

# Spring NPCC Compliance and Standards Workshop May 22-23, 2019

## Reliability Standards Outlook

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NPCC AVP - Standards

## Discussion Items:

- Overview of Standards Development
- RISC Emerging Risks and Resilience/HEMP
- Process and Stakeholder tools
- Distributed Energy Resources
- NPCC's Regional Standard
- NPCC Criteria Services
- NPCC Regional Standards Committee

# NERC Standards Development

- NERC Reliability Standards Development
  - Project 2016-02 Modifications to CIP Standards (**BA, DP, GOP, GO, RC, TOP, and TO**)
  - Project 2015-09 Establish and Communicate System Operating Limits - FAC-010, FAC-011, FAC-014, FAC-015-new (**PC, RC, TOP, TP, GO, and TO**)
  - Project 2017-01 Modifications to the BAL-003-1.1 (**BA and FRSG**)
  - Project 2018-04 PRC-024-3 – Generator Frequency and Voltage Protection Settings (**GO and TO**)
  - Project 2019-02 BES Cyber System Information Access Management (**RC, TOP, TO, GO, GOP, BA, and DP**)
  - Project 2019-01 Modifications to TPL-007-3, Transmission System Planned Performance for Geomagnetic Disturbance (**PC, TP, TO, and GO**)
  - Project 2017-07 Standards Alignment with Registration

# NERC Standards Development

## – Additional Considerations

- Reliability Issues Steering Committee (RISC)
- Essential Reliability Services Task Force (ERSTF) recommendations
- Industry Feedback Loops (e.g. Events Analysis, Compliance, RAPA)
- IEEE 1547 and VER Modeling
- Standards Efficiency Review (SER)
- Standards Grading
- DOE Report and NOPR to FERC (Resiliency concerns)
- High Impact Low Frequency events

# NERC Standards Development

- Cost Effectiveness:
  - Analysis of the Risk being reduced
  - Cost associated with reducing that risk
  - Cost associated with not reducing the risk (reliability and societal if possible)
  - Standards Drafting Teams, Periodic Review Teams, and Standards Grading
  - **Drafting Teams asked to develop alternatives**
  - **Add question(s) to the Comment forms**
  - Application to all Standards projects

# Reliability Issues Steering Committee (RISC) and Emerging Risks

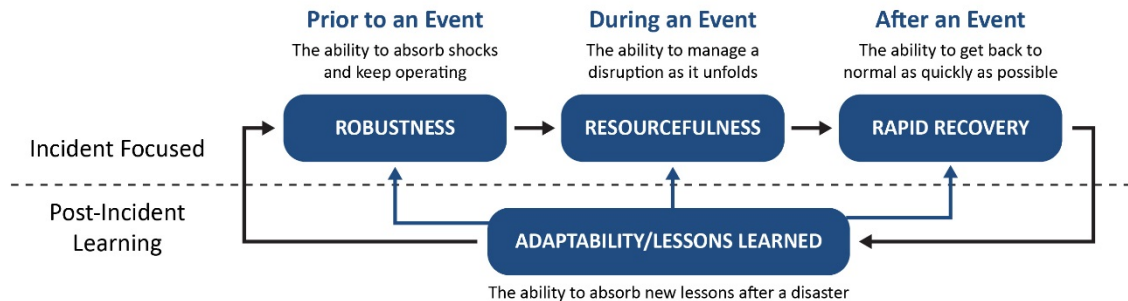
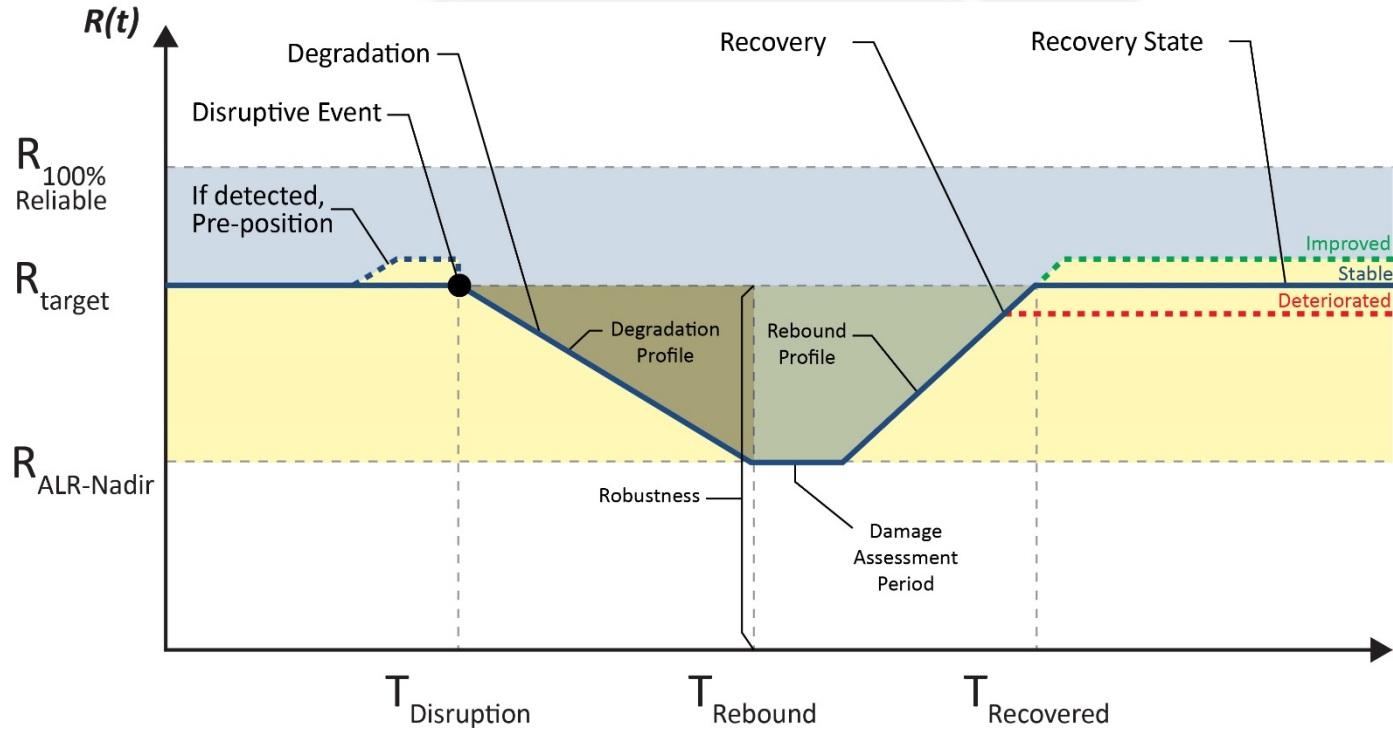
**“ERO Reliability Risk Priorities,”** – 2018 BOT Approved Report - Risks Identified and a potential framework for Resilience

