Summary Consideration: Prior to the issuance of Order 743a**,** the SDT reviewed all of the provided material and used this material and the examples supplied in its consideration of the revised definition of the Bulk Electric System (BES). The goal of the SDT is to provide a bright-line definition of BES which adheres to the guidelines and directives in Order 743. This bright-line definition contains certain inclusions and exclusions for specific equipment and configurations. The SDT believes that this definition now answers many of the questions raised by industry and encompasses most of the examples provided. However, no bright-line definition will be able to capture all of the concerns or situations. Accordingly, and consistent with Order 743, another aspect of this project is to establish an exception process with criteria based on reliability principles for the Interconnected BES that will be incorporated in NERC's Rules of Procedure (ROP) that will allow a process for the inclusion or exclusion of a particular BES Element from the definition. This ROP work effort will be done by a separate team but the DBESSDT will be in close coordination with that team.

Question 1:

If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

- **a.** Identify the Element or Facility recommended for exclusion:
- **b.** Provide a generic one-line diagram depicting the Element or Facility in question (if available).
- **c.** Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).
- **d.** Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

Commenters:

John A. Gray, The Dow Chemical Company

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Email: JAGray3@dow.com

1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion:

   As discussed in the comments of The Dow Chemical Company ("Dow") on the recommended definition of BES, the 100 kV standard is inapplicable to generation and should not be used to identify generation facilities that are included in the BES, or that are eligible for an exception or exclusion. Instead, the NERC Statement of Compliance
   Registry Criteria already sets forth criteria for determining when individual generating units and generating plants/facilities are not part of the bulk electrical system. Those existing standards and the generator-specific registration determinations that have been made using those standards should be preserved.

   Dow does not object to retaining a 100 kV standard for identifying transmission facilities that should be considered part of the BES, but exclusions must be made for distribution facilities and interconnection facilities. If owners and/or operators of such facilities are required to secure an "exception" or "exclusion" from the 100 kV standard, then such process must ensure that exceptions or exclusions are available before mandatory reliability standards become applicable.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

   For a manufacturing site, distribution facilities deliver electricity from the generating plants and or the transmission grid to the manufacturing plants. Interconnection facilities are generally identified by reference to the point of interconnection with the transmission grid. Facilities located on the generator's side of this interconnection up to the site transformers are generally considered interconnection facilities while facilities located at or beyond the point of interconnection are generally considered transmission facilities.

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: The NERC Statement of Compliance Registry Criteria excludes certain generating facilities, because these generating facilities are not material to the reliability of the BES. Distribution facilities are expressly excluded from the definition of BES pursuant to Section 215 of the Federal Power Act. Distribution facilities are typically operated differently from transmission facilities. As such,

distribution facilities should not be subject to the same reliability standards as transmission facilities. FERC has recognized that interconnection facilities may or may not be material to the reliability of the BES. As such, FERC has held that a facts-and-circumstances analysis should be used to determine whether and to what extent such facilities should be considered part of the BES and, therefore, subject to mandatory reliability standards. *See New Harquahala Generating Company, LLC, 123 FERC ¶ 61,173 at P 44 (2008), clarified, 123 FERC ¶ 61,311 (2008).*

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

Continent-wide

Comments relative to the proposed exclusion(s):

At minimum, the exclusions applicable to distribution facilities and interconnection facilities should apply to all facilities that are subject to FERC's reliability jurisdiction under Section 215 of the Federal Power Act.

Michael Moltane & John Zipp, ITC Holdings

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   Comments relative to the proposed exclusion(s): It is unclear how we would identify an individual element then in part d. declare it Region-wide. This needs to be made more clear

Frank Gaffney, Florida Municipal Power Agency, Et all

Florida Municipal Power Agency is filing the comments below on behalf of its' project participants:

City of New Smyrna Beach
KUA
Lakeland Electric
City of Clewiston
Beaches Energy Services
Ocala Electric Utility

Telephone: 407-355-7767

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion:

   This question refers to "exclusions"; we believe, however, that the intent of this comment form is to elicit feedback on the process for "exemptions." It is important to distinguish between the two concepts, as FERC did in Order 743. *See, e.g.*, Paragraph 1, which refers to "maintain[ing] a bright-line threshold that includes all facilities operated at or above 100 kV *except defined radial facilities*," as well as to "establish[ing] an exemption process and criteria." (emphasis added). In other words, in brief, an "exclusion" is outside of the BES by definition, whereas exempt Elements are removed on a case-by-case basis by going through a process.

   FMPA draws the distinction as follows:

   An exclusion is the removal of a category of Elements from the BES definition. The current BES definition explicitly carves out radials serving only load with one transmission source. This is a clear example of an exclusion. There is no "exclusion process" now, nor should there be one in the future; the point of an exclusion is that the class of excluded Elements can—without any process—be treated like sub-100 kV transmission, in that they are presumed to be non-BES unless a particular Element is demonstrated, on a case-by-case basis, to be properly included in the BES (see responses to Questions 5 and 11 in FMPA' comments on BES definition, submitted today, and FMPA response to Question 2 below).

   An exemption, on the other hand, is a finding that a particular Element, although nominally part of the BES, does not need to be included in the BES because it is not necessary for operating an interconnected transmission network.

Because exemptions are less clear-cut than exclusions, each exemption of an Element needs to be approved by NERC so that the Registered Entity and compliance authorities have certainty about the Elements with respect to which compliance is required. In many, perhaps all, cases, this process will likely require a case-by-case examination of each Element for which an exemption is requested.

FMPA responds to this question with respect to the one "exclusion" from the BES definition that we advocate, that of radial Transmission Elements serving only load and/or generation not registered pursuant to the Statement of Compliance Registry Criteria. We also propose uniform criteria for deciding, on a case-by-case basis, whether to grant requested exemptions from the BES, or to include nominally non-BES Elements in the BES. The process that we propose for exemption requests and proposed inclusions is discussed below in response to the invitation of "[c]omments relative to the proposed exclusion(s)."

Exclusion:

FMPA proposes only one exclusion from the BES definition, namely, "Radial Transmission Elements serving only load with one Transmission source are generally not included in this definition. A radial Transmission Element may be considered as 'serving only load' for purposes of the foregoing general exclusion even if it connects generation, so long as that generation is not registered pursuant to the Statement of Compliance Registry Criteria." This formulation, which is discussed in FMPA' comments submitted today on the BES definition, is intended to preserve the current exclusion of radials serving only load with one transmission source, and to clarify that the presence of a generator that is not registered under the Compliance Registry Criteria does not convert a radial into a BES Element. The end result is that radial transmission is excluded unless it connects generation that is registered pursuant to the Statement of Compliance Registry Criteria. Consistent with the Compliance Registry Criteria, a single generator under 20 MVA, or a plant under 75 MVA, if not designated as a Blackstart Resource needed for system restoration, is unlikely to affect the grid. Therefore, the presence of such generation should not require that an otherwise non-BES radial be included in the BES. Rooftop photovoltaic cells, for example, are increasingly common. If FMPA' proposed clarification is not accepted, the presence of such insignificant generation could nullify the exclusion of radials to load with one transmission source, with no benefit to reliability.

Exemption criteria

FMPA has not yet developed a list of criteria that we believe to be exhaustive, though we emphasize that such a list must be an ultimate goal of this process. We propose the following criteria as a start:

FMPA proposes that at least two classes of elements be eligible to request an exemption:

i. Elements that are part of a radial "system" originating from a single BES source serving only load, as in the Florida Keys. Clarifications: a) radial system means any number of series and/or parallel Elements as long as they all originate from a single BES source and do not have another BES source; b) "single BES source" means one BES bus / substation / switching substation at one voltage level, and c) consistent with FMPA' proposed exclusion of radials serving only load and unregistered generation, "serving only load" includes serving generation that is not registered through the Statement of Compliance Registry Criteria.

ii. Elements that are part of a "looped" system that has two transmission sources primarily for local quality of service to the retail customers supplied by the looped system in question and is not used for bulk electric system flow (e.g., the transfer distribution factor of flows across the looped system is low, representing a high impedance path across the looped system). Specific criteria might be: a) a looped system that participate in less than a 5% of transfer (e.g., 5% or less transfer distribution factor); and b) that the looped system in question does not limit transfers.

