NERC Provides New Definition of Bulk Electric System

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Section 215 of the Federal Power Act (FPA) broadly defines the Bulk-Power System (BPS) as "(A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generating facilities needed to maintain transmission system reliability."[1] Defining the extent of the BPS is important because the Federal Energy Regulatory Commission (FERC) requires each user, owner, and operator of the BPS to register with the North American Electric Reliability Corporation (NERC),[2] and it is this registration that dictates the reliability standards with which the entity must comply.

Although the FPA defined the BPS, NERC uses the term "Bulk Electric System" (BES) as a basis for registration and usage in the reliability standards. FERC initially accepted NERC's BES even though FERC found that the FPA's BPS definition was broader in scope than NERC's BES definition. However, FERC remained concerned that there might be a gap in coverage of facilities between the BPS and the BES.[3]

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Subsequently, in 2011, FERC concluded that the initially approved BES definition was "insufficient to ensure that all facilities necessary for operating an interconnected electric energy transmission network" are included in the definition.[4] FERC also found that regional discretion in the determination of which facilities should be included in the BES resulted in inconsistent inclusion of facilities in the BES. Therefore, FERC directed NERC to revise the BES definition to address its concerns and to ensure that the proper entities are registered and responsible for reliability standards that are necessary to ensure BPS reliability.[5]

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NERC's revised BES definition, as approved by FERC, became effective on July 1, 2014.[6]

REVISED BES DEFINITION

The revised definition (see also **Exhibit 1**) includes bright-line core criteria with specific inclusions and exclusions, and applies on an element-by-element basis. An "element" is "[a]

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ny electrical device with terminals that may be connected to other electrical devices such as a generator, transformer, circuit breaker, bus section, or transmission line. An element may be comprised of one or more components."[7]

There are four ways to identify BES elements: (1) application of the BES definition to an element, (2) inclusion or exclusion of an element in the BES through NERC's exception process, (3) FERC determination that an element should be included in the BES, or (4) FERC determination that an element is "local distribution."

APPLICATION OF THE DEFINITION

Effective July 1, 2014, an entity should apply the BES definition to its asset inventory. According to NERC, the entity should first apply the 100-kilovolt overall demarcation point between BES and non-BES elements, then the specific inclusions (I1 to I4 in **Exhibit 1**) to each of its elements to determine which elements are BES elements (such as transmission elements and real and reactive power resources). Finally, the entity should evaluate whether any such elements should be excluded from the BES by applying the exclusions in the following sequence: E2 (behind-the-meter generation), E4 (reactive power devices), E3 (local networks), and, lastly, E1 (radial systems).[8]

After the entity applies the definition to each element, the entity must submit a self-determined notification to its regional entity and NERC through the BES Notification and Exceptions Tool (BESnet) if there are any elements that should be newly included in or excluded from the BES as a result of the revised definition.[9] If nothing has changed in an element's BES status after applying the revised BES definition, the entity need not submit a self-determined notification.

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FERC found that if an entity applies the BES definition and determines that an element should no longer be included in the BES, "in the absence of bad faith," and upon notification to the regional entity, the element should not be treated as part of the BES unless NERC makes a contrary determination in the exceptions process.[10] NERC considers a good-faith self-determined notification to be one "made consistent with the BES Definition and reference materials provided by NERC."[11]

NERC will not remove an element from the BES until NERC reviews and validates the self-determined notification to confirm appropriate application of the BES definition. Consequently, until the validation process is completed, the entity has the potential to be subject to reliability standards with respect to the potentially excluded element. However, NERC will hold any proceeding regarding noncompliance associated with such element in abeyance pending validation, and if NERC determines that the element should be excluded, such proceedings will be closed barring unusual circumstances.[12]

BES EXCEPTIONS PROCESS AND FERC'S AUTHORITY TO DESIGNATE BES ELEMENTS

In conjunction with the revised BES definition, NERC has implemented an exceptions process to add elements to, or remove elements from, the BES on a case-by-case basis.[13] Under this exception process, if an entity believes an element is improperly classified as a BES element through application of the definition, the entity may submit an exclusion exception request through BESnet to seek removal of the element from the BES. Conversely, if an element is not included in the BES through application of the BES definition and a regional entity, for example, believes that the element should be included, the regional entity can initiate an inclusion exception request through BESnet.

