

RELIABILITY & SECURITY

Workshop - Tempe, Arizona



March 25–26, 2025



Standards Development Process

March 25, 2025

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slido

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Slido app on all computers you use



Who writes the Reliability Standards?

① Start presenting to display the poll results on this slide.

Reliability Standard Fundamentals

What is a Reliability Standard?

- Describes the mandatory requirements that users, owners, and operators of the Bulk Power System (BPS) must follow to ensure the reliable operation of the BPS.
- Imposes requirements on the users, owners, and operators of the BPS to ensure that they fulfill their responsibilities in reliable grid operations consistent with the basic engineering functions and concepts.

Federal Power Act—Section 215

In response to the recommendation in the Power System Outage Task Force Report, the United States Congress approved the inclusion of Section 215 in the Federal Power Act August 8, 2005, which *requires* the **Electric Reliability Organization (ERO)** to develop mandatory and enforceable Reliability Standards, which are subject to Federal Energy Regulatory Commission (FERC) review and approval.



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Who Must Comply?

The NERC Rules of Procedure, Section 300 address the requirements for Reliability Standards development. Specifically, the language states that

“NERC shall develop and maintain Reliability Standards that apply to Bulk Power System owners, operators, and users and that enable NERC and Regional Entities to measure the reliability performance of Bulk Power System owners, operators, and users; and to hold them accountable for Reliable Operation of the Bulk Power Systems.”


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Rules of Procedure

Effective: November 28, 2023

Reliability Principles

Each reliability standard shall enable or support specific reliability principles to ensure that each standard serves a purpose in supporting the reliability of the BPS.



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Reliability Principles

NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American bulk power systems.¹ Each reliability standard shall enable or support one or more of the reliability principles, thereby ensuring that each standard serves a purpose in support of reliability of the North American bulk power systems. Each reliability standard shall also be consistent with all of the reliability principles, thereby ensuring that no standard undermines reliability through an unintended consequence.

1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.
5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.
6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.
8. Bulk power systems shall be protected from malicious physical or cyber attacks.

Version History

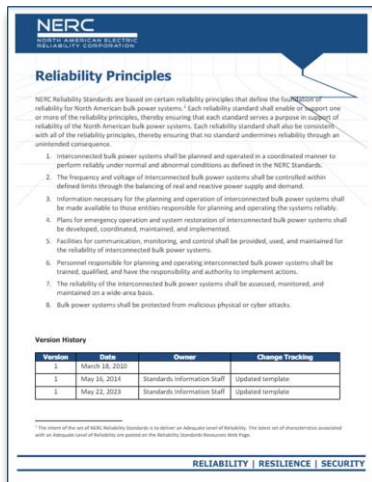
Version	Date	Owner	Change Tracking
1	March 18, 2010		
1	May 16, 2014	Standards Information Staff	Updated template
1	May 22, 2023	Standards Information Staff	Updated template

¹ The intent of the set of NERC Reliability Standards is to deliver an Adequate Level of Reliability. The latest set of characteristics associated with an Adequate Level of Reliability are posted on the Reliability Standards Resources Web Page.

RELIABILITY | RESILIENCE | SECURITY

Reliability Principles

NERC Reliability Principles



Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.

The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.

Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.

Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.

Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.

The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.

