Individual or group. (92 Responses)
Name (67 Responses)
Organization (67 Responses)
Group Name (25 Responses)
Lead Contact (25 Responses)
Question 1 (85 Responses)
Question 1 Comments (92 Responses)
Question 2 (86 Responses)
Question 2 Comments (92 Responses)
Question 3 (83 Responses)
Question 3 Comments (92 Responses)
Question 4 (85 Responses)
Question 4 Comments (92 Responses)
Question 5 (79 Responses)
Question 5a Comments (92 Responses)
Question 5b Comments (92 Responses)
Question 5c Comments (92 Responses)
Question 5d Comments (92 Responses)
Question 5e Comments (92 Responses)
Question 6 (81 Responses)
Question 6 Comments (92 Responses)
Question 7 (79 Responses)
Question 7a Comments (92 Responses)
Question 7b Comments (92 Responses)
Question 7c Comments (92 Responses)
Question 7d Comments (92 Responses)
Question 7e Comments (92 Responses)
Question 8 (77 Responses)
Question 8 Comments (92 Responses)
Question 9 (80 Responses)
Question 9 Comments (92 Responses)
Question 10 (84 Responses)
Question 10 Comments (92 Responses)

Individual
Angela P Gaines
Portland General Electric Company
The proposed Continent-wide Definition of Bulk Electric System has an Exclusion rule (E1) which describes how radial facilities connected from a single Transmission source will not be considered part of the BES when the radial system meets subcategory (a), (b), or (c). For the proposed Technical Principles for Demonstrating BES Exemptions, the Exemption Criteria - Exclusions permits the entity to submit an application seeking exclusion from the BES definition when the network meets all of the following characteristics: a. System Elements are located in close electrical proximity to Load b. System Elements are treated as radial in nature c. Power flows into the system, but rarely flows out d. Power entering the system is not intentionally transported through the system to some other system Portland General Electric Company (PGE) asserts that subcategory (b) should be stricken from the criteria, since radial elements are already addressed in the Continent-wide Definition of Bulk Electric System. This subcategory specifies that to meet the criteria, System Elements must be "treated" as radial in nature. To be "treated" as radial, a system will inherently demonstrate compliance with all of subcategories (a), (c), and (d); and therefore, the inclusion of subcategory (b) is redundant in nature. In addition, PGE believes that Exception Criteria Exclusion 1.a.i. is ambiguous because it does not provide a clear definition of where the “interconnected transmission network” ends and the “Load center” begins. Also, PGE notes that a per unit impedance value will vary contingent on base voltage, so PGE does not believe this measure should be used in measuring “close proximity to Load.” Finally, PGE notes that the qualifiers “close,” “treated,” “rarely” and “intentionally”

are used in the current version of the proposed document. In following FERC's most recent Docket No. RM11-18 regarding the revised TPL standards, there should be an effort to replace all qualifiers with more quantifiable terms.
Group
Electric Market Policy
Connie Lowe
Yes
Yes
The word rarely should be struck from this item. It is meaningless in the context for which it is used and offers little to characterize an element or connection since it does not contain a measure.
Yes
Yes
Yes
Generation Owners and Generation Operators are typically not given access to non-public transmission information, especially that where a NDA or CEII signature is required. It would be virtually impossible for a GO to refute proposed inclusion of an Element owned by the GO unless they procure the services of a consulting firm with access to the data. And, even then, the consultant couldn't provide specifics of the evaluation only their findings.
Yes

Dominion is concerned that the provision of the proposed technical principles prohibiting the seeking of an exclusion for a cranking path for blackstart resources will include local distribution facilities within the definition of the BES. This conflicts with the definition of “Bulk Power System” in Section 215 of the Federal Power Act, which excludes facilities used in local distribution.
Yes
Although Dominion didn’t see a specific form to address comments on Appendix 5B to the NERC ROP, Dominion would like to point out a particular area of concern with that Appendix. Dominion requests that NERC include explicit language stating that exclusion or inclusion of an element (for compliance purposes) begins only after approval/disapproval and any associated appeal has been reviewed and a final decision reached. Dominion would also like to point out that it assisted in the preparation of the Edison Electric Institute’s comments and therefore agrees with the comments raised by EEI.
Group
PacifiCorp
Sandra Shaffer
No
All of PacifiCorp’s responses are based on the application of these items to a given interconnection and not on a continental basis. See comments on question 10. Setting a standard for close electrical proximity using an impedance measurement does not address a proper measurement in all interconnections. A better, more accurate measurement would be to utilize fault duty. Low fault duties provide a good measurement of impact on the BES. Fault Duty at adjacent BES substations should not exceed 5,000 MVA.
Yes
All of PacifiCorp’s responses are based on the application of these items to a given interconnection and not on a continental basis. See comments on question 10. If this requirement is added to the four requirements to capture local distribution networks, which are often operated in a looped configuration, which may still be included in the BES by the proposed BES bright-line due to generator inclusions, then this requirement has merit. Otherwise, exclusion E1 in the proposed BES bright-line definition already covers this item and it becomes redundant.
Yes
All of PacifiCorp’s responses are based on the application of these items to a given interconnection and not on a continental basis. See comments on question 10. This criterion is very similar to a part of exclusion 3 of the proposed bright-line, which requires that power flows into the system. If the intent of this requirement is to capture local distribution networks that may be included under the proposed bright-line definition, then this requirement has merit. PacifiCorp proposes that instead of using a measure of energy, that the SDT utilize a measure of time and recommends that flow out of the system be limited to 15% on an annual basis. PacifiCorp does not have a technical justification for 15%, nor does it believe that a technical justification can be provided for any reasonable percent of time used, or MWh used to be applied equally to all interconnections.
Yes
All of PacifiCorp’s responses are based on the application of these items to a given interconnection and not on a continental basis. See comments on question 10. This criterion is very similar to parts of exclusion 3 of the proposed bright-line, which states “d) Not used to transfer bulk power: The LDN is not used to transfer energy originating outside the LDN for delivery through the LDN; and e) Not part of a Flowgate or transfer path: The LDN does not contain a monitored Facility of a permanent flowgate in the Eastern Interconnection, a major transfer path within the Western Interconnection as defined by the Regional Entity, or a comparable monitored Facility in the Quebec Interconnection, and is not a monitored Facility included in an Interconnection Reliability Operating Limit (IROL).” If the intent of this requirement is to capture local distribution networks that may be included under the proposed bright-line definition, then this requirement has merit.
No
5a. Comments on approach: All of PacifiCorp’s responses are based on a given interconnection and not on a continental basis. See comments on question 10. Using any technical criteria will allow many elements to be excluded from the BES regardless of the element’s criticality to the interconnected system. Whatever technical criteria is established should only be applied to elements under 200 kV and any radial elements above 200 kV

5b.Comments on distribution factor measurement: All of PacifiCorp's responses are based on a given interconnection and not on a continental basis. See comments on question 10. Distribution factor has little to no bearing on entities in the Western Interconnection.
Yes
All of PacifiCorp's responses are based on a given interconnection and not on a continental basis. Fault duty may be appropriate for certain interconnections only.
Yes
Please refer to additional comments in question 13 regarding a contiguous BES.
No
Yes
The SDT proposal combined with the ROP proposal may be in conflict with Section 215 of the Federal Power Act, which requires "facilities used in the local distribution of electric energy" be excluded. The processes proposed may be over inclusive and by default require several elements which are not required for the reliable operation of the BES to in fact be included in the definition of "BES."
Yes
The SDT has proposed several technical criteria to be used to determine if an element has an impact on the reliability of the BES. PacifiCorp believes that the majority of non-BES elements can be excluded using a modified proposed bright-line and/or using the non-technical approach. However, in the event an entity requires additional justification to remove non-BES elements from the BES, then PacifiCorp feels the technical criteria should be established on an interconnection basis, not on a continent-wide basis. Because of the number of operating and geographic differences among the interconnections, to try to establish technical criteria on a continental basis would introduce confusion. PacifiCorp believes it is impossible to establish technical criteria that will allow unique interconnections to be treated in a comparable manner.
Group
ReliabilityFirst
Jim Uhrin
No
it is far too complicated for the smaller entities
Yes
yes only true radial without any impact should be excluded otherwise include it
No
All power flow studies can be don eto show a small impact, this is how the system is planned. This will only cause more confusion and debate between the FERC, NERC the Regions and registered entities
No
no one knows when some event will occur, putting this limitation will only cause debate. Any impact is an impact and should be included
No
to complicated and will only raise debate between FERC, NERC, the Regions and the Registered Entities
any impact is an impact, even generation is re-dispatched at 0% in some cases.
any impact is an impact, planning criteria between 3 & 5 % is often used and not allowed, why inject this into what define the BES. the criteria is applied it should be included
any impact is an impact, planning criteria between 5 & 10 % is often used and restricted to guard

against these changes, why inject this into what define the BES. the criteria is applied it should be included
any impact is an impact, planning criteria is often used and restricted to guard against these changes, why inject this into what define the BES. If the criteria is applied to the facility as a BES element it should be included
No
No
to complicated and will only raise debate between FERC, NERC, the Regions and the Registered Entities
any impact is an impact, even generation is re-dispatched at 0% in some cases
any impact is an impact, planning criteria between 3 & 5 % is often used and not allowed, why inject this into what define the BES. the criteria is applied it should be included
any impact is an impact, stability and planning criteria are often used and restricted and guard against these changes, why inject this into what define the BES. if the criteria is applied it should be included
any impact is an impact, planning criteria is often used and restricted to guard against these changes, why inject this into what define the BES. the criteria is applied to the facility as a BES element it should be included
Yes
many smaller entities would require assistance and or consultants to perform this analysis and some data many not be available or be shared etc.
Yes
FERC stated that entities registered were not to be taken off the registry without sound reasons and the definition sole intent was not to restrict or remove entities, but put in place a sound definition that everyone can use. I do not think this is a help, it is very detailed and allot of entities will be confused and lost
No
Individual
Michael Moltane
ITC
No
Please explain the rationale to require electrical proximity. Is it to limit fault exposure? Perhaps 2 miles of line could be shown to typically have few faults, thus limiting the number of voltage sags to nearby buses. At approximately 0.7 ohms per mile 1.5 ohms (for overhead) might be a reasonable number. Does it make a difference if the load is connected via underground cable?
Yes
ITC is in agreement if we are correct in assuming that any one of the three ways (i, ii, or iii) can be used to satisfy the exclusion. We would also like to request additional clarification as to what "disconnection procedures" would be valid for consideration in this requirement.

