

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

2017 ERO Enterprise Metrics

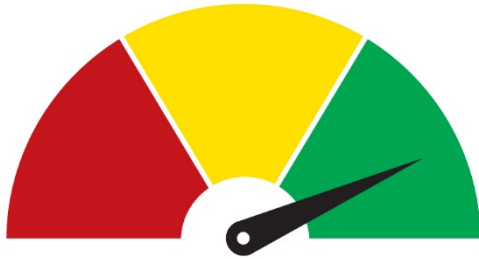
Second Quarter Status

Mark Lauby, Senior Vice President and Chief Reliability Officer
Corporate Governance and Human Resources Committee Meeting
August 9, 2017

RELIABILITY | ACCOUNTABILITY

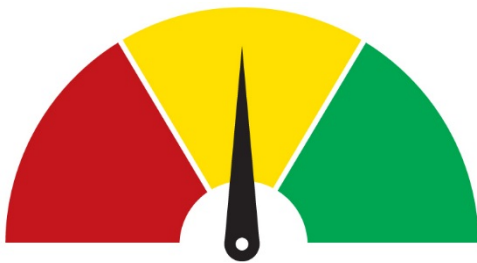


Green



Quarterly deliverables met for all thresholds and targets (or no deliverables expected for the quarter) and expect to meet all thresholds and targets by year-end

Yellow



Quarterly deliverables not met for one or more thresholds or targets but expect to meet all thresholds and targets by year-end

Red



Quarterly deliverables not met for one or more thresholds or targets and do not expect to meet one or more thresholds or targets by year-end

- **Why is it important?**

- Measures risk to the bulk power system (BPS) from Bulk Electric System (BES) events

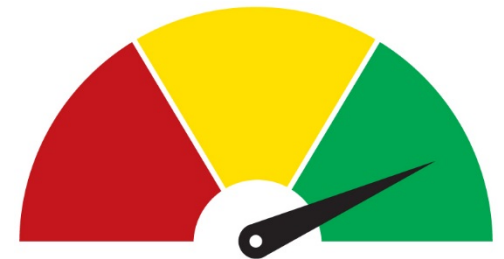
- **How is it measured?**

- Number of Category 3–5 events
- Cumulative trend line in the composite daily event Severity Risk Index (eSRI) for Category 1–3 events

Data Trends (through Q2)

- No Category 3–5 events (meeting target)
- Current slope of trend line is negative (meeting target)

Q2 Status



- **Why is it important?**

- Reduces risk to BPS reliability from potential gaps in standards and compliance by employing corrective action

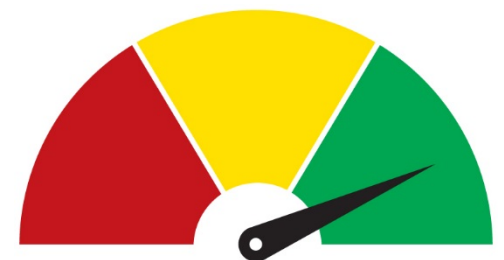
- **How is it measured?**

- Using a consistent process, analysis of all Category 3–5 and select events for any gaps in standards and compliance and mitigation implementation
- Any gaps result in action plans to address reliability risks

Data Trends (through Q2)

- No Category 3 or above events; studying sample events of interest (on track to meet threshold)
- Gap analysis results reported at year-end (will inform if target of zero gaps is met)

Q2 Status



- **Why is it important?**

- Ensures ERO Enterprise is performing comprehensive and timely reliability assessments that identify and spotlight resource adequacy deficiencies

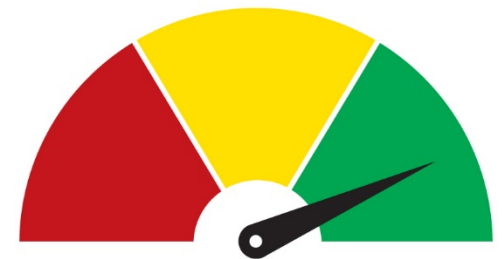
- **How is it measured?**

- Number of resource deficiencies that caused load outages or Energy Emergency Alert Level 3s (EEA-3s) that were not identified in prior seasonal or long-term reliability assessments in the past three years

Data Trends (through Q2)

- No load outages over 300 MW due to resources deficiencies or common mode failures (meeting threshold)
- No EEA-3s declared (meeting target)

Q2 Status



- **Why is it important?**

- Measures risk to the BPS from cyber or physical security attacks

- **How is it measured?**

- Number of load losses or disruptions to BES operations due to cyber attack
- Number of load losses due to physical attack and the trend line for events over the most recent two year period

Data Trends (through Q2)

- No load loss or disruption of BES operations due to cyber attack (meeting threshold and target)
- No load losses due to physical attack (meeting threshold)
- Assessing trend of physical security events (will inform if target of flat or declining is met)

Q2 Status



- **Why is it important?**

- Incentivizes discovery and mitigation of violations by registered entities and measures violation severity as well as completion of mitigations

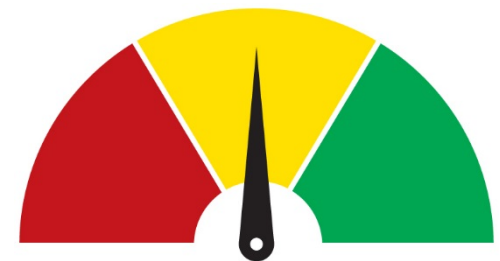
- **How is it measured?**

- Trend of compliance severity risk index (with and without CIP V5) and amount of repeat moderate and severe risk violations
- Percentage of self-identified noncompliance
- Mitigation completions rates

Data Trends (through Q2)

- Calculations for index and repeat risk trends reported in Q4
- 94% of all noncompliance is self-identified (exceeding target of 80%)
- Mitigation completion rates on track to meet threshold; watching target for 2014 and older noncompliance