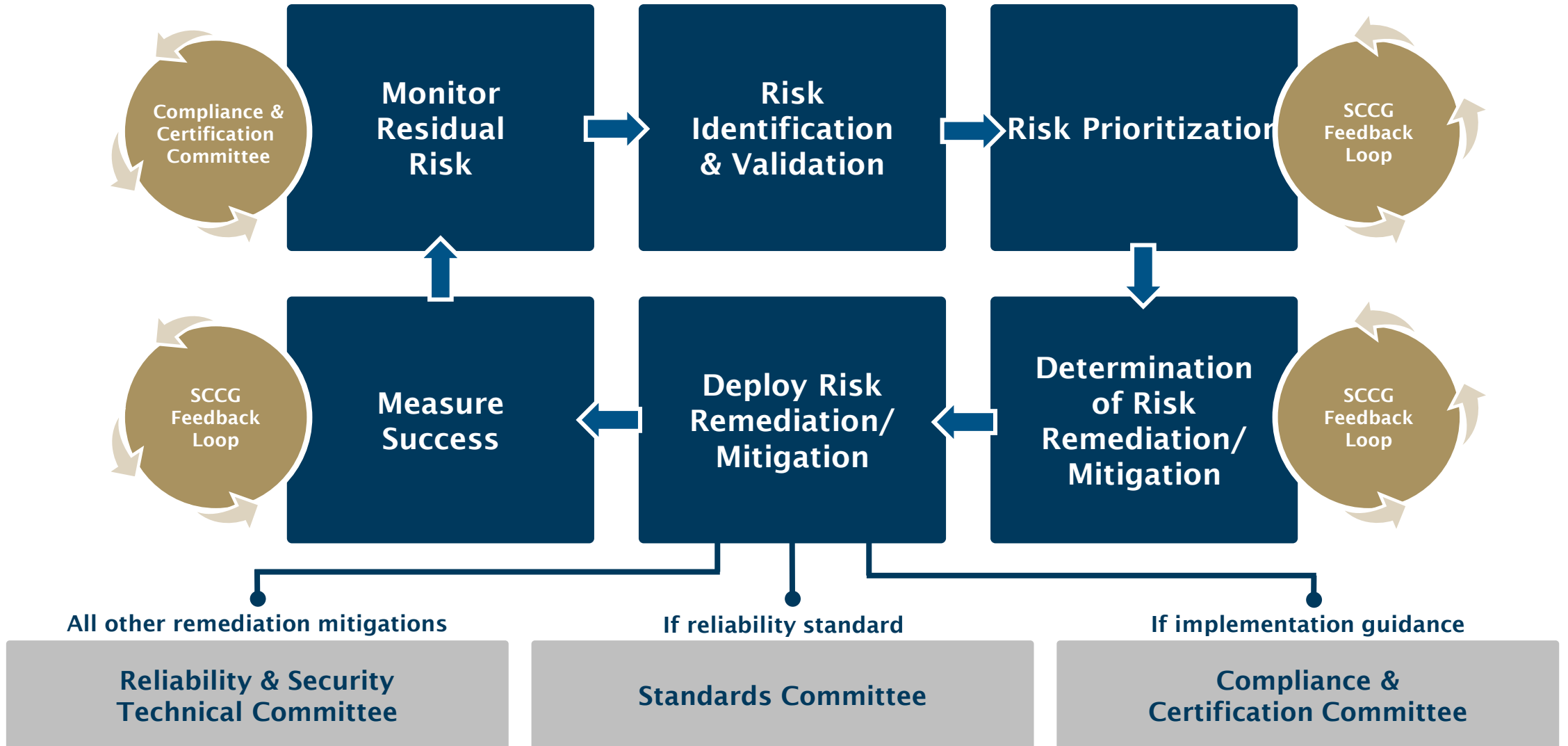
Bulk power systems shall be protected from malicious physical or cyber attacks.

