Event Analysis Process Version 5.0

Effective January 1, 2024

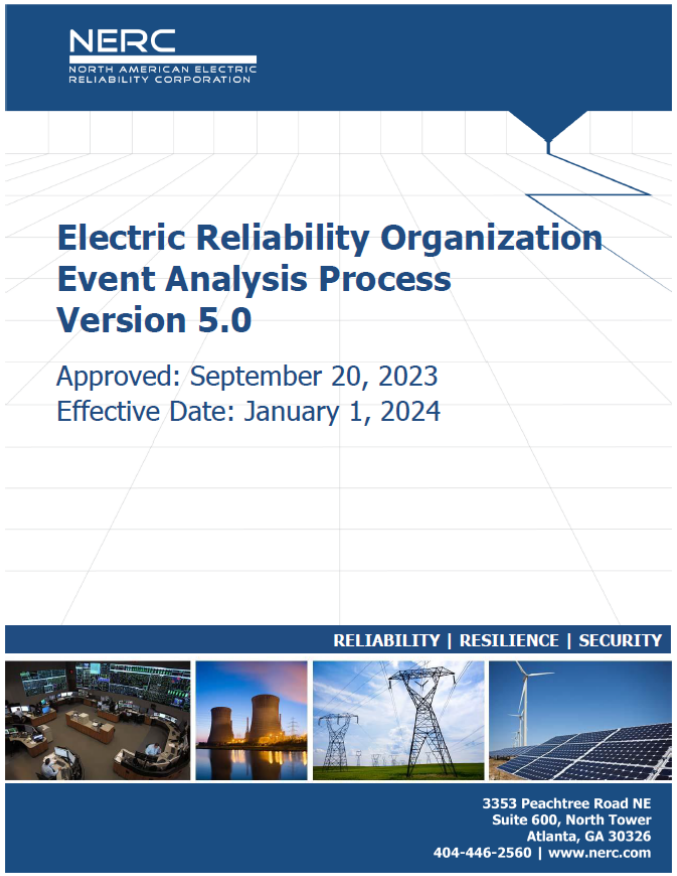
Quintin Lee

Manager, Events Analysis

NPCC, Inc.

General Information

- Events Analysis Subcommittee (EAS)-Led Periodic Review
  - ✓Reliability and Security Technical Committee (RSTC) Approval
- Industry Comment Period
  - ✓April 5 –May 19, 2023
- Received 57 Comments from 10 different entities
- Comments reviewed by the EAP Update Team



Theme of Updates

- Update the Introduction section to provide additional background information regarding the Event Analysis Program – “Why”.

- Update the Process Overview section to provide additional background information regarding the Event Analysis Process – “How”.

- Revise the ERO Event Analysis Process section to provide clarity and describe changes to event categorization definitions that include the following…

Theme of Updates

- Retire Category 1b
- Retire Category 1d
- Revise Category 1e definition to provide clarity
- Revise Category 1h definition in accordance with the recommendation of the EMS Working Group to provide clarity
- Revise Category 2e definition to provide clarity
- Revise Category 2f definition to provide clarity
- Revise Category 2g definition to provide clarity
- Combine Categories 3, 4, & 5 into a single Category 3

Category 1 Revisions

~~a.~~b. ~~Intended and controlled system separation by the proper operation of a remedial action scheme (RAS) in New Brunswick or Florida from the Eastern Interconnection~~ ~~Intended and controlled system separation by the proper operation of a remedial action scheme (RAS) in New Brunswick or Florida from the Eastern Interconnection~~Retired on January 1, 2023

~~b.~~c. Failure or misoperation of a BES Remedial Action Scheme (RAS)

~~c.~~d. ~~System-wide voltage reduction of 3% or more that lasts more than 15 continuous minutes due to a BES Emergency~~ Retired on January 1, 2023

e. BES system separation contrary to design that results in an island of 100 MW to 999 MW. This excludes BES radial connections and non-BES (distribution) level islanding

~~d. Unintended BES system separation that results in an island of 100 MW to 999 MW. This excludes BES radial connections and non-BES (distribution) level islanding~~

~~e.~~f. ~~Unplanned evacuation from a control center facility with BPS SCADA functionality for 30 minutes or more.~~ Retired on January 1, 2016

Category 1 Revisions

h. Loss of monitoring[8] and/or control[9] at a Control Center such that it degrades[10] the entity's ability to make Real-time operating decisions that are necessary to maintain reliability of the BES in the entity's footprint for 30 continuous minutes or more

~~Loss of monitoring or control at a control center such that it significantly affects the entity's ability to make operating decisions for 30 continuous minutes or more.~~

Some examples that should be considered for EA reporting include, but are not limited to the following. :Additional cases are provided in the Addendum for Category 1h Events found under reference materials for event analysis on the EA Program website.[11]

i. Loss of operator ability to remotely monitor or control BES elements
ii. Loss of communications from SCADA remote terminal units (RTU)
iii. Unavailability of ICCP links, which reduces BES visibility
iv. Loss of the ability to remotely monitor and control generating units via automatic generation control (AGC)
v. Unacceptable state estimator or real time contingency analysis solutions

Category 1 Revisions - footnotes

8 The ability to accurately receive relevant information about the BES in Real Time and evaluate system conditions using Real-time data to assess existing (pre-Contingency) and potential (post-Contingency) operating conditions to maintain reliability of the BES

9 The ability to take and/or direct actions to maintain the reliability of the BES in Real Time via entity actions or by issuing Operating Instructions

10 For purposes of 1h categorization “degrades” means less-than required functioning of any monitoring/control component, process, or capability.

Category 2 Revisions

e. System separation contrary to design, that results in an island of 1,000 MW to 4,999 MW

~~e. Unintended system separation that results in an island of 1,000 MW to 4,999 MW~~

f. Simultaneous loss of 300 MW or more of firm load due to a BES event, contrary to design, ~~for~~ for more than 15 minutes~~, not related to an extreme weather event~~

~~f. Unintended loss of 300 MW or more of firm load for more than 15 minutes~~

g. Interconnection Reliability Operating Limit (IROL) ~~violation~~ exceedance for ~~time~~ greater than ~~T,~~ 30 minutes

Category 3 Revisions

a. Loss of firm load, contrary to design, of 2,000 MW or more.

~~a. Unintended loss of load, generation (including inverter type resources), or dc tie to asynchronous resources of 2,000 MW or more.~~

b. System separation contrary to design, that results in an island of 5,000 MW ~~to 10,000 MW~~or more

~~b. Unintended system separation that results in an island of 5,000 MW to 10,000 MW~~

c. System separation (without load loss) contrary to design, that islands Florida from the Eastern Interconnection

~~c. Unintended system separation (without load loss) that islands Florida from the Eastern Interconnection~~

d. Loss of 2,000 MW or more provided by DC tie(s) ~~to~~connected to asynchronous resources ~~of 2,000 MW or more~~

e. Loss of generation (including inverter-based resources) of 2,000 MW or more. This excludes RAS action that performed as designed.

Appendices Revisions

- General cleanup of Appendices A, B, C, E

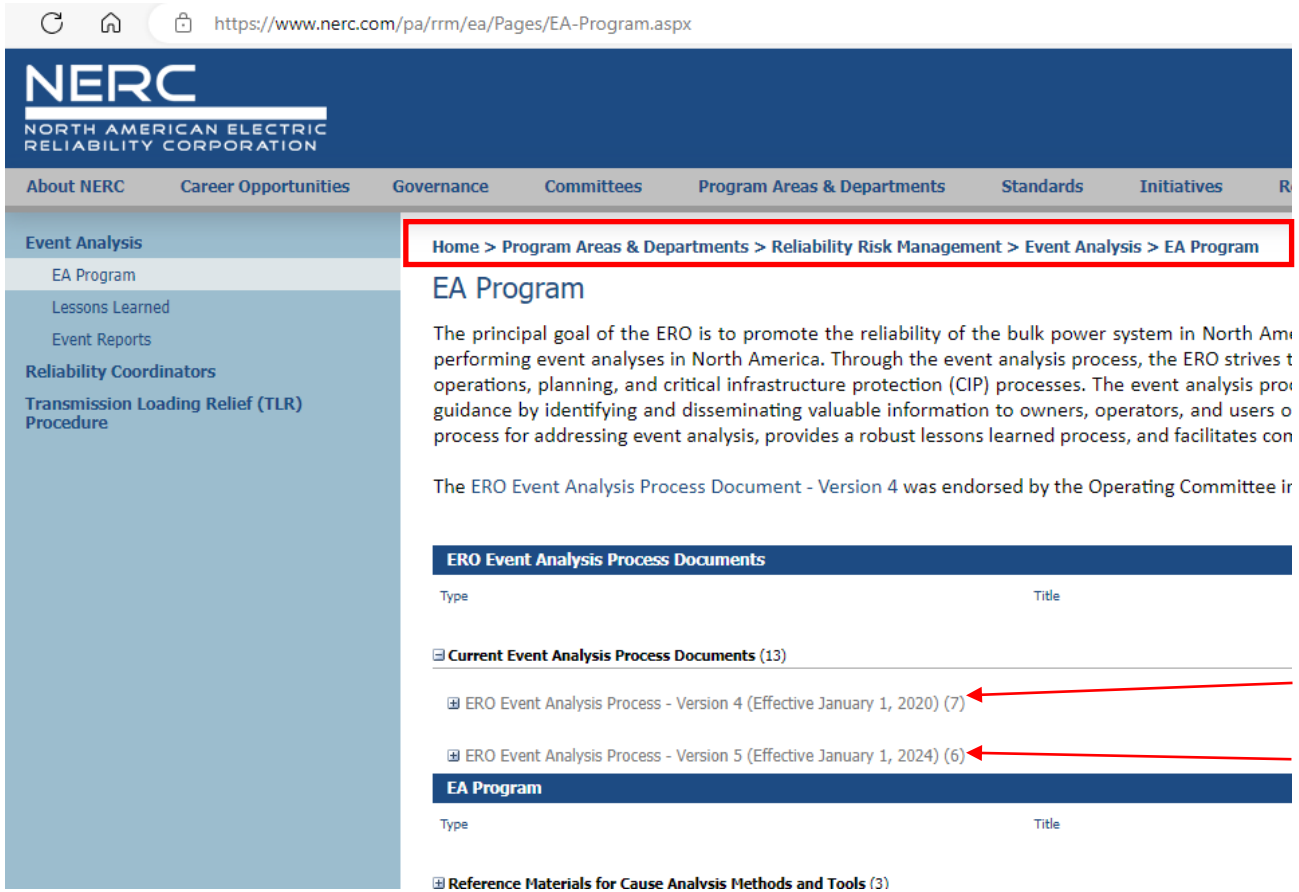
- Removal of the ‘draft’ or ‘Initial’ Brief Report