NERC has implemented an exceptions process to add elements to, or remove elements from, the BES on a case-by-case basis.

NERC will consider many factors in addressing an exception request, including but not limited to the effects of not applying the reliability standards assigned to BES elements to a potentially excluded element, the impact of an outage on an element, the potential effect of a fault on the element, and the

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extent to which loading on the element is affected by changes in generation dispatch or outage of other elements.[14] The relevant regional entity will analyze and make a recommendation to NERC on an exception request. However, NERC will decide the matter, subject to appeal first to NERC's board of trustees, and then to FERC.[15]

Finally, FERC itself (through its own processes) may designate an element as part of the BES, although it believes that this situation will arise rarely.[16]

LOCAL DISTRIBUTION DETERMINATION

Elements used in local distribution, even if they otherwise would fit within the BES definition, are not part of the BES. There are several ways of ensuring that local distribution elements are excluded from the BES. First, the 100-kilovolt threshold in the core definition will remove many local distribution elements because such facilities tend to be operated at sub-100-kilovolt voltages.[17] Second, the local network exclusion—E3 of **Exhibit 1**—excludes from the BES contiguous transmission elements operated at less than 300 kilovolts that distribute power to load rather than transfer bulk power across the interconnected system. Thus, application of E3 should exclude many 100-kilovolt-and-above elements that are used in local distribution. Finally, to the extent an entity believes that an element is used in local

Exhibit 1. Features of New Definition

The core Bulk Electric System (BES) includes all transmission elements operated at 100 kilovolts (kV) or higher and real power and reactive power resources connected at 100 kV or higher.[a]

The BES also generally *includes* the following:

Inclusion 1 (I1):	Transformers with the primary terminal and at least one secondary terminal operated at 100 kV or higher.
Inclusion 2 (I2):	Generators connected at 100 kV or above with gross individual nameplate rating greater than 20 megavolt ampere (MVA), or gross plant/facility aggregate nameplate rating greater than 75 MVA.
Inclusion 3 (I3):	Blackstart resources identified in restoration plans.
Inclusion 4 (I4):	Dispersed generating resources that aggregate to a total capacity greater than 75 MVA (gross nameplate rating), and that are connected through a system designed primarily for delivery of such capacity to a common point of connection at a voltage of 100 kV or above.
Inclusion 5 (I5):	Static or dynamic devices dedicated to supplying or absorbing reactive power that are connected at 100 kV or higher.

The BES generally *excludes* the following:

Exclusion 1 (E1):	Radial systems (transmission elements only) that only serve load or that only include generation resources.[b] This exclusion does not apply to tie-lines for BES generators that are specifically included in the BES.[c]
Exclusion 2 (E2):	Behind-the-meter generation.
Exclusion 3 (E3):	Local networks.
Exclusion 4 (E4):	Reactive power devices installed for the sole benefit of retail customers.

The BES does not include any elements "used in the local distribution of electric energy."[d]

[a] For the complete BES definition, *see* NERC. (2014, July). *Glossary of terms used in NERC Reliability Standards.* Retrieved from http://www.nerc.com/files/glossary_of_terms.pdf; p. 18.
[b] Order No. 773, p. 133.
[c] Ibid., pp. 164–165, 167.
[d] 16 U.S.C. § 824*o*(a)(1).

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distribution but is not excluded by application of the definition, the entity must petition FERC to seek a determination that the element is used in local distribution, and the entity need not submit an exclusion exception to NERC.[18]

Elements used in local distribution, even if they otherwise would fit within the BES definition, are not part of the BES.

In addressing such petitions, FERC will apply the seven-factor test articulated in Order No. 888[19] and other relevant factors to determine whether the particular element at issue is used in local distribution.