Stakeholders





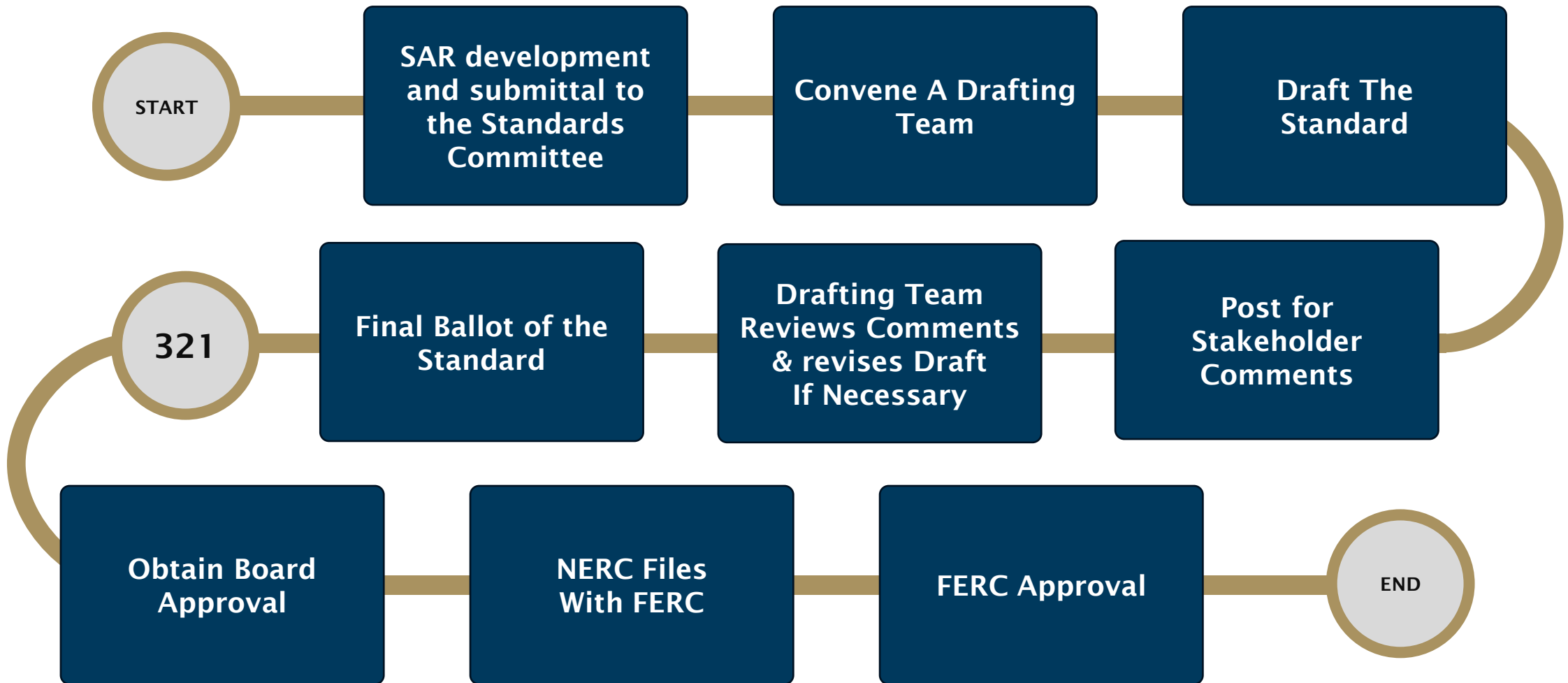
RSTC



FERC

- Orders, NOPR, Final Rule, etc.

Standard Development Process—Appendix 3 A of the ROP



Standard Development Process—Appendix 3 A of the ROP



Standard Authorization Request



Any person or entity may submit a SAR

- The SAR identifies the need, scope, affected parties, and requirements of the proposed project



The Standards Committee reviews the SAR for completeness and scope



Once deemed complete and within WECC's/NERC's authority, the SAR is presented to the Standards Committee for disposition

Present the SAR to the WSC/NERC SC

To be accepted by the Standards Committee, the SAR must:

- Contain a description of the requested action
- Define purpose, scope, affected parties, and any other relevant information
- Must be within WECC's/NERC's scope

Convene A Drafting Team

Notice sent to the public via email and WECC Weekly

- Drafting team nominees are volunteers and subject matter experts
- Generally looking for five to nine volunteers

