Project 2010-17 Definition of Bulk Electric System
Standards and Compliance Workshop

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• Expanded Project Plan
• Bulk Electric System (BES) Definition
  ▪ Initial Ballot Results
  ▪ Clarifications
• ROP Exception Process (Appendix 5C)
• Exception Application Form
  ▪ Initial Ballot Results
  ▪ Clarifications
• Implementation Plan
• Near-term Project Milestones
Phase 1 - Addresses directives from Orders No. 743 & 743-A:

1. Modify the Definition of Bulk Electric System
   → Eliminate “as defined by Regions” language
   → Eliminate “generally defined as” language

2. Develop an Exception Process

3. Develop Regional Transition Plans

4. Filing Due Date of January 25, 2012
Project Plan - Phased Approach

Phase 2 - Addresses concerns identified through the Standards Development Process:

1. Reliability benefit of a contiguous BES
2. 100 kV bright-line voltage threshold
3. ‘Points of Demarcation’ between Transmission, Generation, and Distribution
4. Threshold for Generation Resources
Phase 2 - Addresses concerns identified through the Standards Development Process:

5. Scope of the equipment which supports the reliable operation of the BES

6. Relationship between the BES definition and the ERO Statement of Compliance Registry Criteria

7. Analysis of the application of, and the results from, the Exception Process
• Why two phases?
  ▪ A strong, factual, technical justification is essential if we are to gain FERC approval for any changes to things such as generator thresholds
  ▪ Need time to run studies and produce technical justifications to support proposals
  ▪ BES definition due January 25, 2012
• DRAFT Standard Authorization Request
  ▪ Establishes Phase 2 of the project
  ▪ Posted for informational purposes ONLY
  ▪ Will be posted for comment later in the project
• NERC Standards Committee
  ▪ Approved the multi-phased approach
  ▪ Committed to keeping this project on its “High Priority” project list
  ▪ Committed to continuing development work with the current SDT through completion of Phase 2
  ▪ Committed to supplying resources to complete technical research
• Additional Information
  ▪ Bulk Electric System Definition Project – Fact Sheet

http://www.nerc.com/docs/standards/sar/BES_Definition_Fact_Sheet_20110920_final.pdf
• BES Definition Ballot Results
  ▪ Quorum: 92.97%
  ▪ Approval: 71.68%

• Comments from 255 different people from 156 companies representing 10 of the 10 industry segments
BES Definition - Clarifying Revisions

- Transformer Designations
- Generation Threshold Values
- Reactive Resources
- Behind the Meter Generation
- Local Networks
Bulk Electric System (BES):

Unless modified by the lists shown below, all Transmission Elements operated at 100 kV or higher and Real Power and Reactive Power resources connected at 100 kV or higher. This does not include facilities used in the local distribution of electric energy.
I1 - Transformers with the primary terminal and at least one secondary terminal operated at 100 kV or higher unless excluded under Exclusion E1 or E3.
I2 - Generating resource(s) with gross individual nameplate rating greater than 20 MVA or gross plant/facility aggregate nameplate rating greater than 75 MVA including the generator terminals through the high-side of the step-up transformer(s) connected at a voltage of 100 kV or above.
I3 - Blackstart Resources identified in the Transmission Operator’s restoration plan.
I4 - Dispersed power producing resources with aggregate capacity greater than 75 MVA (gross aggregate nameplate rating) utilizing a system designed primarily for aggregating capacity, connected at a common point at a voltage of 100 kV or above.
I5 – Static or dynamic devices (excluding generators) dedicated to supplying or absorbing Reactive Power that are connected at 100 kV or higher, or through a dedicated transformer with a high-side voltage of 100 kV or higher, or through a transformer that is designated in Inclusion I1.
E1 - Radial systems: A group of contiguous transmission Elements that emanates from a single point of connection of 100 kV or higher and:

a) Only serves Load. Or,
b) Only includes generation resources, not identified in Inclusion I3, with an aggregate capacity less than or equal to 75 MVA (gross nameplate rating). Or,
c) Where the radial system serves Load and includes generation resources, not identified in Inclusion I3, with an aggregate capacity of non-retail generation less than or equal to 75 MVA (gross nameplate rating).