Event Category	Brief Report	Event Analysis Report	Lessons Learned	Close Event Analysis
1	Registered entity sends ~~draft~~ interim report to the Regional Entity ~~(RE)~~ within 10 business days of the event for review (day of the event does not add to the count). Registered entity sends final report to the Regional Entity~~RE~~ to be uploaded by the Regional Entity~~RE~~ to NERC within 20 business days.	(If requested)[2] Within 30 business days of the ~~event~~request	Within ~~30~~ 45 business days of the event (if applicable)	10 business days following receipt of final Brief Report or 30 business days following receipt of final EAR (if requested)~~10 business days following receipt of final Brief Report~~

Brief Report Template

Reported Event Title:			
Event Date:		Submittal Date:	
Subsequent Submittal Date:		~~Initial,~~ Interim or Final Report:	

Supporting Material



NERC Webinar covering transition to Version 5 being planned.

Stay Tuned…

Questions???

Contact Information

Quintin Lee

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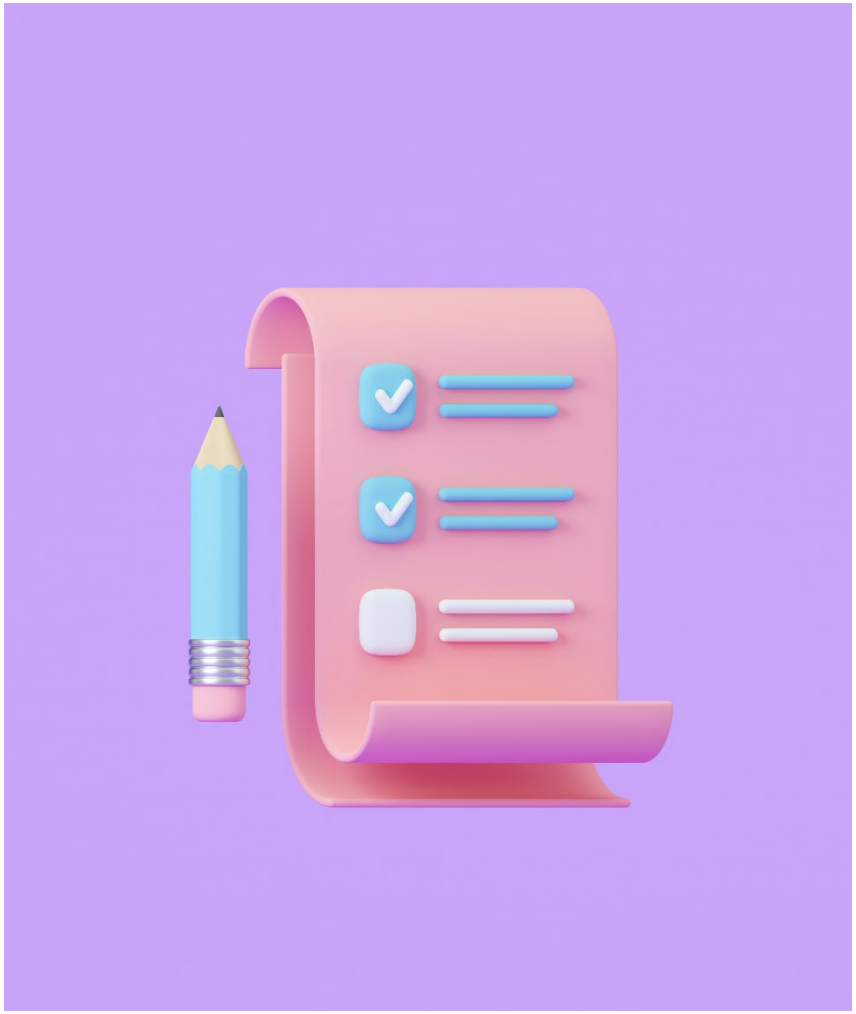
Risk Assessment and Internal Control Testing

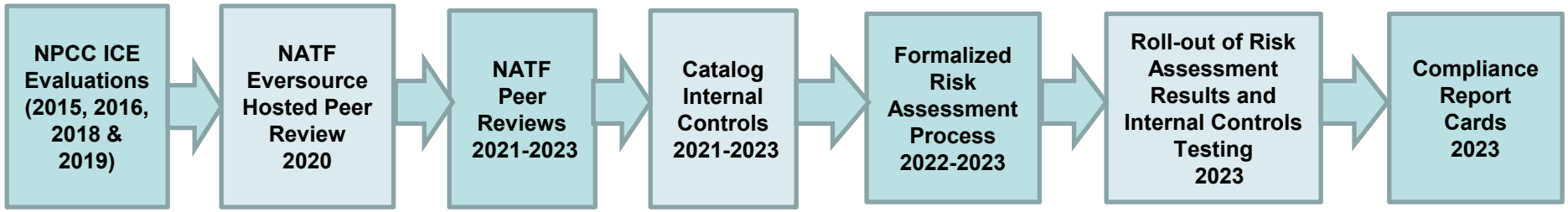
November 9th, 2023

Contents

- Eversource's Journey of Continuous Improvement
- Internal Control Cataloging
- Risk Assessments:
  - Criteria
  - Scores
- Internal Control Testing:
  - Pilot
  - Form
- Compliance Report Cards
- Next Steps



Journey of Continuous Improvement:



Notes:

- NPCC ICE evaluations covered both O&P and CIP Standards.
- Eversource hosted NATF Peer Review in December 2020 and reviewed "principals of operating excellence" (POEs) for Risk, Controls and Compliance (RCC). Areas for improvement were related to (1) Risk Assessment and (2) Internal Controls.
- Eversource compliance staff participated in NATF Peer Reviews at AEP, Southern Company and Dominion in years 2021 – 2023. Best practices on risk assessments and internal controls testing were leveraged from these peer reviews. In addition, NATF Internal Controls (monitoring, testing & design) and Risk Assessment reference documents were reviewed and leveraged during implementation at Eversource.
- NPCC ICE spreadsheet (procedures, tools & human capital) was leveraged to facilitate 100% cataloging of internal controls. Developed "Internal Controls Testing" procedure.
- Developed "Internal Risk Assessment Process" document.
- Rolled out Internal Controls testing in 2023 based on risk assessment scoring.
- Developed "Compliance Report Cards" for all Departments responsible for NERC Standards & Requirements.

Internal Controls Catalog

NERC Standards and Requirements					For Entity Use			
Standard Number	Requirement Number	Function	Text of Requirement	Violation Risk Factors	Entity IC Design & IC's	Key IC Indicator	IC Type [P/D/C - Preventative, Detective, Corrective]	IC's Design Mode (A=Auto, M=Manual, H=Hybrid)
EOP-004-4	R2	RC, BA, TO, TOP, GO, GOP, DP	Each Responsible Entity shall report events specified in EOP-004-4 Attachment 1 to the entities specified per their event reporting Operating Plan by the later of 24 hours of recognition of meeting an event type threshold for reporting or by the end of the Responsible Entity's next business day (4 p.m. local time will be considered the end of the business day).	MEDIUM	1.0 Procedures			
					1.1 TD-191, "Suspicious Event or Condition Recognition and Notification"	1.1 Key		
					1.2 OP-10 "Emergency Incident and Disturbance Notifications"	1.2 Key		
					1.3 OG-10D "Distribution / System Off Schedule Response, Tracking and Administration for Emergent Work"	1.3 Key		
					1.4 OP-0010 "Power System Emergency Reporting"	1.4 Key		
					1.5 OP-10 "Emergency Incident and Disturbance Notifications"	1.5 Key		
					1.6 OG-10A, "Event Notification Disturbance Reporting and Documentation Guide	1.6 Key		
					1.7 OI-0010 "Disturbance and Significant Incident Processing and Reporting"	1.7 Key		
					2.0 Tools			
					2.1 DOE Form OE-417 "Electric Emergency Incident and Disturbance Report.	2.1 Key		
					3.0 Human Capital			
					3.1 OJT and initial distribution/transmission operator training			
EOP-005-3	R1	TOP	1.1. Strategies for System restoration that are coordinated with its Reliability Coordinator's high level strategy for restoring the Interconnection. 1.2. A description of how all Agreements or mutually-agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration. 1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of its Reliability Coordinator. 1.4. Identification of each Blackstart Resource and its characteristics	HIGH	1.0 Procedures			
					1.1 ISO M/LCC 12 Coordination of Responsibilities (Joint)	1.1 Key	P	M
					1.2 ISO M/LCC 11 - Verification of New England System Restoration Plan	1.2 Key	P	M
					1.3 ISO M/LCC 18 - System Restoration Plan		P	M
					1.4 ISO OP-11, Blackstart Resource Administration		P	M
					2.0 Tools			
					2.1 M/LCC 18 Attachment A, System Restoration Flowchart (Confidential)	2.1 Key	P	M
					2.2 M/LCC 18 Attachment D, Inter-LCC Ties Operating at 115 kV and Above	2.2 Key	P	M
					2.3 M/LCC 18 Attachment G, Restoration Strategies	2.3 Key	P	M
					2.4 M/LCC 18 Attachment N, Synchronizing Checklist	2.4 Key	P	M
					2.5 M/LCC 18 Attachment O, Designated Black Start (Confidential)	2.5 Key	P	M
					2.6 M/LCC 18 Attachment P, Restoration Voltage Limits,	2.6 Key	P	M

Criteria for Risk Assessments

Scope: Applicable NERC standards and Requirements – approx. 300+ Requirements

Risk Score is based on the following **8** inputs:

1. Inclusion in the Compliance Monitoring & Enforcement Plan (CMEP):
   - Annual strategic plan that highlights the focus of NERC's monitoring and enforcement efforts.

