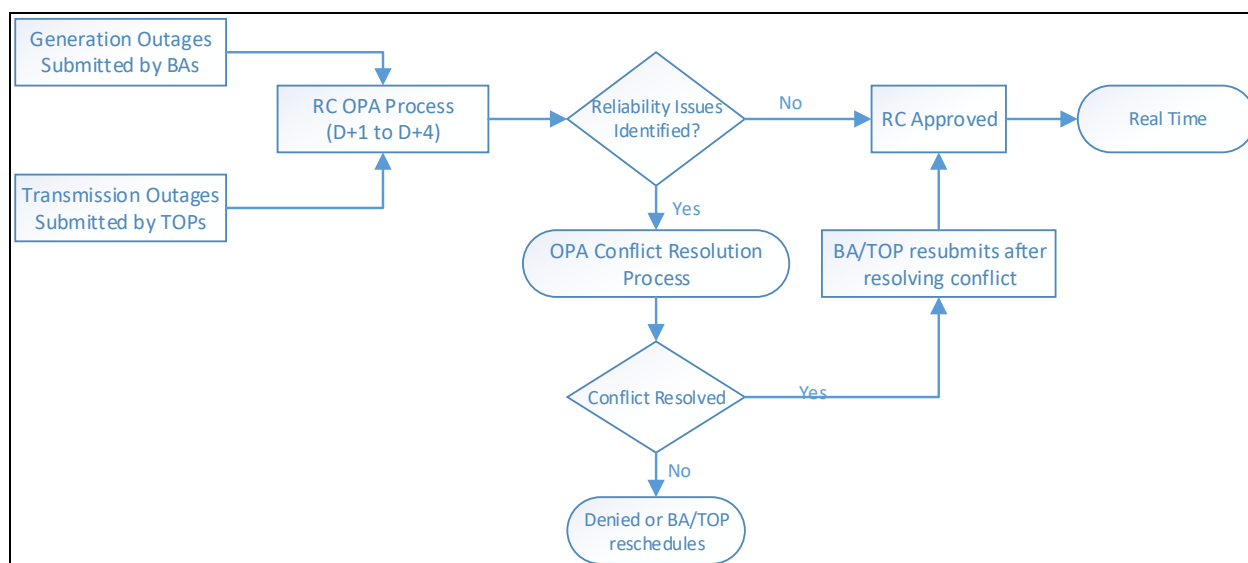


Figure 11: OPA Study Window Process Flowchart


12.5. Real-time Study Window

Same-day and real-time notifications to the RCSOs are primarily addressed via the IRO-010-2 RC Data Specification. This section of the Outage Coordination Process is intended to address requirements for same-day and real-time updates to submitted outages to ensure that WebOMS accurately reflects expected and actual system conditions.

The scheduled start and end date/times are used for look-ahead study/assessment purposes. Incorrect start and end date/times can have significant negative impacts on outage planning and real-time operations, so submitting entities should be diligent in submitting scheduled start/end date/time that are as accurate as possible. These fields are expected to be updated with more accurate projections as the outage start and end date/time approaches.

TOP and BA Responsibilities

For same-day and/or real-time operations, the scheduled start and end timestamps are expected to be updated per the following:

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Within 3 hours prior to the scheduled/projected start/end of an outage, the scheduled start/end times are expected to be accurate within a +/- one hour deadband. Scheduled start and end time updates are expected to occur when the new information is known; however, a System Operator's first priority is to address the operating issue. There may be instances where outage updates cannot be submitted within 30 minutes due to prevailing operating conditions.

Please see the Revision Section for more information.

13. Revisions and Rescheduling

Under the normal course of Operations Planning, it is expected that requests will need to be revised or rescheduled. This section addresses this need.

Rescheduling or Revising Outages Prior to the Short-Range Study Window Process

This section addresses revisions prior to the Short-Range study window process. Revisions may include date or equipment changes.

If outages are revised prior to the Short-Range study window, the revision must not conflict with other outages that are not in *Cancelled, Denied, or Completed* state. If conflicts due to revising an outage arises, the TOPs and BAs are expected to collaborate to find an alternative date(s) for the revised outage.

If the revised dates are outside of the original schedule dates, the revised outage may receive a new priority date and lose RC review/confirmation status.

Revising a request to modify equipment, may not automatically result in a new priority date. However, if this request results in conflicts to an existing request, it will be taken under consideration during the outage conflict resolution process.

Revising and Rescheduling Outages after the Short-Range Submission Deadline has Passed


It is acceptable to shorten an outage duration provided the revised start/stop date/time are within the current start/stop date/time. If time is needed outside of the current start/stop date/time, the outage will receive a new Priority Date. This may occur during the OPA and real-time windows.

It is acceptable to revise a submitted *Planned* outage's start and/or end time to occur at a different time within the same outage day, provided the revision occurs prior to the OPA D+1 lock-down time and the revision does not conflict with other outages. This type of revision can occur without consequence, provided there are no conflicts with the change. If the revision results in reliability conflicts, the revision should not occur unless a *Forced* outage condition exists. Metrics should be tracked for instances when *Urgent* or *Forced* outages conflict with *Planned* outages.

14. Conflict Resolution

The outage coordination conflict resolution process is centric to identifying and addressing reliability conflicts with outages in the operations horizon. If a scheduled outage or combination of scheduled outages poses a reliability conflict, the conflict should be resolved in order for the outage(s) to proceed. If an outage does not pose a reliability conflict, then per this process, no conflict exists.

