

An Update on NERC and Grid Reliability Issues

A presentation by:

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What Is ELCON?

- The national association for large industrial users of electricity in the U.S.
 - Founded in 1976
 - Members from a wide range of industries from traditional manufacturing to high-tech
- The views today are mine alone



What I Plan To Do Today

- First,
 - Discuss why large industrial electricity consumers should be concerned about NERC – (the North American Electric Reliability Corporation)
 - I focus on the definition of “Bulk Electric System (BES) and Grid Security
 - But NERC does a lot more – I only mention some of the other areas of NERC activity
- Conclude:
 - It is very important for large industrial electricity consumers to stay informed on these (and other) electricity issues

NERC Issues: Background

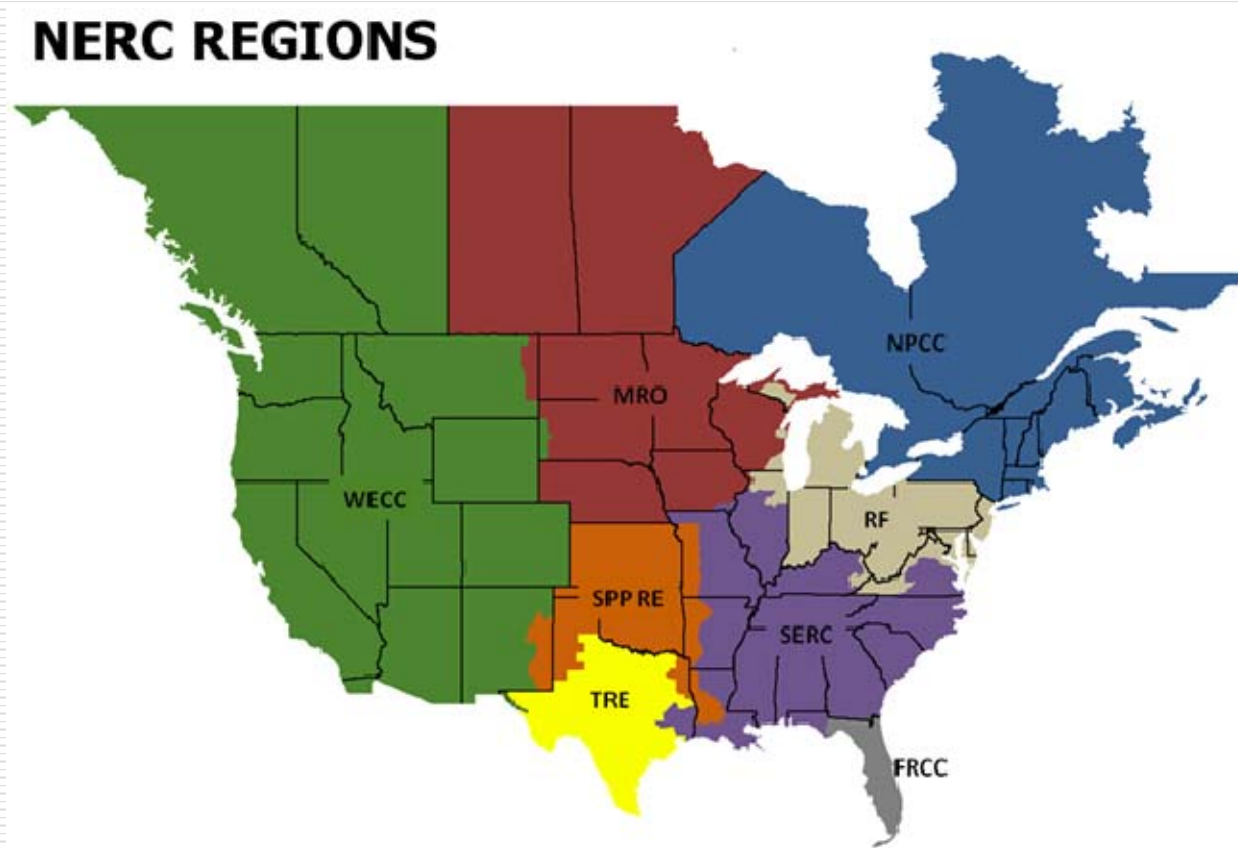
- The North American Electric Reliability Corporation (NERC):
 - Is the FERC-designated “ERO” (based on EPACT 2005)
 - Develops mandatory reliability standards with up to \$1 million / day penalties for violations of standards
 - Any entity that is on NERC’s Compliance Registry must:
 - Comply with all applicable standards
 - Make required compliance filings
 - Be subject to periodic audits
- Increasingly, industrials are becoming “Registered Entities”
 - And thus responsible for compliance with various reliability standards