Note – A normally open switching device between radial systems, as depicted on prints or one-line diagrams for example, does not affect this exclusion.
**E2** - A generating unit or multiple generating units on the customer’s side of the retail meter that serve all or part of the retail Load with electric energy if: (i) the net capacity provided to the BES does not exceed 75 MVA, and (ii) standby, back-up, and maintenance power services are provided to the generating unit or multiple generating units or to the retail Load by a Balancing Authority, or provided pursuant to a binding obligation with a Generator Owner or Generator Operator, or under terms approved by the applicable regulatory authority.
E3 - Local networks (LN): A group of contiguous transmission Elements operated at or above 100 kV but less than 300 kV that distribute power to Load rather than transfer bulk power across the interconnected system. LN’s emanate from multiple points of connection at 100 kV or higher to improve the level of service to retail customer Load and not to accommodate bulk power transfer across the interconnected system.
E3 - The LN is characterized by all of the following:

a) Limits on connected generation: The LN and its underlying Elements do not include generation resources identified in Inclusion I3 and do not have an aggregate capacity of non-retail generation greater than 75 MVA (gross nameplate rating);

b) Power flows only into the LN and the LN does not transfer energy originating outside the LN for delivery through the LN; and
c) Not part of a Flowgate or transfer path: The LN does not contain a monitored Facility of a permanent Flowgate in the Eastern Interconnection, a major transfer path within the Western Interconnection, or a comparable monitored Facility in the ERCOT or Quebec Interconnections, and is not a monitored Facility included in an Interconnection Reliability Operating Limit (IROL).
E4 – Reactive Power devices owned and operated by the retail customer solely for its own use.
Note - Elements may be included or excluded on a case-by-case basis through the Rules of Procedure exception process.
• What’s Posted (through October 27, 2011):
  ▪ For Comment
    o New Rule 509
    o New Rule 1703
    o New Appendix 5C
  ▪ For Information
    o Process flow diagrams
    o Exception Request Form (Sample)
New Rule 509 - Exceptions to the Definition of the Bulk Electric System

“Appendix 5C sets forth the procedures by which (i) an entity may request a determination that an Element that falls within the definition of the Bulk Electric System should be exempted from being considered a part of the Bulk Electric System, or (ii) an entity may request that an Element that falls outside of the definition of the Bulk Electric System should be considered a part of the Bulk Electric System.”
• New Rule 1703 – Challenges to NERC Determinations of BES Exception Requests under ROP
  ▪ Leverages existing (proposed) appeals process
  ▪ NERC’s decision to Approve, Disapprove, or Terminate
  ▪ 30 days to appeal
  ▪ 90 days for review panel to decide
  ▪ May request BOTCC review panel discussion
• New Appendix 5C –

  ▪ Entity determination of status is a prerequisite for requesting an exception

  ▪ Section 4: Whos and Whats
    o Who can submit and to whom to submit a request
    o What to submit
    o Who “approves”
    o What happens if I disagree

  ▪ Section 5: What to expect

  ▪ Test
    o test
• Initial Screening
  ▪ Region “accepts or rejects” the request for substantive review
    o Eligible submitter?
    o Request for Exception?
    o Required information provided?
• Substantive Review
  - Region recommends “Approval or Disapproval” of request to NERC based on:
    o “...necessary for the Reliable Operation of the interconnected bulk power transmission system as evidenced by Required Information provided.”
• NERC Decision
  ▪ NERC receives the request record with a recommendation from the Regional Entity
    o States the basis for the recommendation
    o Includes information considered by the RE in arriving at its recommendation
  ▪ Submitting Entity or Owner has opportunity to comment in support or opposition to the recommendation
  ▪ NERC decision final if not appealed
• Implementation Plans for Requests
  ▪ Status “as is” when going through the process
  ▪ Some implementation may be necessary for:
    o New Inclusion Exceptions
    o Denials of Exception Requests for Exclusion
      – Newly-constructed or installed Element
      – Was not included in the BES under the BES Definition in effect
• Comments from first formal posting
• Reliability benefits of an Element cannot be determined by a single study or analysis of a single parameter
• Not feasible to establish continent-wide values and/or limits
Exception Process
Technical Principles