Outages can have conflicts that are independent of other outages, or they can conflict with other outages on the system. For example, a transformer outage may have a conflict solely due to heavy

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demand patterns, and that conflict exists regardless of other outages on the system. Conflicts such as this are routinely and iteratively addressed through the Long-Range, Mid-Range, Short-Range and OPA study window processes. Accordingly, any outage (excluding Forced outages) that has this type of reliability conflict may not proceed without an Operating Plan that addresses the reliability conflict.

On the other hand, many outages may have conflicts only when other outages are introduced. For example, studies may indicate that the system demonstrates acceptable pre- and post-Contingency performance during transmission outage X; however, the system does not demonstrate acceptable pre- and post-Contingency performance when transmission outage X and transmission outage Y overlap.

Reliability studies conducted as part of the Long-Range, Mid-Range, Short-Range and OPA study window processes are expected to address any conflicts.

First-Come, First-Served Conflict Resolution Model

If, during the course of TOP, BA and RC studies/assessments a conflict between outages is discovered, impacted entities should coordinate to arrive at a satisfactory resolution. The expectation is that the BA/TOPs coordinate with one another and adjust outage schedules to resolve conflicts in a collaborative manner prior to submitting outages to WebOMS in the *Confirmed* state. If agreements cannot be reached between TOPs and BAs, the first requesting entity (either in Submitted or Confirmed state) should have first priority to take their outage. This is the foundation of the first-come, first-served model. The second requester should either coordinate a resolution with the first requester or select alternate dates that do not result in reliability conflicts.

Extenuating circumstances may arise for specific outages that may warrant giving priority to a later outage submission. A few examples include warranty requirements and environmental, regulatory or legal constraints. In the spirit of good utility practice, entities should limit these events as much as possible. Real-time system conditions will always take priority over planned work, and conflicts may arise due to unforeseen real-time operating conditions that result in delays or cancellation of scheduled outages. This provides the foundation of the outage type priority list provided above.

If conflicts are unable to be resolved, the ISO RC will review all available information and make a final decision as to outage priority in a fair, impartial, and non-discriminatory manner with the best interest of reliability in mind.


14.1. Conflict Resolution on Weekends/Holidays

It is recognized that individuals at BAs and/or TOPs involved with outage coordination and/or operations engineering may not be available outside of normal business hours, including weekends and holidays. These personnel may also not be expected to monitor email notifications on a real-time basis.

If ISO RC identifies a potential conflict or other issue with a scheduled outage on a weekend or holiday, the ISO RC will contact the impacted BA/TOP's operations center directly. The impacted BA/TOP operations center will work to resolve the issues or conflict including notifying the appropriate duty personnel at their BA/TOP. Friday afternoon or the afternoon before a holiday is considered "weekend/holiday" for notification of conflicts.

15. RC-to-RC Coordination

ISO RC coordinates transmission and generator outages with other RCs. There are different options under discussion to exchange outage schedules with other RCs.

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Communication with other RCs is normally done through the CAISO RC's Operations Engineering Service team. Efforts are made to work with other RCs to reschedule conflicting outages of both parties in order to ensure that regional system reliability is maintained for outages scheduled both within and outside the CAISO's Reliability Coordinator Area.

BAs/TOPs will not be expected to submit data directly to other RC entities. Any outage conflict occurring across RC ties will be resolved in conjunction with the impacted RCs using an agreed upon outage conflict resolution model.

BAs/TOPs are still required to coordinate with their neighbors regardless of RC areas.

16. Supporting Information

Operationally Affected Parties

Shared with Public.


References

NERC Requirements	IRO-010-2; IRO-017-1, TOP-003
BA/TOP Operating Procedure	
Other References	

Definitions

The following terms capitalized in this Operating Procedure are in accordance with the NERC Glossary, and/or otherwise when used are as defined below:

Term	Description
Assessment	An assessment may not include technical analyses, but rather may rely on system knowledge, experience, prior studies, and operational and engineering judgment. The assessment term may also be more appropriate to describe BA functions.
Study	A study includes pre- and post-Contingency powerflow simulations and analyses using one or more study models. A study also includes necessary transient, post-transient and steady-state stability analyses.
Priority Date	The time stamp that WebOMS generates when outages are submitted as proposed status. The priority date could get changed if the outage start/end date is changed or generation derate is changed.
Facilities	See NERC Definition

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Term	Description
BES	See NERC Definition
Operational Planning Analysis	An evaluation of projected system conditions to assess anticipated (pre-Contingency) and potential (post-Contingency) conditions for next-day operations. The evaluation shall reflect applicable inputs including, but not limited to, load forecasts; generation output levels; Interchange; known Protection System and Special Protection System status or degradation; Transmission outages; generator outages; Facility Ratings; and identified phase angle and equipment limitations. (Operational Planning Analysis may be provided through internal systems or through third-party services.)
Operating Plan	The NERC Glossary of Terms defines an Operating Plan as “a document that identifies a group of activities that may be used to achieve some goal. An Operating Plan may contain Operating Procedures and Operating Processes. A company-specific system restoration plan that includes an Operating Procedure for black-starting units, Operating Processes for communicating restoration progress with other entities, etc., is an example of an Operating Plan.”

Version History

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

17. Periodic Review Procedure

Appendix

No references at this time.