Standards Committee approves the drafting team



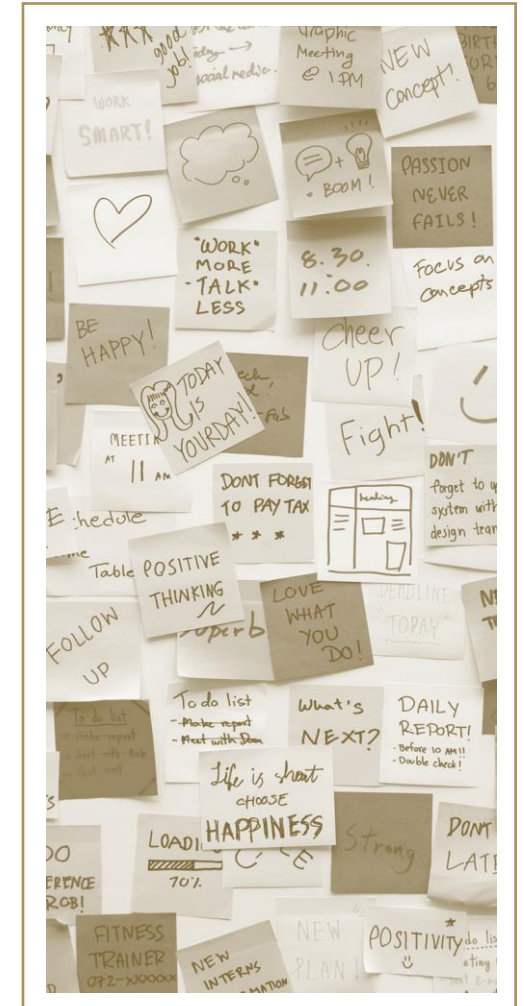
Draft the Standard

Drafting team meetings are generally two-hour calls

Review the SAR for the purpose

Draft requirements that support the purpose

- NERC Standards staff may help with wording and format
- Generally, takes multiple meetings
- *“Great ideas alter the power balance in relationships. That’s why great ideas are initially resisted.”*



Post for Stakeholder Comments

Draft Standard is posted for public comments

- General or guiding questions may be included on the comment form
- Comments are intended to guide the drafting team or identify needed changes
- Think about reliability first!
- NOTE: Now is not the optimal time to comment in direct opposition of a FERC Order



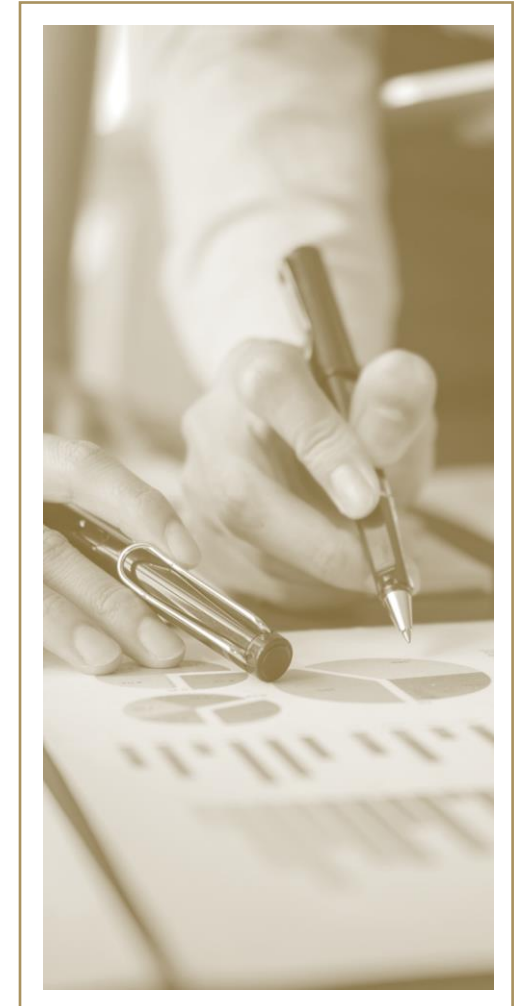
Drafting Team Reviews Comments

All comments must be reviewed and considered by the drafting team

- Drafting team provides responses to comments received

Based on comments, the drafting team may revise the Standard and re-Ballot

- Any substantive revisions require the Standard be posted for comment again
- This process may be repeated several times



Ballot the Standard

When no additional revisions are deemed necessary, seek a final ballot for the Standard

A Ballot Pool is formed from members of the Ballot Body

- **WECC Ballot Body:** entities who have registered with WECC to vote on WECC Standards and Criteria and have been vetted by WECC as eligible
- **Ballot Pool:** stakeholders from the Ballot Body interested or affected by the proposed Standard or Criterion
 - Each Ballot Pool is formed individually



