
RELIABILITY
& SECURITY
Workshop - Portland, Oregon
October 29–30, 2024
Wi-Fi Details
Network: Marriott_Bonvoy_CONFERENCE
Password: WECC24

How to Ask Questions During the Workshop

- **In-person Attendees:**
  - Use an aisle microphone and ask your question
- **Virtual Attendees:**
  - Submit your questions through Webex or Whova
  - If time permits, questions will be asked live
  - Questions not answered live will be responded to later

RELIABILITY & SECURITY

Workshop - Portland, Oregon

October 29–30, 2024

WECC

GO Extreme Weather Readiness and Cold Weather Assurance Visits

October 30, 2024

James Hanson, Manager, Operations Analysis, WECC

Curtis Crews, Senior Technical Advisor Entity Monitoring, WECC

Winter Storm Elliott—Recommendation 1b

Recommendation 1(b): Findings from the Report support the need for robust monitoring by NERC and the Regional Entities of compliance with the currently effective and approved generator cold weather Reliability Standards, to determine if reliability gaps exist. NERC should identify the generating units that are at the highest risk during extreme cold weather and work with the Regional Entities (and Balancing Authorities, if applicable) to perform cold weather verifications of those generating units until all of the extreme cold weather Standards proposed by the 2021 Report are approved and effective. (Verify highest risk units by Q4, 2023; implement by Q3, 2024)

Continued Efforts—Recommendation 1c

1(c) Generator Owners/Operators should assess their own freeze protection measure vulnerability, and NERC or the Regional Entities should perform targeted cold weather verifications pursuant to a risk-based approach.

Determining Potential Generators Posing Risk

- NERC dependent on assistance from Regional Entities
- Data Sources Used
  - NERC—Alert Cold Weather Preparations for Extreme Weather Events
  - Generation Type and Location
  - GADS Outage Data

Cross Departmental Team

- Curtis Crews—Senior Technical Advisor—Entity Monitoring
- Greg Park—Manager—Risk Analysis & Data Services
- Curtis Holland—Senior Reliability Specialist—Operations Analysis
- Fahad Ansari—Senior Technical Advisor—Oversight Planning
- Dave Grover—Senior Reliability Engineer—Operations Analysis
- James Hanson—Manager—Operations Analysis
- Steve Ashbaker—Director—Reliability Initiatives

Additional Information Requested

- Questions were developed touching on:
  - Incomplete Essential Actions identified in NERC Alert
  - Cold Weather Readiness Processes and Procedures
  - Cold Weather Maintenance and Training
  - Units involved in Cold Weather Events—What was learned
  - Freeze Protection Measures for units with ECWT above 32 degrees
  - How Freeze Protection Measures are monitored

Discussion with Selected Entities

- Held webinars with entities explaining the effort
  - Why
  - Selection process
  - Review of questions
- Helped throughout the response period

Responses Received

- Internal team reviewed responses
  - Identified where follow up was necessary to understand approach
  - Identified responses exhibiting stand out practices
  - Identified responses where improvements could be made
- Held follow up calls with entities to address questions from initial responses
- Identified generating stations to perform on site verifications

Feedback from Effort

- Individual feedback to selected entities
  - Observation sheet
    - Areas of strength
    - Opportunities for improvement
- General audience
  - Provide observations to NERC for ERO-wide presentation
  - Regional presentations

General Observations

- Entities are paying attention to what has happened in other parts of the country
- Several companies noted recent updates to seasonal training based on recent events and lessons learned
- Several entities had mature preventive maintenance programs in place
- Monitoring and alarming of freeze protection on critical components in place
- Good internal controls

Generator Readiness Program

- Looking to set up a program that will periodically select generation sites to perform readiness reviews
- This program will look beyond just cold weather readiness
- Program will be focused on identifying good practices and sharing those with industry

Recommendation 3

A joint NERC-Regional Entity team, collaborating with FERC staff, should study the overall availability and readiness of blackstart units to operate during cold weather conditions

Recommendation 3

- Plants have been selected
- RFIs have been sent; awaiting responses
- Responses will be reviewed
- Findings will be shared with industry late Q4/early Q1

Resources

- NERC Information on Cold Weather Preparation and BPS Impacts
- NERC Major Event Reports