NERC Issues: Background

- The “NERC Enterprise” is composed of NERC itself – as well as the 8 “Regions” including:
 - Florida Reliability Coordinating Council (FRCC)
 - Midwest Reliability Organization (MRO)
 - Northeast Power Coordinating Council (NPCC)
 - ReliabilityFirst Corporation (RFC)
 - SERC Reliability Corporation (SERC)
 - Southwest Power Pool, RE (SPP)
 - Texas Reliability Entity (TRE)
 - Western Electricity Coordinating Council (WECC)
- Note: the Regions are NOT ISOs and RTOs

NERC Issues: Background



NERC Issues: Redefining the BES

- In 2010, FERC directed (in Order 743):
 - NERC to redefine the “Bulk Electric System” (BES) within one year
 - On Rehearing in 2011, FERC upheld this Order
- The FERC-suggested definition included “bright line” requirements:
 - All facilities > 100 kV
 - All generators > 20 MW and all generating plants > 75 MW
- The bottom line: many more industrial facilities would be subject to the “compliance registry” based on the FERC-recommended BES definition
 - Once an entity is placed on registry, you will REALLY care about NERC



NERC Issues: Redefining the BES (Cont.)

- NERC established a “Standards Drafting Team” that:
 - Crafted a new definition of the BES
 - ELCON’s John Hughes is on the SDT – the only voting industrial SDT member
 - NERC approved the SDT’s efforts and filed with FERC
- In December 2012 FERC issued Order 773 – its “final rule”:
 - Core definition – all facilities operated or connected at >100 kV are included
 - All Regional Entities must use the same definition
 - Approved 5 “inclusions” and 4 “exclusions”
 - 1 2 “includes” individual generators >20 MVA and plants >75 MVA
 - Radials are excluded
 - Unless “looped” at any voltage
 - And tie lines for BES generation are included
 - “Local networks” are excluded – but not well defined (7 factor test)
- The definition was to be in effect as of July 1, 2013 with a 2-year implementation plan
 - There was a LOT of backlash



NERC Issues: Redefining the BES (Cont.)

- ❑ Originally the BES drafting team thought that I 2 should be much higher
 - However, FERC approved I 2 as drafted
- ❑ The BES DT tried to raise the individual generator threshold to 75 MVA
 - NERC's Planning Committee strongly opposed:
 - ❑ No "technical justification"
 - Even though there was no technical justification for the 20 MVA
 - ❑ The PC said this would remove 34 GW (3.3%) of generation from the BES -- about 6,000 generating units (over 50% of what is excluded today) and these smaller units may be needed to satisfy local reserve margins
 - Other BES Issues:
 - ❑ Radials, ring busses, others
- ❑ Through ELCON's efforts, the BES DT was able to include in Exclusion 2 a limit of up to 75 MW of net sales for cogenerators

NERC Issues: Redefining the BES (Cont.)

- The BES Drafting Team explored (but rejected) several proposed issues such as excluding:
 - Elements that are owned and operated by an industrial end-user to serve its load
 - Industrial facilities served by multiple feeds through the E 1 exclusion provision
 - Industrial facilities used to serve loads to third parties
- The BES DT said:
 - The definition is “ownership neutral”
 - Decisions are made on engineering interpretations – not jurisdictional interpretations
 - There were no “technical justifications” for the above proposals

NERC Issues: Redefining the BES (Cont.)

- On rehearing, FERC postponed implementation until July 1, 2014 to allow additional revisions
- NERC's revised definition was:
 - Presented to the NERC Board in November and
 - FERC approved the NERC proposal on March 20th
- A key change include:
 - Allowing Exclusion 1 to exclude 2 or more radials that are looped at 50 kV or less (ELCON asked for 70 kV)
 - This exclusion is supported by a "Technical Justification" paper
- ELCON believes that nearly all "bright line" requirements bring unintended consequences
 - We expect many in this case



NERC Program Areas

- Standards Development
- Training
- Critical Infrastructure
- Risk Analysis
- Compliance Monitoring & Enforcement
- Situation Awareness
- Reliability Assessment
- Government Relations



A Few Examples of Other NERC Issues:

- Reliability Assurance Initiative (RAI)
 - Overall intent – move off “zero tolerance” to risk-based standards
 - What happens to FFT – keeping some violations out of compliance?
 - Will it bring actual benefits to registered entities?
- Reform of the Standards Process:
 - Can the standards be changed to be “risk based”?
- Communications Protocols (CIP Standards):
 - All too often routine instructions are not conveyed correctly and are involved in outages – human errors?
 - But the “fix” may require a lot more effort and not bring reliability gains – e.g., three-part communications in all situations?
- The transfer of state-jurisdictional assets to FERC-jurisdictional assets
 - An issue just gaining momentum
- ELCON is the only manufacturing association active at NERC

Grid Security

- Protecting grid security involves: cybersecurity, physical security, electromagnetic pulse (EMPs) and geomagnetic storms (GMSs) – maybe more
 - Cybersecurity – thousands of hackers both foreign and domestic
 - Physical security – guns, trucks, even bombs on generators, substations and transmission lines
 - EMPs and GMSs – from sunspots and/or nuclear explosions in the air (high impact, low frequency events)
- Cyber and physical security have received a lot of recent attention
 - FERC, NERC and Congress are considering addressing
 - Any effort may be very costly



Grid Security

- Recent cyber attacks have raised the level of concern throughout the economy
 - Several utilities have been hacked
 - NERC has several cyber standards in effect that require substantial actions by “registered entities”
 - Some say that is not enough – but where do we “draw the line” between sweeping in more entities and facilities and the increased costs?
 - The costs of grid protection escalate quickly as the “number of 9’s” increases
- The past Chairman of FERC recently raised the physical security issue to higher levels
 - In the *Wall Street Journal*, PBS and more

Grid Security

- Until recently, the electric industry has avoided draconian actions
 - ELCON participates in a coalition of electricity stakeholders
 - Including utilities, generators, state commissioners, ISOs, NERC, Canadians, etc.
 - Objectives: grid security, information sharing, avoid over reactions – and keep costs reasonable
 - ELCON is the only consumer group in the coalition
- Unfortunately, as we learned from 9/11
 - It only takes one real catastrophic event to spur action
 - And if Congress, FERC or NERC over-reacts from such a catastrophe, the costs could be in the hundreds of millions



Grid Security

- However, on March 7th FERC issued an Order:
 - Requiring NERC to issue a Standard within 90 days standards that:
 - “will require certain registered entities to take steps or demonstrate that they have taken steps to address physical security risks and vulnerabilities related to the reliable operation of the Bulk-Power System.”
 - This is better (maybe better?) than legislation
 - The FERC Order does appropriately focus on “critical facilities”
 - There are significant and difficult issues such as: how many and what facilities will be affected, what must they do to “address” the requirements, confidentiality, 3rd party verification – to mention only a few
 - Some think that a “bright line” would be helpful – but what does the bright line involve, who draws it, at what level, etc.?
 - Would some sort of “safe harbor” be better?

Grid Security

- Large utilities are circulating a draft standard that would:
 - Facilities that could have a “critical impact on the operation of the interconnection through instability, uncontrolled separation or cascading failures on the Bulk Power System.”
 - However, one provision in the draft states that: “Transmission substations where 120 MWs of load or 300 MWs of generation would be lost for greater than 72 hours” could be included
- The entire electric industry (ELCON included) is cautiously optimistic that an acceptable solution will be found within the 90 days allowed
 - The focus to date is strictly on very large facilities
 - Unless the standard’s language ends up very different than it now looks, industrials more than likely will not be directly impacted by the physical security standard
 - They will, of course, have to pay their portion of the costs



Grid Security

- The NERC Standards Committee is proposing significant waivers to the standards-setting process such as:
 - Shortening the initial formal comment and ballot period from 45 to 15 calendar days
 - Shortening the additional formal comment and ballot period from 45 to 10 calendar days
 - Reduce the final ballot period from 10 to 5 calendar days
- Concerns:
 - Entities with a commercial interest in the outcome will be very active
 - Could prematurely cut off debate and limit stakeholder input
 - May curtail full application of NERC's Cost Effective Analysis Process (CEAP) – and thus result in other than the least cost option

Conclusions

- You must watch carefully legislative, regulatory, Administrative and court proceedings
 - Many of the expected actions may significantly increase electricity costs
 - And not necessarily in in the same manner for each industrial consumer
- It is in your best interest to protect your relative competitive positions through vigorous individual and group actions
- Thanks for you're the opportunity to be with you today



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NOTE: This is a new address