2. Inclusion in the NPCC Compliance Oversight Plan (COP):
   - Identifies how NPCC will monitor a registered entity's compliance with selected NERC Reliability Standards based on entity-specific risks.

3. NERC's Violation Risk Factor (VRF) Value:
   - Used to determine an appropriate sanction when the associated requirement is violated.

4. NERC's Time Horizon Value:
   - Used to determine an appropriate sanction when the associated requirement is violated.

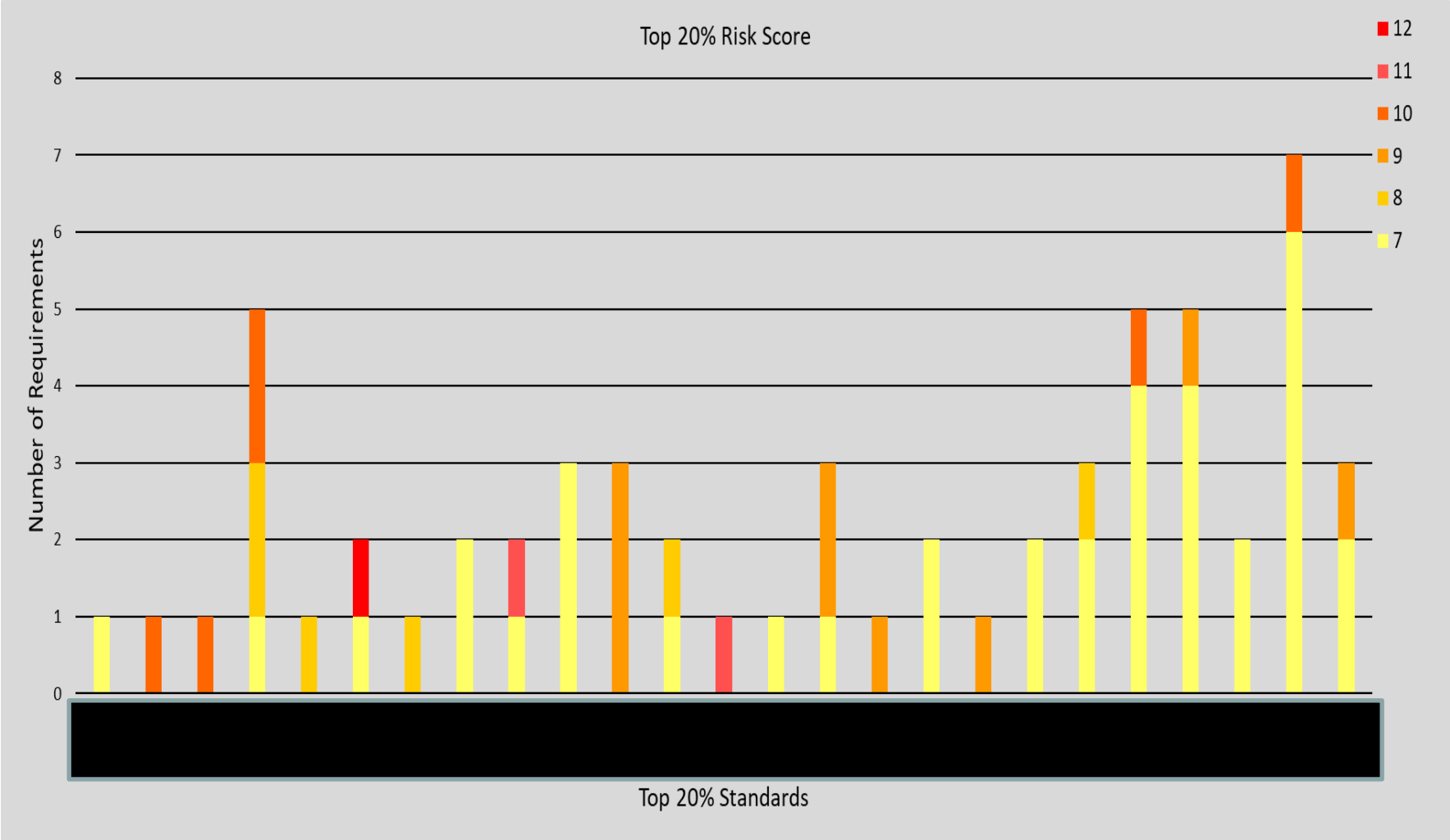
5. Major Bulk Electric System (BES) Events

6. Area of Concerns (AOC) / Recommendations from previous NPCC Audits

7. Violation History (Previous Self-Reports / Audit Findings)

8. RC/BA Responsibility Status

Standards/Requirements based on Total Risk Score



Internal Control Testing Pilot

- Compliance Team has initiated a Pilot to conduct tests of the Internal Controls for the NERC Requirements that fall in the top 20% of High Risk (and are not going through a Self-Assessment or other compliance review activity).
- Compliance Team meets with Business Area SMEs to gather supporting documentation, ask questions and review policies and procedures to determine if the Internal Control is sufficient to ensure compliance with the NERC Requirement.
- Compliance Team developed an Internal Controls Testing Form to grade the Internal Controls as Pass or Fail, provide recommendations for improvements, and to keep Catalog current.

Internal Controls Testing Form

06/16/2023
Form Approval Date

Form Effective Date

Targeted Internal Controls (IC) Testing Form

Standard:	Requirement:	State / Department:
Control(s) Tested:	IC Subpart Tested:	Frequency of IC:

Eversource Cataloged IC(s) Reviewed:

-

Review Period:

-

Standard/Requirement Description:

Prepared By	Date	Approver	Approval Date

Internal Controls Team: *(Who participated in IC testing?)*

SME	SME Title	SME Department

Internal Control Initiating Action: *(What triggers the IC to begin?)*

-

Inputs: *(What information is needed to test the IC and where was it obtained?)*

Supporting Documentation	Rev. Date	Obtained From

Test Results: *(Select from drop-down menu)*

Choose an item.

Summary of IC Test Results: *(Explain how you tested the IC and summary of findings)*

Modification of Internal Controls: (Were any new ICs discovered or to be removed?)

Action	Internal Control

Recommended Mitigation Actions:

#	Recommended Mitigation Action Description	Responsible SME	Action Due Date
1			
2			
3			

Approval:	Date:
Director – Regulatory Compliance	
Approval:	**Date:**
Director – Business Area*	

* Business Area Director approval is only required if the Internal Controls Test fails, or there are mitigation actions assigned to the Business Area.

Compliance Report Cards

- Provide better visibility and situational awareness of compliance universe and identification of the highest risk Standards/Requirements within specific departments.
- Highlight the need to avoid complacency and focus on Internal Controls.
- Tool to use for goal setting / performance measures within specific departments.
- Compliance Report Cards will be refreshed annually following the updated Risk Assessment.

Compliance Report Cards - Inputs

	Input	Description
1	**Compliance Universe**	66 Standards / 300 requirements - % applicable to Departments
2	**High-Risk Standards/Requirements**	% of Requirements that are in the “Top 20%”
3	**Eversource Self-Reports / PNCs**	% of self-reports and audit findings. Repeat violations
4	**2021 NPCC Audit Findings**	Highlights PNC and Areas or Concerns and Recommendations
5	**Recent Self-Assessments**	Executed by Reliability Compliance, vendors, Internal Audit or ISO-NE
6	**Key SMEs and Bench Strength**	Staff supporting NERC compliance activities and audit support
7	**Reliability Compliance / Operational Compliance Support**	Highlights activities performed by RC/OC teams to support compliance
8	**Key Processes & Internal Controls**	Highlights key controls / processes supporting compliance / IC Test Results
9	**Appendix: Compliance Universe**	Provides list of applicable NERC Standards/Requirements applicable to Departments

Next Steps

- Eversource will evaluate:
  - Internal Control Testing Pilot to determine best approach for future Testing:
    - (Annual, Triennial, Risk Based, etc.)
  - Tool for Tracking Internal Control Testing Results

Q&A

Standards Development Update

Ruida Shu – *Reliability Standards Manager*

Brian Deckert – *Senior Standards & Criteria Engineer*

NPCC, Inc.

Overview

- Prioritization of Projects by NERC
- IBR Standards in Process
- Project 2019-02 BES Cyber System Information Access Management
  - CIP-004-6 to CIP-004-7 Existing Requirements
  - CIP-011-2 to CIP-011-3 Existing Requirements
- Project 2020-05 Modifications to FAC-001 and FAC-002
  - FAC-002-4 R1, R2, R3, R4 and New R6
- Q&A

High Priority Standards Development Projects

- 2016-02 Modifications to CIP Standards
- 2020-02 Modifications to PRC-024 (Generator Ride-through)
- 2020-04 Modifications to CIP-012
- 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination
- 2022-03 Energy Assurance with Energy-Constrained Resources
- 2023-03 Internal Network Security Monitoring (INSM)
- 2023-04 Modifications to CIP-003
- 2023-06 CIP-014 Risk Assessment Refinement
- 2023-07 Modifications to TPL-001-5.1 Transmission System Planning Performance Requirements for Extreme Weather

Medium / Low Priority

Medium Priority

- 2021-01 Modifications to MOD-025 and PRC-019
- 2022-05 Modifications to CIP-008 Reporting Threshold
- 2023-01 EOP-004 IBR Event Reporting
- 2023-02 Performance of IBRs

Low Priority

- 2017-01 Modifications to BAL-003 Phase II
- 2019-04 Modifications to PRC-005-6
- 2020-06 Verifications of Models and Data for Generators
- 2021-02 Modifications to VAR-002 -4.1
- 2021-04 Modifications to PRC-002-2
- 2021-08 Modifications to FAC-008
- 2022-01 Reporting ACE Definition and Associated Terms
- 2022-02 Modifications to TPL-001-5.1 and MOD-032-1
- 2022-04 EMT Modeling

IBR Projects

2020-02 Modifications to PRC-024 (Generator Ride-through)

- Establish IBR ride through performance criteria and other expectations. Review and Retain PRC-024 for synchronous generators. New PRC-029 Standard to mirror PRC-024.