Implementation Plans

- EOP-012-2: October 1, 2024 (EOP-012-1 superseded)
- EOP-011-4: October 1, 2024 (EOP-011-3 superseded), with compliance dates:
  - R1 Part 1.2.5: (new/revised portions applicable to UVLS, UFLS, critical natural gas infrastructure loads): April 1, 2027
  - R2 Parts 2.2.8-2.2.9 (new/revised portions applicable to UVLS, UFLS, critical natural gas infrastructure loads): April 1, 2027
  - R8: April 1, 2027, or 30 months past notification by a TOP to assist with mitigation of operating Emergencies
- TOP-002-5: October 1, 2025 (already approved/announced in February 2024, no change)

EOP-011-4 Key Items (TOP)

Effective on October 1, 2024

1.2.5. Operator-controlled manual Load shedding during an Emergency that accounts for each of the following:

- **1.2.5.1.** Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;
- **1.2.5.2.** Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that serve designated critical loads;
- **1.2.5.3.** Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS); and
- **1.2.5.4.** Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions.

1.2.6. Provisions to determine reliability impacts of:

- **1.2.6.1.** cold weather conditions; and
- **1.2.6.2.** extreme weather conditions.

Redline Language—Effective on April 1, 2027

1.2.5. Operator-controlled manual Load shedding or automatic Load shedding during an Emergency that accounts for each of the following:

- **1.2.5.1.** Provisions for manual Load shedding capable of being implemented in a timeframe adequate for mitigating the Emergency;
- **1.2.5.2.** Provisions to minimize the overlap of circuits that are designated for manual or automatic Load shed and circuits that serve designated critical loads which are essential to the reliability of the BES;
- **1.2.5.3.** Provisions to minimize the overlap of circuits that are designated for manual Load shed and circuits that are utilized for underfrequency load shed (UFLS) or undervoltage load shed (UVLS);

  ~~shed (UVLS); and~~
- **1.2.5.4.** Provisions for limiting the utilization of UFLS or UVLS circuits for manual Load shed to situations where warranted by system conditions~~.~~;
- **1.2.5.5.** Provisions for the identification and prioritization of designated critical natural gas infrastructure loads which are essential to the reliability of the BES; and

1.2.6. Provisions to determine reliability impacts of:

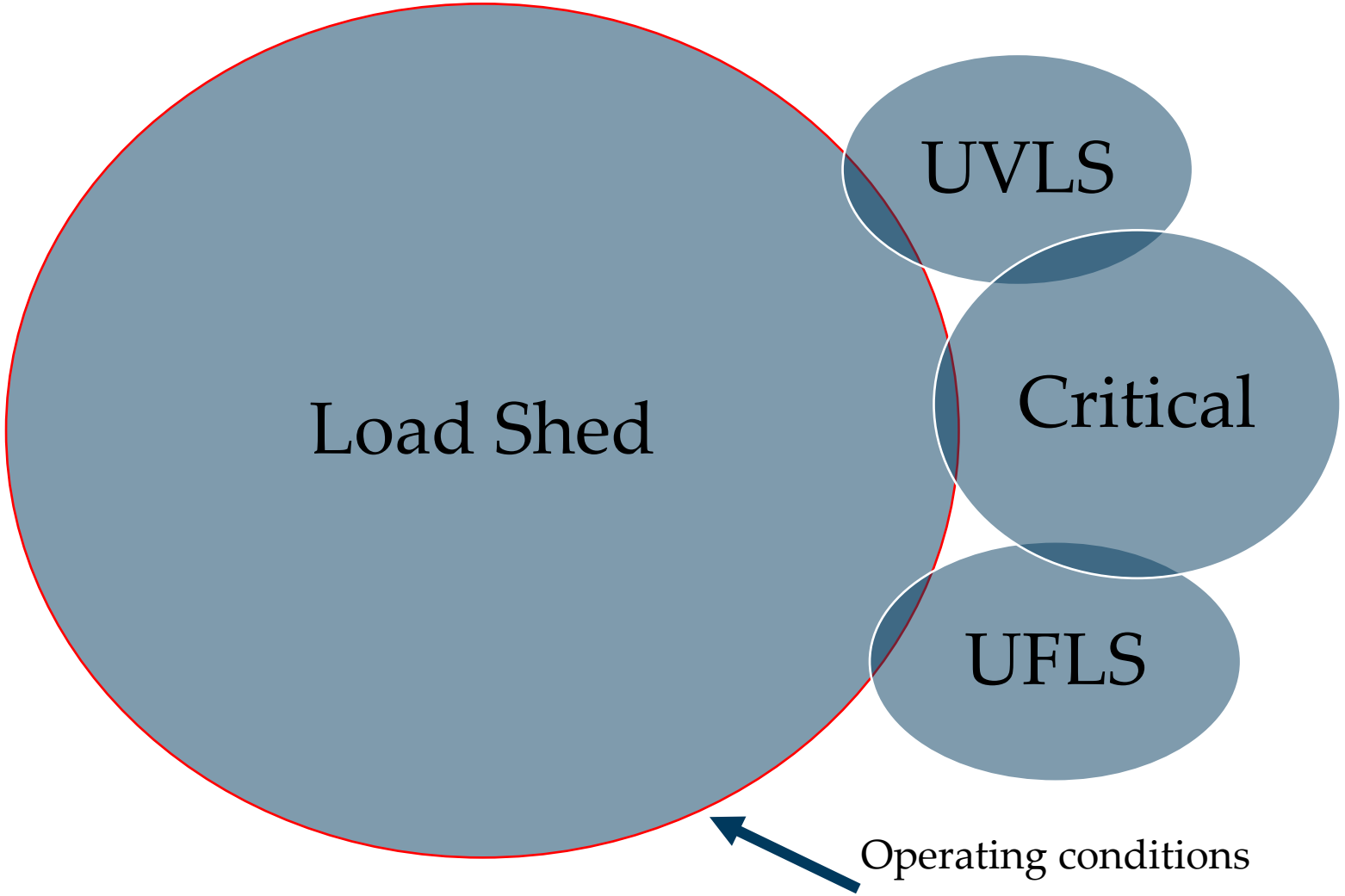
- **1.2.6.1.** ~~cold~~Cold weather conditions; and
- **1.2.6.2.** ~~extreme~~Extreme weather conditions.