A radial or looped system to be exempted must meet the following criteria:

1. The radial or looped system may not contribute to any Category D or C contingency resulting in: 1) a supply / demand mismatch greater than the largest loss of source contingency in the Reliability Coordinator area; or 2) an Adverse Reliability Impact where, if the Element were not involved in those Category D or C contingencies, those thresholds would not be exceeded.

Studies to determine whether this criterion is met would be conducted in accordance with TPL-004-0 and TPL 003-0 standards (or corresponding contingencies in revision to the TPL standards) in the Short Term Planning Horizon. Although the above criteria are acceptable responses to a Category D contingency, the concept of the test is to see if a radial or looped system would cause a significantly worse response to Category C or D contingencies by testing the contingency with and without the radial or looped system. FMPA believes that such criteria are good indicators that a radial or looped system should be included in the BES as it highlights whether the protection systems are important for critical clearing times, and whether the radial or looped systems can contribute to an Adverse Reliability Impact in combination with other contingencies;

2. No portion of the radial or looped system may meet any of the conditions of Attachment 1 to CIP-002-4;

3. No portion of the radial or looped system may meet any of the conditions listed in items B1 to B5 of Attachment B to PRC-023-2;

4. No portion of the radial or looped system may be a part of, or be a limiting element of, any Path, Interchange, or Flowgate used in the calculation of ATC in accordance with standards MOD-028, MOD 029 or MOD 030; and

5. No portion of the radial or looped system may include a blackstart resource or cranking path deemed significant to the TOP or RC restoration plans of EOP-005, EOP-006 or EOP-007.

If a Registered Entity demonstrates to NERC that an Element that is nominally in the BES meets *all* of these criteria, the exemption would be granted.

Conversely, if NERC demonstrates that a nominally non-BES Element meets the negative of *any* of these criteria (*e.g.*, if any portion of the radial or looped system meets any of the conditions of Attachment 1 to CIP-002-4 or of Attachment B to PRC-023-2), the Element would be included in the BES.

Throughout these comments, FMPA refers to "Elements" and not to "facilities." This is because "Facility" is defined in the NERC Glossary as "[a] set of electrical equipment that operates as a single Bulk Electric System Element…." Because these comments (and the BES definition) address whether Elements are or are not part of the BES, it is incorrect to refer to the Elements in question as "Facilities," because a Facility is defined as a *BES* Element.

In developing the exemption/inclusion criteria and process, NERC and the SDT should bear in mind the requirement of Order 743: "NERC should develop an exemption process that includes *clear, objective, transparent, and uniformly applicable* criteria for exemption of facilities that are *not necessary for operating the grid*." Paragraph 115 (emphasis added). NERC and the SDT should also bear in mind that FERC anticipates that between the BES definition and the exemption process, there will be only "minimal[]" effect on "small entities." Order 743, Paragraph 169. Order 743 is referring to the Small Business Act definition of a "small electric utility" as one that has a total electric output of less than four million MWh in the preceding year. *See* BES NOPR, 133 FERC ¶ 61,150, Paragraph 35 & footnote 50.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: Radial Transmission Elements serving only load have been recognized for years as non-BES because such Elements are very unlikely to affect the BES. FERC stated in Order 743 that NERC may retain that exclusion.

Similarly, generators under 20 MVA and generating plants under 75 MVA are not subject to registration pursuant to the Statement of Compliance Registry Criteria, which has been accepted by FERC, because of the recognition that such generators are very unlikely to affect the BES. It is thus consistent with the Compliance Registry Criteria to exclude from the BES definition radials serving load with one

transmission source even if there is some generation on the radial, so long as none of the generation is registered. If the generation is not significant enough to be registered, it is not significant enough to transform an otherwise non-BES radial to load into a BES Element.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

Continent-wide

The exclusion of radials to load and unregistered generation, as part of the BES definition, should apply on a continent-wide basis.

Each Element proposed for exemption or inclusion should be considered individually, under the same criteria (proposed above), applied uniformly continent-wide.

Comments relative to the proposed exclusion(s):

Exemption and Inclusion Processes:

The exemption and inclusion processes should be designed to ensure continent-wide uniformity to the maximum extent possible. To that end, NERC must use a uniform process; the criteria for approving or denying an exemption, or for including an Element in the BES, must be clear; and entities must be able to appeal decisions to another body within NERC or to FERC.

In order to obtain an exemption, a Registered Entity should be required to demonstrate that the Element for which it is requesting an exemption is not "necessary for operating an interconnected electric transmission network." This is the standard set out in Order 743; it is also part of the definition of the "bulk-power system" in Section 215 of the Federal Power Act, 16 U.S.C. § 824o(a)(1)(A) (the other part of the statutory definition is "electric energy from generation facilities needed to maintain transmission system reliability," 16 U.S.C. § 824o(a)(1)(B)). Application of this standard should be informed by the statutory definitions of "reliability standard" ("a requirement, approved by the Commission under this section, to provide for reliable operation of the bulk-power system") and "reliable operation" ("operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance, including a cybersecurity incident, or unanticipated failure of system elements").

Conversely, to include a nominally non-BES Element in the BES, NERC should be required to demonstrate that the Element *is* necessary for operating an interconnected electric transmission network.

Criteria for determining whether an Element is or is not "necessary for operating an interconnected electric transmission network" are proposed in response to Question 1(a) above. The criteria should be uniform continent-wide, though they will be applied to each Element on a case-by-case basis.

Exemption requests and proposed inclusions should be decided by NERC staff in the first instance. FMPA does not believe that the exemption and inclusion processes should be delegated to the Regional Entities. In Order 743, FERC emphasized the need for continent-wide uniformity; in fact, it was inconsistency among regions that prompted Order 743. FMPA members' experience with Regional registration processes suggests that Regional implementation of the BES exemption and inclusion processes is unlikely to yield the uniformity that FERC directed. Furthermore, implementing this FERC directive will unavoidably require significant personnel resources, either at NERC or at the Regions. Delegating the process to the Regions would impose additional costs due to the need for NERC to exercise strong oversight to attempt to maintain uniformity. It may be that after the exemption and inclusion processes have been in place for a few years and a body of precedent has been accumulated, delegation will be appropriate. At this time, however, NERC staff should make the initial decision on all exemption requests and proposed inclusions.

FMPA proposes, for the sake of consistency with the registration appeal process, that appeals of decisions on exemptions and inclusions be to the Board of Trustees Compliance Committee (BOTCC), with further appeals to FERC if necessary. Appeals to the BOTCC would consist of the record compiled by NERC Staff, and additional paper submissions by NERC Staff and the Registered Entity demonstrating why the Element(s) in question is or is not "necessary for operating an interconnected electric transmission network." *See* NERC Rules of Procedure, Appendix 5A, "Organization Registration and Certification Manual," at 14-16. Registered Entities should have the option of requesting a hearing. Hearing procedures could be modeled on the Compliance and Certification Committee's "Hearing Procedures for Use in Appeals of Certification Matters," in Appendix 4E of the NERC Rules of Procedure.

FMPA also suggests that decisions on exemptions and inclusions be made available to others, either subject to CEII protection or in a form suitable for public release. As precedent develops, Registered Entities will increasingly be able to judge for themselves the likelihood that a particular exemption will be granted, or that an appeal of an inclusion will succeed. We expect that giving Registered Entities more information on which to base their decisions will significantly reduce the burden on NERC of processing exemptions and inclusions.

We propose that BES Elements for which an exemption request is pending should continue to be included in the BES until the exemption and any appeals are decided,

and that non-BES Elements for which an inclusion is pending should continue to be non-BES until the inclusion and any appeals are decided.

The transition process should include an important exception to the general rule proposed for BES status during the pendency of an exemption request: to allow for a smooth transition, to the extent that Elements that are currently considered non-BES become BES under the new definition, those Elements should be permitted to request exemptions and to continue to be considered non-BES until their exemption requests and any appeals are decided.