No
Individual
Michael Jones
National Grid
No
We feel that there is no relation between the proximity to load and system reliability. The impedance is technically irrelevant, and we suggest that this criteria be dropped. If the criteria is not dropped, there should be clarification on what is meant by “Load”. For instance are you really referring to “major load centers”? In many areas of the country Load is connected all along a 100kV line and hence much of a line is in close proximity to Load – but it could be small industrial loads and not significant load centers. If significant Load Centers is what the drafting team was driving at then, we believe it should be explicit. We also believe that if the drafting team is defining some technical criteria, then it should not be in the exception process. It should be included as part of the core definition. The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
Yes
We agree that elements that are treated as radial should be allowed to request an exception. We would like more clarification about what is meant by “regional dispatch”. To the extent definitions of terms such as “regional dispatch” are necessary; they should be addressed in the core definition development process. The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements. We would also like clarification on whether all three criteria under bullet b are required to show if the element is treated as radial, or if meeting one is enough.
Yes
We agree with this requirement, but feel that assigning a specific value to the energy flowing out of the system in MWh is unnecessary. The energy flowing out of a system depends on the size of the area, and thus could vary widely. Another concern is about non-wires alternatives (NWA). One type of non-wires alternative that is considered during planning studies is to reduce the amount of load on our system by paying customers to not operate during peak hours. One scenario to consider is a generator connected on a radial line that qualifies as BES, and will need upgrades if the generator runs frequently. If this generator produces power close to the MWh threshold in the specified time frame per NERC criteria, does it mean the utility company will have to consider paying the generator owner money to shut down in order to keep total MWh generation below the threshold and avoid BES criteria required radial line upgrades? This is another reason assigning a specific value to the energy flowing out of the system is unnecessary. We would like clarification on whether all criteria (i,ii,iii,iv,v) need to be met, or if just meeting one criteria is sufficient. We feel that meeting criteria 1.c.1, 1.c.ii OR 1.c.iii is sufficient in showing that power rarely flows out of the system. Criteria 1.c.iv and 1.c.v should be removed. The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
No
We feel that this requirement is not specific enough. “System” is too general. It should be clear what is intended by “system”. Also, we would like more clarification about what is meant by “intentionally transport”. Is the intent to mean there is a contract between a generator and load? The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
We do not agree with all the criteria listed in point 2.a.iv. For example we believe that the term in 2.a.vi.6 “Steady-state Stability – positively damped” does not relate to the concept of steady-state stability. We believe an acceptable measure of steady-state stability would be an angle difference

across the transmission line. That difference can vary depending on the line; however, a rule of thumb is typically 45 degrees which provides a 30% steady state stability margin. As mentioned previously, the exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
We don't think this measurement is necessarily relevant in determining whether an element is necessary to system reliability. This criterion can be removed from the list. The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
Yes
The NERC process could potentially by very lengthy and could interfere with the timely completion of our studies. In the technical paths for exclusions, bullet v states "If within the criteria in all cases, then the Elements can be excluded." This could lead to a very high number of studies that need to be done to prove an element should be excluded. For this reason, National Grid endorses a more streamlined process. We propose a process where entities would only need to submit a short form that briefly describes what they would like to exempt and the reason why, along with a one-line diagram. The entity who is requesting the exception would have to maintain records that show why the elements can be exempted until NERC performs an audit. At the audit, the entity can show the proof of why the element should be granted an exception. This process also allows for the application to remain public and reduces documentation burdens, because the non-public, CEII, or NERC CIP protected supporting documentation is maintained by the applicant. In this process, the entity first submits the application to their RE, and if approved by the RE, the application is submitted to NERC. The entity should be able to appeal if either the RE or NERC denies the application; however, it should be clear that for the second appeal to NERC, the decision is made by a different group than whoever decided on the first appeal. The appeal process in this exception procedure could be similar to the appeal process set by CMEP (compliance, monitoring and enforcement program). For entities that don't wish to wait until the next audit, there can be an optional process by which the proposed exception can be reviewed to provide an immediate ruling. Also, there should be a grace period after the audit is performed if audit staff concludes that an exception or inclusion granted by the initial application is not supported by adequate evidence. NERC's approval of an exception during this initial application process should stand until an Entity is audited and a final audit report is issued. There should also be an implementation period included in the audit report for the entity to come into compliance if the audit report disagrees with the initial exception approval. Absent evidence of fraud or intentional misrepresentation by the entity, there should be no non-compliance assessed for the period from initial exception approval to the final audit report. This process would need to allow participation or comments by Regional Entities, Reliability Coordinators, and/or Balancing Authorities in the application process, but should not allow participation by other third parties.
There should be a non-technical process for inclusions similar to the exclusions process.
No
No
Insufficient time was provided to fully undertake this inquiry.
Yes
The exception process should be strictly limited to the procedures for application and approval and should not include substantive elements.
Group
Tennessee Valley Authority
Richard Dearman

Yes
We agree with the requirement of an element being radial in character as being a qualifier for exclusion thru the non-technical analysis. However, we recommend that the term "radial in character" needs to be better defined. In addition, the language is confusing and we recommend the following: i.: suggest replacing “disconnection procedures” with “automatic disconnection devices” ii.: The intent of this item is not clear, and the term "regional dispatch" is not defined. Recommend the item be clarified or deleted.
Yes
One possible starting point for selecting a MWh threshold: Generators of 20 MVA or less are typically exempt from detailed modeling requirements. Suggest that reverse flows of this level or less, for a period of 24 hours or less would be an acceptable threshold. Therefore, this would provide a basis for selecting a threshold MWh level for reverse flows into the system under part iv. of 20 MW x 24 hours = 480 MWh per year.
No
There is not sufficient evidence provided by the SDT to distinguish between this fourth item for exclusion and the third item for exclusion. They both seem to fall in line with what is excluded per the bright line exclusion E3 (or Local Distribution Networks), but as written, it would be difficult to measure what is meant by “is not intentionally transported through” in this fourth item just as it would be difficult to measure what’s meant by “flows into the system, but rarely flows out” for the third item. Such an exclusion should be required to include some technical analysis, but not extensive technical analysis (at least the inclusion of power flow base case as a minimum).
No
As written, most of this approach makes no sense. The words imply that if you have planned the system properly, you can exclude it from the BES! In TPL studies you make sure that voltage dips, frequency excursions, voltage deviations are acceptable, oscillations are damped, and no cascading outages occur. So if you meet the performance requirements of TPL studies, you can exclude the element from the BES. What good is this?
This is the only part of this technical analysis that may make sense. If the loss of any element of the BES results in a distribution factor of less than X% on the element being considered for exclusion, then exclude it. We suggest a value of 3% for this, since 3% is the threshold typically used in transfer studies.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
Yes
Comments: Revise second paragraph to read “Due to the importance of designated Blackstart Resources and their Cranking Paths to restore efforts, no exceptions will be allowed for those items that are included in a system restoration plan.” Technical rationale: Multiple Blackstart Resources and Cranking Paths are frequentlyavailable but are not included in a system restoration plan. System restoration plans describe the Blackstart resources and cranking paths thar are deemed to be necessary for system restoration. Section “Exception Criteria – Exclusions”: Add 1.e. “Generation that is inoperable and not planned to be placed back into service but not yet officially decommissioned.” Technical rationale: These facilities are not relied on to insure the reliability of the BES.
No
Applications for inclusion of facilities into the BES should include justification for doing so. However, there should not necessarily be specific criteria that must be met, but the importance of the facility to the BES should be clearly demonstrated.
No

No
No
Individual
Scott Bos
Muscatine Power and Water
No
The relevance and rationale for this criterion is unknown. If this criterion is intended to exempt elements, like circuit switchers, that are part of the distribution transformer circuits operated above 100 kV, and located within a mile of the BES interconnection point, then NSRF would expect the wording to be “in close electric proximity to the BES” rather than in “close electric proximity to Load”. Requesting the SDT explain the relevance and rationale for this criterion before agreeing on its inclusion.
No
Radial in Character –propose that this criterion be removed for the reason that it does not illustrate any materially different characteristics beyond Exclusion E1 of the bright-line BES definition.
No
Proposing that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the bright-line BES definition.
No
This criterion should be eliminated based on the fact that it does not describe any materially different characteristics beyond Exclusion E3 of the BES definition.
No
Would like to propose that this technical analysis criterion be changed to criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. Would like to offer the following alternate criteria as possible examples, “(1) the BES can be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES performs acceptably subsequent to credible contingences of the Element; (3) the Element does not limit the impact and scope of instability and cascading outages once they occur; (4) BES Facilities are protected from undesirable damage by operating the Element within its ratings; (5) the reliability of the BES can be restored promptly subsequent to a fault on or loss of the Element; and (6) the BES has the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. Currently not aware of any continent-wide appropriate BES performance metrics for voltage dip, frequency excursion, voltage deviation, stability, etc. and would speculate that different values are likely for the different regions and system characteristics across the continent. Thus, it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
Suggest replacing this aspect with those cited above because a distribution factor measurement indicates how much system changes influence the element, not how much a loss of the element would compromise the ALR of the BES. Currently unable to establish a clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
Suggest replacing this factor with those cited above because there is presently no established, continent-wide, acceptable transient voltage dip performance level for evaluating whether a fault or loss of the element would not compromise the ALR of the BES. In addition, the appropriate performance level for this factor may be different in other areas and system characteristics across the continent.
Suggest replacing this factor with those cited above. There are recognized, continent-wide transient frequency performance levels in the PRC-006-1 standard; however, the elements that are applicable to this standard are not necessarily BES elements and the transient frequency response requirements are not intended to be a criterion for BES classification.
Requesting the STD replace this factor with those cited above. At this time there is no established, continent-wide, acceptable (steady state) voltage deviation performance level for evaluating whether

a fault or loss of the element would not compromise the ALR of the BES. Moreover, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
Yes
Recommending that this process address the six characteristics of the Definition of Adequate Level of Reliability (ALR) as listed in the comments above in Question #5. Also recommend that municipalities and other small entities having transmission systems designed to serve local load only, operated below 200 kV and not having any IROL's or SOL's be excluded from the BES definition. Rationale: this could affect smaller registered entities within a BA. The standards, especially those for Transmission Operators, aren't written for the smaller utilities. A small, municipal utility could have 75 MW of generation and operate a 115 kV looped system around their service area that is used primarily to serve their own load. Subsequently, they get forced into significant compliance requirements that does not enhance the reliability of the BES whatsoever.
No
Would like to propose that the technical analysis criterion be replaced by criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. The following alternate criteria are offered as possible examples, "(1) the BES cannot be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES does not perform acceptably after credible contingences of the Element; (3) the Element limits the impact and scope of instability and cascading outages when they occur; (4) BES facilities are not protected from unacceptable damage by operating the Element within its ratings; (5) the integrity of the BES cannot be restored promptly following a fault on or loss of the Element; and (6) the BES does not have the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. Currently not aware of any continent-wide appropriate BES performance measures for voltage dip, frequency excursion, voltage deviation, stability, etc. and would speculate that different values are likely for different regions and system characteristics across the continent. Therefore, would like to state that it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
Proposing to replace this factor with those cited above because a distribution factor measurement indicates how much system changes affect the element, not how a fault or loss of the element would compromise the ALR of the BES. There is no clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
Propose replacing this factor with those cited above because there is presently no established, continent-wide, acceptable transient voltage dip performance level for evaluating whether a fault or loss of the element would compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
Propose replacing this factor with those cited above because there are established, continent-wide transient frequency performance levels in the PRC-006-1 standard, but the elements that are applicable to the standard do not have to be BES elements and the transient frequency response requirements are not intended to be a criterion for BES classification.
Propose replacing this factor with those cited above because there is presently no established, continent-wide, acceptable (steady state) voltage deviation performance level for evaluating whether a fault or loss of the element would compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
No
No
Yes
1. Propose replacing the wording in the Exclusion preface, Exclusion 2 preface, and Inclusion 1 preface of "not necessary to reliably operate the interconnected transmission network" with "necessary to maintain an Adequate Level of Reliability (ALR) of the Bulk Electric System". 2. Currently having reservations concerning the following statement made in the introduction of this document: " Due to the importance of Blackstart Resources and their designated blackstart Cranking

Paths to restoration efforts, no exceptions will be allowed for those items." This does not allow for a provision to exclude any designated Blackstart Cranking Path (at any voltage) even though there may be technical justification for it. 3. The first page states that "Specific content of this application is spelled out elsewhere in this appendix." Request the SDT describe where this appendix will be published and indicate if this is a compliance document or just technical "guidance"? 4. By having the following statement included for both exclusions and inclusions will lead to disagreement: "The ERO can override this criterion but would need to provide additional justification to support their finding." Suggesting that any override should include adequate technical justification and not interfere with other statutory requirements. Also, it does not clarify or identify who would make the determination whether NERC has made adequate justification to override the criterion. 5. Do not believe that the "Inclusion" process should be completely removed from BES Definition. Would like to recommend using bright-line criteria indentifying everything 100 kV and above to be considered BES and then allow for the "Exception" process to take out Facilities that do not have an impact on the reliability of the BES. Selecting BES Facilities based on bright-line criteria is what FERC requested in its Order regarding BES Definition. This would streamline and simplify the process by removing a large quantity of exceedingly unnecessary paperwork.