2020-06 Verifications of Models and Data for Generators

- Ensures acceptable dynamic models are verified and coordinated for IBR. Will include definition(s) for IBR that should be leveraged by all IBR Projects.

2021-01 MOD-025 and PRC-019

- Adds new verification and coordination of IBR capability, control, and protective functions.

2021-04 PRC-002 & PRC-028

- Ensures adequate data for analysis of disturbances. New PRC-028 Standard to mirror PRC-002.

IBR Projects

2022-04 EMT Modeling

- FAC-002, MOD-032, TPL-001
- Ensures the development and verification of EMT Models for IBR during the interconnection process.

2023-01 EOP-004 IBR Reporting

- Modifies existing language to add clarity for IBR generation loss that triggers reporting.

2023-02 Performance of IBRs (new PRC-004)

- Develops IBR performance analytical responsibilities and that corrective action plans are developed. New PRC Standard to mirror PRC-004; potentially PRC-030.

Project 2019-02 BES Cyber System Information Access Management

- Standard(s) Affected
  - CIP-004-6 – Cyber Security – Personnel & Training
  - CIP-011-2 – Cyber Security – Information Protection
- Final Ballot passed on: June 11, 2021
- Board Adopted: August 12, 2021
- Filed with FERC: September 15, 2021
- FERC Approval: December 7, 2021 (Docket No. RD21-6-000, Document #: 20211207-3062)
- Implementation Period: 24-month

CIP-004-6 to CIP-004-7 Requirements

Requirement in Approved Standard	Translation to New Standard or Other Action
	New Requirement: CIP-004-7, Requirement R6
CIP-004-6, Requirement R4, Part 4.1.3	CIP-004-7, Requirement R6, Part 6.1, 6.1.1, and 6.1.2
CIP-004-6, Requirement R4, Part 4.4	CIP-004-7, Requirement R6, Part 6.2, 6.2.1, and 6.2.2
CIP-004-6, Requirement R5, Part 5.3	CIP-004-7, Requirement R6, Part 6.3
CIP-004-6, Requirement R5, Part 5.4	CIP-004-6, Requirement R5, Part 5.3
CIP-004-6, Requirement R5, Part 5.5	CIP-004-6, Requirement R5, Part 5.4

CIP-011-2 to CIP-011-3 Existing Requirements

Requirement in Approved Standard	Translation to New Standard or Other Action
CIP-011-2, Requirement R1	CIP-011-3, Requirement R1
CIP-011-2, Requirement R1, Part 1.1	CIP-011-3, Requirement R1, Part 1.1
CIP-011-2, Requirement R1, Part 1.2	CIP-011-3, Requirement R1, Part 1.2

Project 2020-05 Modifications to FAC-001 and FAC-002

- Standard(s) Affected
  - FAC-001-3 – Facility Interconnection Requirements
  - FAC-002-3 – Facility Interconnection Studies
- Final Ballot passed on: April 22, 2022
- Board Adopted: May 12, 2022
- Filed with FERC: June 14, 2022
- FERC Approval: November 23, 2022 (Docket No. RD22-5-000, Document #:2022-25588)
- Implementation Period: 12-month

FAC-002-4 R1, R2, R3, R4 and New R6

Requirement in Approved Standard	Translation to New Standard or Other Action
FAC-002-3 R1	FAC-002-4 R1 Modified the Existing Requirement
FAC-002-3 R2	FAC-002-4 R2 Modified the Existing Requirement
FAC-002-3 R3	FAC-002-4 R3 Modified the Existing Requirement
FAC-002-3 R4	FAC-002-4 R4 Modified the Existing Requirement
	FAC-002-4 R6 New Standard: Each Planning Coordinator shall maintain a publicly available definition of qualified change for the purposes of facility interconnection. [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]

PRC-006-NPCC-3

Upcoming Revision

- A Regional Standard Authorization Request (RSAR) for NPCC Regional Standard PRC-006-NPCC-2 *Automatic Underfrequency Load Shedding* has been approved by the Regional Standards Committee (RSC) and assigned to Task Force on System Protection (TFSP) by the Reliability Coordinating Committee (RCC).
- The purpose of the RSAR is to review the existing FERC approved Regional Standard PRC -006-NPCC-2 and establish tolerances within the total operating time of each UFLS stage.
- In accordance with the NPCC Regional Standard Processes Manual, NPCC solicited additional candidates to assist with the drafting of the standard which concluded on November 6th, 2023.
- The Regional Standards Committee will review and approve qualified candidates who self-nominate at its December 7, 2023, meeting.
- The goal is to convene the first regional drafting team meeting in January 2024.

Questions & Answers

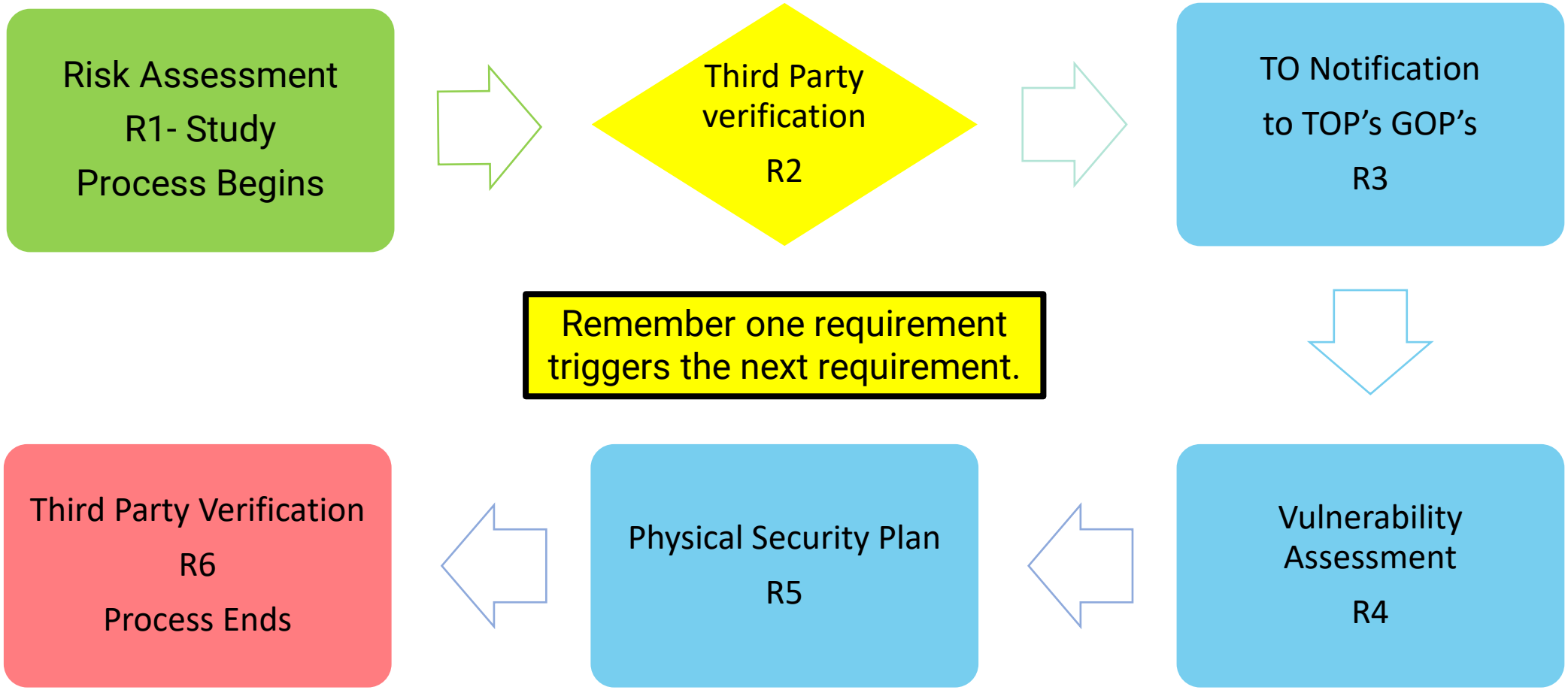
CIP-014-3 Expectations

Anil Rauniyar
Senior CIP Compliance Auditor

Travis Tate
Senior Compliance Analyst

NPCC, Inc.

CIP-014 Process



NPCC CIP-014 Focus Areas

The aspects of the R2 Third-Party review that NPCC wishes to understand

- Identification of all parties that performed the R1 assessment in its entirety.
  - What is the role of those identified in the study?
- How does the third-party reviewer influence the study prior to being the third-party reviewer?
- What is the third-party reviewers' credentials?
  - An adjacent TO with transmission planning experience
  - A Reliability Coordinator or ISO with transmission planning experience.

The aspects of the R6 Third-Party review that NPCC wishes to understand

- Did the review occur concurrently with or after completion of R4 and R5?
- What are the third party-reviewers' credentials?
  - Entity or organization with electric industry physical security experience with either
    - A Certified Protection Professional (CPP)
    - A Physical Security Professional (PSP) certification.
  - An entity or organization approved by the ERO.
  - A governmental agency with physical security expertise.
  - An entity or organization with demonstrated law enforcement, government, or military physical security expertise.

