

# Six Risks Identified For Reduction at February 2025 RRC

**Scott Brooksby**

*Sr. Cybersecurity Risk Advisor*

**Mark Willis**

*Principal Engineer*

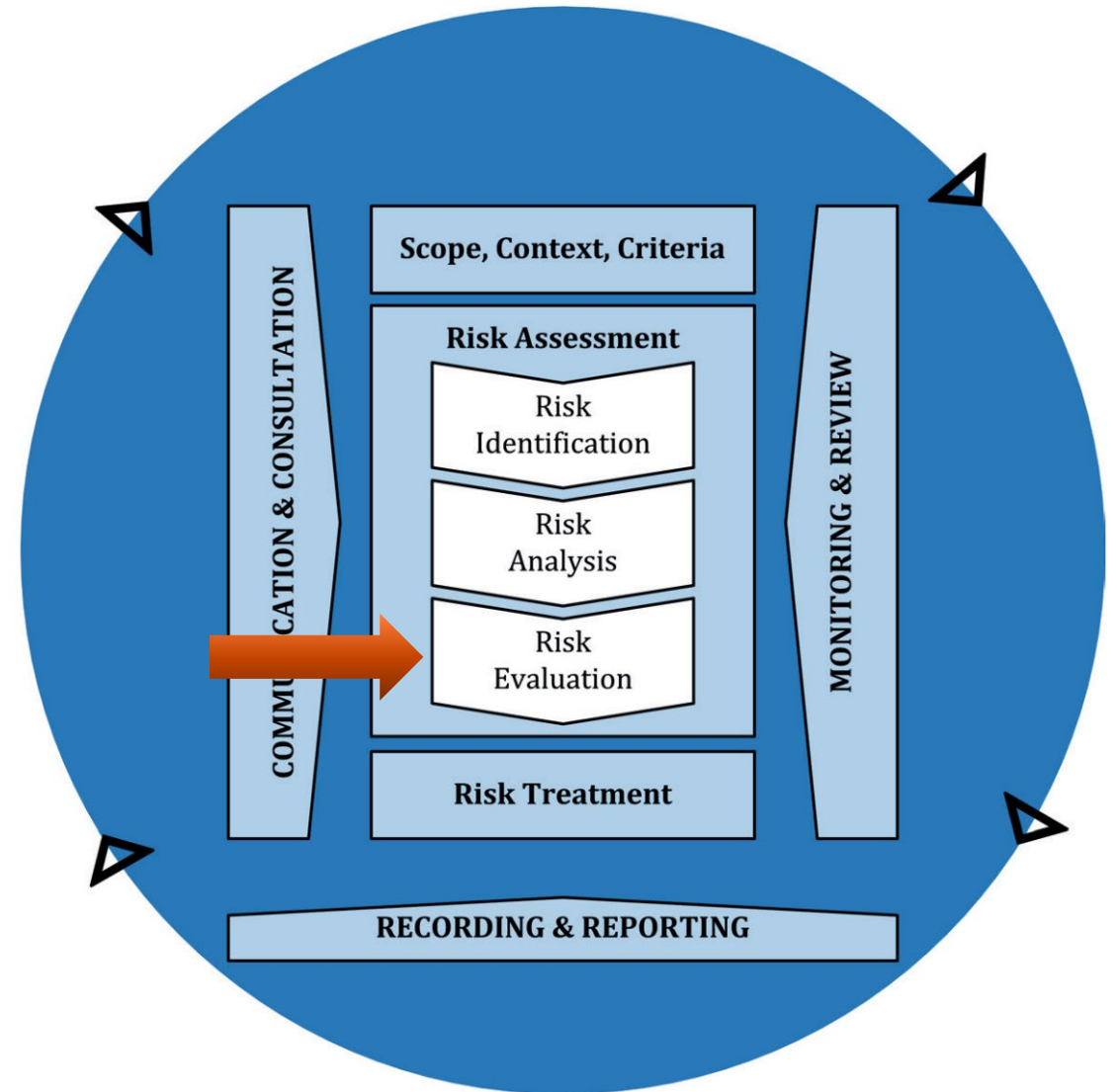
**Electric Reliability  
& Security for the West**

July 9, 2025

# Recap

From February 2025 RRC:

- Assessed 15 new risks
- Treatment options:
  - Accept
  - Reduce
  - Transfer
  - Avoid
- Six identified for “reduce”
- Need to review after further analysis



# ENE-009: Extreme Winds

## Condition:

- Extreme wind types
  - Straight Line
  - Wind Shear
  - Gale Force
  - Terrain Induced
  - Gusts
  - Downdraft
  - Macro
  - Microburst

## Consequence:

- Damage utility equipment or disrupt regional or local electric utility operations.

