Presentation of Northeast Power Coordinating Council, Inc.

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Overview of Presentation

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- Regulatory History (2009-2014)
- 2014 Bulk Electric System Definition
- NPCC's Review of Québec's Approach
- Adequate Level of Reliability

Scope of Authority

- Section 215 of United States Federal Power Act (FPA) defines the term “bulk-power system” as:

  - ✓(A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy.

NPCC Bulk Power System (BPS)

- BPS elements are determined by the NPCC Classification of Bulk Power System Elements Criteria (Document A-10)
- Assessed by the NPCC Task Force on System Studies, elements identified approved by the NPCC Reliability Coordinating Committee
- NPCC criteria and compliance monitoring considers only the identified Bulk Power System elements.

FERC Order 693

(Issued March 16, 2007)

- Adopted the FPA "Bulk Power System" definition
- Final Rule relied on the existing NERC definition of bulk electric system
  - ✓FN 42 – November 1, 2006 version, filed November 15, 2006
- NERC Reliability Standards apply to the "bulk electric system" as defined in NERC glossary
  - ✓FN 43 – FERC did not determine appropriateness of any regional definition

2007 NPCC Bulk Electric System (BES) Definition

- Prior to 2012, the BES could be defined by a Region; NPCC defined its BES as the identified A-10 BPS elements with the addition of a Compliance Guidance Statement to include generation:
  - Filed with FERC in June 2007
    - ✓Impact based methodology based on NPCC's A-10 Criteria
  - Compliance Guidance Statement 002 (CGS-002) - Issued May 2009
    - ✓Generation Units > 20 MVA and Plants > 75 MVA that are connected (via step up) to transmission facilities 100 kV and above are material.

Regulatory History (2009 - 2014)

- NERC/NPCC Compliance Filing to FERC - September 2009
- FERC Notice of Proposed Rulemaking - March 2010
- NPCC's Comments on FERC NOPR – May 2010
- Order 743 – FERC Final Rule – November 2010
- NERC Petition for Revised BES Definition – January 2012
- FERC Final Rule on BES Definition – December 2012
- FERC Order approving revised BES Definition – March 2014

NERC Bulk Electric System (BES) Definition

- Effective – July 2, 2014 - new facilities subject to NERC Reliability Standards – July 1, 2016
- NERC BES definition is narrower than the statutory definition of the BPS
- Canadian elements for NERC Reliability Standards are determined on a Provincial basis

NERC Bulk Electric System (BES) Definition

- NERC BES Definition because the methodology for defining the BES elements and facilities subject to mandatory NERC reliability requirements
- 100 kV Core - Unless modified by I's and E's below, all Transmission Elements operated at 100 kV or higher and Real Power and Reactive Power resources connected at 100 kV or higher.
- Inclusions: I1 through I5
- Exclusion: E1 through E4
- Exception Request Process - NERC ROP Appendix 5C

Québec's Approach

- The Régie de l'énergie du Québec (Québec Energy Board) has exclusive jurisdiction over the Québec Interconnection
- Tiered approach to application of standards for Québec system
- Monitoring of compliance based on that approach

NPCC's Review of Québec's Approach

- Compared the approved NERC BES definition to Québec's BES approach
- Discussed Québec's approach from the perspective of the respective NPCC Task Force areas of expertise
- Found Québec's BES approach ensures system reliability with an equivalent NERC BES definition for the Québec power system.

Adequate Level of Reliability

- Stems from Section 215 of Federal Power Act
- FERC certified NERC and in doing so determined that NERC has the ability to develop and enforce…reliability standards that provide for an adequate level of reliability of the bulk-power system.
- In the order certifying NERC as the ERO, FERC directed NERC to submit a definition of ALR to the FERC.

Adequate Level of Reliability

- ALR is the state that the design, planning, and operation of the Bulk Electric System (BES) will achieve when the listed **Reliability Performance Objectives** are met.

- Further, **Reliability Assessment Objectives** included in the definition must be evaluated to assess reliability risk in support of an adequate level of reliability.

Reliability Performance Objectives

1. The BES does not experience instability, uncontrolled separation, Cascading, or voltage collapse under normal operating conditions and when subject to predefined Disturbances.
2. BES frequency is maintained within defined parameters under normal operating conditions and when subject to predefined Disturbances.
3. BES voltage is maintained within defined parameters under normal operating conditions and when subject to predefined Disturbances.
4. Adverse Reliability Impacts on the BES following low probability Disturbances (e.g., multiple contingences, unplanned and uncontrolled equipment outages, cyber security events, and malicious acts) are managed.
5. Restoration of the BES after major system Disturbances that result in blackouts and widespread outages of BES elements is performed in a coordinated and controlled manner.

Reliability Assessment Objectives

1. BES transmission capability is assessed to determine availability to meet anticipated BES demands during normal operating conditions and when subject to predefined Disturbances.
2. Resource capability is assessed to determine availability to the Bulk Electric System to meet anticipated BES demands during normal operating conditions and when subject to predefined Disturbances.