

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Standards Actions

Howard Gugel, Vice President of Engineering and Standards
Board of Trustees Meeting
February 16, 2023

RELIABILITY | RESILIENCE | SECURITY



- **Background**
 - Addresses two Standard Authorization Requests (SARs)
 - Clarify notification requirements for fault recorder data
 - Re-evaluation requirement currently in the PRC-002 implementation plan
- **Reliability Benefit**
 - To have adequate sequence of events recording Standards Efficiency Review (SER) and fault recording (FR) data available to facilitate analysis of Bulk Electric System (BES) disturbances
- **Action**
 - Adopt
 - Reliability Standard - PRC-002-4 – Disturbance Monitoring and Reporting Requirements

- Reliability Benefits
 - Eliminate confusion surrounding out-of-step blocking settings
 - Retired Requirement R2, which addresses setting out-of-step blocking elements (also known as “power swing blocking”)
 - Removed the applicability exclusion in Attachment A, Item 2.3, which excludes protection systems intended for protection during stable power swings
- Action
 - Adopt
 - Reliability Standard - PRC-023-6 – Relay Performance During Stable Power Swings

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Cold Weather Standards Update

RELIABILITY | RESILIENCE | SECURITY



- Background
 - Address 6 Key Recommendations (1a, 1b, 1c, 1g, 1h and 1i) from the Joint Inquiry Report
 - September 30, 2023 deadline to complete development

- Revised EOP-011-3 and EOP-012-2 to meet the phase 2 recommendations
- Develop four new NERC Glossary Terms
 - Extreme Cold Weather Temperature
 - Generator Cold Weather Critical Component
 - Fixed Fuel Supply Component
 - Generator Cold Weather Reliability Event
- Update Facilities section to address industry comments on unit vs plant level of applicability
- Planned initial posting in February 2023

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Standards Process Improvement Opportunities

RELIABILITY | RESILIENCE | SECURITY



- Recommendations in four areas
 - Rules of Procedure
 - Standard Processes Manual
 - Standing Committees
 - Registered Ballot Body

- Remove requirement for the American National Standards Institute (ANSI) accreditation
- Provide Board authority to direct the development of a Reliability Standard
- Modify section 321 to include projects to address Board directives
- Posted for comment through March 6
- Bring changes to Board in May

- Revise Section 1.4 to reflect that NERC's process is modeled on the ANSI Essential Requirements
- Revise Section 4.2 to clarify what it means for Standard Authorization Requests ("SARs") to have had "some vetting in industry"
- Revise Section 4.12 to create a tiered structure for comment periods
- Revise Section 4.13 to eliminate the requirement for a final ballot
- Revise Section 16.0 to include Board Directives in waiver process
- Posted for comment and ballot through March 6

- Standards Committee Process Subcommittee developing changes
- Registered Ballot Body evaluation to be performed



Questions and Answers

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Year-End Review 2022 Achievements and Work Plan Priorities

Erika Chanzas, Manager of Business Planning
Board of Trustees Meeting
February 16, 2023

RELIABILITY | RESILIENCE | SECURITY



- Complex, rapidly evolving risk and threat environment:
 - Inverter-based generating resources
 - Extreme weather
 - Unprecedented pace of security threats
 - Geopolitical tensions and ongoing pandemic
- Key accomplishments in the following areas:
 - Advances in achieving our mission
 - Leveraging the ERO Enterprise
 - Maturing NERC's business functions
 - Delivered against 43 of the 44 tactical 2022 priorities set in late 2021
- *Key takeaway: 2022 was a challenging, transformational year!*

Addressing Critical Reliability and Security Risks

- Continued aggressive efforts around cold weather preparation
- Expanded our understanding of inverter-based and distributed energy resources
- Revised the security approach for low impact cyber assets
- Added energy reliability standards projects and assessments

Being a Trusted, Independent Source

- Broadened the conversation on managing the changing resource mix with critical policy bodies
- Increased social media followers, website views, and media coverage of reliability assessments

Expanding Outreach and Partnerships

- Engaged government regulators and offices (FERC, NARUC, DOE, DHS, CAMPUT, Electricity Canada)
- Collaborated with technical groups (NATF, NAGF, EPRI, NAESB, National Academy of Engineering)
- Partnered with interdependent associations (natural gas, TSA)
- Fostered international relationships (U.N. Economic Commission for Europe, World Economic Forum)

Strengthening the E-ISAC

- Received Net Promoter Score of 58, reflecting an excellent level of member satisfaction
- Increased membership: E-ISAC (144 new organizations) and CRISP (9 new participants)
- Contributed to the success of the DOE Energy Threat Analysis Center (ETAC) pilot

Executing a Strong ERO Enterprise CMEP

- Completed align implementation for U.S. entities and nearing completion for Canadian provinces that have opted in
- Made strong gains in aligning CMEP work practices across the Regional Entities

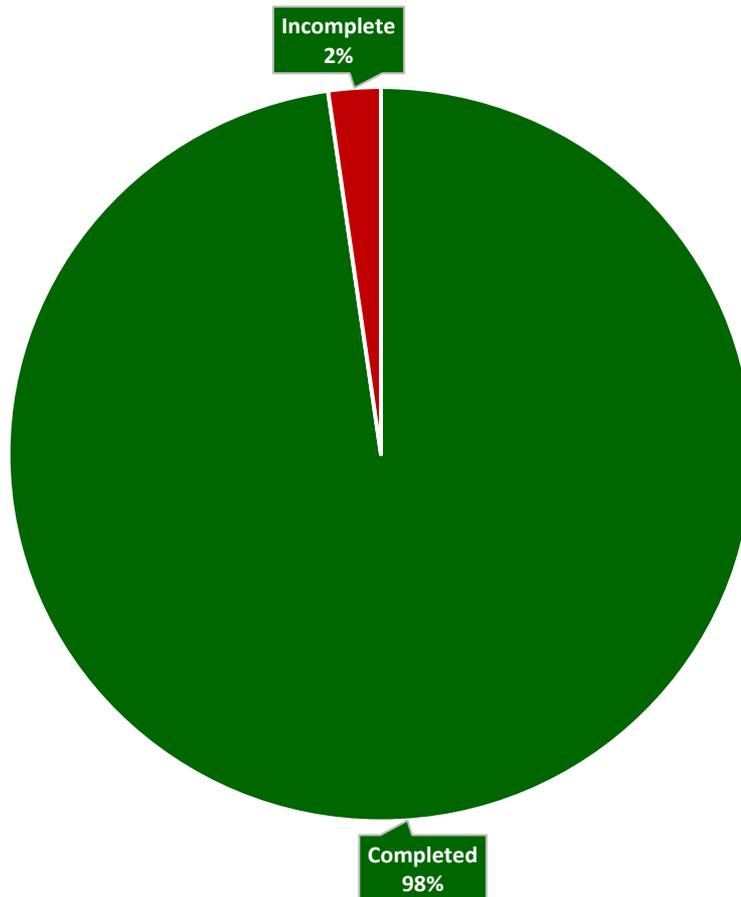
Collaborating on Critical Efforts Across the ERO

