

Reliability Standard Audit Worksheet¹

IRO-008-2 – Reliability Coordinator Operational Analyses and Real-time Assessments

This section to be completed by the Compliance Enforcement Authority.

Audit ID: Audit ID if available; or REG-NCRnnnnn-YYYYMMDD
Registered Entity: Registered name of entity being audited
NCR Number: NCRnnnnn
Compliance Enforcement Authority: Region or NERC performing audit
Compliance Assessment Date(s)²: Month DD, YYYY, to Month DD, YYYY
Compliance Monitoring Method: [On-site Audit | Off-site Audit | Spot Check]
Names of Auditors: Supplied by CEA

Applicability of Requirements

	BA	DP	GO	GOP	IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
R1									X						
R2									X						
R3									X						
R4									X						
R5									X						
R6									X						

Legend:

Text with blue background:	Fixed text – do not edit
Text entry area with Green background:	Entity-supplied information
Text entry area with white background:	Auditor-supplied information

¹ NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC’s and the Regional Entities’ assessment of a registered entity’s compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC’s Reliability Standards can be found on NERC’s website. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

The NERC RSAW language contained within this document provides a non-exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity’s adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail.

² Compliance Assessment Date(s): The date(s) the actual compliance assessment (on-site audit, off-site spot check, etc.) occurs.

DRAFT NERC Reliability Standard Audit Worksheet

Findings

(This section to be completed by the Compliance Enforcement Authority)

Req.	Finding	Summary and Documentation	Functions Monitored
R1			
R2			
R3			
R4			
R5			
R6			

Req.	Areas of Concern

Req.	Recommendations

Req.	Positive Observations

Subject Matter Experts

Identify the Subject Matter Expert(s) responsible for this Reliability Standard.

Registered Entity Response (Required; Insert additional rows if needed):

SME Name	Title	Organization	Requirement(s)

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R1 Supporting Evidence and Documentation

- R1.** Each Reliability Coordinator shall perform an Operational Planning Analysis that will allow it to assess whether the planned operations for the next-day will exceed System Operating Limits (SOLs) and Interconnection Operating Reliability Limits (IROLs) within its Wide Area.
- M1.** Each Reliability Coordinator shall have evidence of a completed Operational Planning Analysis. Such evidence could include but is not limited to dated power flow study results.

Compliance Narrative (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

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Evidence Requested:

Provide the following evidence, or other evidence to demonstrate compliance.
Operational Planning Analysis, including but is not limited to dated power flow study results.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R1

This section to be completed by the Compliance Enforcement Authority

	(R1) Interview entity staff and determine if they perform an Operational Planning Analysis, which determines if the planned operations for the next-day will exceed System Operating Limits (SOLs) or Interconnection Operating Reliability Limits (IROLs) within its Wide Area.
	(R1) Review a sample of evidence that supports entity staff verbal statements and verify that the entity performs an Operational Planning Analysis, which determines if the planned operations for the next-

DRAFT NERC Reliability Standard Audit Worksheet

day will exceed System Operating Limits (SOLs) or Interconnection Operating Reliability Limits (IROLs) within its Wide Area.

Notes to Auditor:

- 1) The standard does not specify that a new daily Operational Planning Analysis (OPA) shall be performed. The entity may rely on an existing OPA if it is still valid for projected operating conditions. However, it would be valuable to understand in what situations the entity would not perform a daily “next-day” analysis in order to assess whether planned operations will exceed SOLs or IROLs.
- 2) For specific next-day analyses selected, consider how previous studies are validated, if used in place of conducting a unique next-day study for the specific next-day analysis selected?

Auditor Notes:

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R2 Supporting Evidence and Documentation

- R2.** Each Reliability Coordinator shall have a coordinated Operating Plan(s) for next-day operations to address potential System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances identified as a result of its Operational Planning Analysis as performed in Requirement R1 while considering the Operating Plans for the next-day provided by its Transmission Operators and Balancing Authorities.
- M2.** Each Reliability Coordinator shall have evidence that it has a coordinated Operating Plan for next-day operations to address potential System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances identified as a result of the Operational Planning Analysis performed in Requirement R1 while considering the Operating Plans for the next-day provided by its Transmission Operators and Balancing Authorities. Such evidence could include but is not limited to plans for precluding operating in excess of each SOL and IROL that were identified as a result of the Operational Planning Analysis.

Compliance Narrative (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

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Evidence Requested¹:

Provide the following evidence, or other evidence, to demonstrate compliance.
Coordinated Operating Plan for next-day operations to address potential System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R2

This section to be completed by the Compliance Enforcement Authority

(R2) Review a sample of Operating Plans provided by the entity to verify that it has a coordinated plan for next-day operations that addresses potential System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances. ~~FERC frequently comments that they believe a review of an entity provided representative sample, such as is presented here, is sufficient to demonstrate compliance during audits.~~

Note to Auditor: Based on the daily performance frequency of the Requirements R1 – R3, and R5. Sampling would typically be indicated to retrieve a valid sample across requirements R1-R3.