## Cause:

- Change in weather predictability.

## Decision: Extreme Winds

| RISK PROBABILITY | MATERIALITY | CONTROLLABILITY | SPAN  | VELOCITY  | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|-------------|-----------------|-------|-----------|-----------------|-----------------|
| Likely           | Moderate    | Low             | Hours | Overnight | 13.6            | Medium          |

- Analysis:
  - Wind generation failsafe is to go to zero.
  - Assets in high wind areas are typically overbuilt.
  - Unclear if there are evolving wind corridors not planned for.
  - Rely on past lessons learned. (i.e., examples of failure are decades old).
- Next Steps:
  - Recommend changing to “accept” and monitor.

## INF-004: Facility Rating—Ambient Temperature Impacts on Transmission Capacity

### Condition:

- Most utilities in the interconnection publish seasonal facility ratings that guide studies and the use of the transmission system via FAC-008. Fundamental areas of concern are:
  - Per FERC 881, ratings will need to be evaluated hourly on a rolling 240-hour window.
  - As forecasting errors are greater at extreme temperatures, both high and low, there is a potential for energy insufficiency when extreme weather occurs. Differences in the forecasting errors magnify the potential for differences between Real-time and planning models.
  - Each Transmission Owner is responsible for developing their methodology. This may create seams issues, including:
    - Multi-owned facilities.
    - Facilities with a change of ownership.
- Ambient conditions can be more restrictive than conditions studied in seasonal and planning timelines. A difference between seasonal studies and Ambient Adjusted Ratings (AAR) could cause facilities to operate outside the operating plan based on when AARs conflict with default ratings. This may result in transfer curtailment, generation restrictions, load losses, etc.

### Consequence:

- FERC 881 will result in such rigorous and necessary computations that new personnel or technology solutions may be needed. Changes are being made to how TPs address the many interconnection requests, and AARs will magnify the potential impact on an already stressed process.

### Cause:

- Uncoordinated facility ratings can cause operational issues.

## Decision: Facility Rating—Ambient Temperature Impacts on Transmission Capacity

| RISK PROBABILITY | MATERIALITY | CONTROLLABILITY | SPAN       | VELOCITY | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|-------------|-----------------|------------|----------|-----------------|-----------------|
| Almost Certain   | Low         | Controllable    | 1–2 Months | < Month  | <b>10.0</b>     | Medium          |

- Analysis:
  - Following NERC O&P standards (e.g., TPL-008-1) should manage the risk.
- Next Steps:
  - Recommend changing to “accept” and monitor.

# IBR-006: Increasing Number of Long-term Frequency Deviations

## Condition:

- Increase in long-duration frequency deviation events within the Western Interconnection.

## Consequence:

- The Western Interconnection is experiencing an increase in the number of frequency deviation events where the interconnection frequency gradually declines and is not corrected for several minutes (mostly noticeable during periods of large solar generation changes). As these events lower the interconnection frequency for several minutes, there is an increased risk of activating underfrequency load shed relays if a large generator loss or credible double-contingency occurs at the same time.