Individual

Bud Tracy

Blachly Lane Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal ("N-0" or All Lines in Service) operating conditions should

be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT's view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, we suggest that a detailed technical exemption process be allowed on an interconnections wide basis. The Western Interconnection is a "hub and spoke system" where loads are very remote from large generation plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of ways for various operations. For example, the

Western Interconnection uses a rated-paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC order 743-A, we support exemption criteria for individual frequency independent regions, or interconnections.
Specific transient voltage dip thresholds are proposed on page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided on pages 12-16 of Snohomish's White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.
Please see our corresponding answers to Question 5 for 7b-7e.
No
As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.
No
Yes
In general, , as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES

definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO “shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System.” 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term “Bulk-Power System” or “BPS” as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy.” Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.
Individual
RoLynda Shumpert
South Carolina Electric and Gas
No
SCE&G disagrees with the assumption that the proximity of a BES facility to Load is indicative of it's importance to BES reliability. Some lower voltage facilities can be quite short and thus have lower impedance but be important to BES reliability. Furthermore, the term "Load centers" is not defined leaving it subject to interpretation. Assuming a load center has many busses, where would the measurement be made - From the most distant load bus in the load center or the nearest? Similarly - does a single facility get measured from it's terminal to the load center or does the presence or lack of breakers need to be considered when selecting the measurement point?
Yes
SCE&G agrees with the requirement of an element being radial in character as being a qualifier for exclusion thru the non-technical analysis. However, we recommend that the term "radial in character" be better defined. In addition, the language is confusing and we would like to recommend the following: i.: suggest replacing “disconnection procedures” with “automatic disconnection devices” ii.: The intent of this item is not clear, and the term "regional dispatch" is not defined. Recommend the item be clarified or deleted.
Yes
One possible starting point for selecting a MWh threshold: Generators of 20 MVA or less are typically exempt from detailed modeling requirements. Suggest that reverse flows of this level or less, for a period of 24 hours or less would be an acceptable threshold. Therefore, this would provide a basis for selecting a threshold MWh level for reverse flows into the system under part iv. of 20 MW x 24 hours = 480 MWh per year
No
There is not sufficient evidence provided by the SDT to distinguish between this fourth item for exclusion and the third item for exclusion. They both seem to fall in line with what is excluded per the bright line exclusion E3 (or Local Distribution Networks), but as written, it would be difficult to measure what is meant by “is not intentionally transported through” in this fourth item just as it

would be difficult to measure what's meant by "flows into the system, but rarely flows out" for the third item. Such an exclusion should be required to include some technical analysis, but not extensive technical analysis (at least the inclusion of power flow base case as a minimum).
No
As written, most of this approach makes no sense. The words imply that if you have planned the system properly, you can exclude it from the BES! In TPL studies you make sure that voltage dips, frequency excursions, voltage deviations are acceptable, oscillations are damped, and no cascading outages occur. So if you meet the performance requirements of TPL studies, you can exclude the element from the BES. This does not seem to be what was intended.
This is the only part of this technical analysis that may make sense. If the loss of any element of the BES results in a distribution factor of less than X% on the element being considered for exclusion, then exclude it. We suggest a value of 3% for this, since 3% is the threshold typically used in transfer studies.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
Yes
Revise second paragraph to read "Due to the importance of designated Blackstart Resources and their Cranking Paths to restore efforts, no exceptions will be allowed for those items that are included in a system restoration plan." Technical rationale: Multiple Blackstart Resources and Cranking Paths are frequently available but are not included in a system restoration plan. System restoration plans describe the Blackstart resources and cranking paths thar are deemed to be necessary for system restoration. Section "Exception Criteria – Exclusions": Add 1.e. "Generation that is inoperable and not planned to be placed back into service but not yet officially decommissioned." Technical rationale: These facilities are not relied on to insure the reliability of the BES.
No
SCE&G recommends that applications for inclusion of facilities into the BES should include justification for doing so. However, there should not necessarily be specific criteria that must be met, but the importance of the facility to the BES should be clearly demonstrated.
No
No
No
Group
Northeast Power Coordinating Council
Guy Zito
No
1.a.i. Electrical Proximity - If impedance is to be used as a measure of electrical proximity, which in turn is a replacement for geographical proximity, then how would the presence of parallel lines, capacitors, phase-angle regulators (PARs), tap-changing transformers, generation and reactors be treated in determining electrical proximity? How does this approach effectively differentiate between transmission and distribution lines of the same voltage and length? When using impedance, how is "greater than" determined? Sum of the Impedances - Would the filing entity simply add up the in-series impedances for each radial Element to demonstrate its electrical proximity? For example, would the sum of the impedances from this radial path example be equal to the sum of the two feeder and transformer impedances, i.e., measured from a 230 kV bus along a 230 kV feeder, through a 230/138 kV step-down transformer, and an in-series 138 kV feeder to a 138/13.8 kV step-down distribution

transformer? What impedance would the SDT apply to a PAR (or tap-changing transformer) and to the overall path if a PAR (or tap-changing transformer) were located in-series with the measured Elements? 1.a.ii. Power Flows – What is the meaning of “power flow data” as the term is used here and how is the meaning different from the term when used under 1.c. Power flows into the system, but rarely flows out? Should this sentence use the phrase “impedance data extracted from a load flow study” instead? Entities should be required to identify the significance of the element’s physical characteristics. Such identification can be done through a simple checklist along with any relevant comments. The SDT should revise the exception criteria to seek an alternative language and/or revise exclusion criteria (a), which will require entities to provide the previously stated information for their element.
No
The term “regional dispatch” is not defined. Provide a definition or reference to a definition to be used in making this determination. Recommend adoption of the alternate term “operational control.” 1.b.ii, Operational Control - The SDT should consider using the terms “under the operational control of a Balancing Authority.” It is instructive that the overarching requirement for a finding of transmission system integration in Mansfield was that the facilities be under operational control of the Independent System Operator (ISO).* * Southern Cal. Edison Co., 92 FERC ¶ 61,070 at 61,255 (2000), reh'g denied 108 FERC ¶ 61,085 (2004). Replace the example in 1.b.i. with a clearer example. Entities should be allowed to demonstrate the radial characteristics to determine if they are permitted for an exception, and demonstrate compliance with radial defining criteria.
No
If an entity provides hourly MWh power flow data on a radial for a 12-month period (under v.) showing no power flow reversals, would transaction data (under i. through iv.) still be required? Could the entity just say “no transactional records?” If there were power flow reversals, wouldn’t the power flow data (provided under v.) also show those, e.g., the amount and duration? Isn’t this request redundant? If reversing power flows on a feeder caused it to fail one of the criteria, could the radial still be excluded, or is it necessary for the Element to pass all requirements? Alternatively, could the entity choose to file for Exclusion of that Element under the technical analysis option? What happens and what are the implications when the two approaches produce different outcomes? Recommend that “iv. The maximum amount of energy flowing out” limit be set to no more than 24 hours of reverse power flows within any rolling 12-month period. Consider avoiding prescribing values and eliminate bullet (iv). The intended performance outcome should be described, but without setting values. This should not have any impact on the reliability of the transmission network if items 1, 2 and 3 are satisfied.
Yes
No
This method may allow an entity to exclude Elements which perform a transmission function, but that are not the most limiting Element. “Not being necessary for reliability operation” needs definition. The SDT should consider developing a Guidance Document to provide examples and insights to guide prospective filing entities. The TPL Reliability Standards already describe the full set of requirements for a reliable system. Why are added requirements necessary? Why would any such added criteria not conflict with the TPL Reliability Standards to the extent that they were either more or less restrictive? Entities should be given an option to conduct an analysis to demonstrate if an element is necessary for the operation of a transmission network. NERC should specify all the relevant criteria categories to be listed as under 2 (a). NERC should avoid prescribing numerical values, but instead establish a range of values (or reference industry standards) that would be consistent with industry/ regional standards or practices without compromising the reliability of the transmission network.
2.a. The term “Planning Assessment” is not a defined term in the NERC Glossary of Terms Used and should not be capitalized, or it should be defined. 2.a.iv.1. Distribution Factor - This is a judgment of what feeder power flow participation level is material and what is non-material. While TDF and OTDF analysis is an indication of contributions from the element, the SDT should avoid setting values and instead describe the intended performance outcome from a distribution factor measurement. Note that ultimately NERC as an ERO or relevant regulatory authority will approve the application and can assess the performance outcome in their decision making presented in an entity’s application.
Voltage dip is specified in terms of duration and retained voltage, usually expressed in percentage.

Suggest that either the SDT avoid using voltage dip as a criteria, or clearly specify that the transient voltage not exceed the X limit of Y cycles (time). References to relevant industry standards such as IEEE standard 1346-1998 should be made.
Suggest that for assigning a value for transient frequency response, entities conduct and submit to the SDT their quantitative and qualitative technical assessment based on the conditions of the element(s) under the application. Do not establish a fixed binary value within the exception criteria but rather focus on the performance outcome. See 5 (a) above.
Voltage deviation is generally expressed as a percentage, between the voltage at a given instant at a point in the system. Do not establish a fixed binary value within the exception criteria but rather focus on the performance outcome. Adequate voltage performance does not guarantee system voltage stability. Steady state stability is the ability of the grid to remain in synchronism during relatively slow or normal load or generation changes, and to damp out oscillations caused by such changes. The requirement should suggest that following checks are carried out to ensure system voltage stability for both the pre-contingency period and the steady state post-contingency period: • Properly converged pre- and post-contingency power flows are to be obtained with the critical parameter increased up to 10% with typical generation as applicable; • All of the properly converged cases obtained must represent stable operating points. This is to be determined for each case by carrying out P-V analysis at all critical buses to verify that for each bus the operating point demonstrates acceptable margin on the power transfer; and • The damping factor must be acceptable (the real part of the eigen values of the reduced Jacobian matrix are positive).
Yes
An impact-based method should be available for entities seeking Exclusions and Inclusions. The method should not allow excess regional discretion and unintended continent-wide variation. Recommend the power Transfer Distribution Factor (power TDF) approach mentioned in the reply to Question 5 above. If the Transmission Planner (TP) or Planning Authority (PA), were tasked with performing such analyses using standardized assumptions, then regional discretion could be minimized. Technical Analysis must fundamentally use NERC – TPL methodology and testing requirements.
No
Inclusions criteria should mirror the Exclusion criteria, and that consistent values should be employed for Inclusions here and for Exclusions above. That is, for example, if 0.95 to 1.05 (+/- 5%) p.u. is adopted as an acceptable voltage deviation range for Exclusions, then Elements resulting in post-transient system voltage deviations outside that range should be candidates for Inclusion. Further, all assumptions should also be fully documented for any proposed Inclusions. Also refer to comments on exclusions.
See reply to Questions 5b and 6 above.
Refer to the response to Question 5c
Refer to the response to Question 5d
See reply to Questions 5e and 6 above.
No
Yes
It is imperative to understand that the NERC's revised definition will have a direct impact on entities across North America and may conflict with regulatory requirements, Codes, and Licenses. FERC in its Orders 743 and 743A has directed NERC to address these concerns. For Ontario, the BES exception criteria shall meet the expectations of Ontario's regulator (Ontario Energy Board) which has the sole authority and responsibility for the reliability of customer connections and loads within Ontario. Therefore, it will be necessary to accommodate NERC's proposed definition of BES or the exception process with the Ontario situation. The SDT and RoP teams should: • Modify the exception criteria and procedure to provide regulatory flexibility with requirements to conduct basic technical analysis , to allow entities to consistently present their case to the ERO and/or the regulator for a step by step expedited evaluation. • Include provisions in both the NERC exception criteria and exception process for federal, state and provincial jurisdictions. These provisions should provide clear guidance so that, if and when there are deviations from the exception criteria, they are identified with technical and regulatory justifications ensuring there is no adverse impact on the interconnected transmission