COMPLIANCE OBLIGATIONS

As noted, FERC requires each user, owner, and operator of the BPS to register with NERC, and NERC essentially views the BPS as equivalent to the BES, such that each user, owner, or operator of a BES element must register.[20] However, the BES definition alone does not establish an entity's reliability standards compliance obligations. The function an entity performs is also a key factor in understanding its compliance obligations, and it is the functional registration category in which an entity is registered, such as Transmission Owner or Generator Operator, that dictates the reliability standards with which the registered entity must comply.

To determine how the revised BES definition will impact an entity's reliability standards compliance, therefore, each US asset owner is expected to apply the revised BES definition to each of its elements to determine if it is already properly included in the BES, if it should be newly included in the BES, or if it should be excluded from the BES. An owner of a newly included element is then expected to perform a gap analysis to determine (1) whether the entity must register in additional functional categories or must obtain additional certifications based on the newly included BES element and (2) the reliability standards with which the entity must become compliant due to the newly included BES element. Depending on the results of the gap analysis, the entity might need to develop an implementation plan to identify activities it needs to perform to achieve compliance with any new obligations.[21] Implementation plans must be submitted to the relevant regional entity for review and concurrence.

For existing elements that were not part of the BES prior to July 1, 2014, but are newly identified as part of the BES after application of the revised definition, entities will need to be compliant with applicable NERC reliability standards by July 1, 2016. After July 1, 2014, for newly built BES elements, entities must be compliant with respect to such element as of its energization.[22]

NOTES

1. 16 U.S.C. § 824*o*(a)(1).
2. 18 C.F.R. § 39.2(c) (2014).
3. *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, 72 Fed. Reg. 16416, p. 77 (April 4, 2007), *reh'g*, 72 Fed. Reg. 40717 (July 25, 2007).
4. *Revision to Electric Reliability Organization Definition of Bulk Electric System*, Order No. 743, 75 Fed. Reg. 72910, p. 16 (November 26, 2010), *reh'g*, 76 Fed. Reg. 16263 (March 23, 2011).
5. Order No. 743, p. 30.
6. *Revisions to Electric Reliability Organization Definition of Bulk Electric System and Rules of Procedure*, Order No. 773, 78 Fed. Reg. 804 (Jan. 4, 2013), *reh'g*, Order No. 773-A, 78 Fed. Reg. 29210 (May 17, 2013), 143 FERC ¶ 61,231 (2013) (extending revised BES definition effective date to July 1, 2014).
7. NERC. (2014, July). *Glossary of terms used in NERC Reliability Standards*. Retrieved from http://www.nerc.com/files/glossary_of_terms.pdf, p. 34.
8. NERC. (June 23, 2014). *BES definition implementation guidance* ("*Guidance*") Retrieved from http://www.nerc.com/pa/RAPA/BES%20DL/ImplementationGuidance2014-06-23-1621-FINAL.pdf; p. 1.
9. Order No. 773, p. 317; *Guidance*, p. 3; NERC Rules of Procedure § 501.1.3.5.
10. Order No. 773-A, p. 110.
11. See note 8, p. 3.
12. Ibid., p. 4.
13. NERC Rules of Procedure, Appendix 5C.
14. A detailed discussion of the evaluation of an exception request is contained in NERC. (2014, February). *BES exception request evaluation guideline.* Retrieved from http://www.nerc.com/pa/RAPA/BES%20DL/BES%20Exception%20Evaluation%20Guideline%202-4-14%20REMG%20App.pdf.
15. NERC Rules of Procedure § 1703.
16. Order No. 773, pp. 285–288.
17. Ibid., p. 67.
18. Order No. 773, pp. 70–71.
19. Order No. 888, 61 Fed. Reg. 21540, at 21619–20, 21627 and Appendix G (May 10, 1996).
20. Note 8, p. iv and n.6.
21. *NERC*, Docket No. RM12-6-000, "Petition" (Jan. 25, 2012), pp. 38–43.
22. North American Electric Reliability Corporation (NERC). (2014, July 1). *BES frequently asked questions*. Retrieved from http://www.nerc.com/pa/RAPA/BES%20DL/BES%20FAQs.pdf; item 7.3.

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