EOP-011-4 Key Items (BA)

2.2.8. Provisions for excluding critical natural gas infrastructure loads which are essential to the reliability of the BES, as defined by the Applicable Entity, as Interruptible Load, curtailable Load, and demand response during extreme cold weather periods within each Balancing Authority Area;

~~2.2.8.~~2.2.9. Provisions for Transmission Operators to implement operator-controlled manual Load ~~shed~~shedding, undervoltage Load shedding, or underfrequency Load shedding in accordance with Requirement R1 Part 1.2.5; and

EOP-011-4



Auditing Thoughts

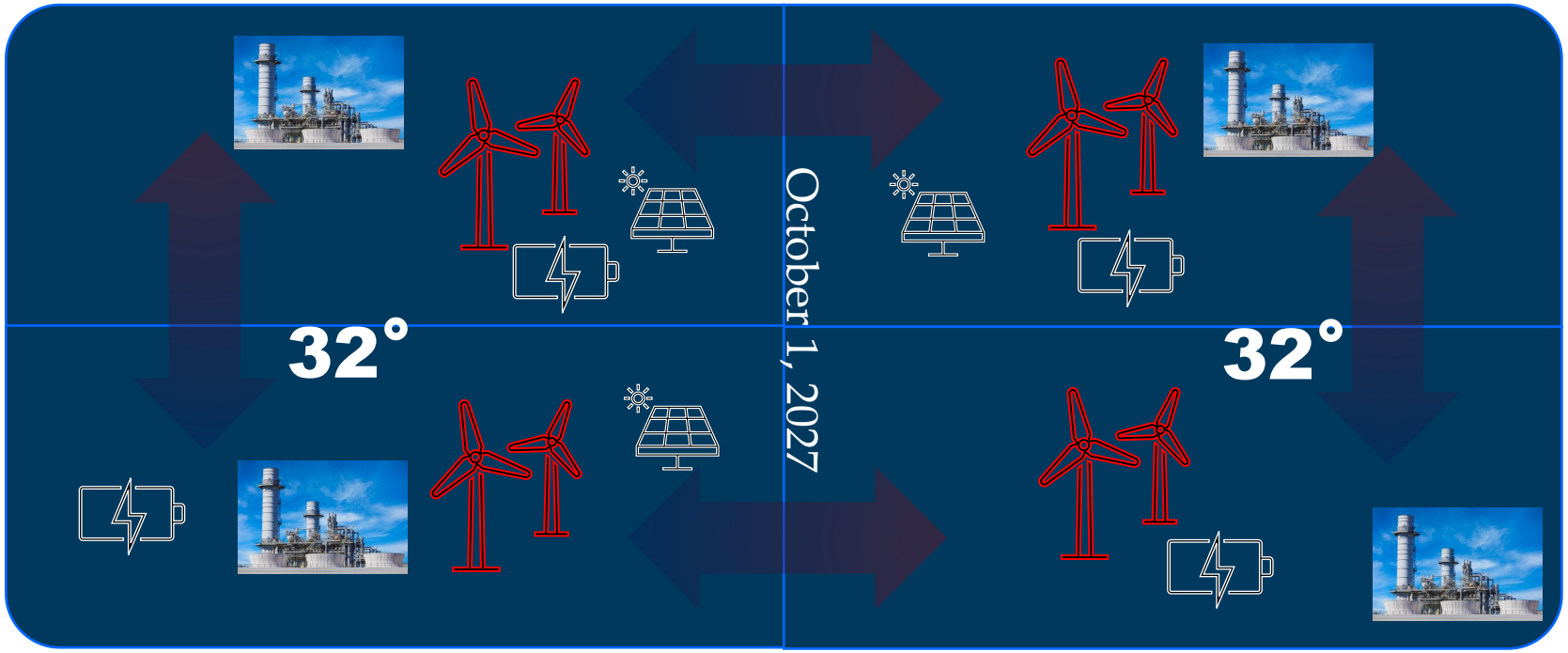
- Develop, maintain, and implement…..
- Reliability Coordinator-reviewed (when?)
- Inclusions (Roles/Responsibilities, notifications, cancellations, etc.)
- Load shed "Provisions for.."
  - Identification of circuits (manual, UVLS, UFLS)
  - Management of circuits
  - Minimize overlap approach
  - Identify/prioritize critical natural gas infrastructure loads