Requirement 1 Common Questions

What determines if an entity will be on a 30 or 60 calendar month assessment cycle?

- The assessment cycle is dependent on entities identifying facilities that meet the R1 criteria.

How does NPCC determine if an entity has met the 30- or 60-month compliance obligation?

- The NPCC team specifically looks at the completion date of the prior study to determine if an entity has completed the most current assessment of the audit period within 30 or 60 calendar months.

Requirement 1 Common Questions

Can the risk assessment be completed more often than 30 or 60 calendar months?

Yes, the risk assessment can be completed more often but never longer than 30 or 60 months.

In addition, the assessment should be completed in its entirety (R1-R6).

Requirement 1 Common Questions

Why does NPCC need to know what models were utilized in our R1 study?

The study year helps the audit team determine if the entity accounted for those facilities that will be in service within 24 months from the date of the study. We are still going to ask you to list those stations.

Are we required to perform a dynamic study?

NPCC asks if dynamic studies are a consideration in the entity's R1 assessment. If not, NPCC would like to understand how you identify instability.

Requirement 1

Each Transmission Owner Shall:	Frequency
• Perform an initial risk assessment and subsequent risk assessments of its Transmission stations and substations • Include existing and planned to be in service within 24 month • Identify instability, uncontrolled separation, or Cascading • Identify the primary control center that operationally controls each Transmission station or substation identified	• Once every 30 calendar months for a Transmission Owner that has identified in its previous risk assessment Transmission stations or substations • Once every 60 calendar months for a Transmission Owner that has not identified in its previous risk assessment Transmission stations or substations

Requirement 2 Common Questions

Who should perform the third-party review?

The third-party review should be performed by another TP that does not have part in the study. If an ISO dictates the inputs of the study an entity performs how can the ISO be a non-bias reviewer?

How long does the reviewer have to complete R2?

R2 should be completed within 90 calendar days or R1 completion.

What if the reviewer recommended adjustments to the R1 study parameters?

The entity has 60 days from the third-party notification date to address the recommendations and resubmit to the third-party reviewer.

Requirement 3 Common Questions

How long does the TO have to notify the TOPs or GOPs?

- The TO has 7 days after confirmation of the third-party approval of the study to notify the TOP and GOP.

Requirement 4 Common Questions

When must the R4 vulnerability assessment be completed?

- The R4 assessment must be completed within 120 calendar days of R2 completion or R3 notification for TOP's and GOP's.

Will TOP's and GOP's get a PNC if the R3 notification is received more than 7 calendar days after R2 completion?

- If the R4 and R5 assessment is completed within 120 calendar days of notification from the respective TO, the TOP or GOP will not get a PNC. The TO would get a PNC for failing to meet their R3 compliance obligation for this instance.

Requirement 4 Common Questions

When is the R4 complete?

- R4 is considered complete after the third party has completed their review and all adjustments have been addressed, if any.

Requirement 4

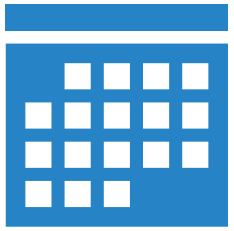
Phase 1:

- Determine if the entity:
  - Complete the vulnerability assessment within **30 calendar months** from the last assessment
  - Completed the the assessment within **120 calendar days** of:
    - R2 completion or
    - R3 notification

Phase 2:

- Determine if the entity:
  - **Reviewed** their vulnerability and threat landscape
  - **Compare** the previous assessment to the most current assessment
  - **Verify** the third-party reviewers notes or comments

Requirement 5 Common Questions



When must the R5 physical security plan be completed?

The R5 physical security plan must be completed within 120 calendar days of R2 completion or R3 notification for TOPs and GOPs.

When is the R5 complete?

R5 is considered complete after the third party has completed their review and all adjustments, if any, have been addressed.

Requirement 5

Phase 1:

- Determine if the entity:
  - Completed the R5 physical security plan within **30 calendar months** from the last assessment
  - Completed the R5 Plan within **120 calendar** days of:
    - R2 completion or
    - R3 notification

Phase 2:

- Determine if the entity:
  - **Based** their R5 plan on their R4 assessment
  - **Compare** the previous R5 plan to the most current R5 plan
  - **Verify** the third-party reviewers notes or comments

Requirement 6 Anticipated Questions

When must the R6 third party review be completed?

- R6 should be completed within 90 calendar days of R4 and R5 completion.
- The entity has 60 days from the third-party notification date to address the recommendations and resubmit to the third-party reviewer.

When is the R6 complete?

- R6 is considered complete after the third party has completed their review and all adjustments, if any, have been addressed.

Requirement 6

Phase 1:

- NPCC quick review:
- Did the review occur within 90 days of R4 and R5 completion?
- Were changes recommended?
  - Were changes addressed within 60 calendar days?
    - How did the entity address the changes?
- Reviewer final approver date?

Phase 2:

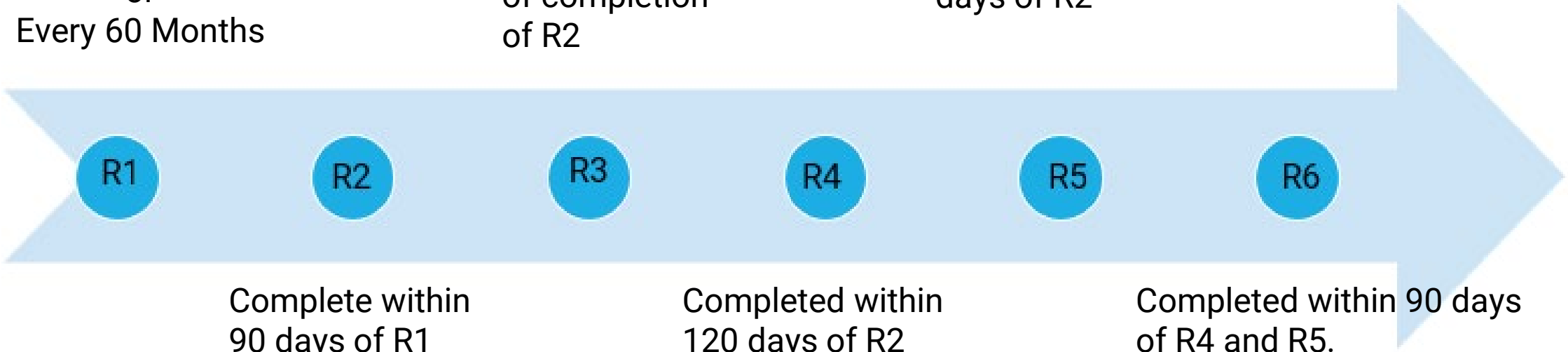
- Reviewer credentialing:
  - A Certified Protection Professional (CPP)
  - Physical Security Professional (PSP) certification.
  - An entity or organization approved by the ERO.
  - Demonstrated physical security expertise.

CIP-014 Timeline Review

Every 30 Months,
or
Every 60 Months

Within 7 days of completion of R2

Completed within 120 days of R2



Complete within 90 days of R1

60 days to address issues

Completed within 120 days of R2 completion

Completed within 90 days of R4 and R5.
60 days to address issues

Note: All days and months are calendar days and calendar months

Questions

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Compliance Monitoring Program Updates

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NPCC, Inc.

Agenda

- 2024 Audit Schedule
- Hybrid On-site Audits
- 2024 Self-Certification Schedule
- Updates to Audit Notification Letter (ANL)
- CIP-007-6 R4.1
- CIP-012-1(RTm)
- Periodic Data Submittals (PDS)
- NPCC Audit Team Update

2024 Audit Schedule

2024 Audit Schedule Posted on NPCC website

- https://www.npcc.org/program-areas/compliance/monitoring/compliance-audit-schedule
- 7 Hybrid On-site Audits
- 21 Off-site Audits
- **All audits will use Align and the SEL**

Hybrid On-site Audits

Hybrid audit approach

- Virtual interviews
- On-site inspections
  - Control Center tours
  - Cyber
  - CIP-014
  - Small sub-set of audit team

On-site CC Inspections

- Takes 1 -2 days
- Contain SO interviews
- View EMS screens

CIP-014 Inspections

If Entity has CIP-014 sites, the inspection will be developed based on the Entity's:

- Most recent vulnerability assessment
- Most recent physical security plan

Determine entity protocols

Entities must inform NPCC if they have any:

- PPE requirements
- Health and safety protocols

2024 Self-Certification Schedule

2024 Self-Certification Schedule Posted on NPCC website

- https://www.npcc.org/program-areas/compliance/monitoring/self-cert
- Self-Certification with evidence
- **Align and the SEL will be used**
- Refer to document for Dates, Standards, and Requirements
- The List of Entities in the schedule are the entities receiving a 2024 Self-Certification
- Notification will be sent 60 days prior to the Submittal Period opening
- Entities will have 30 days to respond

Updates to Audit Notification Letter (ANL)

- Email attachments → Align attachments
- Reference documents → Links to NERC and NPCC website
- Instructional documents → ANL appendices
- L1 RFI → ANL appendices

Document Description	Document Type	Document Name	Location
Audit Scope	Informational	Appendix A	Attached
Audit Team Member Bios	Informational	Appendix B	Attached
Pre-Audit Survey	Data Request	Survey	Align
CIP Evidence Request Tool	Data Request	NPCC_ERT_v7	Align
Evidence Request Tool User Guide	Informational	CIP Evidence Request Tool User Guide v7	NERC site
ERT overview for entities	Informational	ERT overview for entities	NPCC site
Level 1 O&P Requests for Information (RFI)	Data Request	Appendix C	Attached
Instructions for Providing Internal Controls Information	Informational	Appendix D	Attached
Audit Evidence Submittal Requirements	Informational	Appendix E	Attached
Attestation Template	Attestation	Attestation	Align
Internal Controls Worksheet	Data Request	IC_Worksheet_ENTITY	Align

Updates to Audit Notification Letter (ANL)

Appendix C

Level 1 O&P Requests for Information (RFI)

RFI-1 – FAC-008

Applicability: GO, TO

Note: If this standard and requirement is not in your audit scope, then you are not required to respond to this RFI.