Josh Dellinger, Glacier Electric Cooperative

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Our delivery point, which is a loop-fed 115kV switching station.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: This station's main purpose is to be a delivery point for our system. We are a distribution cooperative that serves mainly residential and small commercial loads. Each year we peak around 35 MW and average around 22 MW. This station is loop fed by two 115 kV lines to give our members more reliability. No transmission planner, balancing authority, transmission operator, reliability coordinator, etc. has included this station in any critical path lists or system restoration plans. This station is not designated as critical asset by its balancing authority or transmission operator. The available short-circuit MVA at this station is 677 MVA. If a fault were to occur at this station, outages would be limited to the local area and the BES as a whole would not be adversely affected at all. It is our belief that facilities such as this are insignificant to the BES and do not need to be considered part of the BES.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

Michelle Mizumori, Western Electricity Coordinating Council

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: Those elements or facilities above 100 kV that are shown through engineering studies to not be necessary to reliably operate an interconnected transmission system.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: An element or facility that is not necessary to reliably operate an interconnected transmission system need not be included in the Bulk Electric System (BES). This can be assessed using engineering studies that show the effect of worst-case disturbances on multiple indicators such as frequency, voltage, system flows, operating limits, generator tripping, cascading outages, and/or islanding with the element or facility removed from service. An element or facility is not necessary to reliably operate if the system can maintain acceptable steady-state and dynamic performance during and after a worst-case disturbance with the element removed from service.

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

   ☒ Continent-wide

   ☒ Interconnection-wide

   ☒ Region-wide

   Comments relative to the proposed exclusion(s):

   The BES functions to generate bulk power and transfer that bulk power to locations from which it is then distributed to end-use load. Elements that generate bulk power, transfer bulk power, or support the transfer of bulk power are part of the BES.

   An element is necessary to reliably operate an interconnected transmission system if it significantly affects the ability of the BES to generate bulk power or carry bulk power to locations from which is it distributed to end-use load. While operating voltage (i.e.,

the proposed 100 kV bright-line) may be a clear and repeatable proxy for identifying those elements that are necessary to reliably operate an interconnected transmission system, it is a broad approach that may not adequately address specific examples. Moreover, engineering studies can be used to more granularly and accurately identify elements that are not needed to reliably operate an interconnected transmission system.

The thresholds on the indicators listed above may vary between interconnections and regions. For example, voltage deviation may be more relevant in the Western Interconnection (which is primarily stability limited) than in the Eastern Interconnection (which is primarily thermally limited).

Brandy A. Dunn, Western Area Power Administration

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: Any Element above 100-kV that is shown (through system studies) to NOT be necessary to reliably operate the interconnected transmission system.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

      Justification: An Element that is not required to reliably operate the interconnected transmission system does not need to be included in the BES (or specifically called-out in the definition). This can be assessed through engineering system studies that show the worst-case results based on indicators such as voltage, frequency, OTC limits, angular instability and/or cascading outages based on that Element being removed from service.

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

      ☒ Continent-wide

      ☒ Interconnection-wide

      ☒ Region-wide

      Comments relative to the proposed exclusion(s): An Element is necessary to reliably operate the interconnected transmission system if it significantly affects the ability of the BES to carry bulk power to end-use load. While a brightline test voltage (such as the proposed >100-kV) may be a clear and repeatable proxy for identifying Elements that are necessary to reliably operate the interconnected transmission system, this broad approach may not adequately address specific examples. Engineering system studies can accurately identify Elements which are not needed to reliably operate the interconnected transmission system.

Alain Pageau, Hydro-Québec TransÉnergie

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: The transmission lines dedicated to serve the native load in the Quebec Interconnection.

Guy Zito, Northeast Power Coordinating Council

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion:

   All step-down transformers with their low-side terminals operated at below 100 kV.

   Radial taps from a BES feeder or bus connection to loads. All elements or facilities in series with excluded or exempt elements or facilities -- upstream to a designated point-of-demarcation with the BES and downstream to the customer meter or interconnection. (Refer to the response to Question 3, New York Indicator [NY-2] below, and the response to Question 13, proposed definition 'Point-of-Demarcation' in the BES Definition Comments provided separately). For example, upstream from an exempt or excluded feeder to the upstream-side of the disconnect switch connecting the excluded or exempted feeder to the BES, or if no disconnect switch is present, to the upstream BES supply-bus connection. This exclusion or exemption would extend to and also apply to related equipment, such as circuit switchers, circuit breakers, ground switches, disconnect switches, busses, etc. that are down-stream of the point-of-demarcation and in the same circuit with the exempted or excepted feeders and transformers.

   Local generation and any facility associated with local generation serving as a load modifier to local load only. The power generated is demonstrated to be consumed locally and does not flow back into the BES. The operation (or loss) of the local generation and/or associated facilities does not materially impact any BES transmission facilities. If a local generator functions as a 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 Exclusion process.

   The transmission lines dedicated to serve the native load in the Quebec Interconnection.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Not Applicable

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: The FERC Seven Factor test has been shown to be a reliable, repeatable method for identifying facilities that are local distribution and separating

them from those facilities which perform a transmission function. The indicators of local distribution in the Commission's seven-factor test[1] are:

1) Local distribution facilities are normally in close proximity to retail customers;
2) Local distribution facilities are primarily radial in character;
3) Power flows into local distribution systems, and rarely, if ever flows out;
4) When power enters a local distribution system, it is not reconsigned or transported on to some other market;
5) Power entering a local distribution system is consumed in a comparatively restricted geographic area;
6) Meters are based at the transmission / local distribution interface to measure flow into the local distribution system; and
7) Local distribution systems will be of reduced voltage.

[1] Ref. FERC Order No. 888 at 31,771 and 31,981, e.g., *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities*

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

☒ Less than Region-wide

☒ Unknown

Jim Uhrin , ReliabilityFirst Corporation

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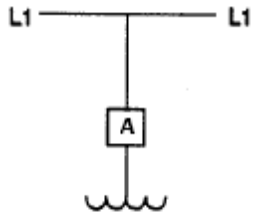
1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Those that have no impact to the reliability of the BES for any reason or could at anytime. Those that may or could through reconfiguration and or operating procedures must be included.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).



In the diagram above, any equipment downstream of the "A" breaker that does not or could not trip and lockout a BES facility (e.g. line, transformer, etc.) may be excluded, however if equipment below the "A" breaker could or does trip and lockout a BES facility for any reason, then it should be included.

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: If the facility could never trip and lockout a BES facility, there is no reason to include it. However, caution and careful consideration must be used when exclusions are considered. There maybe times during toplogy changes or system re-configurations that certain facilities could trip and lockout a BES facility and therefore must be included.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

Joe Petaski, Manitoba Hydro

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Radial Transmission Elements and Systems - See comment below

Comments relative to the proposed exclusion(s): Radial Transmission Elements and Systems should be excluded from the Elements and Facilities classified as part of the BES but a clear NERC definition of radial is required to prevent misunderstandings and misapplications of the BES definition and exemption process. Also, there should be no regional differences in the BES definition or in the BES definition exemption process.

John W. Delucca, Lee County Electric Cooperative

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Radial load serving elements that do not have an adverse effect upon the BES should be excluded. Also Transmission systems that have no adverse impact on the BES as evidenced by engineering design and criteria and load modeling should be excluded such as Non-FERC Jurisdictional Facilities; Radial Non-Transmission Load Serving Elements; Looped Non-Transmission Load Serving Elements; Looped Non-Transmission Load Serving Elements Designed & Installed with No Intent to Provide Transmission Load Service.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Please refer to **Attachment 1b.6 – 1b.9** the draft BES Definition currently under review in the FRCC region. There are multiple single-lines included that represent a fair cross section of elements that should be excluded.