- The SDT has adopted a new approach:
  - “Detailed information to Support and Exception Request” Application Form
  - Targeted questions for Transmission and Generation addressing the facility characteristics with guidance on the type of supporting evidence to accompany request.
  - No hard numbers to guide the evaluation.
  - Engineering judgment will be utilized to perform the evaluation of the evidence in a consistent, repeatable, and verifiable process.
Initial Ballot Results

• “Detailed Information to Support an Exception Request” Application Form Ballot Results
  ▪ Quorum: 89.53%
  ▪ Approval: 64.03%

• Comments from 137 different people from 83 companies representing 10 of the 10 industry segments
• ‘Element’ vs. ‘facility’
• ‘Generation Resource’ vs. ‘generator’
Entities are required to provide:

- A one-line breaker diagram identifying the Elements and the Protection Systems at the interface points for which the exception is requested.
- The data and studies needed to support their submittal. Studies should:
  1. Be based on an Interconnection-wide base case
  2. Clearly document all assumptions used
  3. Address key performance measures of BES reliability through steady-state power flow and transient stability analysis
- Support for your position from other entities (if available).
1. Is there generation connected to the Elements?

2. How does the Element(s) impact permanent Flowgates in the Eastern Interconnection, major transfer paths within the Western Interconnection, or a comparable monitored facility in the ERCOT Interconnection or the Quebec Interconnection?

3. Is the Element(s) included in an IROL in the Eastern Interconnection, ERCOT Interconnection, or Quebec Interconnection or a major transfer path rating in the Western Interconnection?

4. How does an outage of the Element(s) impact the over-all reliability of the BES?
5. Is the Element(s) used for off-site power supply to a nuclear power plant as designated in a mutually agreed upon Nuclear Plant Interface Requirement (NPIR)?

6. Is the Element(s) part of a Cranking Path identified in a Transmission Operator’s restoration plan?

7. Does power flow through this Element(s) into the BES?
1. What is the MW value of the host Balancing Authority’s most severe single Contingency and what is the generation resource’s percent of this value?

2. Is the generation resource used to provide reliability related Ancillary Services?

3. Is the generator designated as a must run unit for reliability?

4. How does an outage of the generation resource impact the overall reliability of the BES?

5. Does the generation resource use the BES to deliver its actual or scheduled output, or a portion of its actual or scheduled output, to Load?
• Industry Concerns:
  - Desire “hard” and “fast” guidance
  - Limited role in process
  - Impact of ‘yes’ or ‘no’ response to questions
  - What is the benchmark for evaluation
  - Phase 2 will examine process results
• SDT Response
  ▪ Individual variables, extenuating circumstances
  ▪ Open and transparent exception process
  ▪ Professional experience
  ▪ No single answer will determine outcome
  ▪ Necessary for the reliable operation of the grid
  ▪ Phase 2 will examine process results
• Effective Dates
  ▪ This definition shall become effective on the first day of the second calendar quarter after applicable regulatory approval.
  ▪ In those jurisdictions where no regulatory approval is required the definition shall go into effect on the first day of the second calendar quarter after Board of Trustees adoption.
Implementation Plan

• Compliance Obligations
  ▪ Compliance obligations for Elements included by the definition shall begin 24 months after the applicable effective date of the definition.
  ▪ SDT believes that the timeframe is needed to:
    ○ Effectively produce reasonable transition plans
    ○ Submit any necessary registration changes
    ○ File for exceptions
    ○ Provide training
Near-term Project Milestones

• Recirculation Ballot (Nov. 14, 2011)
  ▪ Revised BES definition with designations (inclusions and exclusions)
  ▪ Implementation Plan
  ▪ ‘Detailed Information to Support an Exception Request” Application Form

• Post Phase 2 SAR (Dec. 2011)

• File with the Commission (FERC) by January 25, 2012
Question & Answer

Website: http://www.nerc.com/filez/standards/Project2010-17_BES.html