Auditor Notes:

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R3 Supporting Evidence and Documentation

- R3.** Each Reliability Coordinator shall notify impacted entities identified in the Operating Plan(s) cited in Requirement R2 as to their role in those plan(s).

- M3.** Each Reliability Coordinator shall have evidence that it notified impacted entities identified in the Operating Plan(s) cited in Requirement R2 as to their role in the plan(s). Such evidence could include but is not limited to dated operator logs, or e-mail records.

Compliance (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested¹:

Provide the following evidence, or other evidence to demonstrate compliance.

Ensure that during the audit period, the entity, per its next-day analysis and development of its Operating Plan, ~~did not notify~~notified impacted entities identified in the Operating Plan.

Ensure the entity provides the dates and times of evidence that it notified impacted entities, identified in the Operating Plan(s) cited in Requirement R3, as to their role in the plan(s). Such evidence could include but is not limited to dated operator logs, and/or e-mail records.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R3

This section to be completed by the Compliance Enforcement Authority

DRAFT NERC Reliability Standard Audit Worksheet

	(R3) During the audit period, did the entity, per its Operating Plan, identify impacted entities within its area?
	(R3) If the above answer is yes, review a sample of documentary evidence of appropriate next-day plans and determine if the entity notified all impacted entities identified in the Operating Plan(s) cited in Requirement R3 as to their role in those plan(s).
Note to Auditor: Sampling would typically be indicated to retrieve a valid sample for this requirement, but it could also be true that for the audit period there were no impacted entities which required notification.	

Auditor Notes:

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R4 Supporting Evidence and Documentation

- R4.** Each Reliability Coordinator shall ensure that a Real-time Assessment is performed at least once every 30 minutes.

- M4.** Each Reliability Coordinator shall have, and make available upon request, evidence to show it ensured that a Real-time Assessment is performed at least once every 30 minutes. This evidence could include but is not limited to dated computer logs showing times the assessment was conducted, dated checklists, or other evidence.

Compliance Narrative (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested:

Provide the following evidence, or other evidence to demonstrate compliance.
Dated computer logs showing time the assessment was conducted, dated checklists, or other evidence.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R4

This section to be completed by the Compliance Enforcement Authority

	(R4) For all, or a sample of, BES events selected by the auditor, review evidence (dates and times in the audit period) and determine if the entity ensured a Real-time Assessment was performed at least once every 30 minutes.
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Note to Auditor: Auditors are advised to monitor compliance with Requirement R4 during events, due to the importance of Real-time Assessments in such instances. Auditors can obtain a population of events for sampling from NERC's, or the Regional Entity's, records of mandatory event reports, other information available at the Regional Entities, or a query of the entity. Auditors are encouraged to monitor compliance during the most critical events on the entity's system occurring during the compliance monitoring period.

Auditor Notes:

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R5 Supporting Evidence and Documentation

- R5.** Each Reliability Coordinator shall notify impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the results of a Real-time Assessment indicate an actual or expected condition that results in, or could result in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance within its Reliability Coordinator Wide Area.

- M5.** Each Reliability Coordinator shall make available upon request, evidence that it informed impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, of its actual or expected operations that result in, or could result in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence. If such a situation has not occurred, the Reliability Coordinator may provide an attestation.

Compliance (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested:

Provide the following evidence, or other evidence to demonstrate compliance.
Review evidence that the entity informed impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the results of a Real-time Assessment indicate actual or expected conditions that results in, or could result in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence.
If the results of a Real-time Assessment do not indicate actual or expected conditions that result in, or could result in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance, the Reliability Coordinator may provide an attestation.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.

File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

DRAFT NERC Reliability Standard Audit Worksheet

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Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R5

This section to be completed by the Compliance Enforcement Authority

	(R5) Interview entity's representatives or review initial evidence to determine (for the compliance monitoring period) whether the entity's results of its Real-time Assessment(s) indicated an actual or expected condition that resulted in, or could <u>have resulted</u> in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance within its Wide Area.
	(R5) If the results of the assessment above are negative (n No determinations of SOL or IROL exceedances for the audit period), attestations may be provided).
	(R5) Review a sample of evidence that supports <u>the</u> entity's assertion that it informed Transmission Operators and Balancing Authorities within its Reliability Coordinator Area and other impacted Reliability Coordinators of its actual or expected operations that result in, or could <u>have resulted</u> in, a System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance.
	Note to Auditor: Based on the daily performance frequency of Requirements R1 – R3, and R5, sampling would typically be indicated to retrieve a valid sample across Requirements R1-R3, inclusive of Requirement R5 to perform Real time Assessments every 30 minutes for the randomly selected date(s) . Alternatively, R5 and R6 could be statistically sampled independent of R1-R3, if it was determined there were multiple instances where Real-time Assessments indicated actual or expected conditions that would or could <u>have resulted</u> in Reliability Coordinator <u>A</u> area SOL or IROL exceedance(s).