To help facilitate evidence review for FAC-008 R6, provide a complete list of your BES assets that NERC Standards apply.

For **GO**, please use this spreadsheet.

For **TO**, please use this spreadsheet.

If the registered entity would like to submit the data in a format other than the *FAC-008 LI RFI spreadsheet*, please contact the Audit Team Lead to determine if the desired format is sufficient for the audit team to evaluate compliance.

RFI-2 – PRC-005

Applicability: DP, GO, TO

Note: If this standard and requirement is not in your audit scope, then you are not required to respond to this RFI.

To help facilitate evidence review for PRC-005 R3, provide a complete list of all Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying equipment that is covered under PRC-005. Populate the *PRC-005 L1 RFI* spreadsheet located here.

Updates to Audit Notification Letter (ANL)

RFI-8 – Previous Audit follow-up

Applicability: All functions

If applicable, provide your follow-up actions on the previous Compliance Monitoring engagement's areas of concern (AOC) and recommendations. Compliance Monitoring engagements include audits (on-site or off-site), spot-checks, and self-certifications.

CIP-007-6 R4.1 Focus Reminder

Log events at the BES Cyber System level (per BES Cyber System capability) or at the Cyber Asset level (per Cyber Asset capability)

Detect:

- **Successful Logins**
- **Failed access attempts and failed login attempts**
- **Malicious code**

CIP-012-1 Observations

Real Time monitoring (RTm)

- “unauthorized disclosure and unauthorized modification of Real-time Assessment and Real-time monitoring data while being transmitted between any applicable Control Centers.”
- Undefined NERC Term
- Make sure the term is in your entity’s data specification documentation.

Periodic Data Submittals – 2024 Schedule

2024 schedule for Periodic Data Submittals can be found in the NERC One-Stop Shop (NERC One Stop Shop)

- Compliance drop down menu -> Compliance drop down menu -> 2024 ERO Enterprise Periodic Data Submittal Schedule

One-Stop-Shop (CMEP, Compliance, and Enforcement) - Active

Documents	Year	Category	Date
Compliance (38)			
CIP ERT & User Guide (3)			
Compliance (10)			
2023 ERO Enterprise Periodic Data Submittal Schedule	2023	Compliance	10/14/2022
2024 ERO Enterprise Periodic Data Submittal Schedule	2023	Compliance	11/1/2023
CIP-008-6 Effectiveness Study Summary	2022	Compliance	8/8/2022
Compliance Webinars		Compliance	
Currently Compliant: Episode 1	2021	Compliance	2/23/2021
ERO Enterprise Compliance Auditor Checklist v6	2022	Compliance	3/24/2022
ERO Enterprise Compliance Monitoring and Enforcement Manual v7	2023	Compliance	6/15/2023
Regional Audit Reports of Registered Entities		Compliance	
Reliability Standard Audit Worksheets (RSAWs)		Compliance	
Sampling Lead Sheet Template		Compliance	

Periodic Data Submittals – 2024 Schedule

Includes due dates and submittal frequencies for all standards that have Periodic Data Submittal requirements.

FAC-003 Vegetation quarterly due dates – **20 days after end of each quarter**

- Q4 2023 – January 20, 2024
- Q1 2024 – April 20, 2024
- Q2 2024 – July 20, 2024
- Q3 2024 – October 20, 2024
- Q4 2024 – January 20, 2025

Periodic Data Submittals – Attestations

Entities with an active Attestation will not be required to respond to the FAC-003 PDS requests quarterly.

Attestations are valid for one year after approval, after which a reaffirmation will be requested.

Reaffirmation of attestations will be requested by NPCC when the renewal date is approaching.

Periodic Data Submittals – EOP-004-4

by the registered entity, the CEA performs a Preliminary Screen of the potential noncompliance in accordance with NERC ROP, Appendix 4C Section 4.8. As of 2021, all registered entities who use the Align tool for submitting data to their CEA will use the Align tool for the submission of Periodic Data Submittals, except as noted in the table. For additional information, please discuss it with your CEA compliance contact.

ERO Enterprise Data Submittal Schedule

ERO-Wide Data Submittal Schedule

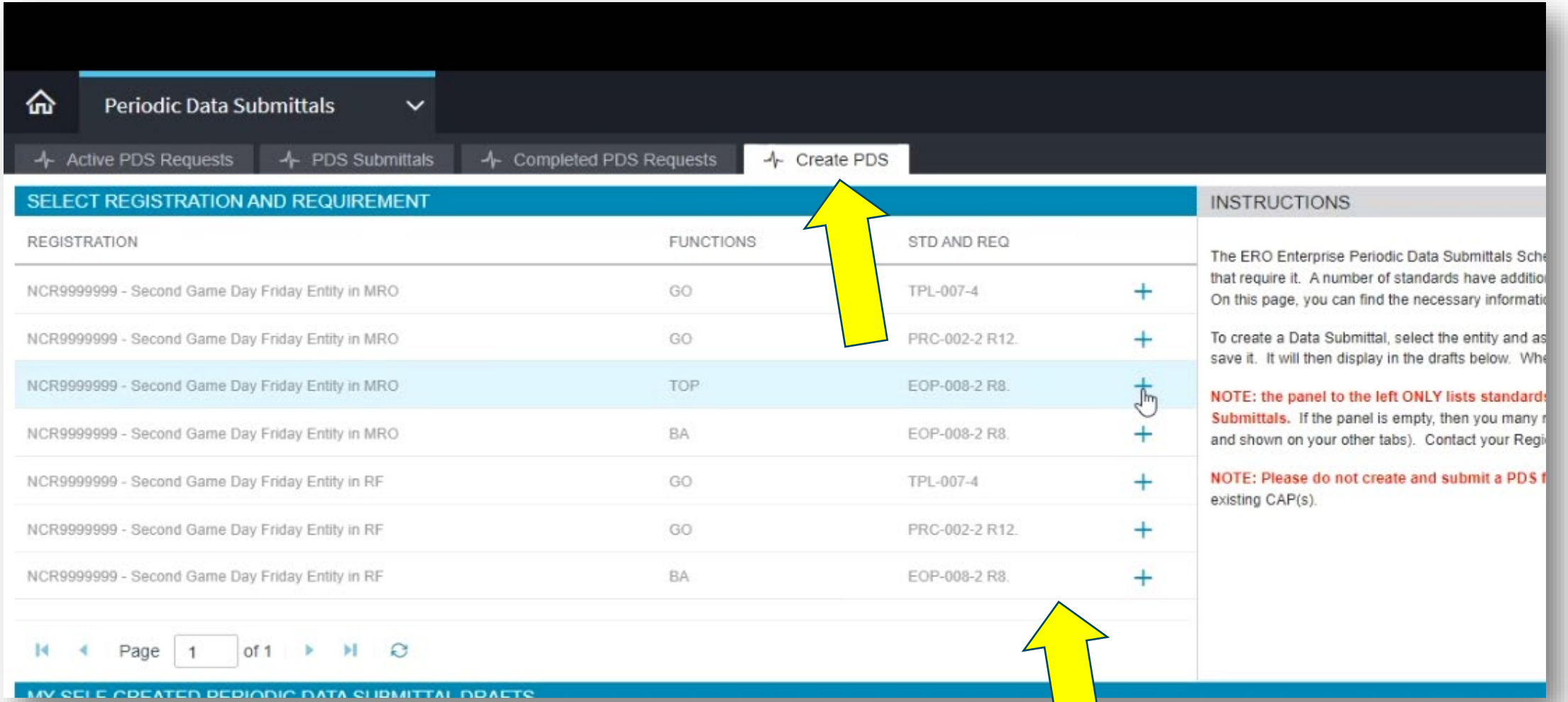
Reliability Standard	Requirement(s)	Submit To	Submittal Frequency	Proposed Due Dates
BAL-003-2[1]	R1	NERC	Annually	Per dates as detailed in BAL-003-2 Reliability Standard Attachment A's Timeline for Balancing Authority Frequency Response and Frequency Bias Setting Activities
EOP-004-4[2]	R2	NERC	Per Standard	Event Driven
EOP-008	R8	RE	Per Standard	Within six calendar months of the date when the functionality is lost

[1] Data is reported through the NERC Balancing Authority Submittal Site (BASS) rather than through Align. This site is maintained by the NERC Resource Subcommittee.

[2] Data is reported to the NERC System Awareness team (per attachment 1 of EOP-004-4) as well as through Align.

