

Bulk Electric System Customer Collaborative

Hosted by Transmission Reliability Program



BPA Rates Hearing Room
March 29, 2012

This meeting will allow BPA and customers to discuss the
BES definitions and steps going forward



Agenda

Introductions

Presentation and Discussion

- Issue History and Background
- Ensuring Reliability of the BES
- Sustaining Reliability – Together
- Overview of Current BES Definition Exclusions
- Exclusions E1 thru E4 Details and Considerations

Exclusion text

Related BPA Definitions

Considerations regarding the Exclusion

Milestones and Next Steps



Ensuring Reliability of the BES

- BPA will support customers, as appropriate, with the BES exemption process
AND
- BPA will collaboratively work with the customers to modify or create sustainable processes
 - To ensure transmission system reliability
 - Assist in BPA complianceAND
- Customers will coordinate with BPA during the exemption process



Sustaining Reliability - Together

BPA and Customers will:

- Create and or modify existing processes and documentation methods to ensure reliability
- Collaborate on areas of crucial importance
 - System configuration
 - Data
 - Coordination
 - Communication
- Focus on the actions or intent of the standards rather than the standards themselves



Sustaining Reliability – Together (cont)

- BPA intends to work collaboratively with BPA customers to:
 - Identify BPA's needs to ensure reliability and assist in BPA compliance
 - Create/modify processes and procedures required to accomplish this goal



Overview of Current BES Definition Exclusions

- **E1** - Radial systems: A group of contiguous transmission Elements that emanates from a single point of connection of 100 kV or higher.....
- **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.....
- **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.....
- **E4** – Reactive Power devices owned and operated by the retail customer solely for its own use.



Current BES Definition of Exclusion E1

- **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.



BPA Definitions relative to Exclusion E1

From BPA's Breaker Arrangement Application Policy:

- **Line Tap** – A connection to an existing Transmission Line anywhere between line terminals which of itself is **not** a source of fault current. The connection may be connected to a switch or breaker, a short or long segment of transmission line, a transformer, a load, or any combination of the preceding; as long as there is no other transmission network connection (i.e. the Line Tap is radial). Switches are typically added in the original "tapped" transmission line on either side of the Line Tap to facilitate sectionalizing of the original line for maintenance purposes.
- **Line Terminal** – The breaker and protective relay system that serves as an end of a transmission line where that end is a source of fault current.



Considerations regarding Exclusion E1

- **Exclusion E1 and BPA definition differ!**
 - E1 permits generation (fault current source)
 - BPA restricts Line Taps to non-fault current situations
- **Risk Exposure to the BES**
 - Length of tap line and Right of Way width
 - Vegetation Management rights and practices
- **Automatic Fault Interrupting Device (AFID) installed at or very near the tap location**
 - Circuit Breaker
 - Circuit Switcher
 - Fuses on the high side of transformer



Considerations regarding Exclusion E1 (continued)

- **Proposed resolution of fault current source issue on line taps**
 - E1 permits generation (fault current source) but BPA restricts Line Taps to non-fault current situations
 - Proposal: Follow the guidance in BPA's Technical Requirements for Interconnection and coordinate with BPA Planning to determine the plan of service required to protect the reliability of the BES and still permit the E1 exclusion



Current BES Definition of Exclusion E2

- **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.



BPA Definitions relative to Exclusion E2

From BPA's various Generation Interconnection Business Practices, and from the Technical Requirements for Interconnection to the BPA Grid

- **Large Generation** – A generation facility with aggregate nameplate capacity in excess of 20 MW
- **Small Generation** – A generation facility with aggregate nameplate capacity not exceeding 20 MW
- **Generation Integration** – The connection of a generation project to a Host Utility located within BPA's Balancing Authority Area



Considerations Regarding Exclusion E2

- BPA evaluates interconnection requests for safe operation and coordination with the grid, and for metering & telemetering requirements
- Large and small generation interconnection agreements (LGIA / SGIA) are executed between BPA and the generation owner
- BPA utilizes Balancing Authority Area Service Agreements to memorialize obligations for generators not directly connected to the BES but located within BPA's Balancing Authority Area



Current BES Definition of Exclusion E3

- **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. 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).



BPA Definitions relative to Exclusion E3

- Contiguous Point(s) of Delivery (POD) Business Practice
 - All PODs on the delivery side must be interconnected through a transmission or distribution system. If the customer's system is operated normally open, the customer and BPA must agree to an operating plan for any load shifting between/and/or/among PODs in the contiguous set in order to prevent adverse impacts on the reliability of the BES
 - All PODs within the contiguous set of points of delivery must be in a single Balancing Authority Area



Considerations Regarding Exclusion E3

- Metering and/or SCADA used to insure no transfer of bulk power across the interconnected system



Current BES Definition of Exclusion E4

- **E4** – Reactive Power devices owned and operated by the retail customer solely for its own use.



Considerations Regarding Exclusion E4

- Are customer reactive devices likely to impact the reliability of the BES?
- What is the step voltage change associated with insertion of the customer's reactive devices?



Agreement? Processes?

- BPA would like to explore the various options of documenting the coordination process once an entity is exempted
- Is it covered by other agreements?



Next Steps

- Continue to watch the NERC BES Process
 - Work with customers to create coordination process within the BES exemption process
 - Work with BPA to collaboratively modify or create sustainable processes
 - To ensure transmission system reliability
 - Assist in BPA compliance
- AND
- Customers will coordinate with BPA during the exemption process



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