network. • Understand that the path to generating facilities need not be always BES contiguous. Generating units can/should be required to be planned, designed, and operated in accordance with a subset of NERC Standards, but should not always require contiguous paths.
Yes
Exception criteria should be crafted at a high-level with key menu items of assessment that can be followed continent-wide by entities to put forward their exception(s) for element(s) that are not necessary for the interconnected transmission network based on technical assessment, evidence and justification for unique characteristics, configuration, and utilization. (Also see suggestions/ comments in Question 6)
Individual
Josh Dellinger
Glacier Electric Cooperative
No
I do not think that the proximity to load should be a factor in determining whether or not an element should be included in the BES. Rather, the purpose of the element should be the important factor. If an element only serves load, then that should be the most important factor and the proximity (electrical or physical) to that load should not matter.
No
I do agree that radial elements should definitely be excluded. However, I believe that non-radial elements should be able to be excluded by Path 1 as well. If a small local distribution system is operated non-radially for the purpose of improving reliability for its loads, then that system should be eligible for exclusion from the BES. I also believe that language needs to be included that makes the provision for radial elements that can be temporarily and briefly looped together during switching to prevent an outage (e.g. for transformer maintenance) to also be excluded from the BES.
No
Regarding using power flow into and out of a system as a criterion fro BES exclusion, I do not think that establishing a hard MWh per year is the proper approach to take. Once again, I believe that the purpose of the system should be the most important factor. If the purpose of a system is to serve load or transport non-essential generation (i.e. wind power), then that system should be able to be exluded.
No
I believe that there should be a provision for systems that intentionally transport variable, non-essential generation (such as systems that transport wind power) to be excluded from the BES. By nature, these types of systems cannot be essential to the BES due to the variability of the generation, and, therefore, should be able to be excluded from the BES.
No
I strongly agree that there should be a way for elements to be excluded from the BES based on a technical analysis. However, the current approach only provides one technical avenue for exclusion and that is through a transmission planning study. Performing and analyzing such a study could be very, very difficult for a small entity to do. If this is the approach that NERC continues with, then I believe there needs to be some extra language outlining who is responsible for performing and analyzing these transmission planning studies. The question is should the RRO (WECC, etc.) be responsible for performing the study and determining through the technical criteria what elements are included and excluded in the BES, or should that resposiblity fall on control area operators within an RRO, or should that responsibility fall on individual entities? I believe it should fall on either the RROs or the control area operators within the RROs. Perhaps an alternative approach could be to establish a few techincal checks that could be evaluated first before a transmission planning study is required. For example, a max fault MVA value could be established and if the available fault MVA at an element is less than the established value, then that element and could be excluded without having to go through a transmission planning study. If the available fault MVA at the element is above the established value, then the study would have to be done for determination.

Yes
Perhaps using an element's available fault MVA as a "quick screening" method to quickly determine if an element should be included or excluded. If an element's available fault MVA exceeds a properly established value, then a more detailed technical analysis can be done to determine whether or not the element truly should be included in the BES. But if the elemet's available fault MVA is less than the established value, then that element could quickly be excluded.
Yes
I do strongly agree that there should be an avenue for elements to be included or excluded from the BES based on technical analysis. I do believe who's responsibility it will be to perform and analyze the transmission planning studies needs to be clarified.
Yes
It could be very, very difficult and costly for small utilities to perform the necessary transmission planning studies described in the proposal. I think there needs to be language clarifying how smaller utilities should be able to obtain this data.
No
No
Individual
Diane Barney
New York State Department of Public Service
The core BES definition based on a 100 kV brightline is an overreach of bulk system designation under the provisions of the Federal Power Act; a properly specified BES core definition would avoid the extensive analysis required under the exceptions procedure. That said, the proposed principles for use in the exceptions process are consistent with previous FERC efforts to distinguish between transmission and local distribution. The upfront exclusion of applying the proposed principles to blackstart cranking path facilities is a potential overreach into the local distribution system and can be counter productive reliability. Mandating compliance of NERC standards to cranking paths will result in the specification of only one cranking path by host utilities to minimize costs, where designating

multiple paths in restoration paths would provide the flexibility needed to minimize customer outage duration.
Individual
John Bee
Exelon
No
The term “close proximity” is ambiguous and open ended. Exelon believes that all facilities used in local distribution of electric energy that are presently under state jurisdiction should be excluded from the BES regardless of system impedance.
No
The term “rarely” is ambiguous and should be removed or quantified. Furthermore, the requirement for power flow analysis will be viewed by many entities as extensive technical analysis.
No
This item calls for the use of criteria in order to prove that a facility should be excluded the BES. First of all, the items 5b – 5e do indeed require extensive technical analysis which will be outside of the capabilities of many users of the BES. Furthermore, it is not clear who’s criteria will be used? The user’s? The Transmission Owner’s? The Planning Authority’s? This question of ownership needs to be resolved and in itself poses a problem for this process. If differing criteria levels are used across the continent, there remains the possibility that similarly-situated facilities in different Regions will not be treated consistently.
No
: Exelon points out that most of the Regions don’t have Region-wide criteria for distribution factor measurement, voltage excursions, or transient frequency response for use in this proposed Inclusion Process. In addition, most of the Regions do not have region-wide criteria developed for these attributes. If differing criteria levels are used across the continent, there remains the possibility that similarly-situated facilities in different Regions will not be treated consistently.
Yes
As mentioned above, this process will require extensive technical analysis from users, owners, operators and the Regions. In many cases, the Principles anticipate the use of criteria that is not in existence today. Rather than reinforcing the bright line approach, these Principles have the potential to create processes that will result in high costs with little to no corresponding benefits to reliability.
Yes
To the extent facilities used in local distribution of electric energy may be included in the BES, the proposed principles are in conflict with the Federal Power Act.
No
Individual
Bob Casey
Georgia Transmission Corporation
No

GTC disagrees with the assumption that the proximity of a BES facility to Load is indicative of it's importance to BES reliability. Some lower voltage facilities can be quite short and thus have lower impedance but be important to BES reliability. Furthermore, the term "Load centers" is not defined leaving it subject to interpretation. Assuming a load center has many busses, where would the measurement be made - From the most distant load bus in the load center or the nearest? Similarly - does a single facility get measured from it's terminal to the load center or does the presence or lack of breakers need to be considered when selecting the measurement point?
Yes
GTC agrees with the requirement of an element being radial in character as being a qualifier for exclusion thru the non-technical analysis. However, GTC recommends that the term "radial in character" needs to be better defined. In addition, the language is confusing and the PSS would like to recommend the following: i.: suggest replacing “disconnection procedures” with “automatic disconnection devices” ii.: The intent of this item is not clear, and the term "regional dispatch" is not defined. Recommend the item be clarified or deleted.
Yes
One possible starting point for selecting a MWh threshold: Generators of 20 MVA or less are typically exempt from detailed modeling requirements. Suggest that reverse flows of this level or less, for a period of 24 hours or less would be an acceptable threshold. Therefore, this would provide a basis for selecting a threshold MWh level for reverse flows into the system under part iv. of 20 MW x 24 hours = 480 MWh per year.
No
As written, most of this approach makes no sense. The words imply that if you have planned the system properly, you can exclude it from the BES! In TPL studies you make sure that voltage dips, frequency excursions, voltage deviations are acceptable, oscillations are damped, and no cascading outages occur. So if you meet the performance requirements of TPL studies, you can exclude the element from the BES. What good is this?
This is the only part of this technical analysis that may make sense. If the loss of any element of the BES results in a distribution factor of less than X% on the element being considered for exclusion, then exclude it. We suggest a value of 3% for this, since 3% is the threshold typically used in transfer studies.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
Yes
Revise second paragraph to read “Due to the importance of designated Blackstart Resources and their Cranking Paths to restore efforts, no exceptions will be allowed for those items that are included in a system restoration plan.” Technical rationale: Multiple Blackstart Resources and Cranking Paths are frequently available but are not included in a system restoration plan. System restoration plans describe the Blackstart resources and cranking paths that are deemed to be necessary for system restoration. Section “Exception Criteria – Exclusions”: Add 1.e. “Generation that is inoperable and not planned to be placed back into service but not yet officially decommissioned.” Technical rationale: These facilities are not relied on to insure the reliability of the BES.
No
GTC recommends that applications for inclusion of facilities into the BES should include justification for doing so. However, there should not necessarily be specific criteria that must be met, but the importance of the facility to the BES should be clearly demonstrated.
No

No
No
Group
SERC Planning Standards Subcommittee
Charles W. Long
No
The PSS disagrees with the assumption that the proximity of a BES facility to Load is indicative of it's importance to BES reliability. Some lower voltage facilities can be quite short and thus have lower impedance but be important to BES reliability. Furthermore, the term "Load centers" is not defined leaving it subject to interpretation. Assuming a load center has many busses, where would the measurement be made - From the most distant load bus in the load center or the nearest? Similarly - does a single facility get measured from it's terminal to the load center or does the presence or lack of breakers need to be considered when selecting the measurement point?
Yes
The PSS agrees with the requirement of an element being radial in character as being a qualifier for exclusion thru the non-technical analysis. However, the PSS recommends that the term "radial in character" needs to be better defined. In addition, the language is confusing and the PSS would like to recommend the following: i.: suggest replacing “disconnection procedures” with “automatic disconnection devices” ii.: The intent of this item is not clear, and the term "regional dispatch" is not defined. Recommend the item be clarified or deleted.
Yes
One possible starting point for selecting a MWh threshold: Generators of 20 MVA or less are typically exempt from detailed modeling requirements. Suggest that reverse flows of this level or less, for a period of 24 hours or less would be an acceptable threshold. Therefore, this would provide a basis for selecting a threshold MWh level for reverse flows into the system under part iv. of 20 MW x 24 hours = 480 MWh per year.
No
There is not sufficient evidence provided by the SDT to distinguish between this fourth item for exclusion and the third item for exclusion. They both seem to fall in line with what is excluded per the bright line exclusion E3 (or Local Distribution Networks), but as written, it would be difficult to measure what is meant by “is not intentionally transported through” in this fourth item just as it would be difficult to measure what’s meant by “flows into the system, but rarely flows out” for the third item. Such an exclusion should be required to include some technical analysis, but not extensive technical analysis (at least the inclusion of power flow base case as a minimum).
No
As written, most of this approach makes no sense. The words imply that if you have planned the system properly, you can exclude it from the BES! In TPL studies you make sure that voltage dips, frequency excursions, voltage deviations are acceptable, oscillations are damped, and no cascading outages occur. So if you meet the performance requirements of TPL studies, you can exclude the element from the BES. What good is this?
This is the only part of this technical analysis that may make sense. If the loss of any element of the BES results in a distribution factor of less than X% on the element being considered for exclusion, then exclude it. We suggest a value of 3% for this, since 3% is the threshold typically used in transfer studies.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
Yes
Revise second paragraph to read “Due to the importance of designated Blackstart Resources and their Cranking Paths to restore efforts, no exceptions will be allowed for those items that are included in a system restoration plan.” Technical rationale: Multiple Blackstart Resources and Cranking Paths are