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: The purpose of including facilities in the definition of BES is make them subject to federal regulations that are designed to serve the reliability needs of the BES and to prevent cascading of outages to a broad section of the BES. Certain elements operated at voltages of 100kV or higher have zero measurable impact to the reliable operation of the Interconnected BES. No practical purpose is served by including those elements, and if they are, it unnecessarily increases the cost of delivered power. The following list also should be considered, a). No FERC Jurisdiction; b) Facilities were/are designed, installed, and operated to serve local non-transmission loads; c) Rates are designed to provide revenue to meet local non-transmission service; d) Facilities were never designed or intended to provide capability of entity-to-entity, region-to-region load flows other than that required to meet local non-transmission service loads; e) Reactance resources whose purpose is neutralizing non-transmission inductive loads and/or to compensate for "within entity" losses.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

Comments relative to the proposed exclusion(s): The submitted diagrams are not intended to represent every possible element that should be excluded Continent-wide. The complete list should be determined by the proposed task force in order that regional differences in system characteristics is taken into account. In addition, to insure continuity, but the final decision as to what meets the exclusion criteria should reside in the Region with appeal process to NERC and possibly FERC.

Paul Cummings, City of Redding

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: **Those elements or facilities operated at or above 100kV that are shown through engineering studies not to be necessary to reliably operate an interconnected transmission system. Radial elements unless they are shown to be necessary to reliably operate an interconnected transmission system. See Attachment 1. (Refer to Attachment 1b.5)**

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). **Refer to Attachment 1b.5**

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: **"The impact an Element has on the BES shall be determined by assessing the performance of key measures of BES reliability through power flow, post-transient, and transient stability analysis with (1) the system, and the Subject Element, operating at reasonably stressed conditions that replicate expected system conditions under which the loss of the Subject Element would have the greatest impact on the key measures of reliability, and (2) the Subject Element removed from service, but without allowing for system readjustment."**

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

☒ Interconnection-wide

☒ Region-wide

Patrick Farrell, Southern California Edison Company

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: The elements and facilities above 100kV that are shown through engineering studies to not be necessary to reliably operate an interconnected transmission system should be excluded. Additionally, the transmission facilities at 100kV and above that are radial in nature, used for load serving purposes, and which are not parallel to interconnected transmission systems should be excluded. As an example, in SCE's system, the Valley 115kV system is radial in nature and the power flow is generally from 500kV to 115kV to serve load.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

      Justification: An element or facility that is not necessary to reliably operate an interconnected transmission system need not be included in the BES. This can be assessed using engineering studies that show the effect of worst-case disturbances on multiple indicators such as frequency, voltage, system flows, operating limits, generator tripping, and cascading outages and/or islanding with the element or facility removed from service. If a system can maintain acceptable steady-state and dynamic performance during and after a worst-case disturbance with the element removed from service, that element or facility is not necessary to reliably operate the system.

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

      X Continent-wide

      X Interconnection-wide

      X Region-wide

      Comments relative to the proposed exclusion(s): The Bulk Electric System (BES) functions to generate bulk power and transfer that bulk power to locations from which it is then distributed to end-use load. Elements that generate bulk power, transfer bulk power, or support the transfer of bulk power are part of the BES.

An element is necessary to reliably operate an interconnected transmission system if it significantly affects the ability of the BES to generate bulk power or carry bulk power to locations from which it is distributed to end-use load. While operating voltage (i.e. the proposed 100kV bright-line) may be a clear and repeatable proxy for identifying those elements that are necessary to reliably operate an interconnected transmission system, it is a broad approach that may not adequately address specific examples. Engineering studies can be used to more granularly and accurately identify elements which are not needed to reliably operate an interconnected transmission system.

The thresholds on the indicators listed above may vary between interconnections and regions. For example, SCE's system has facilities rated at the 115kV level that are radial in nature for load serving purposes. Therefore, applying a 100kV bright-line may unnecessarily bring facilities that could be excluded through an engineering study.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion:

   These questions and possible responses by entities are appropriate as the questions relate to specific facilities and configurations to be considered for exemption. The questions do not reflect principles (criteria) for the determination of if facilities or configurations to be included / excluded in the definition of BES. We agree the questions and responses may be appropriate here if the responses are to be used as examples to develop exemption principles (criteria). However, we suggest the authors should have also asked the industry for principles (criteria) they believe should be included as exemption criteria.

   These questions and responses also do not address a possible process for determining if facilities or configurations should be included / excluded in the definition of BES. We suggest the authors should have also asked the industry for process suggestions they would like included in the final process.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: City of Anaheim Lewis-Vermont 230kV radial transmission line and seven 230kV to 69kV transformer banks and associated substation equipment, which are also radial transmission elements serving load.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). **Refer to attachments:**

1b.1 Anaheim System One-Line,
1b.2 Anaheim 220kV System,
1b.3 Anaheim 69kV Bus Impedance Diagram

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: The 220kV facilities owned and operated by Anaheim are radial transmission elements fed from one transmission source, i.e. Lewis Substation. Southern California Edison Company (SCE) and the California Independent System Operator (CAISO) are the TO/TOPs for the interconnection of Lewis Substation to the BES, including the protection system that de-energizes both Anaheim buses using SCE owned breakers without interrupting any BES transmission lines. The 220kV system owned and operated by the City of Anaheim is radial to the BES at Lewis Substation and feeds a 69kV sub-transmission system through three 220kV/69kV transformer banks. Anaheim is able to reliably serve 100% of its load using only three of the four banks at Lewis; however, to improve reliability within Anaheim, in 2008 Anaheim built a redundant substation (Vermont Substation) 1.5 miles from Lewis, which is connected via a 220kV transmission line. This line is not needed to maintain BES or Anaheim system reliability because it is in parallel with four (4) 69kV lines, which also connect Lewis to Vermont. Its only purpose is to provide backup transformation should there be a catastrophic failure of the Lewis transformer banks. Pursuant to an SCE-Anaheim operating order only three transformer banks may be in service at any time to limit short circuit duty, so the banks at Vermont are truly redundant.

Transmission elements serving radial load, radial distribution systems, or non-GO/GOP generation connected to such radial lines and excluded from BES. To eliminate reliability gaps, such radial transmission elements should be classified as "Distribution" equipment subject to DP standards, and the PRC and vegetation management standards should be made applicable to Distribution Providers and this equipment. This is consistent with the

NERC Reliability Functional Model and is more efficient than requiring TO/TOP registration for radial transmission facilities that function as Distribution and are not required for the reliable operation of the BES.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

Comments relative to the proposed exclusion(s): Transmission elements serving radial load, radial distribution systems, or non-GO/GOP generation connected to such radial lines and excluded from BES. To eliminate reliability gaps, such radial transmission elements should be classified as "Distribution" equipment subject to DP standards, and the PRC and vegetation management standards should be made applicable to Distribution Providers and this equipment. This is consistent with the NERC Reliability Functional Model and is more efficient than requiring TO/TOP registration for radial transmission facilities that function as Distribution and are not required for the reliable operation of the BES.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Those elements or facilities above 100kV that are shown through engineering studies not to be necessary to reliably operate an interconnected transmission system.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: An element or facility that is not necessary to reliably operate an interconnected transmission system need not be included in the BES. This can be assessed using engineering studies that show the effect of worst-case disturbances on multiple indicators such as frequency, voltage, system flows, operating limits, generator tripping, cascading outages and/or islanding with the element or facility removed from service. If a system can maintain acceptable steady-state and dynamic performance during and after a worst-case disturbance with the element removed from service, that element or facility is not necessary to reliably operate the system.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Interconnection-wide

☒ Region-wide

David Burke, Orange and Rockland Utilities

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion:

All step-down transformers with their low-side terminals operated at below 100 kV. Radial taps from a BES feeder or bus connection to loads. All elements or facilities in-series with excluded or exempt elements or facilities -- upstream to a designated point-of-demarcation with the BES and downstream to the customer meter or interconnection. For example, upstream from an exempt or excluded feeder to the upstream-side of the disconnect switch connecting the excluded or exempted feeder to the BES, or if no disconnect switch is present, to the upstream BES supply-bus connection. This exclusion or exemption would extend to and also apply to related equipment, such as circuit switchers, circuit breakers, ground switches, disconnect switches, busses, etc. that are down-stream of the point-of-demarcation and in the same circuit with the exempted or excepted feeders and transformers.