Auditor Notes:

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R6 Supporting Evidence and Documentation

- R6.** Each Reliability Coordinator shall notify impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance identified in Requirement R6 has been prevented or mitigated.
- M6.** Each Reliability Coordinator shall make available upon request, evidence that it informed impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance identified in Requirement R6 has been prevented or mitigated. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence. If such a situation has not occurred, the Reliability Coordinator may provide an attestation.

Compliance (Required):

Provide a brief explanation, in your own words, of how you comply with this Requirement. References to supplied evidence, including links to the appropriate page, are recommended.

Evidence Requested¹:

Provide the following evidence, or other evidence to demonstrate compliance.
When the SOL or IROL exceedance has been prevented or mitigated, provide documentation that the entity informed impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area and other impacted Reliability Coordinators. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence.

Registered Entity Evidence (Required):

The following information is requested for each document submitted as evidence. Also, evidence submitted should be highlighted and bookmarked, as appropriate, to identify the exact location where evidence of compliance may be found.					
File Name	Document Title	Revision or Version	Document Date	Relevant Page(s) or Section(s)	Description of Applicability of Document

Audit Team Evidence Reviewed (This section to be completed by the Compliance Enforcement Authority):

Compliance Assessment Approach Specific to IRO-008-2, R6

This section to be completed by the Compliance Enforcement Authority

	(R6) Review submitted documentation to determine if the entity prevented or mitigated System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance(s) in Requirement R5. If, there were no such instances, review attestation from Requirement R5 asserting this fact.
	(R6) When the SOL or IROL exceedance has been <u>was</u> prevented or mitigated, review sample(s) of Requirement R5 evidence for supporting documentation that the entity notified impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators (if appropriate).
Note to Auditor: Where Requirement R5 evidence indicates possible SOL or IROL exceedances, the follow-up notification is specific to the condition of prevention or mitigation as indicated in Requirement R6. Meaning, review evidence to assure the entity notified (potentially) impacted entities of possible SOL or IROL exceedances (as identified in R5) that the possible SOL or IROL condition(s) have been <u>was</u> prevented or mitigated.	

Auditor Notes:

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Additional Information:

Reliability Standard

To be inserted by RSAW developer prior to posting of this RSAW associated with the enforceable date of this Reliability Standard.

Sampling Methodology

To be inserted by RSAW developer prior to posting of this RSAW associated with the enforceable date of this Reliability Standard, if applicable.

Regulatory Language

To be inserted by NERC Legal prior to posting of this RSAW associated with the enforceable date of this Reliability Standard.

Selected Glossary Terms:

Please refer to the NERC web site for the current enforceable terms.

Specific Glossary terms suggested to be included in this RSAW:

Operating Instruction – new definition from Glossary of Terms – as proposed, 05/06/14:

“..A command by operating personnel responsible for the Real-time operation of the interconnected Bulk Electric System to change or preserve the state, status, output, or input of an Element of the Bulk Electric System or Facility of the Bulk Electric System. (A discussion of general information and of potential options or alternatives to resolve Bulk Electric System operating concerns is not a command and is not considered an Operating Instruction...”

Operational Planning Analysis (adopted 3/17/2011):

An analysis of the expected system conditions for the next day’s operation. (That analysis may be performed either a day ahead or as much as 12 months ahead.) Expected system conditions include things such as load forecast(s), generation output levels, and known system constraints (transmission facility outages, generator outages, equipment limitations, etc.).

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Revision History for RSAW

Version	Date	Reviewers	Revision Description
1	06/20/2014	Initial Posting	New Document
2	08/29/2014	NERC Compliance, NERC Standards, RSAWTF	Revisions for updated standard language and comments received during comment period.
3	10/16/2014	NERC Compliance, NERC Standards	Revisions for comments received during second comment period.
<u>4</u>	<u>12/051/2014</u>	<u>NERC Compliance, NERC Standards</u>	<u>Deleted sentence in Compliance Assessment Approach for Requirement R2.</u>

ⁱ Items in the Evidence Requested section are suggested evidence that may, but will not necessarily, demonstrate compliance. These items are not mandatory and other forms and types of evidence may be submitted at the entity's discretion.