frequently available but are not included in a system restoration plan. System restoration plans describe the Blackstart resources and cranking paths thar are deemed to be necessary for system restoration. Section “Exception Criteria – Exclusions”: Add 1.e. “Generation that is inoperable and not planned to be placed back into service but not yet officially decommissioned.” Technical rationale: These facilities are not relied on to insure the reliability of the BES.
No
The PSS recommends that applications for inclusion of facilities into the BES should include justification for doing so. However, there should not necessarily be specific criteria that must be met, but the importance of the facility to the BES should be clearly demonstrated.
No
No
No
The comments expressed herein represent a consensus of the views of the above-named members of the SERC EC Planning Standards Subcommittee only and should not be construed as the position of SERC Reliability Corporation, its board, or its officers.
Individual
Chris de Graffenried
Consolidated Edison Co. of NY, Inc.
No
We generally support this exclusion option concept, to the extent that it is fashioned after the FERC Seven Factor test. However, we have a number of questions as to how it might work in practice. 1.a.i. Electrical Proximity - If impedance is to be used as a measure of electrical proximity, which in turn is a replacement for geographical proximity, then how would the presence of parallel lines, capacitors, phase-angle regulators (PARs), tap-changing transformers, generation and reactors be treated in determining electrical proximity? How does this approach effectively differentiate between transmission and distribution lines of the same voltage and length? When using impedance, how is “greater than” determined? Sum of the Impedances - Would the filing entity simply add up the in-series impedances for each radial Element to demonstrate its electrical proximity? For example, would the sum of the impedances from this example radial path be equal to the sum of the two feeder and transformer impedances, i.e., measured from a 230 kV bus along a 230 kV feeder, through a 230/138 kV step-down transformer, and an in-series 138 kV feeder to a 138/13.8 kV step-down distribution transformer? What impedance would the SDT apply to a PAR (or tap-changing transformer) and to the overall path if a PAR (or tap-changing transformer) were located in-series with the measured Elements? 1.a.ii. Power Flows – What is the meaning of “power flow data” as the term is used here and how is the meaning different from the term when used under 1.c. Power flows into the system, but rarely flows out? Should this sentence use the phrase “impedance data extracted from a load flow study” instead?
No
We generally support this exclusion option concept, to the extent that it is fashioned after the FERC Seven Factor test. However, we have a number of questions as to how it might work in practice. For example, the term “regional dispatch” is not defined. Please provide a definition or reference to a definition to be used in making this determination. Below we recommend adoption of the alternate term “operational control.” 1.b.ii, Operational Control - The SDT should consider using the terms “under the operational control of a Balancing Authority.” It is instructive that the overarching requirement for a finding of transmission system integration in Mansfield was that the facilities be under operational control of the Independent System Operator (ISO).* * Southern Cal. Edison Co., 92 FERC ¶ 61,070 at 61,255 (2000), reh'g denied 108 FERC ¶ 61,085 (2004). Replace the example in 1.b.i. with a clearer example.

No
We generally support this exclusion option concept, to the extent that it is fashioned after the FERC Seven Factor test. However, we have a number of questions as to how it might work in practice. For example: • If an entity provides hourly MWh power flow data on a radial for a 12-month period (under v.) showing no power flow reversals, would transaction data (under i. through iv.) still be required? Couldn't the entity just say "no operating records?" • If there were power flow reversals, wouldn't the power flow data (provided under v.) also show those, e.g., the amount and duration? Isn't this request redundant? If not, why not? Please explain. • If reversing power flows on a feeder caused it to fail one of the criteria, could the radial still be excluded, or is it necessary for the Element to pass all requirements? Alternatively, could the entity choose to file for Exclusion of that Element under the technical analysis option? What happens and what are the implications when the two approaches produce different outcomes? We recommend that "iv. The maximum amount of energy flowing out" limit be set to no more than 24 hours of reverse power flows within any rolling 12-month period. Replace "transactional records" with "operating records."
Yes
No
The technical analysis approach may have merit. However, we have a number of questions about how it would be implemented in practice. We are concerned that this method may allow an entity to exclude Elements simply because they are not the most limiting Element in a particular TPL analysis. What does "not being necessary for reliability operation" mean? Please define. The SDT should consider developing a Guidance Document to provide examples and insights to guide prospective filing entities. The TPL Reliability Standards already describe the full set of requirements for a reliable system. Why are added requirements necessary? Why would any such added criteria not conflict with the TPL Reliability Standards to the extent that they were either more or less restrictive?
2.a. The term "Planning Assessment" is not a defined term in the NERC Glossary of Terms Used and should not be capitalized, or alternatively it should be defined. 2.a.iv.1. Distribution Factor - The issue comes down to a judgment call concerning what feeder power flow participation level is material and what is non-material. In New York, the NYISO has traditionally used a 1% power transfer distribution factor (power TDF) cut-off. Feeders showing less than a 1% power transfer in a study are not materially participating in transmission.
The NYISO uses a 0.95 to 1.05 p.u. as the acceptable range for post-transient system conditions.
Yes
An impact-based method should be available for entities seeking Exclusions and Inclusions. The method should not allow excess regional discretion and unintended continent-wide variation. We recommend the power Transfer Distribution Factor (power TDF) approach mentioned in the reply to Question 6 above. If the Transmission Planner (TP) or Planning Authority (PA), e.g., the NYISO, were tasked with performing such analyses, using standardized assumptions, then regional discretion could be minimized.
No
We believe that Inclusions criteria should mirror the Exclusion criteria, and that consistent values should be employed for Inclusions here and for Exclusions above. That is, for example, if 0.95 to 1.05 (+/- 5%) p.u. is adopted as an acceptable voltage deviation range for Exclusions, then Elements resulting in post-transient system voltage deviations outside that range should be candidates for Inclusion. Further, all assumptions should also be fully documented for any proposed Inclusions.
See reply to Question 6.
See reply to Question 6.
Yes
See the EEI reply to BES Definition and Designations Question 11.

No
Group
Idaho Falls Power
Richard Malloy
No
We do not agree that all four criteria under exclusion #1 need be applied in combination to an element to determine its material impact. Assets satisfying all four defining criteria would seem exceedingly small and likely already excluded by the BES definition. This exception criteria appears redundant to, and shadows the NERC BES definition draft's language excluding radial elements and local distribution networks, and as such add little value to the exclusions built into the BES definitions. Further, the language of the exception criteria addresses transmission elements and doesn't provide exclusion criteria for generation assets. We would hope that NERC could develop criteria to exempt certain generation, especially those small resources on local distribution networks wherein the generation is completely allocated to local load. Language in section 215 of the FPA excludes distribution "elements." We assert that generation on a distribution network serving only load on that network is an "element" of the network and deserves exclusionary defining criteria.
Using these criteria assumes that every asset must be radial in nature in order to receive consideration that it may not be material to the BES. This then implies that the BES is a contiguous connected system as only radial off-shoots could receive exemption consideration. We disagree. Our assertion is that the BES is comprised of assets that due to their size or location are vital to a sound BES but may or may not necessarily be connected to each other. This defining criteria in the exception could be a stand-alone criteria or stricken.
No
We agree in general, however believe there is little distinction between the defining criteria in this exception and the local distribution network exclusion already provided for in the BES definition. We would like to see added language that provides an exclusion for all elements on such a system, to include generation regardless of MVA rating, wherein the power flows are generally into the system. We would agree that a number of MWh of annual outflow needs to be established as a limitation to the size and amount of generation under consideration. This exclusion should be geared towards smaller municipal or like sized systems having no material impact upon a BA much less the region.
No
We generally agree with this requirement. If a system has redundant transmission to move power that is normally wheeled through, the question of materiality could be addressed by technical analysis.
We generally agree with having two paths towards exclusion.
No
No comments
Yes
No
No comments
No
We believe that the final drafts of the definition and exemptions should comport to the legal

requirements of Section 215.
No
No comments
Individual
Tracy Richardson
Springfield Utility Board
Yes
SUB agrees with providing an exclusion exception for System Elements that are treated as “radial in character”, but feels this should be part of the core definition in NERC’s Proposed Continent-wide Definition of Bulk Electric System rather than requiring an exclusion/exemption application process. In SUB’s May 27, 2011 BES definition comments SUB expressed concern that there still appears to be inconsistencies in both definition and application of “radial.” SUB encourages NERC to develop a concise definition. For example, if a system is normally operated as radial, but could be operated closed (for example, by manually closing a breaker), would it be considered a radial or close-looped system?
No
NERC’s Proposed Continent-wide Definition of Bulk Electric System contains Exclusion E3 (LDNs) as part of the BES core definition. Why would this fourth item be necessary in demonstrating BES Exceptions if LDNs are already excluded as part of NERC’s core BES definition?
Yes
In general, SUB supports a technical analysis approach as a secondary/ alternative option for qualifying to apply for BES Element exclusions.
No
NERC’s Exception Criteria for Inclusions states that, “Entities can submit an application to see an exception for an inclusion in the BES...”, but SUB would ask NERC to clarify whether an entity can 1) seek an inclusion exception for them only, or 2) can an entity seek an inclusion exception for another entity? SUB would not support another entity having the ability to file for another entity.
Yes
• The four characteristics defined in the “Exception Criteria – Exclusions” portion of Technical Principles for Demonstrating BES Exceptions appears to be in conflict with, rather than in parallel to, the exceptions which are part of the proposed “core definition” in the Proposed Continent-wide Definition of Bulk Electric System. SUB proposes that NERC postpone work related to Technical Principles for Demonstrating BES Exceptions until a continent-wide BES definition is approved. • FERC Order No. 743 states, “We believe that it would be worthwhile for NERC to consider formalizing the criteria for inclusion of critical facilities operated below 100 kV in developing the exemption process”. However, there is no mention of critical facilities operated below 100 kV in NERC’s Exception Criteria. SUB would encourage NERC to include critical facilities consideration in their exception criteria.
Yes
SUB has the following concerns regarding NERC’s Technical Principles for Demonstrating BES Exceptions: • Clear Definition of Radial - As previously addressed in our BES Definition comments,