## Cause:

- Under-generation of BAs

# Decision: Increasing Number of Long-term Frequency Deviations

| RISK PROBABILITY | MATERIALITY | CONTROLLABILITY | SPAN       | VELOCITY | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|-------------|-----------------|------------|----------|-----------------|-----------------|
| Almost Certain   | Low         | Moderate        | 1–2 Months | < Year   | <b>13.5</b>     | Medium          |

- Analysis:
  - NERC RS and WECC Performance Subcommittee: Both are actively monitoring
  - Post-monitor, determine if there's a risk to the actual frequency degradation.
- Next Steps:
  - Recommend changing to “accept” and continue monitoring activities.
  - Reassess the risk mitigation decision at that time. (Ongoing monitoring)



# IBR-007: Forced Oscillations from Battery Energy Storage Systems

## Condition:

- As more IBRs are added to the Western Interconnection, the industry is seeing them generate oscillations, some that resonate at or near the known natural modes of the system. If the system is stressed, a forced oscillation could cause instability of the grid.

## Consequence:

- Forced oscillations can cause transmission facility overloads, generator instability and other problems that could lead to facility damage, islanding, and other reliability issues.

## Cause:

- Incorrect inverter settings can cause real power oscillations that are made more problematic due to the type of facility and the programmability of its control systems.

# Decision: Forced Oscillations from Battery Energy Storage Systems

| RISK PROBABILITY | MATERIALITY | CONTROLLABILITY | SPAN  | VELOCITY  | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|-------------|-----------------|-------|-----------|-----------------|-----------------|
| Almost Certain   | Moderate    | Moderate        | Hours | Overnight | <b>15.0</b>     | High            |

- Analysis:
  - Further evaluation is needed of controls for the mitigation of forced oscillations on BESS.
  - Lessons learned in draft by NERC.
- Next Steps:
  - Recommend changing to “transfer” to the OAWG.
  - If OAWG isn’t working on it, then
  - Recommend changing to “accept” and monitor.

# OTH-001: Planning Case Accuracy

## Condition:

- As two types of organizations originate transmission projects (current Transmission Owners and Operators, and independent transmission developers), information about transmission projects originated by independent developers may not be submitted to WECC to be included in future studies.

## Consequence:

- If the transmission planners are not informed about transmission projects in an appropriate time frame, they are not able to determine and coordinate any effects these projects have on their transmission planning assessments and any impacts outside of the interconnecting entity.

## Cause:

- As the typical process works within the MOD-032 standard where information is submitted by the PCs and TPs, a project initiated by an independent developer often lacks a designated TP or PC to provide this information until the facility is close to commercial operation. The process is also unclear about submitting this information or designating a PC and TP in an appropriate time frame to allow for the planners to do their assessments.

## Decision: Planning Case Accuracy

| RISK PROBABILITY | MATERIALITY | CONTROLLABILITY | SPAN       | VELOCITY  | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|-------------|-----------------|------------|-----------|-----------------|-----------------|
| Almost Certain   | Moderate    | Moderate        | > 2 Months | < 5 Years | <b>15.5</b>     | High            |

- Analysis:
- Reassess assumptions. Examples do not appear to be indicative of a systemic issue.
- Next Steps:
  - Recommend changing to “accept” and monitor.
  - Consult with RAC.

## RES-004: Electrification—Electric Car & Heating

### Condition:

- Load transformation is being driven to replace natural gas and fuel oil used for building heat and petroleum energy sources for transportation (mainly automotive and trucking) with electric, which will lead to a higher demand on energy and capacity as well as the delivery infrastructure.

### Consequence:

- Traditional forecasts of energy demands will be inadequate if advanced planning of production and delivery of electricity does not consider the large increase in demand in all seasons and, more significantly, in the winter months when heating loads will greatly increase.

### Cause:

## Decision: Electrification—Electric Car & Heating

| RISK PROBABILITY | MATERIALITY   | CONTROLLABILITY | SPAN       | VELOCITY  | WEIGHTING SCORE | WEIGHTING VALUE |
|------------------|---------------|-----------------|------------|-----------|-----------------|-----------------|
| Almost Certain   | High Moderate | Low             | > 2 Months | > 5 Years | 19.0            | High            |

- Analysis:
  - IRPs are planning for electrification up to 10 years ahead (submitted to states every 2–5 years)
  - NERC is studying. (EVTF)
- Next Steps:
  - Recommend changing to “accept” and monitor.



# WECC



[WWW.WECC.ORG](http://WWW.WECC.ORG) | (801) 582-0353



155 N 400 W, Salt Lake City, UT 84103, USA