Background:
FERC issued Order 743 on November 18, 2010 with the directives identified below:

16. After consideration of the comments submitted, the Commission adopts the NOPR’s proposal with some modifications. The Commission directs the ERO to revise the definition of “bulk electric system” through the NERC Standards Development Process to address the Commission’s concerns discussed herein. The Commission believes the best way to address these concerns is to eliminate the Regional Entities’ discretion to define “bulk electric system” without ERO or Commission review, maintain a bright-line threshold that includes all facilities operated at or above 100 kV except defined radial facilities, and adopt an exemption process and criteria for excluding facilities that are not necessary to operate an interconnected electric transmission network. However, NERC may propose a different solution that is as effective as, or superior to, the Commission’s proposed approach in addressing the Commission’s technical and other concerns so as to ensure that all necessary facilities are included within the scope of the definition.

The BES SAR authors are proposing a revised definition of the term BES to provide improved clarity, to reduce ambiguity and to establish a universal “bright-line” for distinguishing between BES and non-BES Elements and Facilities.

Proposed continent-wide definition of Bulk Electric System:

_Bulk Electric System: All Transmission and Generation Elements and Facilities operated at voltages of 100 kV or higher necessary to support bulk power system reliability. Elements and Facilities operated at voltages of 100 kV or higher, including Radial Transmission systems, may be excluded and Elements and Facilities operated at voltages less than 100 kV may be included if approved through the BES definition exemption process._

This proposed definition provides consistency across the continent’s reliability regions by establishing a definition that clearly describes what constitutes BES and non-BES Elements and Facilities. The BES definition references an exemption process (which may include regional differences as defined by Order 672 or jurisdictional exemptions as appropriate for those entities not subject to Section 215 of the Federal Power Act) that can be used to:

- Identify the Radial Transmission systems that are excluded from the BES;
• Identify Elements and Facilities operated at voltages of 100kV or higher that may be excluded from the BES; and
• Identify Elements and Facilities operated at voltages less than 100kV that may be included in the BES.

The development, approval and application of the BES definition exemption process (including periodic review of exempted facilities) will be governed by revisions to the NERC Rules of Procedure, in close coordination with the revision of the BES definition.

Information collected from the following questions will assist both the BES Drafting Team and the group working to develop a BES Definition Exception Process.

1. Should the following should be classified as part of the BES?
   • Transformers, other than Generator Step-up (GSU) transformers, including Phase Angle Regulators, with both primary and secondary windings of 100 kV or higher

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   Comments: Exclusions should be applied to radial non-transmission facilities serving a distribution function. Step-down transformers with the low-side terminals serving non-BES facilities, which are serving a distribution function, should not be part of the definition of BES.

   Transformers, other than GSUs, with both primary and secondary winding above 100kV, and performing a transmission function, should be classified as BES. Transformers other than GSUs, with both primary and secondary windings above 100kV, and only providing a distribution function should be classified as non-BES. Transformers other than GSUs, with their secondary windings or both primary and secondary windings operated below 100kV should not be included in the definition of BES.

2. Should the following be classified as part of the BES?
   • Individual generation resources (including GSU transformers and the associated generator interconnecting line lead(s)) greater than 20 MVA (gross nameplate rating) directly connected via a step-up transformer(s) to Transmission Facilities operated at voltages of 100 kV or above

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   Comments: Some generators act as a local load modifier, regardless of connected voltage. The power generated is consumed locally and does not flow up onto the BES, nor does its operation materially impact any BES transmission facilities. If a generator functions as a local load modifier and does not materially impact the BES, meaning that it is not necessary to maintain BES reliability, then it should be excluded from the definition of BES under the BES Exemption Process.
3. Should the following be classified as part of the BES?
   - Generation plants (including GSU transformers and the associated generator interconnecting line lead(s)) with aggregate capacity greater than 75 MVA (gross nameplate rating) directly connected via a step-up transformer(s) to Transmission Facilities operated at voltages of 100 kV or above

   □ Yes  ☑ No

   Comments: Refer to the response Question 2 above. The answer depends on whether the generator output is consumed locally or is necessary to maintain the reliability of the BES.

4. Should the following be classified as part of the BES?
   - Blackstart Resources and the designated blackstart Cranking Paths identified in the Transmission Operator’s (TOP’s) restoration plan

   ☑ Yes  □ No

   Comments:

5. Should the following be classified as part of the BES?
   - Transmission Elements or Facilities operated at voltages below 100kV where the exemption process deems the Element or Facility to be included in the BES

   □ Yes  □ No

   Comments: Refer to the response to Question 13.

6. Should the following be classified as part of the BES?
   - Individual generation resources greater than 20 MVA (gross nameplate rating) directly connected via a step-up transformer(s) to Facilities operated at voltages below 100kV where the exemption process deems the generation resources to be included in the BES

   □ Yes  □ No

   Comments: Refer to the response to Question 13.
7. Should the following be classified as part of the BES?
   - Generation plants with aggregate capacity greater than 75 MVA (gross nameplate rating) directly connected via a step-up transformer(s) to Facilities operated at voltages below 100kV where the exemption process deems the generation plants to be included in the BES
     □ Yes □ No
   Comments:
   Refer to the response to Question 13.