- Risk Profile #1: Changing Resource Mix (**High**)
- Risk Profile #2: Bulk-Power System Planning (**High**)
- Risk Profile #3: Resource Adequacy and Performance (**High**)
- Risk Profile #9: Cybersecurity Vulnerabilities (**High**)
- Risk Profile #4: Increasing Complexity in Protection and Control Systems and Asset Management (**Moderate**)
- Risk Profile #6: Loss of Situational Awareness (**Moderate**)
- Risk Profile #7: Extreme Natural Events (**Moderate**)
- Risk Profile #8: Physical Security Vulnerabilities (**Moderate**)
- Risk Profile #5: Human Performance and Skilled Workforce (**Low**)

## Resilience

- Four outcome-based abilities of resilience (framework) are as follows:
  - **Robustness** – the ability to absorb shocks and continue operating
  - **Resourcefulness** – the ability to **detect and manage a crisis as it unfolds**
  - **Rapid recovery** – the ability to get services back as quickly as possible **in a coordinated and controlled manner and taking into consideration the extent of the damage**
  - **Adaptability** – the ability to incorporate lessons learned from past events to improve resilience
- FERC Chairman-“Top priority of the Commission” address concerns- DOE Staff Report and NOPR”
- FERC terminated the DOE NOPR and developed a FERC NOPR
  - what resilience of the bulk power system means and requires;
  - understand how each RTO and ISO assesses resilience in its geographic footprint; and
  - use this information to evaluate whether additional Commission action regarding resilience is appropriate at this time.
- RISC Report on Resilience

# Resilience





## Electromagnetic Pulse (High Altitude “HEMP”)

- Electric Power Research Institute EPRI Study of E1
  - Study to be released Spring 2019
  - Study uses wave guides and direct injection
  - Study will recommend cost effective mitigation methods to harden the grid against E1
- FERC
  - Waiting for study
  - Potential for a NOPR to address possible BES E1 risks
  - Potential for a similar approach as GMD, one for operational and one for planning (i.e. EOP-010 and TPL-007)
  - Critical facility list development identifying where potential weaknesses may exist

# NPCC Regional Standards

- PRC-006-NPCC-1 Revision to:
  - Review for potential revisions made necessary by:
    - NERC PRC-006-1/PRC-006-2 Automatic Underfrequency Load Shedding
    - NERC PRC-024-1/PRC-024-2 Generator Frequency and Voltage Protective Relay Settings standards.
  - Review for Dispersed Generation (DG) issues
  - Developed to enable retirement of NPCC Directory 12
  - Three 45-day formal postings for comments
  - 30 day pre-Ballot Review and 10 + day ballot in fourth quarter 2018-approved by Stakeholders
  - Approved by NPCC Board of Directors May 1, 2019
  - Transmittal to NERC BOT for adoption at August 15, 2019
  - File with FERC and Provincial Governmental Authorities

# NPCC Criteria Services

- Maintain and Revise Directories and Criteria
- A-10 “Classification of BPS Elements” Revision
- Cost Effectiveness and Resilience Pilot on two Directories
- Revise Directory Development and Revision Manual
- SPS to RAS Transition
- Criteria Enforcement Program
- Applicability (Member or Tariff)

# NPCC Regional Standards Committee (RSC)

- Interface with RISC- emerging issue identification
- Review and comments on NERC/ERO and Eastern Interconnection Regional Standards
- Develops Ballot Recommendations for NERC/ ERO Standards and Interpretations
- Participates in NERC Standards drafting and influence processes through various groups-formal and informal
- Oversees the Development and Maintenance of NPCC Regional Standards
- Oversees the Development and Maintenance of NPCC Regional Directories
- Regional Delegation Agreement-Standards Program Area
- Review all FERC Orders, Rulings, NOPRs and Petitions related to Standards
- Participates in Feedback loop mechanisms to improve standards

# NPCC Regional Standards Committee

- Distributed Energy Resources (DER) Forum
  - Initiated at the May 2019 RSC meeting-second day of RSC meetings
  - Evaluation of DER opportunities and challenges
  - Information sharing and coordination
  - Identification of reliability gaps
  - Develop guidance document(s)
  - Coordinate with State and Provincial regulators
  - Coordinate with area efforts underway for utility scale distribution level DER

**“Intelligence is the ability to adapt to change.”- Stephen Hawking**



Stephen Hawking (Jan 1942-March 2018)

**Questions or Comments ?**