Regional Bulk Electric System Definition Coordination Group

'Concept Document'

Introduction

The Regional Bulk Electric System Definition Coordination Group is proposing a common approach to defining the BES to provide for improved clarity, to reduce ambiguity and to establish a universal method ("bright-line") of distinguishing between BES and non-BES Elements and Facilities.

A common approach to the identification of BES Elements and Facilities will establish a repeatable method of correctly applying the NERC Reliability Standard requirements by the industry and facilitate consistent application of compliance efforts by the entities involved internally and across Regional boundaries (i.e. FERC, ERO, Regional Entities and registered entities).

This proposal would provide consistency across the nation's reliability regions by establishing a BES 'Framework' definition which includes a common set of principles that clearly describe the guidance for determining what constitutes BES and non-BES Elements and Facilities. The BES 'Framework' will also allow for application of Regional methodologies, consistent with the principles, to technically assess whether or not an Element or Facility should be included or excluded (with concurrence from the ERO) from the BES as exceptions to the Principles. The development, approval and utilization of the Regional methodologies would be governed by revisions to the NERC Rules of Procedure to address this specific issue.

In support of the EROs ability to respond to Commission directives and recommendations, this project would also address the issues raised by the Commission, the ERO, the Regional Entities and the industry as stated in FERC Order No. 693 and Order No. 743.

Concepts

Proposed BES 'Framework'

A common framework for a NERC BES definition that includes a uniform NERC-wide 100kV based definition, a common set of principles, and allows for application of Regional methodologies, consistent with the principles, to technically assess whether or not an Element or Facility should be included or excluded from the BES.

Proposed BES Principles

The proposed Principles recommended for the identification of BES Elements and Facilities consist of:

1. Transmission Elements operated at voltages of 100 kV or higher to be included in the BES;

2. Transformers, other than GSU transformers, including Phase Angle Regulators, with both primary and secondary windings of 100 kV or higher to be included in the BES;
3. Individual generation resources greater than 20 MVA (gross nameplate rating) and are directly connected via a step-up transformer(s) to designated BES Transmission facilities by a designated BES transmission path to be included in the BES
4. Generation plants with aggregate capacity greater than 75 MVA (gross nameplate rating) and are directly connected via a step-up transformer(s) to designated BES Transmission Facilities by a designated BES transmission path to be included in the BES;
5. Generator step-up transformers and the generator interconnecting line lead(s) associated with BES generators identified in 3, 4, 7 or 8 to be included in the BES;
6. Blackstart Resources and the designated blackstart Cranking Paths will be included in the BES;
7. Transmission Elements or Facilities operated at voltages below 100kV where the Regional methodology deems the Element or Facility to be included in the BES;
8. Individual generation resources greater than 20 MVA (gross nameplate rating) and are directly connected via a step-up transformer(s) to Facilities operated at voltages below 100kV where the Regional methodology deems the generation resources to be included in the BES; and
9. Generation plants with aggregate capacity greater than 75 MVA (gross nameplate rating) and are directly connected via a step-up transformer(s) to Facilities operated at voltages below 100kV where the Regional methodology deems the generation plants to be included in the BES.

The proposed Principles recommended for the exclusion of elements and facilities from the BES consist of:

1. Any radial transmission Element or System, connected from one transmission source to a load serving Element and/or generation resources not included in items 3, 4, 7 and 8 above are excluded from the BES;
2. Elements and Facilities identified through application of Regional methodologies, consistent with the principles, where the technical assessment deems that the Element or Facility should be excluded (with concurrence from the ERO and the Commission) from the BES; and
3. 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 that are not specifically identified in a NERC Reliability Standard are excluded from the BES.

Assumptions

In order to provide clarity and consistency in the application of the above BES Principles this proposal identifies the need to define the terms 'directly connected', 'radial system' and 'one transmission source'.

The proposed definitions are as follows:

'Directly connected' refers to generator step-up transformers (GSU) and associated equipment from the generator terminals to the high voltage side of the GSU. When multiple transformation of voltage occurs prior to connection to BES Elements or Facilities operated at voltages of 100kV and above, 'directly connected' refers to the initial step-up transformer(s) connected to the generator terminals.

'Radial system' can be a collection of parallel Elements as long as the radial System originates at one transmission source and that the System does not connect to a second transmission source under normal operations.

> *The Regional Bulk Electric System Definition Coordination Group considers normal operations (i.e. normal system configuration) in determining whether Elements / Systems are radial and does not consider alternate configurations. For instance, entities may install normally open switches between radial Elements/ Systems and operate the switches in a 'make-before-break' fashion to allow for system reconfiguration to maintain continuity of electrical service to customers, as long as it cannot operate as a through-flow line even in emergency situations.*

'One transmission source' is a contiguous bus configuration (e.g. ring bus, breaker and a half scheme, etc) comprised of one or more BES elements operated at one voltage level 100 kV or higher.