8. Should the following be excluded from the Elements and Facilities classified as part of the BES?
   - Any radial Transmission Element or System, connected from one Transmission source to a Load-serving Element and/or generation resources not included in items 2, 3, 4, 6, and 7 above are excluded from the BES
     ▸ Yes □ No
   Comments:

9. Should the following be excluded from the Elements and Facilities classified as part of the BES?
   - Elements and Facilities identified through application of the exemption process, consistent with the criteria, where the exemption process deems that the Element or Facility should be excluded from the BES (with concurrence from the ERO)
     ▸ Yes □ No
   Comments:
   Refer to the response to Question 13.

10. Should the following be excluded from the Elements and Facilities classified as part of the BES?
    - Generating plant control and operation functions which include relays and systems that control and protect the unit for boiler, turbine, environmental, and/or other plant restrictions.
      ▸ Yes □ No
    Comments: These systems are internal protection systems and will not impact the reliability of the BES.
11. Do you believe that the proposed definition of BES, accompanied by a separate BES Definition Exception Process meets the reliability-related intent of the directives in Order 743?

☑️ Yes   ☐ No

Comments: A qualified “Yes”. The BES exemption process has not yet been written. So, it is somewhat difficult to know in advance that this approach meets the reliability-related intent of the directives in Order 743. While in general agreement with this conclusion, there is concern that the BES definition and BES exception process do not yet adequately address a “point-of-demarcation” between the BES Facilities and Elements and non-BES facilities and elements (lower case). Propose to add two new terms for the NERC Glossary of Terms in our reply to Question 13, in order to identify a point-of-demarcation and more fully respond to this question.

12. If you have a proposal for an equally efficient and effective method of achieving the reliability-related intent of the directives in Order 743, please provide your proposal here.

Comments:

13. Please provide any other information that you feel would be helpful to the drafting team working on the definition of BES.

Comments: Proposed definitions to be added to the NERC Glossary of Terms:

**BES Exemption Process:** The review processes for (a) excluding or exempting facilities and Elements from the BES that are determined not to be necessary to support bulk power system reliability (e.g., radial elements), and (b) including Elements operated at voltages below 100 kV that are determined to be necessary to support bulk power system reliability. By identifying all such BES and non-BES facilities and elements, the BES Exemption Process will establish the Points-of-Demarcation between Facilities and BES Elements and non-BES facilities and Elements.

**Point-of-Demarcation:** A physical point and/or electrical connection between facilities and BES Elements and non-BES facilities and elements, e.g., the upstream terminals of a disconnect switch (or a buss connection) representing the boundary between a BES supply bus and a non-BES radial feeder.

The BES exemption process has not yet been written. So, it is somewhat difficult to know a priori whether any element, elements or a group of elements or facilities should or should not be classified as part of the BES definition.
This document uses both “exemption process” and “exception process”. Recommend that the phraseology be standardized on “exception process” as the exception (not the exemption) can be to include or exclude elements and facilities.

It is envisioned that the BES Exception Process will contain 3 sub-processes; one for Exclusion, one for Exemption, and one for Inclusion. Each sub-process will establish provisions and guidelines for the three different tasks. In order to ensure consistency across the continent, it is our view that NERC should be the facilitator of these processes. NERC may choose to have some of these tasks performed at the regional levels through the existing delegation agreements.

The BES Exception Process must be an active and ongoing aspect of the ERO program. With the addition of new or deletion of existing Transmission and Generation Elements, Facilities, or systems. It needs to be recognized that Exclusions, Inclusions, and Exemptions might need alteration over time. By establishing appropriate guidelines and processes, the ERO will be able to monitor and maintain information on what is the Bulk Electric System, or BES.

The exception (exemption) process should clearly address the process and requirements for FERC non-jurisdictional entities (such as the Canadian entities) with the exception of the interconnections between them and those entities under FERC jurisdiction, and/or those entities having a direct impact on those interconnections.

Classification of all radial facilities operated at voltages of 100 kV and above as part of the BES by default would be unnecessary and administratively inefficient, because the operation of all radial facilities do not have a significant operational impact on the BES. Those radial facilities not having a significant impact should be excluded from the BES. If they aren’t, it could lead to delays in the review and approval of other exemption requests. As such, the proposed BES definition should be revised to clearly define what radial Transmission Elements will not be included as part of the BES. This would be consistent with FERC’s intention expressed in Paragraph 55 of Order 743 to not alter the part of the approved definition that deals with “radial transmission facilities serving only load”. Additionally, to ensure a common understanding of the meaning of “radial” and to promote consistency in its application, “radial” should be defined and added to the NERC Glossary.