Internal controls

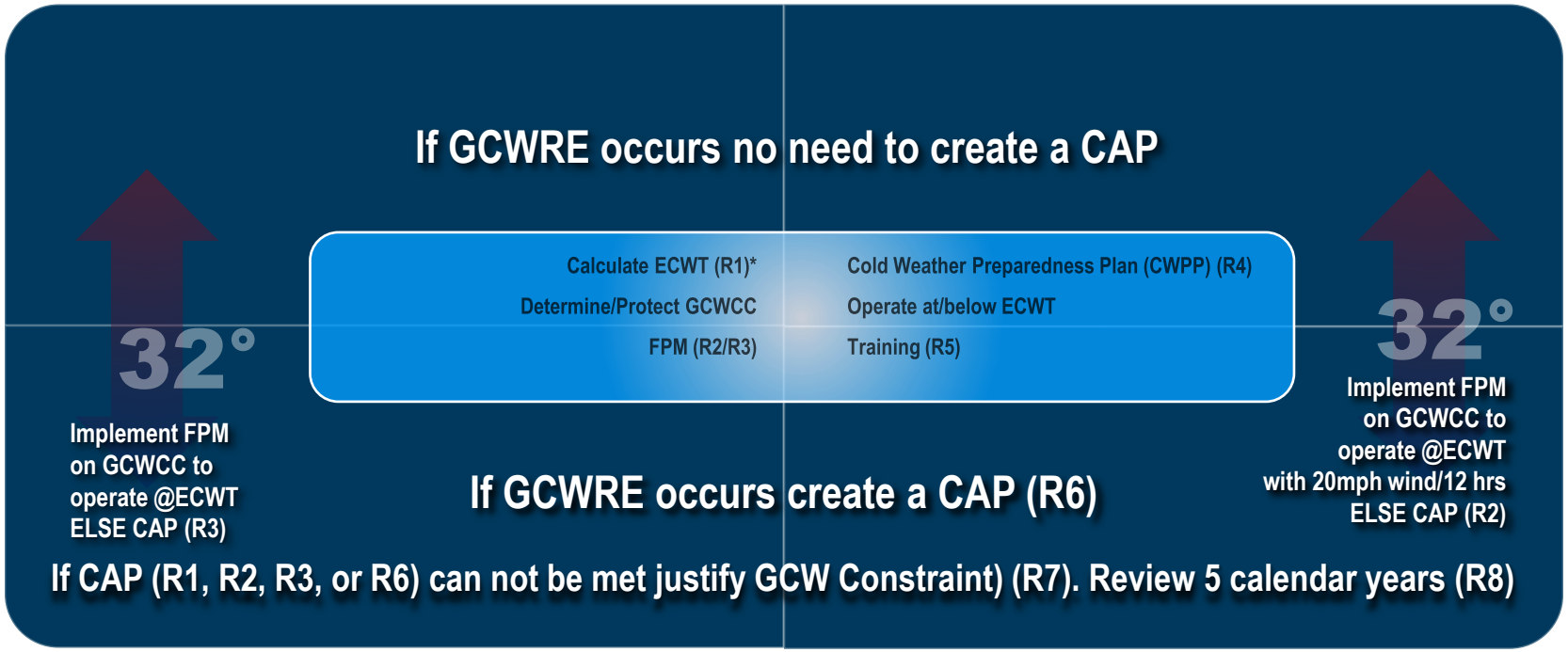
EOP-012-2

- R1—Calculate ECWT, provide cold weather data (limitations and minimum temp)
- R2(new)/R3(old)—Identify GCWCC and implement freeze protection measures NEW—20 mph/12 hours operate at ECWT Old—operate at ECWT
- R4—CW Preparedness Plan
- R5—Training
- R6—Develop CAP if GCWRE occurs
- R7—CAP timetable/actions/deadlines declare GCW Constraint
- R8—Review Constraint/update limitations

EOP-012-2



EOP-012-2


If GCWRE occurs no need to create a CAP
Calculate ECWT (R1)*
Determine/Protect GCWCC
FPM (R2/R3)
Cold Weather Preparedness Plan (CWPP) (R4)
Operate at/below ECWT
Training (R5)
32°
Implement FPM on GCWCC to operate @ECWT ELSE CAP (R3)
32°
Implement FPM on GCWCC to operate @ECWT with 20mph wind/12 hrs ELSE CAP (R2)
If GCWRE occurs create a CAP (R6)
If CAP (R1, R2, R3, or R6) can not be met justify GCW Constraint) (R7). Review 5 calendar years (R8)

Auditing Thoughts

- Calculation of ECWT—What if data is missing?
- Generator Cold Weather Critical Components
- Corrective Action Plan development/implementation—CAPs internal, development timeline R1/R6, implementation timeline R2/R3
- Generator Cold Weather Constraint-declaration/support, AOC
- Cold weather preparedness plans/training
- Freeze protection measures—annual inspection/maintenance, which ones? Is HVAC included?
- 2024 Cold Weather Preparedness FAQ_ (nerc.com)

WICF Internal Control TF (July 24)

Common Themes

PREVENT PREPARE RESPOND RECOVER

Project 2024-03 Revisions to EOP-012-2

- FERC directed modifications to EOP-012-2:
  - Clarify GCW Constraint to be objective and sufficiently detailed AND to remove all references to “reasonable cost,” “unreasonable cost,” “cost,” and “good business practices” (replace with objective, unambiguous, and auditable terms)
  - NERC process for GCW Constraint (receive, review, evaluate, and confirm the validity in a timely fashion
  - Shorten and clarify Corrective Action Plan implementation timelines and deadlines
  - Extension of CAP implementation deadline beyond the maximum implementation timeframe required is pre-approved by NERC AND ensure operating limitations are provided during the period of extension
  - Implement more frequent reviews of GCW Constraint declarations to verify that the declaration remains valid

IBR Cat 2

1 — COMPLETED JANUARY 2024

Order No. 901 Work Plan submission

2 — DUE NOVEMBER 4, 2024

Standards development and filing to address performance requirements and post-performance validations for Registered IBRs

3 — DUE NOVEMBER 4, 2025

Development and filing of Reliability Standards to address data sharing and model validation for all IBRs

4 — DUE NOVEMBER 4, 2026

Development and filing of Reliability Standards to address use of performance data in Operational and Planning studies

BLOCK THREE

Standards Under Development (Technical Conference to Review)

APPLICABLE TO

Generator Owners and Generator Operators (both new and currently registered) with Category 2 Assets

STANDARDS

CIP-002-5.1a
CIP-003-8
CIP-012-1
COM-001-3
COM-002-4
EOP-004-4
EOP-012-1
FAC-002-4
FAC-008-5
IRO-001-4
PER-005-2
PER-006-1
PRC-002-2
PRC-004-6
PRC-005-6
PRC-025-2
PRC-027-1
TOP-001-6
TPL-007-4

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