Q2 Status



- **Why is it important?**

- Measures risks to BPS reliability from the five most impactful causes:
 - a. Generating unit forced outages due to cold weather
 - b. Misoperations rate of performance
 - c. Automatic AC transmission outages caused by human error
 - d. Transmission outages due to AC substation equipment failures
 - e. Transmission line outages due to vegetation

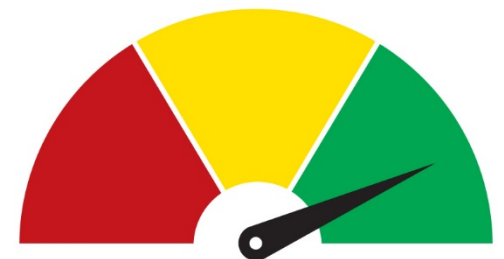
- **How is it measured?**

- Number of load losses from generating units forced outages due to cold weather
- Comparison of annual Effective Forced Outage Rate (EFOR) of generating units to previous years during the most extreme cold winter months

Data Trends (through Q2)

- No firm load losses in winter months (meeting threshold)
- Comparison to previous year EFORs underway

Q2 Status



- **How is it measured?**

- Annual Misoperations rate (cumulative rate through Q2 2017), with a threshold of less than 9% and target of less than 8%

Data Trends (through Q2)

- 2017 *State of Reliability* report had an annual rate of 8.3% at Q4 2016 (meeting threshold)
- Q1–Q2 data being collected; not expected to meet target

Q2 Status



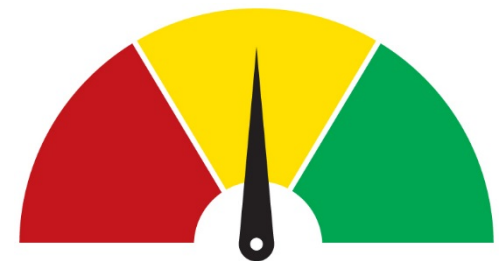
- **How is it measured?**

- Number of load losses greater than 300 MW caused by human error
- Trend of outages per circuit caused by human error (target is 5% decline with reduced impacts)
- Comparison of outages caused by human error resulting in firm load loss to previous five-year average

Data Trends (through Q2)

- No load losses greater than 300 MW from human error (meeting threshold)
- Calculation to demonstrate decline available in Q3
- Average number of events currently fewer than five-year average (meeting target)

Q2 Status



• How is it measured?

- Number of load losses greater than 300 MW due to AC substation equipment failures
- Trend of outages per circuit caused by AC substation equipment failures (target is 5% decline with reduced impacts).
- Comparison of outages caused by AC substation equipment failures resulting in firm load loss to previous five-year average

Data Trends (through Q2)

- No load losses greater than 300 MW from substation equipment failures (meeting threshold)
- Calculation to demonstrate decline available in Q3
- Average number of events currently fewer than five-year average (meeting target)

Q2 Status



- **How is it measured?**

- Number of FAC-003 violations that are identified, processed, and filed
- Number of vegetation-related outages that are not violations of FAC-003 gathered through quarterly data submittals

Data Trends (through Q2)

- No FAC-003 violations in Q1 (meeting threshold)
- 7 outages in Q1 that were not FAC-003 violations (not expected to meet target since this exceeds the average per quarter rate of no more than 15 outages for the year)
- Q2 data available end of August

Q2 Status



- **Why is it important?**

- Measures NERC's performance in meeting important financial and operational objectives:
 - a. Execution of business plan and budget
 - b. Implementation of ERO Enterprise technology solutions
 - c. Implementation of the Regional Entity oversight plans and NERC adherence to the Rules of Procedure
 - d. Implementation of action plans in response to ERO Enterprise Effectiveness Survey results

- **How is it measured?**

- NERC is at or under budget for expenses and fixed assets (exclusive of authorized operating reserves for threshold and inclusive of operating reserves for target)

Data Trends (through Q2)

- Projected to be over budget by less than 1% and unlikely to be at or under budget by year-end (will not meet target)
- Forecasting adequate year-end reserves
- Management focused on managing costs to achieve threshold

Q2 Status



- **How is it measured?**

- Completion of ERO Enterprise IT projects for Entity Registration, data reporting (event analysis, misoperations, or TADS), and NERC's public-facing website
- Development of a method to measure and track the cost-benefit of ERO Enterprise IT projects

Data Trends (through Q2)

- IT projects on track; Q2 deliverables delayed for website but project completion by year-end (watching target)
- Processes and procedure for cost-benefit tracking method under development (on track to meet target)

Q2 Status



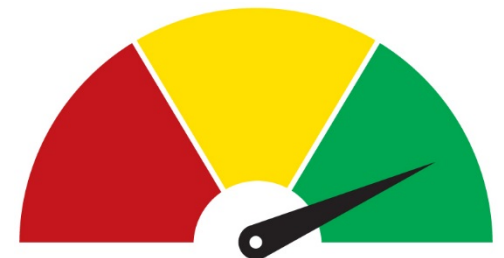
- **How is it measured?**

- Implementation of the recommendations and schedule from 2016 audits
- Number of significant new noncompliance findings in NERC's implementation of the Regional Entity oversight plans or adherence to the Rules of Procedure

Data Trends (through Q2)

- Implementation of audit recommendations on track (meeting target)
- NERC performing oversight in accordance with oversight plans (meeting target)

Q2 Status



- **How is it measured?**

- Implementation of 2017 milestones identified in the action plans

Data Trends (through Q2)

- Majority of a plans on track
- Actions plans for standards grading and cost effectiveness delayed, but project year-end completion (watching target)

Q2 Status





Questions and Answers