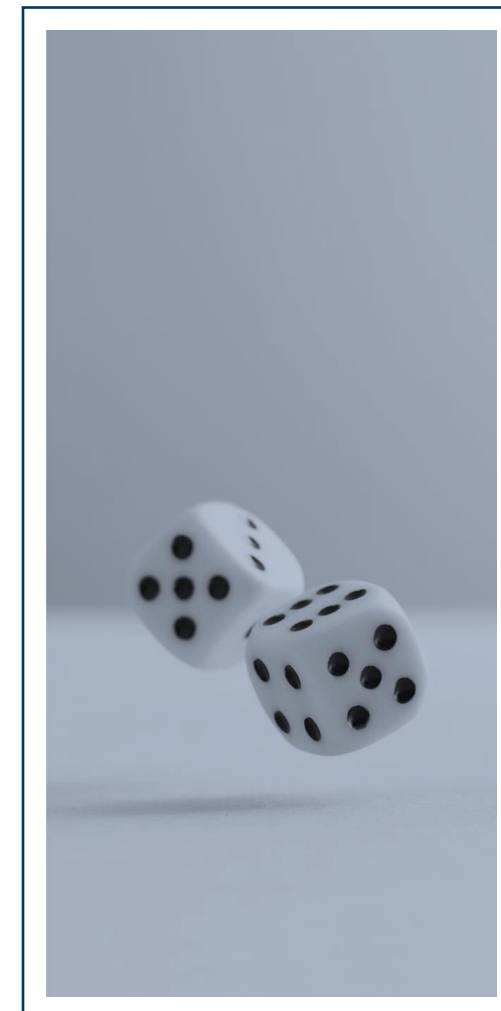
Ballot the Standard (Continued)

Weighted Segment voting is used

- Because each voting segment is weighted, no single segment may defeat a Standard

A 2/3 quorum is required

A 2/3 majority is required



Obtain WECC Board Approval

If a Regional Standard or Criterion passes the ballot, it will be presented to the WECC Board for approval at its next meeting

- The ballot results and supporting documents are provided
- If the WECC Board approves a Regional Criterion, it will become effective in accordance with the associated implementation plan
- If the WECC Board approves a WECC Regional Reliability Standard or a WECC variance to a NERC Reliability Standard, it is filed with NERC for NERC Board adoption

Obtain NERC Board Approval

If a Reliability Standard passes the ballot, it will be presented to the NERC Board for approval at its next meeting