Local generation and any facility associated with local generation serving as a load modifier to local load only. The power generated is demonstrated to be consumed locally and does not flow back into the BES. The operation (or loss) of the local generation and/or associated facilities does not materially impact any BES transmission facilities. If a local generator functions as a 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 Exclusion process.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

Not Applicable

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: The FERC Seven Factor test has been shown to be a reliable, repeatable method for identifying facilities that are local distribution and separating them from those facilities which perform a transmission function. The indicators of local distribution in the Commission's seven-factor test[2] are:

1) Local distribution facilities are normally in close proximity to retail customers;

2) Local distribution facilities are primarily radial in character;

3) Power flows into local distribution systems, and rarely, if ever flows out;

4) When power enters a local distribution system, it is not reconsigned or transported on to some other market;

5) Power entering a local distribution system is consumed in a comparatively restricted geographic area;

6) Meters are based at the transmission / local distribution interface to measure flow into the local distribution system; and

7) Local distribution systems will be of reduced voltage.

[1] Ref. FERC Order No. 888 at 31,771 and 31,981, e.g., *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities*

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

X☐ Continent-wide

X☐ Unknown

Jim Case (Entergy), SERC OC Standards Review Group

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Email: jcase@entergy.com

1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   Comments relative to the proposed exclusion(s): We agree

Thad Ness, American Electric Power

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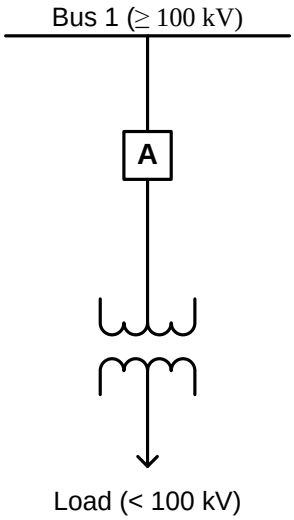
Email: tkness@aep.com

1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: Radial facilities and elements operating at or above 100 kV, that are connected to only load serving facilities operated at distribution voltage levels and that include a high side circuit breaker or circuit switcher should be excluded from the BES classification. While protective systems themselves are not by default part of the BES, nor should they be classified as a BES element, the breaker failure schemes associated with the high side circuit breaker or circuit switcher are part of a Protection System and should comply with the appropriate standards.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).



   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: Facilities such as that described in 1.a. are designed to support only one way power flow; from the BES to the load. Operation of the high side circuit breaker or circuit switcher, Device A, removes the transformer from service interrupting power flow to the load but will not interrupt power flow on the BES nor effect reliability of the BES. While protective systems themselves are not by default

part of the BES, nor should they be classified as a BES element, the breaker failure scheme associated with Device A has the potential of interrupting BES power flow by clearing Bus 1. For this reason, the breaker failure scheme is part of a Protection System and should comply with the appropriate standards.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

Amir Hammad, Constellation Power Source Generation, Inc., Et all

CPSG is filing the comments below on behalf of:

Constellation Energy Group, Inc.
Baltimore Gas & Electric Company
Constellation Energy Commodities Group, Inc.
Constellation Energy Control and Dispatch, LLC
Constellation NewEnergy, Inc. and its affiliates
Constellation Energy Nuclear Group, LLC,[3]

Telephone: 410-787-5226
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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Constellation believes that the exclusions mapped out in RFC's BES definition, as well as the diagrams in Appendix A of the RFC BES definition would be a good starting point for the standard drafting team in developing exclusions.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Constellation believes that the exclusions mapped out in RFC's BES definition, as well as the diagrams in Appendix A of the RFC BES definition would be a good starting point for the standard drafting team in developing exclusions.

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: The BES definition in RFC has been vetted through its members and incorporates the essence of NERC's BES definition but includes bright lines for its members to abide by.

RFC Definition of BES:
https://www.rfirst.org/Documents/RFC%20BES%20Definition.pdf

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

[3] On November 6, 2009, EDF, Inc. ("EDF") and Constellation Energy Group, Inc. completed a transaction pursuant to which EDF acquired a 49.99 percent ownership interest in CENG. CENG was previously a wholly owned subsidiary of Constellation Energy Group, Inc.

Comments relative to the proposed exclusion(s):

As described in RFC's BES definition, the following elements should be excluded:

(1) radial facilities connected to load serving facilities or individual generation resources smaller than 20 MVA or a generation plant with aggregate capacity less than 75 MVA where the failure of the radial facilities will not adversely affect the reliable steady-state operation of other facilities operated at voltages of 100 kV or higher and

(2) balance of generating plant control and operation functions (other than protection systems that directly control the unit itself and step-up transformer); these facilities would include relays and systems that automatically trip a unit for boiler, turbine, environmental, and/or other plant restrictions, and

(3) all other facilities operated at voltages below 100 kV.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages 100kV and above which should be considered for exclusion from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion:

This question refers to "exclusions"; we believe, however, that the intent of this comment form is to elicit feedback on the process for "exemptions." It is important to distinguish between the two concepts, as FERC did in Order 743. *See, e.g.*, Paragraph 1, which refers to "maintain[ing] a bright-line threshold that includes all facilities operated at or above 100 kV *except defined radial facilities*," as well as to "establish[ing] an exemption process and criteria" (emphasis added). In other words, in brief, an "exclusion" is outside of the BES by definition, whereas exempt Elements are removed on a case-by-case basis by going through a process.

TAPS draws the distinction as follows:

An exclusion is the removal of a category of Elements from the BES definition. The current BES definition explicitly carves out radials serving only load with one transmission source. This is a clear example of an exclusion. There is no "exclusion process" now, nor should there be one in the future; the point of an exclusion is that the class of excluded Elements can—without any process—be treated like sub-100 kV transmission, in that they are presumed to be non-BES unless a particular Element is demonstrated, on a case-by-case basis, to be properly included in the BES (*see* responses to Questions 5 and 11 in TAPS' comments on BES definition, submitted today, and TAPS response to Question 2 below).

An exemption, on the other hand, is a finding that a particular Element, although nominally part of the BES, does not need to be included in the BES because it is not necessary for operating an interconnected transmission network.

Because exemptions are less clear-cut than exclusions, each exemption of an Element needs to be approved by NERC so that the Registered Entity and compliance authorities have certainty about the Elements with respect to which compliance is required. In many, perhaps all, cases, this process will likely require a case-by-case examination of each Element for which an exemption is requested.

TAPS responds to this question with respect to the one "exclusion" from the BES definition that we advocate, that of radial Transmission Elements serving only load and/or generation not registered pursuant to the Statement of Compliance Registry Criteria. We also propose uniform criteria for deciding, on a case-by-case

basis, whether to grant requested exemptions from the BES, or to include nominally non-BES Elements in the BES. The process that we propose for exemption requests and proposed inclusions is discussed below in response to the invitation of "[c]omments relative to the proposed exclusion(s)."

Exclusion:

TAPS proposes only one exclusion from the BES definition, namely, "Radial Transmission Elements serving only load with one Transmission source are generally not included in this definition. A radial Transmission Element may be considered as 'serving only load' for purposes of the foregoing general exclusion even if it connects generation, so long as that generation is not registered pursuant to the Statement of Compliance Registry Criteria." This formulation, which is discussed in TAPS' comments submitted today on the BES definition, is intended to preserve the current exclusion of radials serving only load with one transmission source, and to clarify that the presence of a generator that is not registered under the Compliance Registry Criteria does not convert a radial into a BES Element. The end result is that radial transmission is excluded unless it connects generation that is registered pursuant to the Statement of Compliance Registry Criteria. Consistent with the Compliance Registry Criteria, a single generator under 20 MVA, or a plant under 75 MVA, if not designated as a Blackstart Resource needed for system restoration, is unlikely to affect the grid. Therefore, the presence of such generation should not require that an otherwise non-BES radial be included in the BES. Rooftop photovoltaic cells, for example, are increasingly common. If TAPS' proposed clarification is not accepted, the presence of such insignificant generation could nullify the exclusion of radials to load with one transmission source, with no benefit to reliability.