- Created a shared Data Loss Prevention framework
- Exploring a systematized approach to Identity Access Management
- Collaborated on Facility Ratings resources
- Assembled key ERO Enterprise leaders to focus on long-term strategy refresh

Investing in NERC's People, Culture, & Processes

- Improving and leveraging systems for key HR processes
- Achieved an all-time high employee engagement score (86) and turnover rate below 10%
- Opened the new D.C. office (the NERC Collaboration Hub), designed for today's workforce
- Strengthening our control and cyber security environment
- Developing and retooling key functional processes to be more responsive and efficient

Priorities in 2022 Work Plan



- 43 of 44 items completed or progress achieved commensurate with expectations.
- One item incomplete relative to expectation.
- Detailed work plan priorities assessment enclosed for information.



Questions and Answers

Appendix

Detailed Work Plan Priorities Assessment

ERO Enterprise Long-Term Strategy Focus Areas

1. Expand risk-based focus in Standards, Compliance Monitoring, and Enforcement
2. Assess and catalyze steps to mitigate known and emerging risks to reliability and security
3. Build a strong, E-ISAC-based security capability
4. Strengthen engagement across the reliability and security ecosystem in North America
5. Capture effectiveness, efficiency, and continuous improvement opportunities

2022 Near-Term Priorities

1. Improve BES resilience for widespread long-term extreme temperature events
2. Deepen planning and operating focus beyond capacity adequacy, towards energy sufficiency
3. Enhance and develop new Standards: cyber (bright-line criteria), weatherization, energy sufficiency and inverter performance
4. Expand the impact of the E-ISAC through enhanced information sharing, communications, and monitoring of critical security threats



Priority has been fully achieved



Priority was partially achieved



Priority was not reached

Key Objectives

Standards: Cyber

Incorporate transmission planning and operational cyber risks into BPS Standards

Implement supply chain report recommendations

Complete evaluation of the bright-line risk criteria and change the criteria

Standards: Energy and Reliability

Modify Reliability Standards based on actions identified by FERC/ERO Enterprise 2021 Cold Weather Inquiry

Implement 2021 Energy Reliability Assessment Task Force standard recommendations

Modify standards ensuring transmission planning energy scenarios are studied for:

- a. Normal and extreme events
- b. Gas-electric interdependencies
- c. Distributed energy resource events

Status Highlights



Collaborated with stakeholders on CIP-014 (transmission planning); developing CIP-002 (transmission control centers)



CIP-003-9 (security management controls) adopted by Board



Part of CIP-002 development; whitepaper determined no modification to bright-line, but recommended additional controls for external routable connectivity



EOP-011-3 (emergency operations) and EOP-012-1 (extreme cold weather preparedness) adopted by Board



Standards project in progress



Developing criteria (part of three-year plan); developing Energy Assurance standard/recommendations for TPL enhancements; developed design basis criteria for natural gas contingency

Key Objectives

Standards: Emergent Risks

Modify existing Reliability Standards:

- a. Inverter performance
- b. Relay commissioning

Compliance

Develop and implement plan to address facility ratings

Status Highlights



SARs for inverter performance accepted by Standards Committee; SPIDERWG identified standards revisions related to impacts of DERs; multiple standards projects underway

Completed white paper and made recommendations for alternative mitigations; relay commissioning standard modification is not needed at this time



Industry themes reports distributed

Key Objectives

Assessment: Energy and Reliability

Implement FERC/ERO Enterprise 2021 Cold Weather Inquiry:

- a. Reframing of resource adequacy in reliability assessments
- b. Approach to natural gas-electric interdependency on BPS reliability

Develop strategy for oversight of the transforming resource mix:

- a. Seasonal Assessments include energy availability scenarios and probability-based analysis to assess potential energy limitations from extreme events
- b. Conduct energy adequacy assessments for all assessment areas and publish in 2022 LTRA
- c. Implement 2021 Energy Reliability Assessment Task Force recommendations
- d. To measure resilience, collect load loss recovery data from extreme events

Develop technical guidance to support increasing amounts of distributed energy resources and inverter-based resources

Status Highlights

RAS formulating strategy on energy assessments



Design Basis Criteria for a natural gas study approved by RSTC; conducted survey to measure Fuel Assurance Guideline

2021 Summer Reliability Assessment (SRA) published with scenarios



Probabilistic Analysis effort included in 2022 LTRA

SARs accepted by Standards Committee and remaining ERATF work plan items on track

ERO Load Loss Data Collection team active and recommendation made to develop 1600 data request in 2023



Developed various Reliability Guidelines, studies, reports, and SARs

Key Objectives

Assessment: Supply Chain and Security Engineering

Implement Supply Chain report's recommendations

Supply chain risk mitigations for low impact BES Cyber Assets

Develop cybersecurity risk scenarios for BPS planning, engineering, and operations

Complete study on the implications of a coordinated cyber attack

Identify improvements to bright-line criteria or identify enhanced approach

Status Highlights



Cyber attacks white paper presented and modifications to CIP-003 for supply chain adopted by Board



IEEE-NERC Technical Report complete; developing white paper on cyber-informed transmission planning



White paper on cyber attacks around low impact BES Cyber Assets presented to Board (as noted above) and enhanced approach recommended



Key Objectives

Strategy

Execute and refine strategic plan

Develop OT system monitoring and analysis capabilities and activate the objectives of the 100 day plan

Continue collaboration with Analysis Center for Systemic Risk (ARC) to refine risk mitigation strategies

Continue sharing and engagement with other critical infrastructure sectors and ISACs

Maintain strategic partnerships with U.S. and Canadian government partners, technology sector, and other key stakeholders

Explore opportunities to expand participant funding of key programs

Status Highlights



Plan updated to include vendor affiliate program, natural gas collaboration, CRISP expansion, OT analysis, ETAC support, etc.