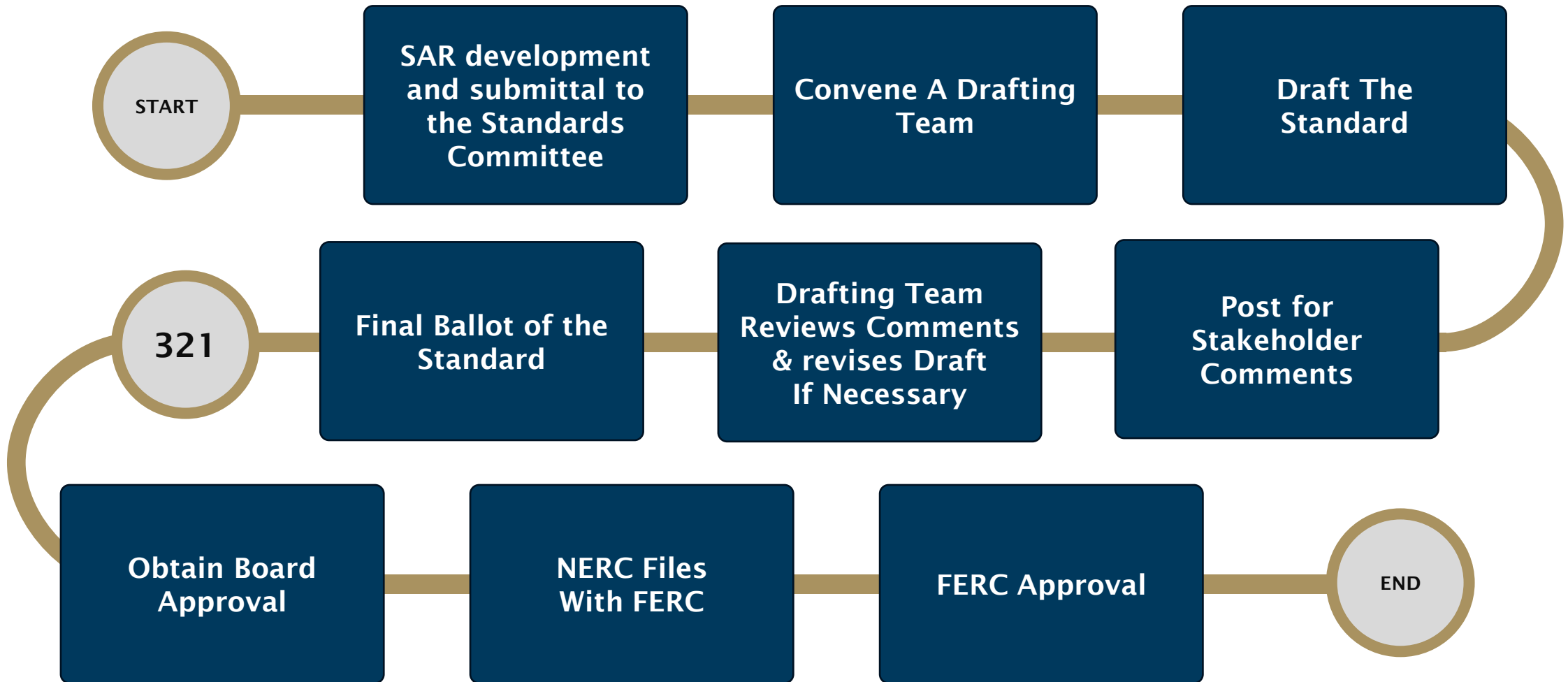
- The ballot results and supporting documents are provided
- Regional Standards and Criterion are also presented to NERC Board

NERC Files with FERC

If the NERC Board adopts the Reliability Standard (and associated documents), NERC prepares a joint filing from NERC to FERC for consideration

- FERC may approve, approve and direct further action, or remand the document
- If FERC approves the Reliability Standard, it becomes effective as outlined in the implementation plan