Exemption criteria

TAPS has not yet developed a list of criteria that we believe to be exhaustive, though we emphasize that such a list must be an ultimate goal of this process. We propose the following criteria as a start:

TAPS proposes that at least two classes of facilities be eligible to request an exemption:

i. Elements that are part of a radial "system" originating from a single BES source serving only load, as in the Florida Keys. Clarifications: a) radial system means any number of series and/or parallel Elements as long as they all originate from a single BES source and do not have another BES source; b) "single BES source" means one BES bus / substation / switching substation at one voltage level, and c) consistent with TAPS' proposed exclusion of radials serving only load and unregistered generation, "serving only load" includes serving generation that is not registered through the Statement of Compliance Registry Criteria.

ii. Elements that are part of a "looped" system that has two transmission sources primarily for local quality of service to the retail customers supplied by the looped system in question and is not used for bulk power system flow (*e.g.*, the transfer distribution factor of flows across the looped system is low, representing a high impedance path across the looped system). Specific criteria might be: a) a looped system that participates in less than a 5% of transfer (*e.g.*, 5% or less transfer distribution factor); and b) that the looped system in question does not limit transfers.

A radial or looped system to be exempted must meet the following criteria:

1. The radial or looped system may not contribute to any Category D or C contingency resulting in: 1) a supply / demand mismatch greater than the largest loss of source contingency in the Reliability Coordinator area; or 2) an Adverse Reliability Impact where, if the Element were not involved in those Category D or C contingencies, those thresholds would not be exceeded.

Studies to determine whether this criterion is met would be conducted in accordance with TPL-004-0 and TPL-003-0 standards (or corresponding contingencies in revision to the TPL standards) in the Short Term Planning Horizon. Although the above criteria are acceptable responses to a Category D contingency, the concept of the test is to see if a radial or looped system would cause a significantly worse response to Category C or D contingencies by testing the contingency with and without the radial or looped system. TAPS believes that such criteria are good indicators that a radial or looped system should be included in the BES as it highlights whether the protection systems are important for critical clearing times, and whether the radial or looped systems can contribute to an Adverse Reliability Impact in combination with other contingencies;

2. No portion of the radial or looped system may meet any of the conditions of Attachment 1 to CIP-002-4;

3. No portion of the radial or looped system may meet any of the conditions listed in items B1 to B5 of Attachment B to PRC-023-2;

4. No portion of the radial or looped system may be a part of, or be a limiting element of, any Path, Interchange, or Flowgate used in the calculation of ATC in accordance with standards MOD-028, MOD-029 or MOD-030; and

5. No portion of the radial or looped system may include a Blackstart Resource or cranking path deemed significant to the TOP or RC restoration plans of EOP-005, EOP-006 or EOP-007.

If a Registered Entity demonstrates to NERC that an Element that is nominally in the BES meets *all* of these criteria, the exemption would be granted.

Conversely, if NERC demonstrates that a nominally non-BES Element meets the negative of *any* of these criteria (*e.g.*, if any portion of the radial or looped system meets any of the conditions of Attachment 1 to CIP-002-4 or of Attachment B to PRC-023-2), the Element would be included in the BES.

Throughout these comments, TAPS refers to "Elements" and not to "facilities." This is because "Facility" is defined in the NERC Glossary as "[a] set of electrical equipment that operates as a single Bulk Electric System Element…" Because these comments (and the BES definition) address whether Elements are or are not part of the BES, it is incorrect to refer to the Elements in question as "Facilities," because a Facility is defined as a *BES* Element.

In developing the exemption/inclusion criteria and process, NERC and the SDT should bear in mind the requirement of Order 743: "NERC should develop an exemption process that includes *clear, objective, transparent, and uniformly applicable* criteria for exemption of facilities that are *not necessary for operating the grid*." Paragraph 115 (emphasis added). NERC and the SDT should also bear in mind that FERC anticipates that between the BES definition and the exemption process, there will be only "minimal[]" effect on "small entities." Order 743, Paragraph 169. Order 743 is referring to the Small Business Act definition of a "small electric utility" as one that has a total electric output of less than four million MWh in the preceding year. *See* March 18, 2010 BES Notice of Proposed Rulemaking, Paragraph 35 & footnote 50.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: Radial Transmission Elements serving only load have been recognized for years as non-BES because such Elements are very unlikely to affect the BES. FERC stated in Order 743 that NERC may retain that exclusion.

Similarly, generators under 20 MVA and generating plants under 75 MVA are not subject to registration pursuant to the Statement of Compliance Registry Criteria, which has been accepted by FERC, because of the recognition that such generators are very unlikely to affect the BES. It is thus consistent with the Compliance Registry Criteria to exclude from the BES definition radials serving load with one transmission source even if there is some generation on the radial, so long as none of the generation is registered. If the generation is not significant enough to be registered, it is not significant enough to transform an otherwise non-BES radial to load into a BES Element.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

The exclusion of radials to load and unregistered generation, as part of the BES definition, should apply on a continent-wide basis.

Each Element proposed for exemption or inclusion should be considered individually, under the same criteria (proposed above), applied uniformly continent-wide.

Comments relative to the proposed exclusion(s):

Exemption and Inclusion Processes:

The exemption and inclusion processes should be designed to ensure continent-wide uniformity to the maximum extent possible. To that end, NERC must use a uniform process; the criteria for approving or denying an exemption, or for including an Element in the BES, must be clear; and entities must be able to appeal decisions to another body within NERC or to FERC.

In order to obtain an exemption, a Registered Entity should be required to demonstrate that the Element for which it is requesting an exemption is not "necessary for operating an interconnected electric transmission network." This is the standard set out in Order 743 (*e.g.*, Paragraph 1); it is also part of the definition of the "bulk-power system" in Section 215 of the Federal Power Act, 16 U.S.C. § 824*o*(a)(1)(A). Application of this standard should be informed by the statutory definitions of "reliability standard" ("a requirement, approved by the Commission under this section, to provide for reliable operation of the bulk-power system," 16 U.S.C. § 824*o*(a)(3)) and "reliable operation" ("operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance, including a cybersecurity incident, or unanticipated failure of system elements," 16 U.S.C. § 824*o*(a)(4)).

Conversely, to include a nominally non-BES Element in the BES, NERC should be required to demonstrate that the Element *is* necessary for operating an interconnected electric transmission network.

Criteria for determining whether an Element is or is not "necessary for operating an interconnected electric transmission network" are proposed in response to Question 1(a) above. The criteria should be uniform continent-wide, though they will be applied to each Element on a case-by-case basis.

Exemption requests and proposed inclusions should be decided by NERC staff in the first instance. TAPS does not believe that the exemption and inclusion processes should be delegated to the Regional Entities. In Order 743, FERC emphasized the need for continent-wide uniformity; in fact, it was inconsistency among regions that

prompted Order 743. TAPS members' experience with Regional registration processes suggests that Regional implementation of the BES exemption and inclusion processes is unlikely to yield the uniformity that FERC directed. Furthermore, implementing this FERC directive will unavoidably require significant personnel resources, either at NERC or at the Regions. Delegating the process to the Regions would impose additional costs due to the need for NERC to exercise strong oversight to attempt to maintain uniformity. It may be that after the exemption and inclusion processes have been in place for a few years and a body of precedent has been accumulated, delegation will be appropriate. At this time, however, NERC staff should make the initial decision on all exemption requests and proposed inclusions.

TAPS proposes, for the sake of consistency with the registration appeal process, that appeals of decisions on exemptions and inclusions be to the Board of Trustees Compliance Committee (BOTCC), with further appeals to FERC if necessary. Appeals to the BOTCC would consist of the record compiled by NERC Staff, and additional paper submissions by NERC Staff and the Registered Entity demonstrating why the Element(s) in question is or is not "necessary for operating an interconnected electric transmission network." *See* NERC Rules of Procedure, Appendix 5A, Organization Registration and Certification Manual at 14-16. Registered Entities should have the option of requesting a hearing. Hearing procedures could be modeled on the Compliance and Certification Committee's "Hearing Procedures for Use in Appeals of Certification Matters," in Appendix 4E of the NERC Rules of Procedure.