Seven threat hunts conducted to date; ongoing weekly internal OT threat analysis circulated; produced OT ransomware report



Collaborating with ARC on an ongoing basis, but progress with ARC delayed (ARC unable to share its risk register with E-ISAC)



Over 750 shares to other ISACs sharing critical and timely information; Tri-Sector Plan activated during Ukraine crisis and hosted over 10 Crisis Action Plan calls



15 cross-sector ISACs are E-ISAC members; E-ISAC coordinating with MS/EI-ISAC; received 96 shares from DNG-ISAC



Revised MOU with DOE, including funding requests; launched vendor affiliate program; CRISP five year strategy developed

Key Objectives

Information Sharing

Maintain focus on and share information regarding the most critical security threats (i.e., OT, Supply Chain)

Develop plans to significantly expand CRISP participation and evaluate other sensor technologies

Improve coordination and connectivity to Intelligence Community

Continue to conduct threat workshops, webinars and industry-wide exercises

Analysis

Develop products to summarize analysis of sensors and proactively share with stakeholders

Deploy automated information sharing tools

Refine performance metrics to more accurately assess productivity and value

Status Highlights



Posted over 760 shares to the E-ISAC portal – 147 Posts covered OT/ICS topics



5 companies joined Essence Integration Program and 4 joined standard CRISP



Attended classified briefings; E-ISAC part of the ETAC; collaborated on DOE ARES



Conducted monthly webinars and physical security workshops; completed GridSecCon and planning next GridEx



Conducted threat hunts in CRISP and platforms such as Neighborhood Keeper, and evaluating IronNet; identified and shared proactive threats from supply chain and remote access vulnerabilities



Automated Information Sharing providing indicators and bulletins in production



Metrics for information analysis and analytic products developed or in progress

Key Objectives

Engagement

Successfully roll out new E-ISAC portal and develop robust feedback mechanisms

Continue Industry Engagement Program (IEP) and increase membership

Provide products and services tailored to small and mid-size systems

Continue to strengthen engagement and collaboration with natural gas sector

Maintain Canadian engagement, effectively activate the IESO relationship and use Project Lighthouse

Status Highlights



New portal activated in May 2022, including additional feedback mechanism; regular feedback also collected as part of IEP



Average net promoter score of 58 across five IEPs; 9% membership increase in 2022 (144 new organizations)



Issued weekly report for small/medium utilities; added 5 co-ops to CRISP Essence Integration Program



Conducted regular engagement with gas trade associations and utilities; added 3 natural-gas-only and 2 combo utility E-ISAC members



Monthly analyst exchanges and access to Lighthouse provided cross-border awareness of threats; also received Canadian Cyber Centre Avantail feeds directly

Key Objectives

Enhance Outreach to Stakeholder/Policy Organizations

Continue to sharpen reliability assessment recommendations and further develop state and Provincial outreach around key findings in partnership with the Regional Entities

Continue to expand outreach to stakeholder organizations that represent resource transition mix (solar, wind, natural gas, battery technology, etc.) to further engage on reliability, resilience and security matters

Cold Weather

Execute a robust outreach strategy surrounding the recommended actions outlined in the Mid-South Cold Weather Event Inquiry report in coordination with FERC to include:

- a. U.S. Senate and House Committees of Jurisdiction
- b. Stakeholder associations
- c. U.S. Government

Status Highlights



SRA received the most media interest of any report; extensive SRA briefings to state and provincial regulators, NARUC, CAMPUT, Capitol Hill, DOE Secretary, and FERC



Conducted outreach with solar, wind, and natural gas associations



Engaged in regular conversations on cold weather event, SRA, and natural gas interdependency; coordinated with Texas RE

Conducted outreach with NARUC, solar and wind associations, and Trades and Forums

Collaborated with FERC, including cold weather technical conference planning support; conducted outreach with DOE

Key Objectives

Leveraging the Work of Others

Leverage renewed working relationships with EPRI and NATF and NAGF to expand joint impact on technical reliability matters

Look for other organizational relationships to leverage where joint impact on the BPS reliability could be expanded through better coordination/intentionality, such as U.S. DOE, CAMPUT, Ministers of Energy, NARUC, and Power Systems Engineering in Research Center (PSERC), etc.

Continue to develop relationships with registered entities through NERC and the Regions

Status Highlights



Coordinated with NATF on Facility Ratings and conducted a joint presentation at Board Compliance Committee; engaged NAGF on generator winter preparations Reliability Standards; participated in EPRI's Summer Session; engaged in the modeling workshop with over 1,000 participants



Engaged regularly with NARUC, DOE, and FERC, CAMPUT; initial outreach to Ministers of Energy, leveraging outreach and coordinated communications



Conducted quarterly meetings with trade associations and state outreach

Key Objectives

Align/SEL

Roll-out Align R4 by Q3 2022, supported by stakeholder outreach and education, end-use training, and business unit readiness activities

Explore potential additional uses of Evidence Locker functionality for other registered entity data gathering (e.g., NERC Alerts)

ERO Enterprise

Solidify the ERO-Enterprise Transformation with increasing proof points per the Phase 2 Roadmap

Update long-term strategy to reflect the current industry reliability, security, and resilience environment

Status Highlights



Released Align R4.5 into production; training and education ongoing



Determined that NERC Alerts will be enhanced with the current solution; no further use cases for other uses of Evidence Locker functionality identified at this time



Collaboration groups regularly discussed areas that support the roadmap and transformation; successful May Leadership Workshop, which focused on getting input on critical challenges and must-win battles to be considered in the update of the ERO Enterprise Long-Term Strategy; finalizing draft strategy



NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Joint RISC/RSTC Presentation: Evaluation and Prioritization of Emerging Risks

Adrienne Collins, Vice Chair, RISC
Greg Ford, Chair, RSTC
Board of Trustees Meeting
February 16, 2023

RELIABILITY | RESILIENCE | SECURITY



- The Reliability Issues Steering Committee (RISC) is an advisory committee that reports directly to the NERC Board of Trustees and triages and provides front-end, high-level leadership and accountability for nominated issues of strategic importance to bulk power system reliability.
- The RISC assists the Board, NERC standing committees, NERC staff, regulators, Regional Entities, and industry stakeholders in establishing a common understanding of the scope, priority, and goals for the development of solutions to address these issues.
- In doing so, the RISC provides a framework for steering, developing, formalizing, and organizing recommendations to help NERC and industry effectively focus their resources on the critical issues needed to best improve the reliability of the bulk power system through the ERO Reliability Risk Priorities Report (see the [2021 Reliability Risk Priorities Report](#) for background).