Standard Development Process

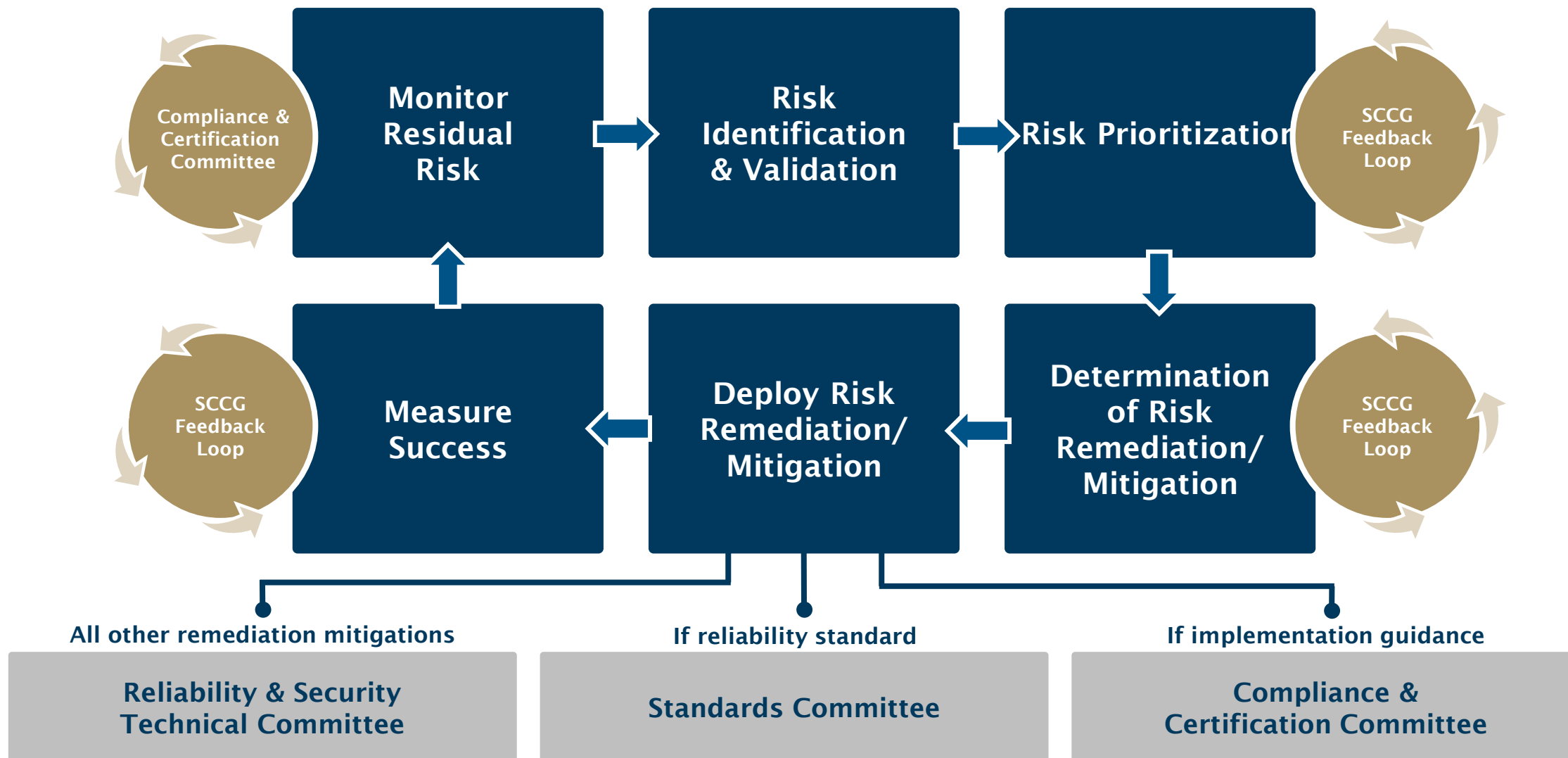


Standard Development Process

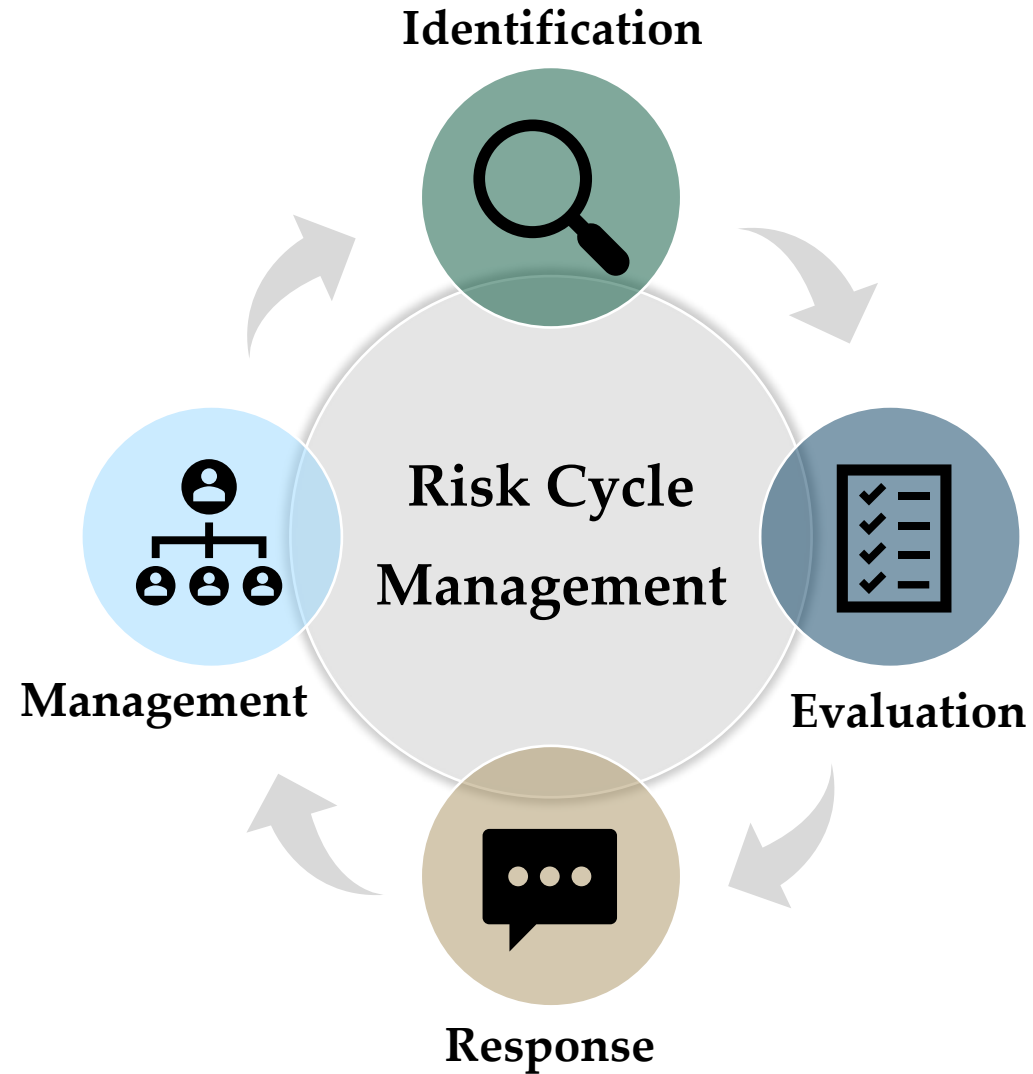
Standards Modernization Task Force

The Great Unknown

RSTC



RSTC





**Do you use any alternative electro-chemical based storage devices in the reliable operation of Protection Systems?
(e.g., Sodium Nickel versus those covered in PRC-005)**

Standards Feedback Team



Reliability Risks

2024 Scorecard

Western viewpoints represented and incorporated in the development of NERC Reliability Standards, regional standards, and regional variances to NERC Reliability Standards

- Initiative—Develop a data-driven process based on feedback from CMEP activities for evaluating effectiveness of Standards and as a mechanism to submit feedback on Standards that may be ineffective, inadequate to risk, unclear, unenforceable, or unnecessary

Standards Feedback Team

Enhance WECC's risk mitigation efforts by using data and analysis to identify and appropriately respond to issues and gaps in Standards and associated supporting documentation

- Apply a consistent approach for evaluating the effectiveness of Standards based on feedback from CMEP activities
- WECC may address issues through NERC and regional Standards development, guidance, outreach, and other tools
- Engage WECC staff to use experience and provide awareness

Think Outside The Box



Reliability Standard Resources



[NERC Standards Page](#)

NERC's webpage is the most comprehensive source of information on the development of Reliability Standards. All current projects, teams, and processes can be located here.



[WECC Standards Page](#)

WECC's web page features regional criteria and reliability standards for all parts of the Western Interconnection including Alberta, British Columbia, Mexico, and the United States.



[NERC One-Stop Shop](#)

Links to standards, implementation plans, project pages, Reliability Standards Audit Worksheets, FERC Orders, and compliance guidance. Link located on NERC Standards Page.

Reliability Standard Resources



Mandatory Enforcement Standards

Standards that are enforceable in the United States.



Future Enforceable Standards

Standards that are approved by FERC, but not yet enforceable in the United States.



Filed and Pending Regulatory Approval

Standards adopted by the NERC Board of Trustees and filed with FERC for approval, but not yet approved by FERC.

Reliability Standard Resources



Standards Pending Regulatory Filing

Standards adopted by the Board, but not yet filed with FERC.



Inactive Standards

Standards that have been superseded by another and are no longer enforceable.



Standards Pending Inactive

Standards that have been superseded by other standards are not enforceable.



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