TAPS also suggests that decisions on exemptions and inclusions be made available to others, either subject to CEII protection or in a form suitable for public release. As precedent develops, Registered Entities will increasingly be able to judge for themselves the likelihood that a particular exemption will be granted, or that an appeal of an inclusion will succeed. We expect that giving Registered Entities more information on which to base their decisions will significantly reduce the burden on NERC of processing exemptions and inclusions.

We propose that BES Elements for which an exemption request is pending should continue to be included in the BES until the exemption and any appeals are decided, and that non-BES Elements for which an inclusion is pending should continue to be non-BES until the inclusion and any appeals are decided.

The transition process should include an important exception to the general rule proposed for BES status during the pendency of an exemption request: to allow for a smooth transition, to the extent that Elements that are currently considered non-BES become BES under the new definition, those Elements should be permitted to request exemptions and to continue to be considered non-BES until their exemption requests and any appeals are decided.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion: Non-radial transmission systems which provide reliable service to load-service substations. There are two examples where this applies: 1.) The non-radial transmission system serving a metro area load at 138 kV where 230 kV and higher voltage systems surround the area and provide the bulk electric system transfer, and 2.) The non-radial transmission loops that serve rural area load at 138 kV that are essentially tangential to the bulk electric transfer path.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Refer to Attachment 1b.4

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: Large load-serving substations require non-radial service to ensure acceptable reliability performance. Such transmission systems do not carry bulk power transfers as there are substantial higher voltage transmission lines that surround the metro area which carry the bulk transfers. Idaho Power has evaluated serving the area from systems that are sourced from only a single bulk substation. Such a configuration would result in requiring an additional 100 miles of transmission to compared to the existing network configuration.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

Continent-wide

Marc M. Butts, Southern Company

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: Individual Generators ≤ 75 MVA; this threshold also needs to be included in the NERC Compliance Registry Criteria.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

      Justification: Generators less than 75 MVA are not large enough to have a significant impact on the bulk electric system.. However, aggregate generation that exceeds 75 MVA should be considered for applications such as wind farms.

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

      ☒ Unknown

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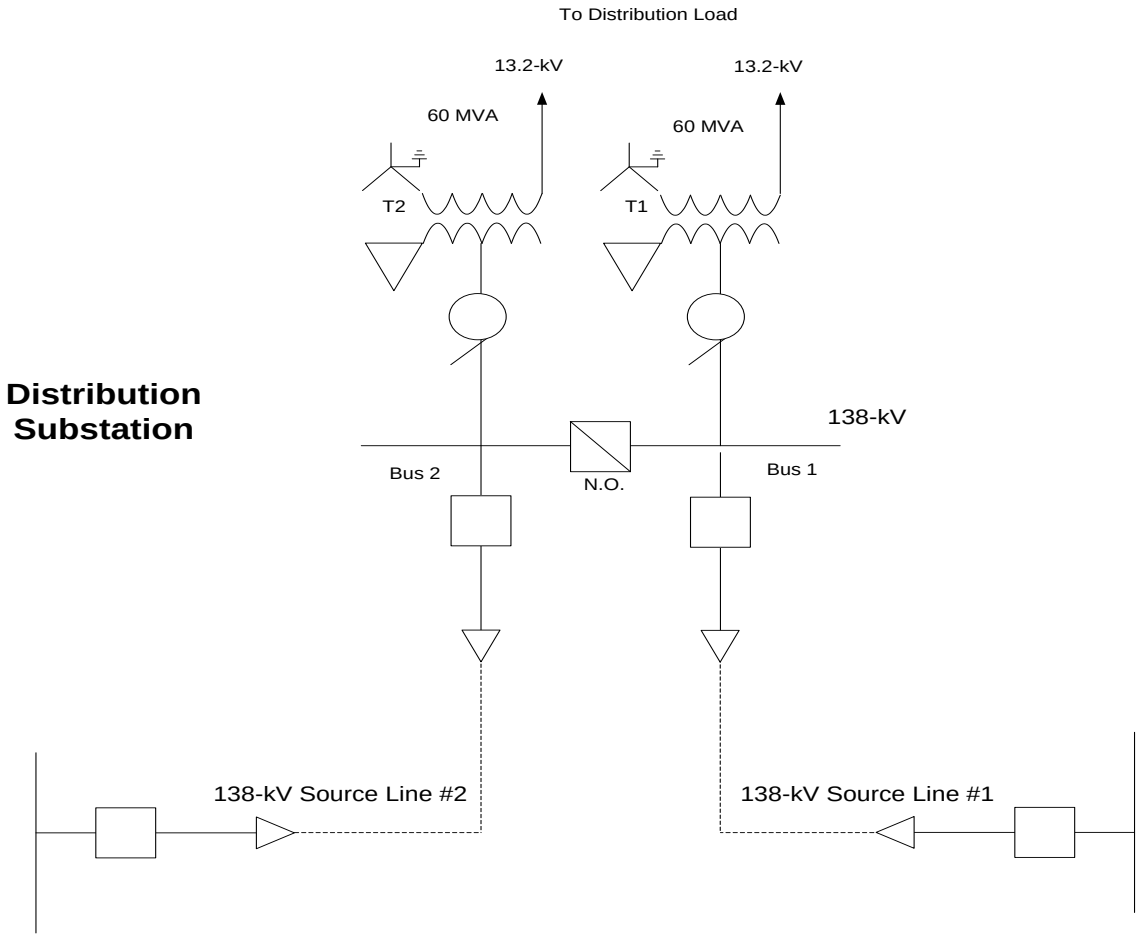
1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: Exclude transmission lines that are operated at 100 kV and above that are operationally radial transmission elements because of a operating restriction that prevents the line from being operated as a network transmission element.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

      The transmission line between Source Line #1 and Sources Line #2 would be a Network element if the bus-tie circuit breaker was closed, However, Operating Procedures require the bus-tie circuit breaker to be normally open (N.O.) So, the load on Bus 1 is served by the radial line segment from Source Line #1 and the load on Bus 2 is served by the radial line segment from Source Line #2.



c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: Although the transmission element (line) between network Source #1 and network Source #2 could be a network element if the bus-tie breaker is closed, the two line sections are normally operated as two different radial elements. So, the radial Transmission Element exclusion should apply.

Ronald Sporseen, PNGC Power, Et all

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Supporters of the following comments are as follows:

Bud Tracy, Blachly-Lane Electric Cooperative
Dave Hagen, Clearwater Power Cooperative
Dave Sabala, Douglas Electric Cooperative
Heber Carpenter, Raft River Rural Electric Cooperative
Dave Markham, Central Electric Cooperative
Jon Shelby, Northern Lights, Inc.
Ken Dizes, Salmon River Electric Cooperative
Ray Ellis, Okanogan County Electric Cooperative
Richard Reynolds, Lost River Electric Cooperative
Rick Crinklaw, Lane Electric Cooperative
Roger Meader, Coos-Curry Electric Cooperative
Roman Gillen, Consumer's Power Inc.
Steve Eldrige, Umatilla Electric Cooperative
Marc Farmer, West Oregon Electric Cooperative
Michael Henry, Lincoln Electric Cooperative
Bryan Case, Fall River Electric Cooperative

1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

a. Identify the Element or Facility recommended for exclusion:

- Radial lines
- Local distribution networks, generators, generation plants, loads, transformers, reactive devices, and protection and control system found to not cause adverse reliability impacts on neighboring bulk system Elements and Facilities using a performance-based exclusion process.

b. Provide a generic one-line diagram depicting the Element or Facility in question (if available).

Assuming FERC continues to insist upon a 100kV "bright line" definition, we support a process to exclude systems operating at 100kV and above that do not cause adverse reliability impacts on the neighboring bulk transmission system. For facilities operating at 100kV or above, the exclusion process should allow exclusion of those elements that, using a performance-based assessment, are demonstrated to operate without causing adverse reliability impacts on neighboring bulk system.

c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

Justification: The ultimate goal of the Reliability Standards process should be to achieve reliable operation of the bulk transmission system, as defined by Congress. The term "reliable operation" was a term specifically defined in FPA Section 215 to include standards assuring the operation of bulk transmission system elements "within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance. . . or unanticipated failure of system elements." 16 U.S.C. § 825o(a)(4). Congress specifically precluded the mandatory reliability system from enforcing standards for adequacy of service, which were left to state and local authorities. 16 U.S.C. § 825o(i)(2).