- This 2023 ERO Reliability Risk Priorities Report (2023 Risk Report) will present the results of the RISC's continued work, the Reliability Leadership Summit, and the 2022 Emerging Risks Survey, to strategically define and prioritize risks to the reliable operation of the BPS and thereby provide recommendations to the Board regarding the approach that NERC, the ERO, and industry should take to enhance reliability and manage those risks.
- The following slides will provide a high-level summary of the results of the Reliability Leadership Summit and the Emerging Risks Survey that will be considered by assigned sub-groups into the development of the 2023 Risk Report.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2023 Reliability Leadership Summit Summary

RELIABILITY | RESILIENCE | SECURITY



Reliability Remains Job #1

Acting Chair's Priorities

- 1. *Cyber and Physical Security*** - Supply Chain issues are in the forefront
 - 2. *Extreme Weather*** – Unacceptable not to be prepared
 - 3. *Resilience is Rapidly Changing*** - Inverters involved in 12 incidents
- Collaboration is Key: FERC working with state regulators with a new task force
 - “Green critical infrastructure” is changing the way reliability is viewed

Find a Way to Compensate and Can't Solve This Alone

Adequacy Framework and Paradigm Shift

- A new grid is forming, and we need new models to gauge their direct effects and implications on the grid of the future
- Cultural shift from capacity to energy/fuel must be part of the discussion
- There should be connection requirements for distributed generation
- Affordability and market solutions must be balanced with addressing risks to reliability and resilience
- Natural gas and resource variability must be addressed

Extreme Weather and Gas Harmonization

- Resilience – Quantitative understanding of extreme weather models
- NAESB cannot solve the gas-electric interdependency risk alone
- During extreme events gas supply to generators is key
 - How do we get them to winterize to predetermined levels?
 - How do we build more gas pipelines?
 - Must have more coordination and greater information sharing

Find a Way to Compensate and Can't Solve This Alone

Gas Harmonization cont.

- Infrastructure and regulatory gap
- There is a need to preserve regulatory flexibility
- Working with state regulators will be key
- FERC can have a role to collaborate effectively with state regulators
- Encourage state regulators to participate
- It is not enough to just buy firm gas supply
- Engage trade associations

DER Aggregation

- Need to define aggregation.
- Need to understand cost and risk. May not necessarily result in greater reliability.
- Need to know what is on the system
- Non-jurisdictional, but these resources are part of dispatch
- We need connection requirements – “Electric Registry”

Detect, Investigate, and Remediate & We Must Step Away from Our Own Bias

Threats

- Our systems are more connected, and adversaries are mapping our network; Are we mapping our own network?
- Threat hunting: focus on repeatable & scalable systemic risk; Need more detection, not just prevention
- Must understand our adversaries' intentions: political or criminal
- OT and IT focus is critical, and there must be more collaboration
- At some point industry will need to pick winners and losers

Physical Security

- Working with state regulators will be key
- Should consider a risk-based approach to physical security
- Must consider how we eventually evolve standards as threats emerge

Supply Chain

- Adversaries understand how one attack on a single software package impacts many sectors at the same time
- Industry shares many suppliers, service providers, and manufacturers
- Must change culture and contract language

Resilience Requires Fundamentally Rethinking & Re-planning Grid Investment

- Climate change is undermining core grid planning assumptions
- System risks are increasing rapidly while the the electric network is asked to do more—resilience is more important and valuable than ever
- Requires more investment to adapt to the risks that are already built into the climate system—adaptation is much cheaper than rebuilding
- Planning for resilience demands fundamentally rethinking and re-planning of grid investment locally to deliver for the next decade, and the next 100 years

Reliability is What We do Under Normal Conditions & Resiliency is Operating and Responding During Abnormal Conditions

Four Pillars of Transformation: Can we balance?

1. Clean Energy: No/low carbon
2. Balancing Resources (supply & demand)
3. Energy Adequacy/Fuel Reserves
4. Robust Transmission

Challenges

- Rate of change
- Affordability and evolving expectations
- We need more gas and electric coordination
- Lack of dispatchable generation
- Retirements are easier than adding new resources, and
- Variable energy resources are not replacing the energy certainty and essential reliability services provided by those that are retiring

Reliability is What We do Under Normal Conditions & Resiliency is Operating and Responding During Abnormal Conditions

Calls to Action

1. Stop being backwards-looking
2. FERC & RTO/ISO: Incentives for fast start resources
3. Congress needs to take action to empower FERC to build more gas infrastructure
4. States need to stop delegating energy adequacy to markets
5. Must be creative on siting and need more investments to meet demand
6. Queue reform

NERC/ERO Enterprise

- We need more gas and electric coordination
- Convene, inform and engage stakeholders to solve
- Standards need to be forward-leaning; Don't oversteer/overcorrect; Need to prioritize
- Look past both reserve margin planning and relying on imports
- Address lack of distribution transformers that could impact restoration efforts

Life Will Find a Way and The Raptors are Testing the Fences

Innovation

- Green targets unachievable without new technologies and new markets
- Resilience and grid modernization hampered by long amortization and slow innovation
- Better permitting coordination needed
- More collaboration between state/provincial/federal regulators since the grid of the future will be decentralized

Understanding

- Need better long-term planning that will include gas and variable energy resources
 - Need grid and resource stress testing (including extreme event scenarios)
- Need better data analytics and standard data sets
 - Must be able to do analysis on asset fragility, demand profiles especially with EVs and heat pumps, hurricanes/storms, battery storage
- Must have more data to better define extreme events in order to be agile
- Transmission flexibility

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2022 Emerging Risks Survey

RELIABILITY | RESILIENCE | SECURITY



Background

- The survey provides identified BPS reliability risks and recommended mitigating activities to control them from the 2021 ERO Reliability Risk Priorities Report and seeks industry's input on the continued relevancy of the risks and the impact and likelihood of the identified mitigating activities. The survey serves as a vehicle to prioritize current identified risks, as well as to potentially identify new and emerging risks.

High Level Summary of Results

- All 4 categories from the 2021 Risk Report still considered relevant: Grid Transformation, Security Risks, Critical Infrastructure Interdependencies, and Extreme Events with Extreme Events as the only category receiving a few “no” votes
- Changing Resource Mix, Resource Adequacy and Performance, and Cybersecurity Vulnerabilities ranked as top three identified risks as well as the top three to manage versus monitor of risks

Next Steps

- Risk Report Subgroups will take their respective sections and complete a deep dive into the results and incorporate into the 2023 Risk Report appropriately.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

So What's Next?