SUB would encourage a more clear definition of a “radial” versus “closed-loop” system. Because there still appears to be inconsistencies in both definition and application, SUB encourages NERC to develop a concise definition of a radial system. For example, if a system is normally operated as radial, but could be operated as closed (by manually closing a breaker), would it be considered a radial or close-looped system? If the answer is close-looped, then is this in all cases, or are there exceptions? • Approval of Exceptions – SUB would like for NERC to clarify the process for receiving, reviewing, and accepting or rejecting exception applications. The Technical Principles for Demonstrating BES Exceptions states that, “…will be subject to review and remand by the ERO itself, or by any agency having regulatory or statutory oversight of NERC as the ERO.” During NERC’s presentation at APPA’s BES Definition webinar, it was explained that the exception process would look like the following: 1. Entity applies for expemption, 2. Region receives application, verifies received, and forward to NERC with recommendation(s), and 3. NERC makes final determination (decision is appealable by entity). For consistent application of the expemption procedure, SUB would encourage NERC to adopt the process as it was communicated during the APPA webinar, with regions making recommendations, but NERC making the final decision. • Duration of Approved Exclusions/Inclusions – The Technical Principles for Demonstrating BES Exceptions does not indicate the duration for approved exclusions or inclusions. How long are granted exclusions/inclusions? Permanent? Annual? Other? • Publication of Exceptions – For consistent application, as well as transparency and accountability, SUB would request that all exceptions be published ; those applied for, as well as whether they were rejected or accepted, as well as decision rationale.
Individual
John Pearson
ISO New England
No
We disagree with this exception and believe that Section 1.a. should be deleted in it’s entirety and replaced with a definition that excludes remote areas of a generally lesser overall value to reliability and includes areas that are heavily networked serving large loads. The premise of the existing section 1.a. seems at odds with overall system reliability and possibly removes large metropolitan areas from the BES definition. How is close electrical proximity to load defined? A maximum number of Ohms? Heavily networked areas will have lower impedance and are more likely to serve larger amounts of demand and are therefore more likely to be impactful on the overall integrity of the BES.
No
This three part definition of radial presented in section 1.b. appears cumbersome and requires more definition. With regard to b.i - Where is the disturbance? Is sending a person to the field to perform manual disconnection a requirement of this exception? This item is so vague that we have difficulty providing replacement language as we do not understand its intent. With regard to b.ii – Elements (Excluding generators) are not dispatched in operations. If this approach were to be taken, what would be the criteria for the way the Element is treated in Operations? Again, this item is so vague that we have difficulty providing replacement language. The existing definition appears to require a good deal of technical scrutiny and be at odds with the goal of having a path for evidence that does not include extensive technical analysis. Overall it seems simpler to replace section b with a simpler definition of radial such as – all load served from a single substation at a single voltage level.
No
Section 1.c again appears to allow the exclusion of large portions of the system in metropolitan areas. How does this differ from the LDN exclusion already presented in the definition? Section c should simply be deleted.
No
This appears to be the same as section 1.c and again possibly allows for the exclusion of large portions of the system in metropolitan areas. Section 1.d. should simply be deleted.
No
The use of distribution factors is a significant concern. The term distribution factor is used a number of ways in the industry. Is this determined using the percentage pickup on the element in question following the loss of another element, or is this the percentage of a transfer that is picked up on the element in question, or a combination of both? Item 2.a.ii states that the TPL studies have to be run if the model is updated. The distribution factor is not required to be calculated as part of the TPLs and

therefore will require additional analysis in all circumstances, not just when the model is updated.
The use of distribution factors is a significant concern. The term distribution factor is used a number of ways in the industry. Is this determined using the percentage pickup on the element in question following the loss of another element, or is this the percentage of a transfer that is picked up on the element in question, or a combination of both? Item 2.a.ii states that the TPL studies have to be run if the model is updated. The distribution factor is not required to be calculated as part of the TPLs and therefore will require additional analysis in all circumstances, not just when the model is updated.
Is the requirement to evaluate the voltage dip on the element or is the test to evaluate the voltage dip on the BES due to a contingency on the element? Under the draft TPL standards, this will have to be tested and investigated anyway, so it is unclear as to what is being added or evaluated here.
Is the requirement to evaluate the voltage dip on the element or is the test to evaluate the voltage dip on the BES due to a contingency on the element? Under the draft TPL standards, this will have to be tested and investigated anyway, so it is unclear as to what is being added or evaluated here.
No
No
Comments were already included above.
No
No
Yes
Any generator that is studied individually will not be shown as material since the electric system is designed to allow the outage of any individual generator. Generators must be studied within the context of the electric system to assess materiality. The generator and its interconnecting transmission facilities would likely be able to be excluded based on this process although they meet the Registry Criteria thresholds requiring inclusion.
Group
SPP Standards Review Group
Robert Rhodes
No
Physical characteristics as described in 1.a.i. do not capture the true picture of the functionality of an Element. Rather than use impedance perhaps the SDT should use ‘radial’ or ‘having one source’ as the descriptive term.
No
Could the SDT clarify what is meant by ‘disconnection procedures’ in 1.b.ii? It appears that the SDT is okay with excluding an element that can be switched out of service without removing another element. How are automatic breaker operations or manual switching factored into disconnection procedures? We need clarification on this. More and better examples, including the type of connectivity to the grid, would be helpful.
No
Rather than combining two conflicting criterion – ‘rarely’ and the number of MHh of backflow allowed annually – we would suggest the following. 1) That the maximum outflow doesn’t create an issue on the BES. This would be determined by study of the system and conditions. Or 2) when the condition exists, be able to mitigate the condition within a prescribed time relevant to the prevailing system conditions.
No

It may be better to focus on the purpose, or need, of a facility, the functionality of the facility, rather than how electric flows impacted the facility during a given situation. Therefore, we would suggest moving away from the term ‘intent’.
No
There are situations where setting a minimum TDF will not work due to the nature of the TDF. For example, a radial line connected to a bus with two networked lines. The radial line serves only load and would normally be excluded from the BES. However, if we use the TDF as a factor the radial line would be included in the BES since the TDFs would be high.
Yes
We would suggest that the SDT consider an exclusion for networked municipal systems operating below 200kV which have more than 75 MVA of generation and whose systems do not include flowgates or IROLs.
No
Please see our comment in 5b above.
No
Yes
In Question 5 regarding the Transient and Steady State Stability criteria, we would suggest establishing criteria for the damping such that the time required to return to normal is limited. Damping in 1-5% range may be sufficient to accomplish this. Also, delete 2.a.iv.8. in the Exclusion Criteria and 1.c.8. in the Inclusion Criteria.
Individual
Jonathan Appelbaum
The United Illuminating Company
No
No
No
What does rarely mean? How is maintenance conditions considered? This is simply worded but conceptually extremely complicated.
No
The wording is ambiguous. What is meant by system? Different voltage levels, Owners?
No
This is not very different from trying to demonstrate no adverse impact outide the local area.
Distribution factor requires a definition.
Measured where on the BES?
Measured where on BES?
No
Procees is complicated and fraught with interpretations.

No
No
NERC modeling Standards should be sufficient
Yes
under the technical principles, some facilities that are local distribution facilities may be included the BES. This is in conflict with the definition of the Bulk Power System in Section 215 which excludes facilities used in local distribution. In particular, Local distribution facilities can not be included in the BES even if they are part of a cranking path.
Yes
UI is concerned that the method used to characterize exclusions in Method 1 did not follow the proposed BES Definition and believe the process developed for Method 2 (and reused for Sub-100kV Inclusions) is overly complicated, lacks necessary regional standards to support the process and may prove too difficult for some companies to fully comply with thereby discouraging a consistent and uniform application of the definition across all regions and affected BES element owners. These Principles are not technical Principles. Further the use of these Planning criteria and impact assessments is not very different from the NPCC functional test that drew the ire of FERC. The Drafting Team is attempting to develop definitions and identifiers for the fringes of the bulk power system, but they are replacing one set of ambiguities with a set of technical ambiguity. This product is poor because given the very first term, that is the first principle to be met, is those facilities necessary for the reliable operation of an interconnected transmission system, is full of undefined concepts such that anything attempting to define it in a subtle manner is immediately lost in the ether. Recognizing that these technical principles will be permanent, UI suggests excluding them and sticking with the bright line exclusions and inclusions in the proposed definition.
Individual
Neil Phinney
Georgia System Operations Corporation
The concept of “Load centers” is vague and needs more specificity for this to be clear.
If the BES Definition itself is clarified to allow for some de minimis amount of power flow out of a customarily radial line that is excluded by definition, this justification for an exclusion may not be necessary. We encourage the Drafting Team to pursue that approach because we believe it is technically justified and could significantly reduce the need for exceptions.
The concept of “intentional” transport of power is vague and needs more specificity for this to be clear. Also, it would help to have more information about the sort of “operational procedures” that would be acceptable as evidence.
It would be helpful to specify which TPL Standard(s) the referenced studies are usually prescribed for.

Group
Western Electricity Coordinating Council
Michelle Mizumori
Yes
As long as this remains an “AND” statement, WECC supports this concept. It helps to support the concept that the element is used as distribution to serve Load, rather than to transfer bulk power. However, some correlation between the size of the Load and the size of an element may be needed. For example, a line that can carry 600 MW in close electrical proximity a 20-MW Load may not meet the intent of this characteristic. Furthermore, the criteria must define where the load is located for the measure of electrical proximity. In planning models, loads are often aggregated to a higher voltage substation bus, while in a distribution system model they are typically modeled along a distribution feeder. The SDT should clarify how it intends for the load to be modeled for this analysis of close proximity.
No
This characteristic is vague and subjective. It is unclear what “radial in character” means, and the methods for demonstration do not appropriately clarify the meaning. WECC recommends that the SDT determine what it is looking for to show “radial in character” and clearly identify that concept in the methods for demonstration. It is not clear how Operating Procedures can demonstrate that an element is “radial in character” nor is it clear how a re-evaluation might be processed if such Operating Procedures, ownership, or operations change. WECC believes that BES inclusion or exclusion should be based on physical, technical characteristics of the element, and requests a justification for use of procedural or contractual documentation as evidence of a technical principle.
Yes
WECC agrees in concept with this characteristic, but it needs to be clarified whether the items i-v are “AND” statements. WECC also suggests that i and ii be switched and re-worded. Suggested language for ii would be “A limited set of conditions where power flows out must be identified; for example, only under specified Contingency events.” Then i can become a sub-bullet of ii. It must also be clarified that the specified conditions must have a technical justification to show that the element is not “necessary for reliable operation.” Otherwise it is not clear that the “limited conditions” are truly a justification for exclusion. Any non-zero MWh limit must have a technical justification, otherwise zero should be used. In addition to the imports/exports from the system, the size of the system (in MW) should also be defined.
Yes
WECC agrees in concept with this characteristic, but believes that there needs to be more clarity of what constitutes the evidence. Since flow data is used for characteristic c, it seems that the same sort of data (but separated into hourly flow in and hourly flow out) could be used to demonstrate this. Otherwise, a simple procedure that claims “power entering this system is not intentionally transported through the system to some other system” would meet the letter of the law, but gives no description of how this is achieved. If Operating Procedures are allowed, more clarity must be provided on what those procedures must entail.
Yes
WECC agrees in concept that a technical analysis can be used and should be allowed to show that an element is not necessary for reliable operation. However, the technical analysis must be based on sound reasoning and a justification must be given as to why the analysis makes a showing that the element is not necessary for reliable operation. Furthermore, the technical principles must identify what category(ies) of TPL studies must be run. Finally, the values used for the threshold criteria and/or disturbances must be more stringent than the applicable TPL criteria/disturbances. Otherwise the argument becomes circular because all BES elements must meet the TPL criteria, so by meeting them all elements could be excluded.