RELIABILITY | RESILIENCE | SECURITY

Periodic Data Submittals – EOP-004-4



NPCC Audit Team Update

Jacqueline Jimenez
Director, Compliance

O&P Auditors

Emily Stuetzle
Manager, *CIP Compliance*

Daniel Kidney *Senior Compliance Engineer*	**Duong Le** *Senior Compliance Engineer*	**George Dong** *Senior Compliance Engineer*	***Karie Barczak*** *Senior Compliance Engineer*	**Kimberly Griffith** *Senior Compliance Engineer*	**Mujahid Mian** *Senior Compliance Engineer*	**Patrick Palompo** *Senior Compliance Engineer*	**Travis Tate*** *Senior Compliance Engineer*	**Michael Bilheimer** *Senior CIP Analyst*	**Anil B. Rauniyar** *Senior CIP Analyst*	**Catherine Nakor-Tetteh** *CIP Analyst*	**Cecil Elie** *Senior CIP Analyst*

** CIP and O&P Auditor*

Questions

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NPCC Cold Weather Outreach and Results

Matt Forrest
Senior O&P Entity Risk Engineer
11/09/2023

NPCC 2023 COLD WEATHER OUTREACH

- Goal and status were presented during the NPCC spring Compliance Webinar
- Perform on-site walk-downs for 12 volunteering GO/GOP - by 12/23. Met 11/6/2023

- Thanks to all the volunteering GO/GOPs
  - VPPSA Project Vermont,
  - EDPR JERICHO RISE Vermont
  - EDPR MARBLE RIVER Vermont
  - NYPA - ROBERT MOSES/SAUNDERS MESSENA HYDRO NY
  - GRANITE SHORE POWER - MERRIMACH STATION New Hampshire
  - BRAINTREE ELECTRIC LIGHT DEPARTMENT - WATSON STATION Massachusetts
  - CALPINE - GRANITE RIDGE STATION – New Hampshire
  - NYPA - ASTORIA ZELTMAN PLANT – New York
  - HELIX - RAVENSWOOD PLANT – New York
  - COMERFORD/MOORE DAM – New Hampshire
  - CALPINE - WESTBROOK STATION - Maine
  - Middletown Power Station - Connecticut

Order 182 FERC 61,094

- "It is essential to the reliable operation of the Bulk-Power System to ensure enough generating units will be available during the next cold weather event." As the November 2021 Report found, the Bulk-Power System "cannot operate reliably without adequate generation. When cold weather events such as Winter Storm Uri occur, with "massive numbers of generating units" failing, grid operators could have no other option than to shed firm customer load to prevent uncontrolled load shedding and cascading outages. And as unfortunately illustrated by Winter Storm Uri, "these firm load shedding events . . . have very real human consequences. Millions went without heat . . . Hundreds died from hypothermia."

Agenda

- Brief History and most recent events
- Cold Weather Good Practices
- Equipment Visuals
- Wind Plant Considerations
- Summary

Brief History

- 2011 – 29,700MW
- 2014 – 19,500MW
- 2018 – 15,800 MW
- 2021 – 61,300 MW
- 2022 – 90,500 MW

- MW values each year represent the incremental coincident unplanned generation outages.
- During Elliot, 80% of the outages occurred at temperatures above the documented minimum operating temperatures. See COLD WEATHER RELIABILITY EVENT definition.

Cold Weather Preparation – Good Practices

- Winter Preparation Maintenance Practices
  - Entity should implement a seasonal inspection and maintenance program
    - Establishes equipment, processes, and due dates
  - Entity should create winter work order prioritization code
    - Tracks all winter items, creates completion percentage reports or walk-down lists
  - Establish an early deadline for completion of winter deficiency items.
  - Don’t wait until the last minute. Prioritize work on systems and equipment needed to cope with winter conditions.
    - Heat trace, insulation, installation of temporary heaters and other cold weather protection measures.
    - Vendors!!!

Operator Rounds and Training

- Perform additional checks during winter months
- Check single failure equipment and understand plant trip criteria
- Recruit engineers\maintenance to assist looking for vulnerabilities
- Monitor Area Temperatures and temporary winter protection
- Verify building penetrations close and seal properly
- Look for damaged or missing insulation
- Utilize IR gun and area temperature indicators and understand key locations and systems to monitor
- Verify heat trace functionality and steam trap functionality
- Maintain list of deficiencies that require additional contingencies
    - Eg: failed steam trap or air system desiccant

GOOD PRACTICES - Fuel

- Understand fuel storage and delivery capability and fuel curtailment likelihood
- Understand and communicate plant operating capabilities for all fuel conditions.
- Fuel weather protection
  - Heat trace, electric or steam (limitations on each)
  - Bunkering capabilities for solid fuel
- Fuel Switching
  - Manual or auto
    - Is manual on the fly or does it need to be done with plant offline?
  - Support systems needed (DM, Service Air, other)

GOOD PRACTICES – Buildings, Doors, Louvers

- Building doors and louvers and installed heat are the first line of defense.
- Panels and other equipment doors\louvers
  - GT Inlet Filter (High Density Poly Panels)

Good Practices - External Equipment Protection

- Instrument protection. O'Brien boxes.

Fabricated wood enclosure or inexpensive wind barriers.

Good Practices – temporary equipment

- Protective Measures: Pre-staged temporary heaters in areas known to be susceptible to low temperatures

Good Practices – Plant Reconfiguration

- Use Existing Plant Equipment or Systems

Offline boiler recirculation pump

Cascading warm up - High pressure economizer drain

Good Practices – Rounds and Monitoring

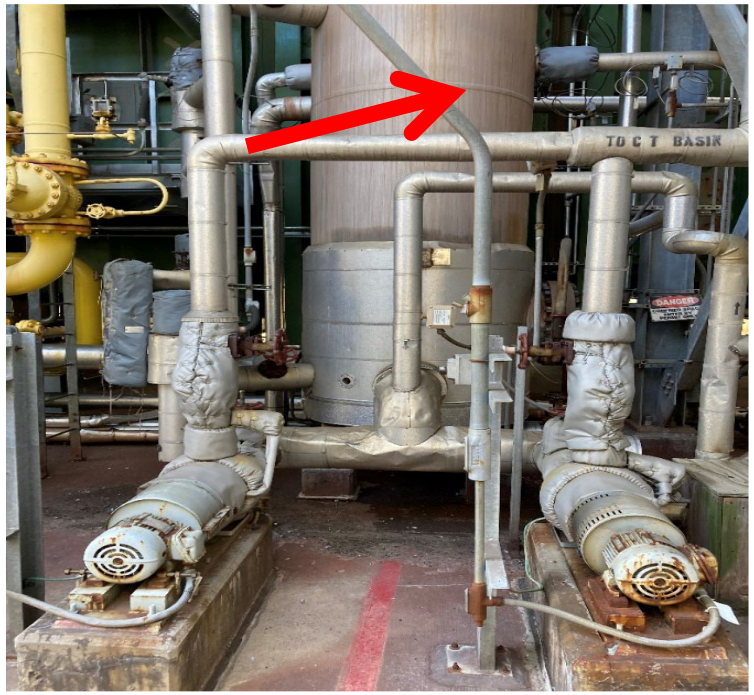
- Provide tools to the operators and plant personnel to assist in monitoring
  - Infrared technology
  - Area temperature indication
  - Equipment specific rounds sheets with high and low limits.
    - Consider Cold Weather Specific Rounds that limit what is checked but increased frequency.
  - Add specific cold weather monitoring points to PI displays.

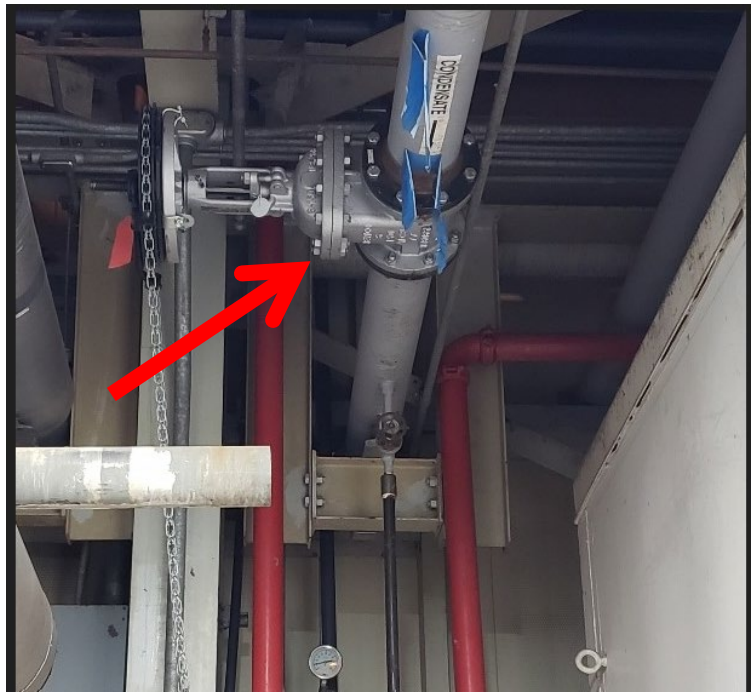
Good Practices – Establish Contingency Plans

- Taking Manual Control to prevent plant trip.
  - Know what vital transmitters affect control and plant trip.
  - Operators should immediately recognize control system deviations and be able to correct manually while component troubleshooting occurs.
    - Remote manual
    - Local manual
- Total Loss of Offsite power
  - How long can systems remain filled with no heat or circulation?
  - Know what systems need to be drained and when.
  - Know how long refill and restart will take from cold plant to sync.

Good Practices – "Shut Down" Operations

- The down comer is periodically drained until warm water flows from the drain.
- Isolate and drain exterior piping