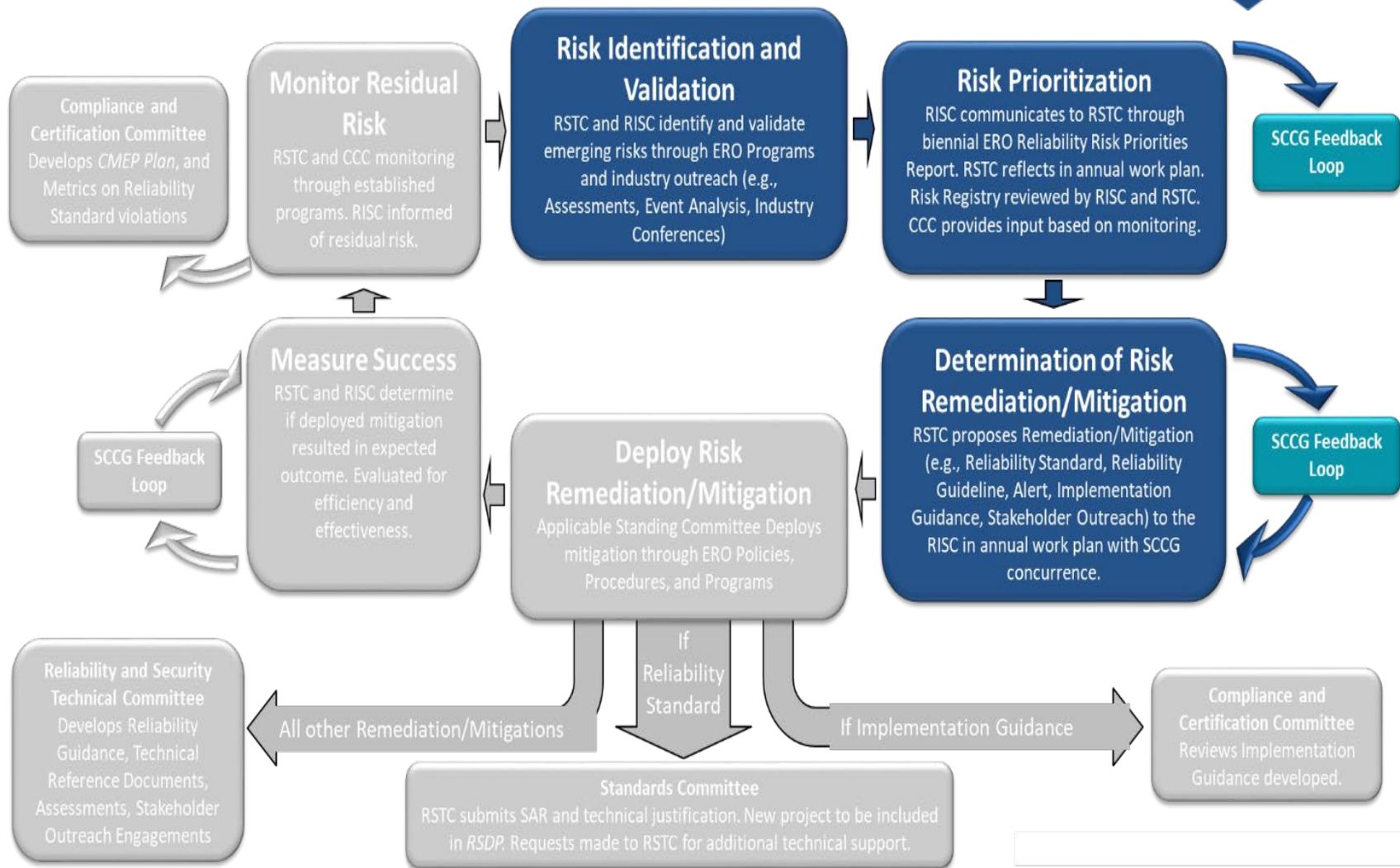
RELIABILITY | RESILIENCE | SECURITY



1. Development of the 2023 Risk Report

Tasks	Due Date	Responsible Party
2023 Reliability Leadership Summit	January 25	RISC Committee
RISC In-Person Committee Closed Meeting	January 26	RISC Committee
Report Section Groups Meet to Develop Sections for RISC Report	February-March	Report Section Groups
RISC Committee Closed Meeting to Review Draft RISC Report	Early April	RISC Committee
Report Section Groups Meet to Update Sections for RISC Report from RISC Meeting Feedback	Mid-Late April	Report Section Groups
RISC Committee Closed Meeting to Review Proposed Final Report	Early May	RISC Committee
RISC Report Posted for Comments	Mid May-Mid June (30 days)	NERC Staff
NERC Staff Review Comments and Incorporate Updates as Needed	Mid-June to Early July	NERC Staff
RISC Committee Open Meeting to Review Comments Received/Recommended Updates to Report - Approve Report and Recommend for Board of Trustees Approval	Mid-July	RISC Committee
RISC Report presented to NERC Board for Acceptance	August 17	RISC Committee

2. RISC/RSTC Coordination



NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Reliability and Security Technical Committee:

Driving action to mitigate high priority risks

RELIABILITY | RESILIENCE | SECURITY



NERC Reliability & Security Technical Committee

Ensure the reliability and security of the bulk-power system by identifying critical risks and deploying effective and efficient risk mitigations.



Vision: The RSTC is the premier technical authority on BPS reliability and security, and its effectiveness stems from the stakeholder members that command deep technical knowledge, broad industry experience, and a collective duty to ensure the reliability of the bulk-power system.

**Reliability and Security
 Technical Committee
 (RSTC)**

Executive
 Committee

Performance Monitoring

Real-Time Operations Subcommittee (RTOS)*	Performance Analysis Subcommittee (PAS)*	Event Analysis Subcommittee (EAS)*	Resources Subcommittee (RS)*
Synchronized Measurements Working Group (SMWG)	Energy Management Systems Working Group (EMSWG)	Reserves Working Group (RWG)	
	Failure Modes and Mechanisms Task Force (FMMTF)	Frequency Working Group (FWG)	

Risk Mitigation

Inverter-Based Resource Performance Subcommittee (IRPS)*	System Planning Impacts DER Working Group (SPIDERWG)*	Security Working Group (SWG)*
EMP Working Group (EMPWG)*	Electric-Gas Working Group (EGWG)*	Supply Chain Working Group (SCWG)
Facility Ratings Task Force (FRTF)	Load Modeling Working Group (LMWG)	System Protection and Control Working Group (SPCWG)*
6GHz Task Force (6GHzTF)		

Reliability and Security Assessment

Reliability Assessment Subcommittee (RAS)*
Probabilistic Assessment Working Group (PAWG)
Security Integration and Technology Enablement Subcommittee (SITES)*
Energy Reliability Assessment Task Force (ERATF)



2020-2023 RSTC Actions

- Prior PC/OC/CIPC Direction
- 2019 RISC Report
 - Grid Transformation
 - Inverters } *Call to action on modeling data, protection, energy storage, and interconnection risks*
 - DER }
 - Extreme Natural Events
 - Security Risks
 - Infrastructure Interdependencies



Priority Action Groups

SITES

SWG

IRPS

SPIDERWG

EGWG

- Established
- Compliance Implementation Guidance
- Security Guideline
- 5 SARs
- Reliability Guideline
- Whitepapers
- 2 SARs
- 3 Reliability Guidelines
- Whitepapers
- Reliability Guideline