Yes
WECC recommends that the SDT consider not only the single-phase faults used in the TPL standards, but also the effect of more severe events such as two- or three-phase faults, with delayed clearing and the necessity of the element in those cases.
Yes
Yes
The Owner should have all of the data to perform this analysis for an Exclusion; however, an Inclusion would likely be sought by an entity other than the Owner (i.e., Regional Entity, RC, BA, TOP) that may not have sufficient data. It should be clarified in the Rules of Procedure that such an entity has the right to request such data and that the Owner must provide such data.
Yes
It must be clear that under NERC Standard IRO-010, the Reliability Coordinators are required to obtain information relating to the operation of the bulk power system within their respective areas. In light of this requirement, Reliability Coordinators may request the submittal of information for network facilities that ultimately are not determined to be BES facilities. It would be reasonable to also include a requirement that Reliability Coordination staff will explain why they require the requested information from non-BES facilities when seeking such information.
Yes
The biggest concern is that the Technical Principles and the reasoning behind them need to be fully explained. The SDT has mentioned on calls the possibility of a white paper or resource document, and WECC fully supports the creation of such a document. This white paper should describe the rationale for the criteria as well as how that indicates that the element is necessary for reliable operation. Also, the justification for the ERO to override these criteria should be clarified. It should be clear that the ERO's ability to override these criteria is on a case-by-case basis.
Individual
Michelle R DAntuono
Occidental Energy Ventures Corp.
Yes
Yes
Yes
Yes
Yes
Suggested additional method. The Element(s) meet all the following characteristics: 1) generally radial in nature, and 2) used to supply a retail customer from the point of delivery to the load regardless of voltage. Evidence to support this position could be an interconnection agreement indicating the point of delivery, a one-line diagram showing the point of delivery and load, etc. The

technical rationale is that protection of the BES for facilities serving a retail customer is the responsibility of the service provider (e.g., transmission owner/operator). These facilities are distribution facilities and are not now part of the BPS. Alternatively, this could be an Exclusion in the BES Definition as it is in the current definition.
Yes
The proposed technical principles seem to be in contradiction to the exemption in FPA Section 215 against the inclusion in the BES of facilities used in the local distribution of electric energy.
Yes
The Technical Principles and the new BES Definition seem to include a significant number of retail customers as proposed. Surely this is not the intent of these changes. There should be an exclusion along the lines of Comment 6.
Individual
Russ Schneider
Flathead Electric Cooperative, Inc.
No
agree in principle that one characteristic of local distribution systems is that they are usually confined to a relatively limited geographic area, as opposed to transmission systems, which (especially in the West) tend to cover very large distances. We also believe the proximity test may be a sensible way to identify local distribution facilities. However, we believe that the proximity test may be unnecessary, and if an Element or group of Elements meets other tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test.
Yes
agree conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not, and cannot legally, be classified as BES.
Yes
agree conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. We agree conceptually that the fact that power may flow out of a local distribution system onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the system as local distribution. Accordingly, we support inclusion of power flow analysis as one element of characteristics

that can be used to exclude local distribution facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a local distribution system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That a system meets this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. In addition, the presence of generation within a local distribution system that only modifies the level of the load served by the bulk system, but does not result in power being injection into the bulk system, does not change the reliability effect of the local network and therefore should not require the local network to be classified as BES.

Yes

agrees that the SDT’s fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Local distribution systems do not share any of these operational characteristics. Accordingly, we agree that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to a particular system will provide a ready guide to whether power is intentionally scheduled across that system. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary’s definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test.

Yes

agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES.

The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, we suggest that a detailed technical exemption process be allowed on an interconnections wide basis. The Western Interconnection is a “hub and spoke system” where loads are very remote from large generation plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of operations. For example, the Western Interconnection uses a rated paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC order 743-A we support exemption criteria for individual frequency independent regions, or interconnections.

we propose that, if an Element is to be excluded from the BES, removal of that Element should

produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency.
we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more.
we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more.
No
supports the exemption of generation interconnected to local distribution networks if the generation is less than 300 MW capacity and where the power generated is consumed within the LDN and rarely flows out of the LDN consistent with the section III.c.4 [Exclusion] of the NERC Statement of Compliance Registry Criteria as well as the Load modifiers used in the Eastern Interconnection. "Load Modifiers" (small generators that only affect load at the distribution level)."
Yes
Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system.
Yes
Obtaining data creates a cost and should be minimized as possible.
No
the proposed BES Definition could conflict with Section 215 of the Federal Power Act if the Definition, the Exception Process, and the Technical Criteria do not effectively exclude facilities used in local distribution from the BES or if the BES definition does not focus on cascading outages, separation events, and instability on the interconnected bulk system. These statutory limits on the scope of the BES and reliability standards are a minimum that must be met.
Yes
supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Individual
Ed Davis
Entergy Services
No
Entergy does not agree with the assumption that the proximity of a BES facility to Load is indicative of it's importance to BES reliability. Some lower voltage facilities can be quite short and thus have lower impedance but be important to BES reliability. Likewise some facilites remote from load centers may

have virtually no impact on BES reliability. There is also insufficient information as to how the impedance would be measured (locations of measurements within and outside of the "Load pockets". This Exemption Criteria should be removed. The term "Load centers" is not defined leaving it subject to interpretation. "Loads" are not BES Elements and therefore can not be exempted from being considered BES Elements. Item 1.a.i - "Loads within the system seeking exception are in close electrical proximity if they are separated by an impedance of no greater than TBD." This sentence needs to be deleted.
Yes
Entergy agrees that radial facilities should be excluded directly. However, the "radial in character" language is nebulous. A simpler approach could be to allow exceptions for facilities which become radial as a consequence of a normal system response to a disturbance (breakers opening during normal clearing of a fault).
No
Power flows into or out of a portion of the BES may characterize BES facilities less important to BES reliability but without limits to the size of the area, it would be difficult to show compliance. An entire state could be excluded from the BES. Additionally, there is no process specified to review the characteristics as transmission topology and resources change over time.
No
There is not sufficient evidence provided by the SDT to distinguish between this fourth item for exclusion and the third item for exclusion. They both seem to fall in line with what is excluded per the bright line exclusion E3 (or Local Distribution Networks), but as written, it would be difficult to measure what is meant by “is not intentionally transported through” in this fourth item just as it would be difficult to measure what’s meant by “flows into the system, but rarely flows out” for the third item. Such an exclusion should be required to include some technical analysis, but not extensive technical analysis (at least the inclusion of power flow base case as a minimum).
No
The entire approach seems overly complex and difficult to document.
Yes
Revise second paragraph to read “Due to the importance of designated Blackstart Resources and their Cranking Paths to restore efforts, no exceptions will be allowed for those items that are included in a system restoration plan.” Technical rationale: Multiple Blackstart Resources and Cranking Paths are frequently available but are not included in a system restoration plan. System restoration plans describe the Blackstart resources and cranking paths that are deemed to be necessary for system restoration. Section “Exception Criteria – Exclusions”: Add 1.e. “Generation that is inoperable and not planned to be placed back into service but not yet officially decommissioned.” Technical rationale: These facilities are not relied on to insure the reliability of the BES.
No
It is unclear why an inclusion process should be necessary. Including facilities not otherwise included in the basic definition should be at the discretion of the TO.
No
No
No

Individual
Jack Stamper
Clark Public Utilities
Yes
Clark believes the proximity test should be considered be a valid factor in determining whether a facility is part of the BES or not. Just as this factor is used in the consideration on whether a facility is part of a Local Distribution Network. Clark is not convinced that “proximity” and “impedance” are interchangeable. While impedance will be lower for shorter distances it will also be affected by other factors that are not indicative of close proximity. Distance seems more appropriate to use since it would complement a literal interpretation of the term proximity.
Yes
Clark agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider’s point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility’s service territory. To be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, Clark agrees that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Clark agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Clark agrees that the SDT’s fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. Clark believes this may be the most important and readily identifiable distinction. Accordingly, Clark agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES.
Yes
Clark agrees conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Clark supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. Clark recommends that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish’s White Paper. For example, Clark proposes that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish’s White Paper also sets forth recommended thresholds for transient frequency response. For example, Clark proposes that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
See Clark’s comments on 5c and 5d.
No
Yes
As a general matter, Clark agrees with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. Clark also agrees that the SDT has, in general, identified the correct technical approach, although Clark recommends that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in Clark’s answer to Question 5.
See comments in 5.
See comments in 5.
See comments in 5.
See comments in 5.
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis Clark recommends is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
No
Individual
Dave Markham
Central Electric Cooperative
Yes
First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other

mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary’s definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, we suggest that a detailed technical exemption process be allowed on an interconnections wide basis. The Western Interconnection is a "hub and spoke system" where loads are very remote from large generation plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of ways for various operations. For example, the Western Interconnection uses a rated-paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC order 743-A, we support exemption criteria for individual frequency independent regions, or interconnections.
Specific transient voltage dip thresholds are proposed on page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided on pages 12-16 of Snohomish's White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary

because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Dave Hagen
Clearwater Power Electric Cooperative
Yes
First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.
Yes
We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.
Yes
As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We

also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.
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Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes

As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece

of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Roman Gillen

Consumer's Power Inc.

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were

constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

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Please see our response to Question 5d.
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Individual

Roger Meader

Coos-Curry Electric Cooperative

Yes

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Individual
Dave Sabala
Douglas Electric Cooperative
Yes
First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.
Yes
We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those

facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

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We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish’s White Paper, which is based upon the approach recommended by the WECC BES Task

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Page 15 of Snohomish’s White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish’s White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT’s overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to “override this criterion” if it provides “additional justification” for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if “additional justification” is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.
Please see our corresponding answers to Question 5 for 7b-7e.
No
As discussed on page 12 of Snohomish’s White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting

point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Bryan Case

Fall River Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

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Please see our response to Question 5d.
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have been exhausted.
Please see our corresponding answers to Question 5 for 7b-7e.
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Individual
Rick Crinklaw
Lane Electric Cooperative
Yes
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concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

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Please see our response to Question 5d.

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As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach,

we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to

comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Michael Henry

Lincoln Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased

on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.
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Specific transient voltage dip thresholds are proposed on page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided on pages 12-16 of Snohomish's White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.
Please see our response to Question 5d.
No

Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.
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Individual

Richard Reynolds

Lost River Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

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Please see our response to Question 5d.

No

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Individual

Annie Terracciano

Northern Lights Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

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exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

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We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish’s White Paper, which is based upon the approach recommended by the WECC BES Task Force.

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Please see our response to Question 5d.

No

Yes

As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

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No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Doug Adams

Okanogan Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and,

while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

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Please see our response to Question 5d.

No

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Individual

Heber Carpenter

Raft River Rural Electric Cooperative

Yes

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Please see our response to Question 5d.

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No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO “shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System.” 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term “Bulk-Power System” or “BPS” as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy.” Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Ken Dizes

Salmon River Electric Cooperative
Yes
First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.
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We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.
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ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.

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Specific transient voltage dip thresholds are proposed on page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided on pages 12-16 of Snohomish's White Paper.

Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.

Please see our response to Question 5d.

No

Yes

As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should

be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

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Individual

Steve Eldrige

Umatilla Electric Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

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Please see our response to Question 5d.

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Individual

Marc Farmer

West Oregon Electric Cooperative

Yes

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Please see our response to Question 5d.

No

Yes

As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

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No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.

Individual

Rick Paschall

Pacific Northwest Generating Cooperative

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those

facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary’s definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

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Please see our response to Question 5d.
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Individual

Aleka Scott

PNGC Power

Yes

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Please see our corresponding answers to Question 5 for 7b-7e.

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Individual

Stuart Sloan

Consumer's Power Inc.

Yes

First, thank you for the opportunity to comment on the Technical Principles for Demonstrating BES Exceptions. We appreciate the work that NERC has done on these principles and the other related efforts to revise the definition of the BES. In response to question #1, we note only that using

impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

We agree conceptually that facilities operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. However, to be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as facilities that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that facility is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution facilities and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution facilities interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

We agree conceptually that one critical characteristic distinguishing facilities that must be excluded from the BES from facilities that should be included is the manner in which power flows on those facilities. Hence, the SDT has properly identified power flows as one important characteristic that identifies BES facilities. We also agrees conceptually that the fact that power may flow out of facilities onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the facilities in question as excluded from the BES. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify facilities that are not necessary for the operation of the BES under this text, we propose that any facility where real power flows in 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That facilities meet this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. While we agree with the SDT’s view that power should flow predominantly in the direction of load for excluded facilities, we are concerned that this characteristic may no longer be a defining characteristic as the electric industry evolves in the future. If distributed generation becomes the future norm for new power generation facilities, it may no longer make sense to look at power flow as a defining characteristic. That is, even if a sufficient number of small distributed generation facilities were constructed on certain facilities to cause power to flow out of those facilities more than ten percent of the time, the fundamental character of those facilities will not have changed. Finally, we believe that power flow analysis under this item should consider actual power flow, not scheduled power flow.

