Critical Infrastructure Reliability Standards for Electric Utilities

July 2017

SUMMARY

The North American Electric Reliability Corporation (NERC) is the U.S. Electric Reliability Organization (ERO) mandated by the U.S. Energy Policy Act of 2005, which added Section 215 of the Federal Policy Act, the underlying statute governing the provision of interstate electric service in the U.S.
NERC is charged by the U.S. Federal Energy Regulatory Commission (FERC) to draft and enforce reliability standards intended to protect cyber assets of the U.S. Bulk Electric System (BES). The BES is generally defined as energy generation exceeding 1,500MW in a single location or energy transmission operating at 100kV or greater. Some exceptions allow additional cyber assets to fall within NERC's scope. Nearly all energy distribution networks, which typically operate at voltages below 40kV, are outside NERC's remit. Residential smart meters are outside the scope of NERC as they are regulated at the state and local levels, as laid out in the Federal Power Act.
NERC accomplishes this mission via a set of Critical Infrastructure Protection (CIP) reliability standards, hence the term NERC CIP, shorthand for current reliability standards enforceable upon the BES.
NERC creates new reliability standards or revises existing standards as it identifies or pursuant to orders issued by FERC. New or revised NERC CIP standards do not become enforceable until approved by FERC. Once approved by FERC, new standards have a future compliance date to allow utilities time to comply with new or revised standards. NERC has authority to assess fines against non-compliant utilities in amounts up to $1,000,000 per day per non-compliance, retroactive to the effective date of the standard.

The Utilities Technology Council (UTC) is one of several trade associations interested in NERC CIP standards on behalf of its electric utility members. UTC's particular area of expertise is related to utilities' telecommunications and technology networks/systems and how they are captured as part of NERC CIP.
Note: NERC has other responsibilities beside the BES that are not covered in this brief.

BACKGROUND

NERC was formed as a voluntary organization in 1968. In 2006, FERC approved NERC's application to become the ERO required by the Energy Policy Act of 2005. The legislation enabling NERC's mandatory reliability standards was sought by the electric sector as a whole beginning in the late 1990s because of the interconnected nature of the BES.
NERC's role as the ERO requires it to draft new or revised CIP reliability standards, which it does via standards drafting teams assembled from industry stakeholders, asset owner/operators and other industry subject matter experts. After the drafting team completes a standard, a ballot pool assembled from NERC membership votes on the draft. If approved, NERC sends the draft standard to FERC for adoption. Draft standard approval by the ballot pool may require several rounds of voting and modification. FERC can adopt the standard, return it to NERC for further work or seek additional comment from industry before acting. FERC can also order NERC to draft a standard, which it has done twice in 10 years.
NERC delegates its authority to monitor and enforce compliance to eight Regional Entities that audit BES cyber asset owner/operators

against in-force NERC CIP Reliability Standards:

- Florida Reliability Coordinating Council (FRCC)
- Midwest Reliability Organization (MRO)
- Northeast Power Coordinating Council (NPCC)
- ReliabilityFirst (RF)
- SERC Reliability Corporation (SERC)
- Southwest Power Pool, RE (SPP RE)
- Texas Reliability Entity (Texas RE)
- Western Electricity Coordinating Council (WECC)

NPCC, MRO, and WECC include Canadian provinces within their remit because of the international nature of the interconnected grid (parts of Mexico are also interconnected to the North American grid). Provincial governments regulate most energy generation and transmission in Canada, and participation in NERC varies from province to province. FERC regulations have no federal mandatory legal status in Canada, but several Canadian provinces require by law some level of compliance with NERC CIP Standards. NERC CIP standards address definition of cyber assets, electronic perimeters, personnel, information change management, security system management, information protection, incident response, recovery planning and physical security.

UTC POSITION

NERC CIP Reliability Standards have driven a level of cybersecurity spending that utilities might not otherwise have undertaken. From that perspective, reliability standards have had a positive impact, bringing attention and funding to protection of critical infrastructures. However, some industry stakeholders have conflated compliance with security and the two are not equivalent. Compliance is adherence to a one-size-fits-all list of requirements. Security derives from an asset-based risk assessment that is unique to each utility. The uniqueness of each utility's risk profile means that no utility can achieve security solely through compliance with regulations. UTC believes that existing NERC CIP requirements have helped bring a much-needed spotlight on utility security. However, there is a point at which regulation ends and security begins. When regulation can improve utility security across the board, UTC will support it. If we believe that proposed new regulation will impose additional workload without improving security, UTC will offer commentary – often in unison with other trade associations – on how to draft regulation that will improve utility security. UTC's NERC CIP involvement focuses on areas of the Information and Communications Technology (ICT) assets for our member electric utilities. UTC seeks to stay ahead of decision-making through involvement with FERC and NERC, to: (a) influence standards development in the best interest of securing our members' ICT assets; and (b) give our members as much advance notice as possible of new NERC CIP standards that could affect the deployment and operation of their ICT. UTC provides its members a private forum to discuss the impact of current or proposed standards upon their ICT assets. UTC assists its member utilities with NERC CIP compliance through frequent webinars and other educational activities.

ABOUT UTC

UTC is a global trade association dedicated to serving critical infrastructure providers. Through advocacy, education and collaboration, UTC creates a favorable business, regulatory and technological environment for companies that own, manage or provide critical telecommunications systems in support of their core business.

UTC CONTACTS

Sharla Artz, VP of Government Affairs, Policy and Cybersecurity
Email: Sharla.Artz@utc.org

Bob Lockhart, VP, Cybersecurity, Technology & Research
Email: Bob.Lockhart@UTC.org

Utilities Technology Council™