- Effectiveness and Efficiency



- Charter and Governance
- Subgroup Restructuring
- Elections and Representation
- Sponsors
- Subgroup Sunset Reviews
- Strategic Planning Group
- Reliability/Security Guideline Effectiveness Metrics
- Workplan Notional Process
- Risk Mitigation Framework
- SCCG
- Participation Model

- 2021 RISC Report
 - Grid Transformation
 - Inverters
 - DER
 - Energy Availability
 - Extreme Natural Events
 - Security Risks
 - Infrastructure Interdependencies

- Cold Weather Report Recommendations
 - 16 projects identified, prioritized, and assigned to various subgroups



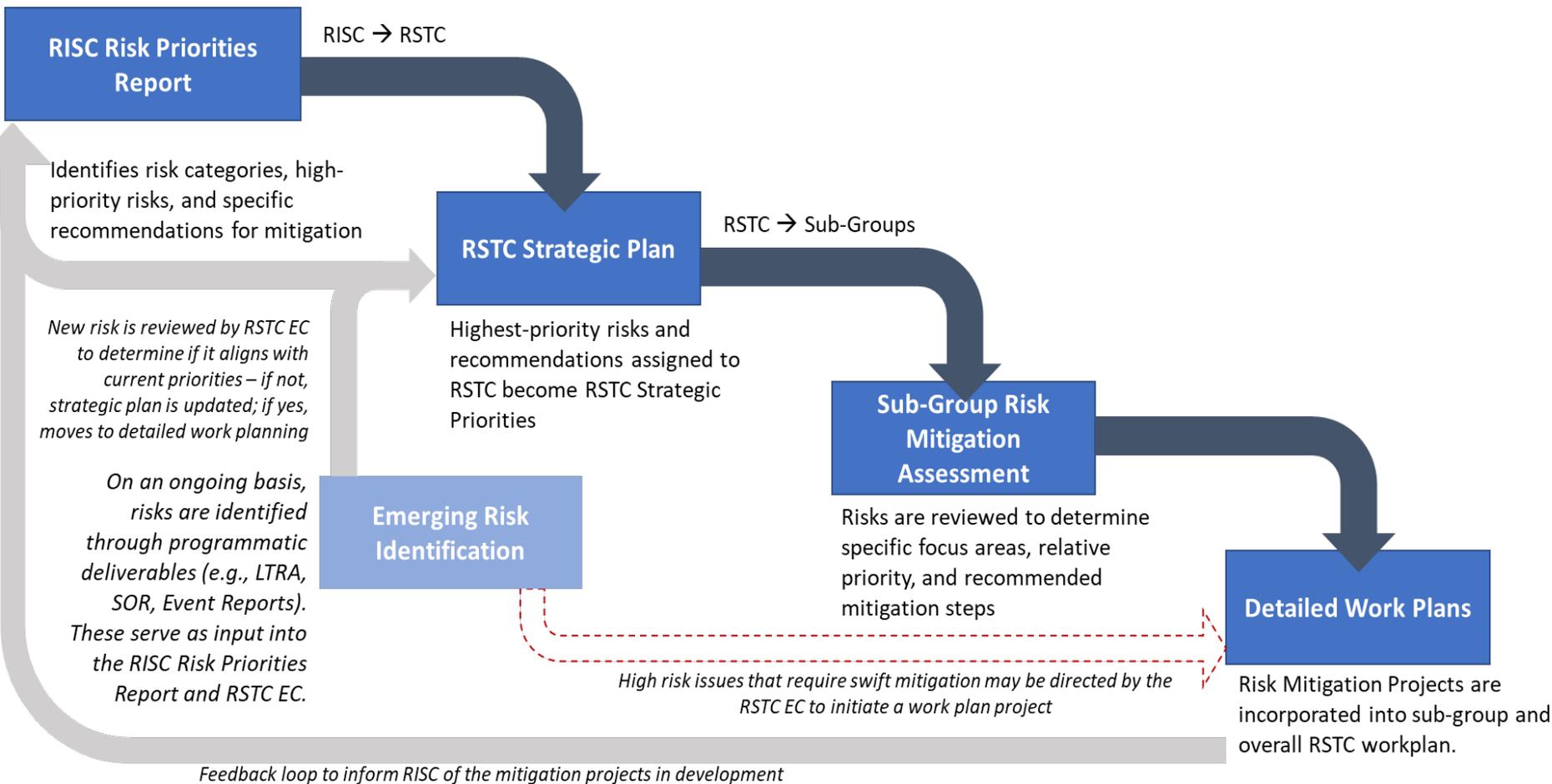
Priority Action Groups

SITES	<ul style="list-style-type: none"> ▪ Whitepaper
SWG	<ul style="list-style-type: none"> ▪ Reliability Guideline
IRPS	<ul style="list-style-type: none"> ▪ 2 SARs
SPIDERWG	<ul style="list-style-type: none"> ▪ Reliability Guideline ▪ Whitepapers
EGWG	<ul style="list-style-type: none"> ▪ Whitepaper
ERATF	<ul style="list-style-type: none"> ▪ 2 SARs
6GHzTF	<ul style="list-style-type: none"> ▪ Whitepaper