Recognizing that Congress intended the mandatory reliability regime to focus on thermal, voltage, and stability limits on the bulk system rather than more generally on levels of service to retail customers, the Standards Development Team should define the Bulk Electric System to include only those facilities whose failure or mis-operation meaningfully threatens to produce instability, uncontrolled separation, or cascading failures on the bulk system. As a legal matter, expanding the definition to include local distribution facilities and facilities that do not threaten thermal, voltage or stability impacts on the bulk system exceeds the permissible scope of NERC Reliability Standards and FERC authority under FPA Section 215. As a practical matter, mandating adherence to Reliability Standards for facilities, or equipment, that do not cause adverse reliability impacts on the neighboring bulk system is a significant diversion of funds and resources that will produce little or no benefits in terms of improved reliability of the bulk system.

d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

☒ Interconnection-wide

Comments relative to the proposed exclusion(s): The WECC Bulk Electric System Definition Task Force ("BESDTF") has carefully considered and provided an extensive record of technical support for excluding Radial Facilities and Local Distribution Networks from the BES. While we recognize that physical differences between the electric system in WECC and other reliability regions may justify different approaches in those regions, we commend the work of the BESDTF to the standard drafting team.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: An element or facility that is not necessary to reliably operate an interconnected transmission system need not be included in the BES

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

   ☒ Continent-wide

   ☒ Interconnection-wide

   ☒ Region-wide

   Comments relative to the proposed exclusion(s): This should be assessed first using engineering-based inspection (or screening) methodologies for 100 kV to 200 kV sub-transmission elements to determine obvious exclusions from the BES. For questionable sub-transmission elements, engineering-based studies evaluating worst-case scenarios need to be performed to establish exclusion from the BES.

   The thresholds associated with screening methodologies and worst-case studies may vary between interconnections and regions. For example, voltage deviation may be more relevant in the Western Interconnection (which is primarily stability limited) than in the Eastern Interconnection (which is primarily thermally limited).

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion:

      - Radial lines
      - Local distribution networks, generators, generation plants, loads, transformers, reactive devices, and protection and control system found to not cause adverse reliability impacts on neighboring bulk system Elements and Facilities using a performance-based exclusion process.

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Assuming FERC continues to insist upon a 100-kV "bright line" definition, SNPD supports a process to exclude systems operating at 100 kV and above that do not cause adverse reliability impacts on the neighboring bulk transmission system. For facilities operating at 100 kV or above, the exclusion process should allow exclusion of those elements that, using a performance-based assessment, are demonstrated to operate without causing adverse reliability impacts on neighboring bulk system.

      Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: The ultimate goal of the Reliability Standards process should be to achieve reliable operation of the bulk transmission system, as defined by Congress. The term "reliable operation" was a term specifically defined in FPA Section 215 to include standards assuring the operation of bulk transmission system elements "within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance. . . or unanticipated failure of system elements." 16 U.S.C. § 824o(a)(4). Congress specifically precluded the mandatory reliability system from enforcing standards for adequacy of service, which were left to state and local authorities. 16 U.S.C. § 824o(i)(2).

   Recognizing that Congress intended the mandatory reliability regime to focus on thermal, voltage and stability limits on the bulk system rather than more generally on levels of service to retail customers, the Standards Development Team should define the Bulk

Electric System to include only those facilities whose failure or mis-operation meaningfully threatens to produce instability, uncontrolled separation, or cascading failures on the bulk system. As a legal matter, expanding the definition to include local distribution facilities and facilities that do not threaten thermal, voltage or stability impacts on the bulk system exceeds the permissible scope of NERC Reliability Standards and FERC authority under FPA Section 215. As a practical matter, mandating adherence to Reliability Standards for facilities that do not cause adverse reliability impacts on the neighboring bulk system is a significant diversion of funds and resources that will produce little or no benefits in terms of improved reliability of the bulk system.

c. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

☒ Continent-wide

☒ Interconnection-wide

Comments relative to the proposed exclusion(s): The WECC Bulk Electric System Definition Task Force ("BESDTF") has carefully considered and provided an extensive record of technical support for excluding Radial Facilities and Local Distribution Networks from the BES. While we recognize that physical differences between the electric system in WECC and other reliability regions may justify different approaches in those regions, we commend the work of the BESDTF to the standard drafting team.

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1. If you believe there are Transmission or Generation Elements or Facilities operated at voltages **100kV and above** which should be considered for **exclusion** from the Elements and Facilities classified as part of the BES:

   a. Identify the Element or Facility recommended for exclusion: All the SS_ 115 kV buses in the attached one-lines as well as the connecting lines should be excluded from consideration since they are radial serving load. Additional facilities may be put through the exclusion process, and excluded if shown not to be needed for "reliable operation" as defined in 16 U.S.C. § 824o(a)(4).

   b. Provide a generic one-line diagram depicting the Element or Facility in question (if available). Refer to **Attachment 1b.10 & 1b.11**

   c. Provide a technical justification for the exclusion (provide justification here or attach a supplemental document or URL link to publicly posted document if available).

   Justification: These SS_ facilities in the diagram are operated radially and are used to distribute energy locally. The FPA specifically excludes "facilities used in the local distribution of electric energy" (16 U.S.C. § 824o(a)(1)) and prohibits FERC from enforcing standards for adequacy of service (16 U.S.C. § 824o(i)(2)). In addition, any faults or failures in these facilities will only affect the local area, and not cause instability, uncontrolled separation, or cascading outages (16 U.S.C. § 824o(a)(4)). These facilities should be excluded by inspection, and should not be required to go through an exemption process.

   d. Identify if this exclusion should apply on a continent-wide basis, interconnection-wide basis, region-wide basis, or less than a region-wide basis. If you don't know how widely this exclusion should apply, please select, "unknown."

      X Continent-wide

   Comments relative to the proposed exclusion(s): The two diagrams illustrate the overreaching approach that WECC is presently using. Documents on the RFC web site prove that the WECC approach is not at all universal.

   The SS2 bus is presently considered by WECC to be BES because it has two transmission sources, NON-RADIAL SUB 1 and NON-RADIAL SUB 3, even though the K9-5 at SS3 is normally open. WECC considers any possible second source regardless of the system is operated. Any faults at SS3 or in the supplying lines will result only in a local outage. We hope the SDT will consider actual operating conditions when it defines "radial" and "one transmission source."

The 115 kV bus at SS6 is considered by WECC to be BES because it has two transmission sources, one by way of NON-RADIAL SUB 4 and the other by way of NON-RADIAL SUB 5 (off the one-line to the right). We don't think that is what NERC meant by "transmission source." A fault on the SS6 bus would result in a local outage affecting only the four substations tapped off the NON-RADIAL SUB 4/SUB 5 line. We assume that if the risk of such an outage was unacceptable, the serving transmission company would have required protection at the tap points. We hope the SDT will properly clarify what is meant by a transmission source.

All the SS 115 kV buses shown also have multiple transmission sources by way of normally open tie switches on the 12.47 kV system. Again we hope the SDT will consider operating philosophies when defining "radial" and "one transmission source."

All the substation transformers in the diagrams are considered by WECC to be BES because one winding exceeds 100 kV. We understand the SDT properly intends to look at the lowest voltage winding rather than the highest.

Except for the fuses at SS8, all the SS transformer protection systems are considered by WECC to be BES subject to PRC-005. This is not because the transformers are considered to BES, but because relay operation results in tripping a circuit switcher that exceeds 100 kV. We expect the SDT will properly consider the zone of protection rather than the voltage of the interrupting device.

Please also consider the 115 kV lines joining the NON-RADIAL SUBs in the two diagrams. While most of them cannot be considered to be radial with one transmission source, they are not used to transport bulk power. Their purpose is the local distribution of power. Parallel 230 kV lines (not shown in the diagrams) are responsible for the bulk power transport. The WECC Bulk Electric System Definition Task Force has been working on a definition of "local distribution networks" that would properly classify the 115 kV lines as non-BES. We hope the SDT will look at the work the BESDTF has done.