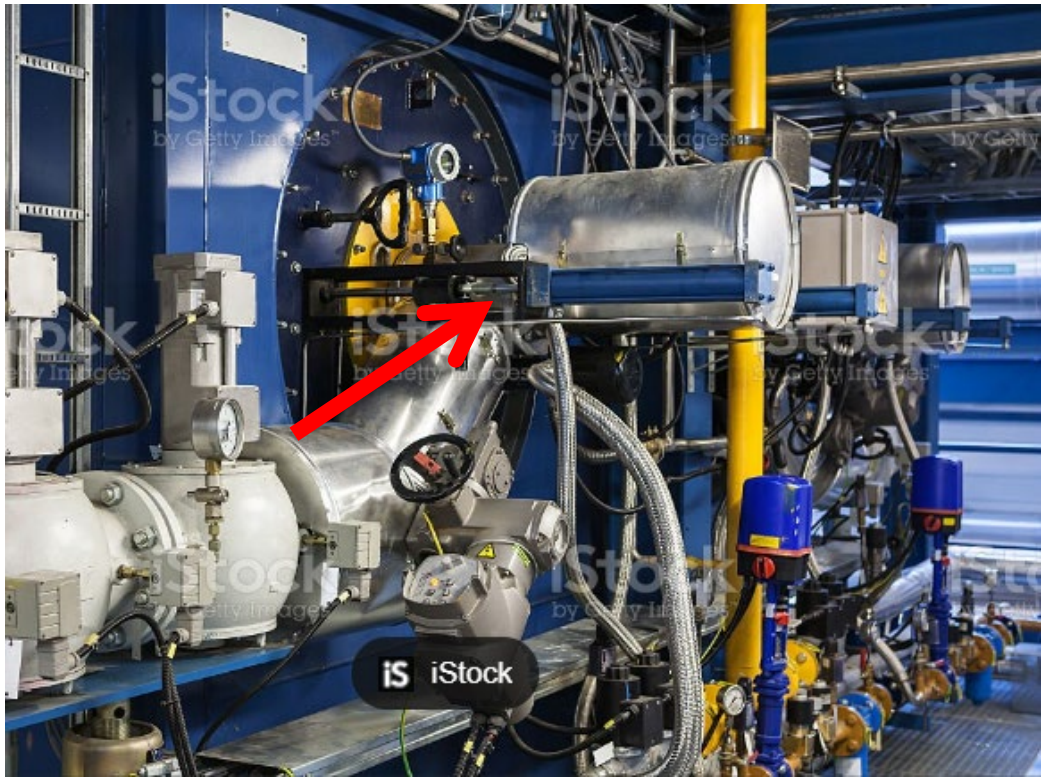


Good Practices – Repurpose Equipment

- Electric Aux Boiler can be used for more than building heat.
- Use for Steam Seals
- Steam Drum Sparging
- DA tank heating.
- Possible connection to small aux generator

Good Practices – Plant Low and No-Load Ops

- Use Existing Plant Equipment or Systems
  - Utilize a low load single burner as a keep warm method



Establish Contingencies – Minor Modifications

- Take advantage of current piping and flow path options for contingency equipment
  - Not all modifications need to break the bank or require extensive work

Recap of GO\GOP Recommendations

- Five GO\GOP related recommendations from Project 2021-07 Extreme CW Grid Operations, Preparedness, and Coordination.
  - GO are to identify and protect cold-weather-critical components and systems for each generating unit.
  - GO are to design new or retrofit existing generating units to operate to a specified ambient temperature and weather conditions.
  - GO and GOP are to conduct annual unit-specific cold weather preparedness plan training.
  - GO that experience outages, failures to start, or derates due to freezing are to review the generating unit's outage, failure to start, or derate and develop and implement a corrective action plan for the identified equipment and evaluate whether the plan applies to similar equipment for its other generating units.
  - GO are to account for the effects of precipitation and accelerated cooling effect of wind when providing temperature data.

WINTER PLAN KEY CONSIDERATIONS

- Developing a plan - Prioritize your review and preparation.
- Building doors, Building Louvers, Building Heat, GT intake, and boiler stack area
- External Piping, insulation, traps, and heat trace.
- Vital instrumentation
- Fuel Supply
- Plant cooling basins, tank heat – top off tanks
- Main plant condensate, feed, and boiler system, aux boiler
- Emergency Generator and fuel supply, key loads.
- Station service power
- Other systems – instrument air, fire protection, water treatment
- Lessons learned from prior winter events. Corrective Action Plans, Mitigation results, Extent of condition.

WINTER PLAN KEY CONSIDERATIONS

- Prioritize based on equipment that has the potential to:
  - Cause unit trip or partial outages and derates.
  - Impact unit start-up or restart or impact plant monitoring and control
  - Cause equipment or plant damage
  - Adversely impact the environment.
  - Cause fuel disruption
  - Reduce plant safety

Wind Turbine Unique Challenges

- Multiple generators (often hundreds) across a single site.
- Routine maintenance is usually performed under warranty contract by OEMs and often consists of annual and semi-annual work orders. Cold weather preparation is often spread out across the year vs performed seasonally.
- Wind sites have limited power sources to provide station service.
- Wind turbines can be adversely impacted by precipitation prior to reaching cold weather interlock setpoints.

Challenges - Precipitation

- Turbine blade icing.
  - At a minimum icing distorts the blade lifting surface and diminishes turbine output as a result.
  - Requires operator action to secure turbines until icing is shed.
    - Verification of ice shedding is required to be local at the turbine.
    - Shedding may take days or weeks.

- Frost and freezing fog:
  - Can lead to icing.

Automatic Functions And Mitigating Strategies

- Blade icing algorithms.
  - Alerts operators that operator action may be required to attempt to limit additional icing.
  - Actuates automatic anti icing protocols on some turbines.

- In anticipation of severe cold weather, wind farm operators can implement strategies to try to increase their availability.
  - Limit operation during precipitation events that are expected to be followed by extreme cold.

Wind Conclusions

- Wind facilities have unique challenges that drive alternate cold weather and precipitation measures.
- A combination of automatic interlocks and permissives, operator actions, and mitigating operating plans is required to help increase reliability and availability during cold weather periods.

Resource Documents

- 2019-06 SDT Responses
- 2019-06 Project Page
- ERO Enterprise CMEP Practice Guide Cold Weather Preparedness
- Major Events Reports
- Lessons Learned
- Reliability and Security Guidelines

- Generating Unit Winter Weather Readiness
- https://www.ferc.gov/media/february-2021-cold-weather-outages-texas-and-south-central-united-states-ferc-nerc-and
- Presentation | FERC-NERC-Regional Entity Joint Inquiry Into Winter Storm Elliott | Federal Energy Regulatory Commission

Questions and Answers

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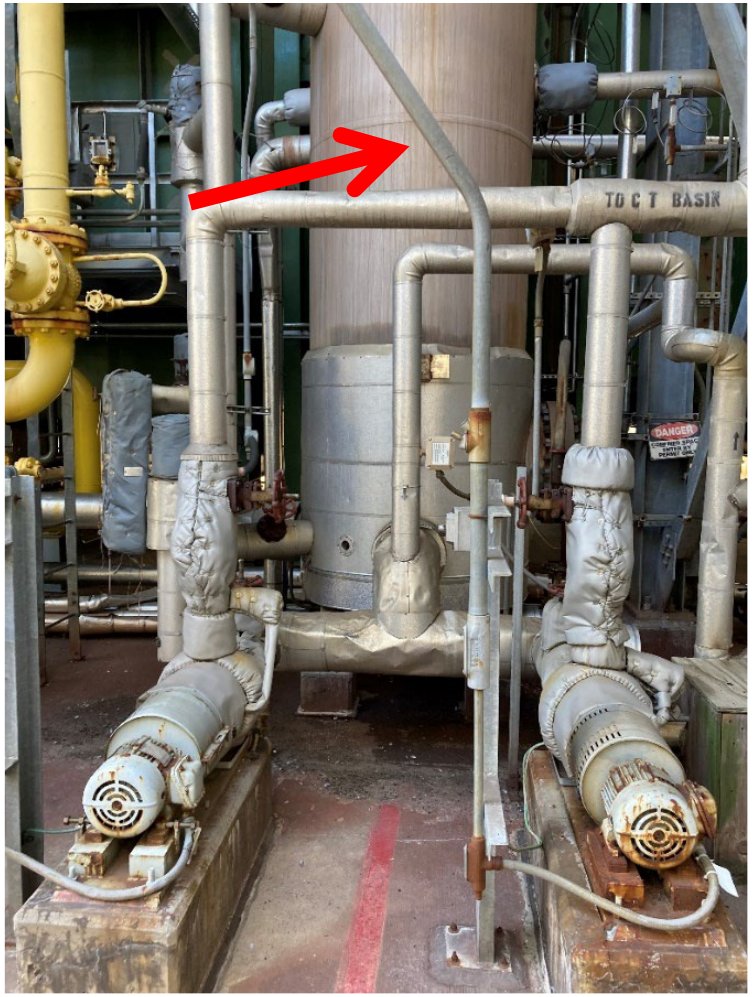
APPENDIX – ADDITIONAL PHOTOS and INFORMATION

Good Practices - Increased Monitoring and Operator Action

- The down comer is periodically drained until warm water flows from the drain



Cold Weather Preparation – Good Practices

- Verify the operability of tank heating systems
- Keep tanks full and warm to increase “thermal inertia” in your favor.
- Ensure that temporary water treatment trailers are winterized to ensure a continued make-up water source.

Cold Weather Preparation – Good Practices

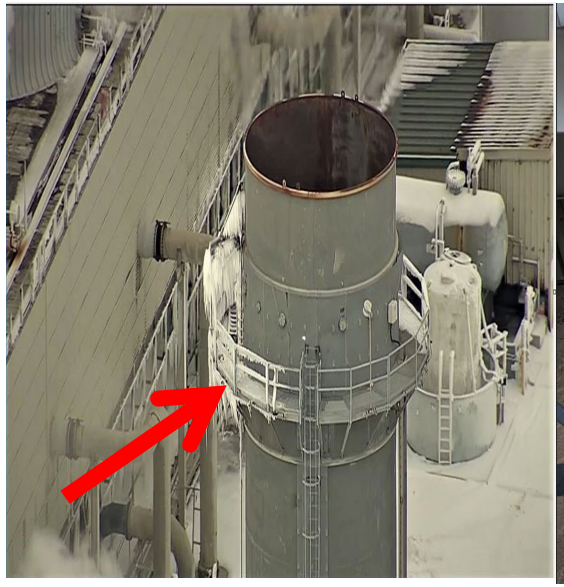
- Vital Equipment and Instrumentation
  - Cover and heat exposed instrument racks

Cold Weather Preparation – Good Practices

- Snow and Ice Considerations
  - Cause multitude of problems in power block and substation
  - Cause short circuits on insulators resulting in loss of offsite power sources.

Frozen insulators can short equipment

Cold Weather Preparation – Good Practices



Shrouds installed to prevent falling ice damage

Snow and Ice Considerations

- Falling ice can cause equipment damage or personnel injury

Cold Weather Preparation – Good Practices

- Other Considerations

Frozen Fire Protection in unheated stair well

Cold Weather Preparation – Good Practices