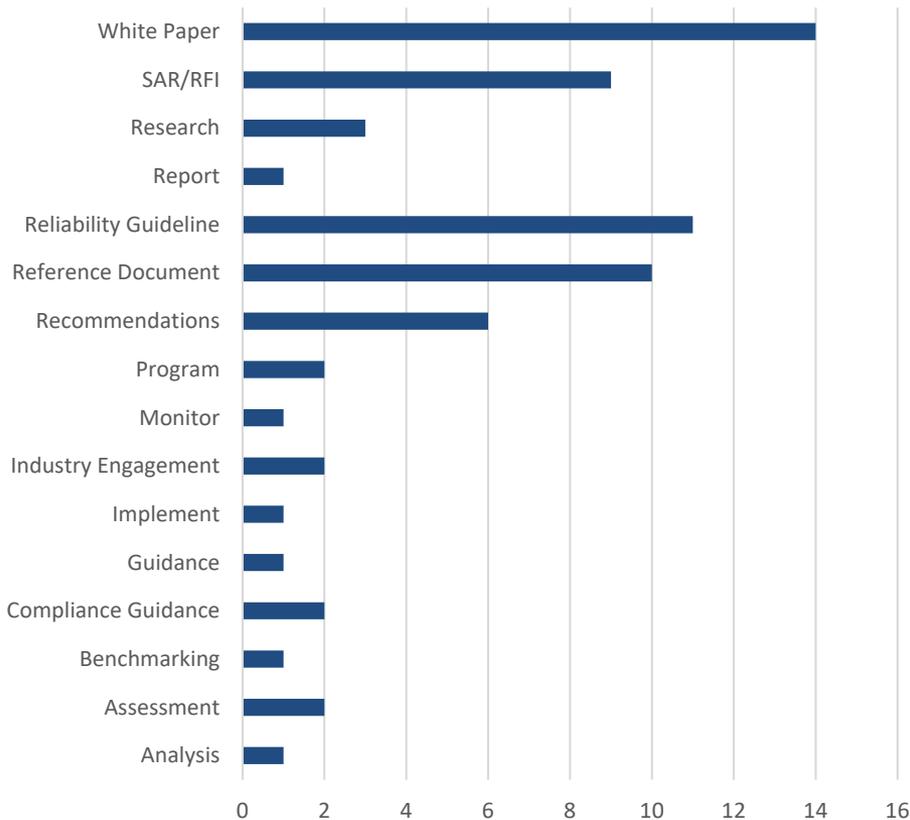
Future Strategy and Plan

1. Drive effective mitigation actions against emerging and established risks, specifically targeting strategic risk priorities.
2. Promote and increase stakeholder engagement and awareness
3. Learn from events and past performance trends and deploy mitigation
4. Identify and assess long-term planning and emerging reliability risks
5. Develop solutions that support technology and security integration into BPS planning and operations

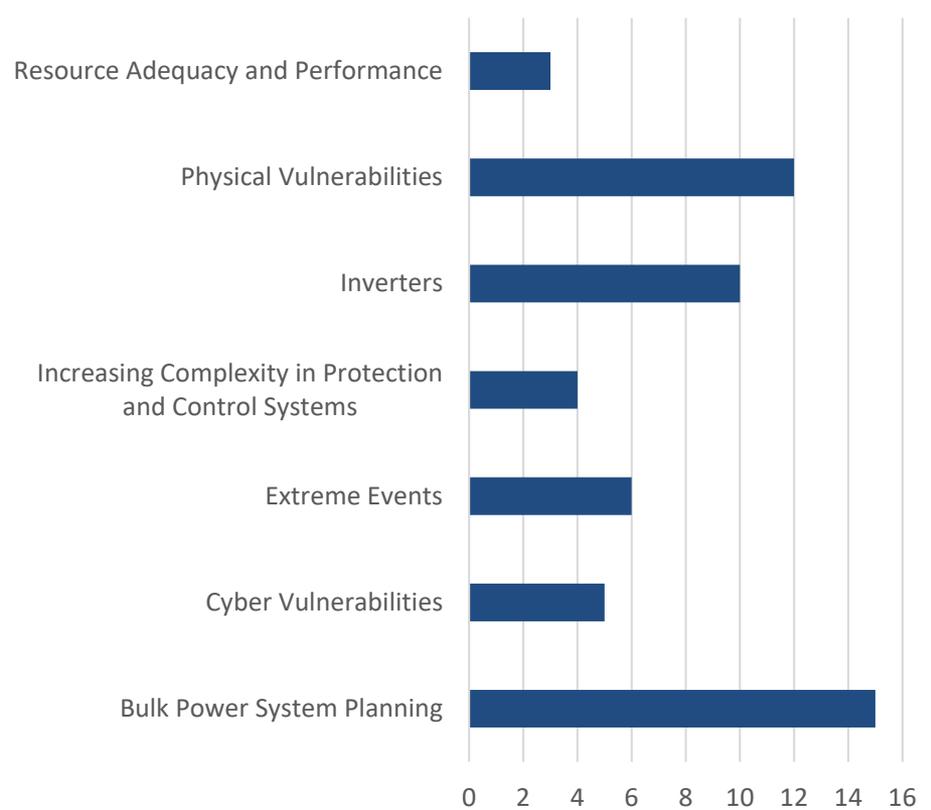


- All future projects directly linked to a RISC priority

Projects and Tasks by Type (2023-2024)

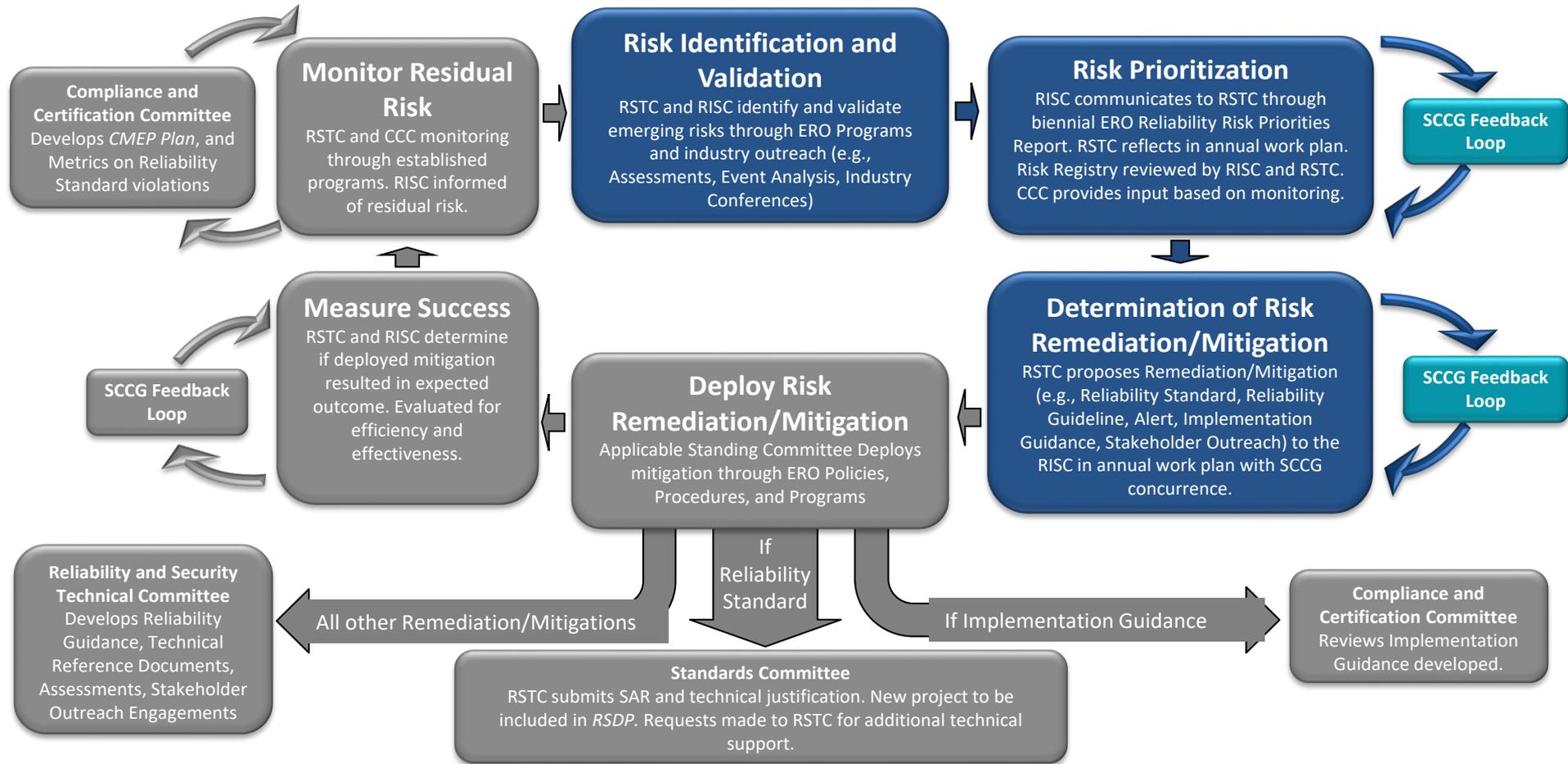


Projects/Tasks by Risk Category (2023-2024)





Prioritization of Risks and Projects



- RISC prioritizes risks -> ERO Reliability Risk Priorities Report
- RSTC develops consolidated work plan, which includes projects assigned to subgroups to propose mitigations
- RSTC EC approves all items on the RSTC workplan

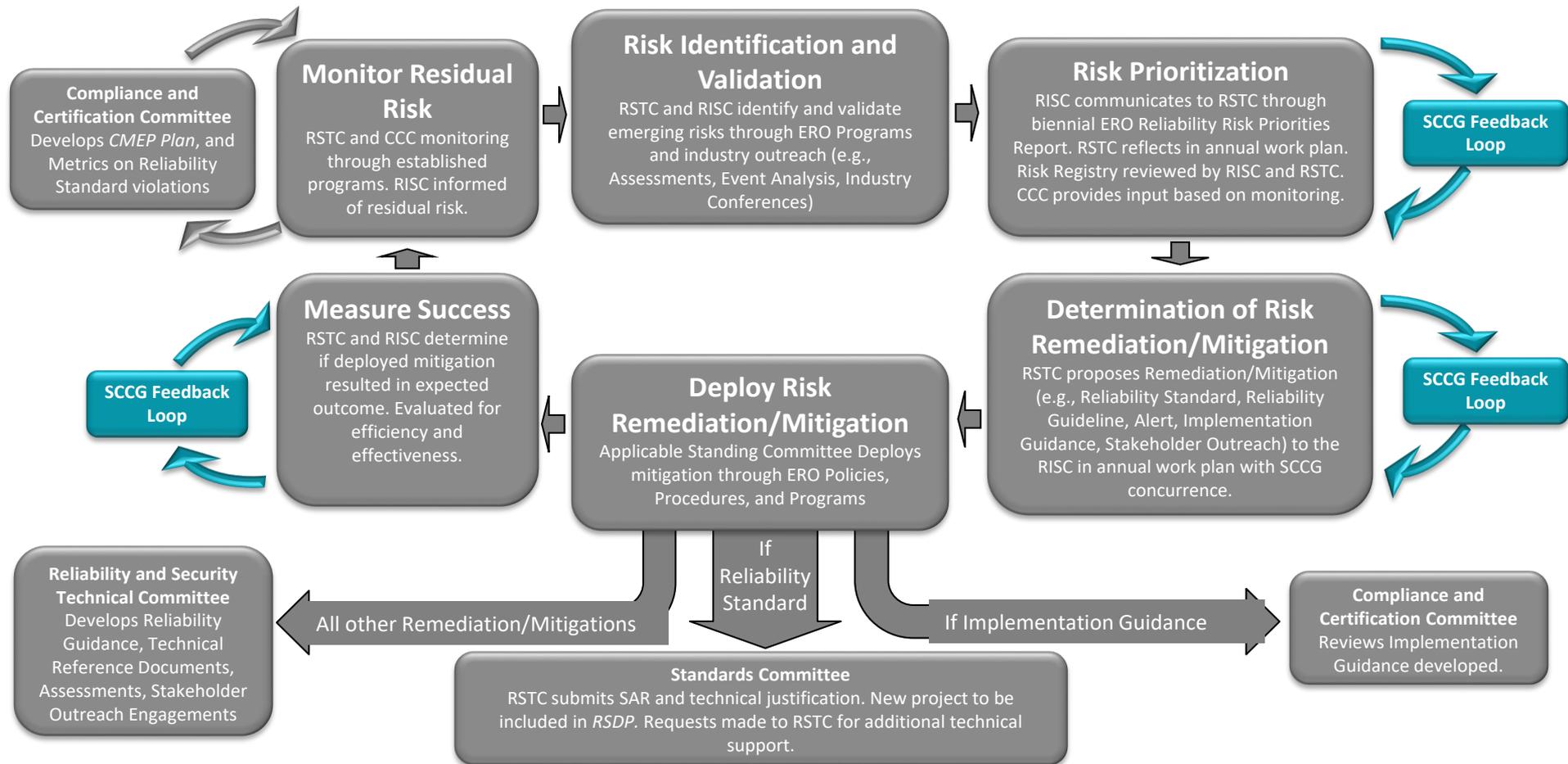
- New in 2023
 - RSTC Project Plan includes priorities (H, M, L) for each RSTC work plan item
 - SCCG feedback loops, including review of RSTC work plan and priorities
 - SCCG to support the enhancement of the SAR form

- In September 2022, RSTC approved a SPIDERWG Whitepaper outlining potential gaps and areas of improvement in NERC Reliability Standards.
- The whitepaper included a prioritized list (high, med, low) of 11 Reliability Standards
- The SPIDERWG and the RSTC EC developed a roadmap and collaboration plan which prioritizes the high priority SARs:

SPIDERWG Planned SAR Development

Roadmap for Work Plan Additions





- **Risk Prioritization Feedback Loop**

- Review RISC Priorities Report (Every 2 years)
- Review RSTC Strategic Plan (Annually in November; ad-hoc based on need) and identify any challenges and/or opportunities for improvement

- **Determination of Risk Remediation/Mitigation Feedback Loop**

- Identify RSTC Workplan items that require coordination with other Standing Committee (e.g., SARs, Compliance Guidance)
- Review and provide feedback of risk mitigation projects, with a focus on SARs, their relative priority, and the coordinated “hand-off” between RSTC and SC (Annually in Feb; ad-hoc based on need)

- **Measure Success Feedback Loop**

- Based on metrics, assessments, and determination of mitigation effectiveness, coordinate and align on any residual risk mitigation (periodic, as needed)



Questions and Answers