Yes

As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Facilities that do not share any of these operational characteristics should not be part of the BES. Accordingly, we agree that if power is not intentionally transported through particular facilities, those facilities should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to particular facilities will provide a ready guide to whether power is intentionally scheduled across those facilities. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary’s definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test. Finally, as noted in our answer to Question 3, we are

concerned that, if distributed generation advances significantly, power transport may cease to be a meaningful measure for determining whether a facility is part of the BES, and we believe that power flow analysis should consider actual power flow, not scheduled power flow.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with non-BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish Public Utility District has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish's White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, we suggest that a detailed technical exemption process be allowed on an interconnections wide basis. The Western Interconnection is a "hub and spoke system" where loads are very remote from large generation plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of ways for various operations. For example, the Western Interconnection uses a rated-paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC order 743-A, we support exemption criteria for individual frequency independent regions, or interconnections.

Specific transient voltage dip thresholds are proposed on page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided on pages 12-16 of Snohomish's White Paper.

Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided on pages 12-16 of the White Paper.

Please see our response to Question 5d.

No

Yes

As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid justification showing that the Elements in question contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in Snohomish's White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach.

we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.

Please see our corresponding answers to Question 5 for 7b-7e.

No

As discussed on page 12 of Snohomish's White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.

No

Yes

In general, as we discuss above, the Technical Principles for Demonstrating BES Exceptions present a reasonable approach to resolving questions of inclusion and exclusion in the BES that the BES definition itself does not clearly resolve. However, we caution that these principles for demonstrating exceptions cannot, and must not, take the place of a consideration of, and criteria under whether, any specific piece of equipment is subject to FERC, the ERO, and Regional Entity jurisdiction in the first instance. Section 215 of the Federal power Act (FPA) sets out clear limits of jurisdiction of FERC, the ERO, and Regional Entities for purposes of developing and enforcing reliability standards. Specifically, Section 215(i) provides that the ERO "shall have authority to develop and enforce compliance with reliability standards for only the Bulk-Power System." 16 U.S.C. § 824o(a)(1) (emphasis added). Section 215(a)(1) of the statute defines the term "Bulk-Power System" or "BPS" as: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy." Id. As we have explained in our comments on the BES definition, that definition should expressly account for these jurisdictional limitations up front. This would allow for the jurisdictional limitation consideration as the very first step in determining whether or not a particular piece of equipment is part of the BES. The Technical Principles for Demonstrating BES Exceptions, on the other hand, provides a completely separate set of criteria for exclusion from the BES and would come into play only after application of the full BES definition to a particular piece of equipment and determination that the BES definition does not provide a satisfactory answer as to whether that piece of equipment is or is not part of the BES. This is acceptable insofar as it goes, but, because (1) the criteria in the Technical Principles are distinct from the jurisdictional limits of Section 215 of the FPA, and (2) consideration of the Technical Principles would essentially be the last, or one of the last, steps in the process, the Technical Principles cannot substitute for, in any way, consideration of the jurisdictional limitations of the FPA. Again, we cannot overemphasize enough how important it is to have the jurisdictional consideration be the very first step in the process of determining whether a particular piece of equipment is or is not part of the BES. Again, thank you for the opportunity to

comment. We look forward to continuing to work with NERC and stakeholders to develop a BES definition that is both workable and lawful.
Individual
Bill Keagle
BGE
No
BGE is not clear as to why “close electrical proximity to load” is appropriate to use as a factor in determining exclusion.
Yes
No comment.
No
BGE is generally opposed to this requirement because the MWh factor is too variable and/or may be utilized in a way contrary to reliable system operation.
Yes
BGE generally agrees with this requirement, but believes that the term “system” should be clarified.
Yes
BGE believes that there is value in allowing for exclusions through a technical analysis path. Because multiple entities may perform “planning assessments” using different models, the phrase, “*the* most recent *applicable* planning assessment” should be clarified to avoid ambiguity as to which model(s) are acceptable. It may be useful to designate the models used in the Planning Authority analyses as acceptable.
BGE requests that it be made clear that the 2(a) iv.1 criteria refers to the of the distribution factor for the loss of any other facility on the subject Element, whereas criteria 2 through 7 refer to the performance following the loss of the subject Element.
For PJM members, this figure is set at 5%. BGE suggests a lower figure such as 2-3%.
No comment.
BGE believe the loss of the facility in question should cause only a small voltage deviation to the BES (on the order of 1%).
No
No comment.
Yes
BGE believes that there is a value in allowing for inclusions through a technical analysis path; however, it is critical that such a path does not allow for unreasonable inclusion of facilities that do not warrant BES status.
No comment.
No comment.
No comment.
No comment.
No
No comment.
No
No comment.
No
It is important to consider that the Technical Principles for Demonstrating BES Exceptions is only one part of the BES definition project. The Technical Principles and the Rule of Procedure Process must be evaluated together with the BES Definition to sufficiently understand the revisions. In the end, the Technical Principles and the BES Definition must coalesce and be clearly coordinated and understood. The BES Definition language must include reference to the role of the associated defining documents. One unambiguous document must not be made ambiguous by an associated document or process. We appreciate the work of the drafting team and support the goal to produce clear definition language so that upwards of 95% of the assets are clearly distinguished as either included or excluded from the BES. We are particularly sensitive to the potential for burdensome processes (e.g. TFEs) to be added

to reliability compliance. We appeal to the team for continued, vigilant consideration of the arduousness of the BES determination process.
Group
NERC Staff
David Taylor
No
Electrical proximity to load is not an informative measure of whether Element(s) are necessary for reliable operation or the potential reliability impact of excluding Element(s) from the BES. Establishing a maximum impedance threshold as proposed would assure only that the excluded Element(s) do not span a large electrical distance. While minimizing impedance may be beneficial for some aspects of reliability, other aspects of BES reliability are improved with higher impedance. For example, higher impedance minimizes through-flow of power and minimizes impacts to BES reliability associated with faults and switching errors.
No
We believe that restating this measure as “System performance impacts are similar to radial systems” would be more in-line with the SDT intent and a better measure of whether Element(s) are necessary for reliable operation. We also believe that the best measure of whether Element(s) affect system performance in a manner similar to radial systems is through distribution factor analysis. Such analysis, when limited to this purpose, does not require extensive technical analysis. Analysis for a limited number of stressed transfer conditions, and contingencies involving the Element(s) under consideration and in the area of the Element(s) under consideration, is sufficient to demonstrate whether the system performance impacts are similar to radial systems.
No
Requiring that power flows into, and rarely out of, the Element(s) considered for exclusion is an appropriate measure, as is requiring an entity to define the conditions under which power will flow out. In addition to information such as specified contingencies in item (ii), details on the conditions should include other relevant information such as the system load level, generation dispatch, system transfer levels, etc., and the number of hours per year these conditions are expected. An exception request also should include the maximum flow expected. E.g., the following information would be useful in evaluating a request for exception: “Power will flow out only when line A is out of service, system load is at or below X percent of peak load, and generator B is on-line; based on the load duration curve for this area and the number of hours generator B is dispatched at these load levels, the exposure to power flow out for this contingency is limited to N hours per year and the maximum flow if the contingency occurred during these hours would be Y MW.” This type of information will be far more informative than a pass/fail test as to whether a MWh threshold is expected to be exceeded. While a MWh threshold may be useful for evaluating requests, it is unlikely that a one-size-fits-all threshold could be established for evaluating exception requests.
No
Limitations on through-flow of power is an appropriate consideration; however, whether the power flow is intentional should not be a primary consideration. Intent is not measurable and most major disturbances are the result of unintentionally placing the system in an unreliable operating condition. The main clause in item (d) should be modified to reflect that transporting power to another system through the Element(s) to be excluded is prevented (such as by system configuration and/or impedance) or restricted (such as by Operating Procedures). Sub-items (i) and (ii) already are consistent with this revision to the main clause.
No
NERC staff is not opposed to development of evidence based on technical analysis; however, the type of analysis included in this exception criterion requires extensive resources and lacks sufficient detail to allow for consistent and repeatable application. Concerns with this approach include (1) the ability to provide sufficient guidance on the system conditions and contingencies necessary to support an exception request, (2) difficulty with identifying thresholds for items iv-1 through iv-4, and (3) the ability to address interdependencies among exception requests. These concerns can be addressed by deleting this second path for evidence and including technical analysis on a limited basis to assess performance as described in our response to Question 2. If the SDT elects to retain this second path for evidence, then our three concerns must be addressed. In particular with regard to our third

concern, the ERO must be able to deny requests for exception based on the cumulative impact of all previously approved exceptions.
No
No
NERC staff is not opposed to development of evidence based on technical analysis; however, we have the same concerns with the exception criterion for including Element(s) as with exception criterion 1 for excluding Element(s). The type of analysis included in this exception criterion requires extensive resources and lacks sufficient detail to allow for consistent and repeatable application. Additional concerns with this approach include (1) the ability to provide sufficient guidance on the system conditions and contingencies necessary to support an exception request, (2) difficulty with identifying thresholds for items iv-1 through iv-4, and (3) the ability to address interdependencies among exception requests.
No
No
Yes
A criterion should be added for supporting a request for inclusion of an Element. If an Element has been identified as causal or contributory to a Category 2 or higher event as defined in the ERO Event Analysis Process, that should be sufficient evidence that it is necessary for the Element to be planned, designed, maintained, and operated in accordance with NERC Reliability Standards. An assessment of the Element should include consideration of any corrective actions that have been implemented to prevent a reoccurrence. The Exception criteria also should include a list of characteristics of Elements that will not be considered for exclusion, on the basis that this list of characteristics already identifies the importance of such Elements to reliable operation of the interconnected transmission network. Characteristics should include: (1) Elements that are relied on in the determination of an Interconnection Reliability Operating Limit (IROL); (2) Blackstart resources and the designated blackstart Cranking Paths identified in the Transmission Operator's restoration plan regardless of voltage, (3) Elements subject to Nuclear Plant Interface Requirements (NPIRs) as agreed to by a Nuclear Plant Generator Operator and a Transmission Entity defined in NUC-001, and (4) Elements identified as required to comply with a NERC Reliability Standard by application of criteria defined within the standard (e.g., the test defined in PRC-023 to identify sub-200 kV Elements to which the standard is applicable.)
Individual
Rick
Spyker
No
We agree with this concept to allow entities to submit an exception application that does not include extensive technical analysis. Such an option will make the process efficient for all stakeholders, such as entities, Regions, NERC and relevant regulatory authority. However, our opinion is that there is no real relation between reliability and the proximity of load. Consistent with references in the FERC Order, we feel that it is much more important to identify and ensure if the element(s) are serving load pockets associated with large metropolitan load centers (e.g. New York City, Washington DC, Toronto), loads of significance to national security and/or as identified by relevant Federal, State or

Provincial Regulatory Authority. We believe that entities should be required to identify the significance of the elements' physical characteristics, such as the proximity of element or, being served or impacted by the element to a load of significant interest. Such identification can be done through a simple checklist along with any relevant comments. Therefore, we suggest the SDT to revise the exception criteria to seek an alternative language and/or re-craft exclusion criteria (a), which will require entities to provide the previously stated information for their element.
Yes
We agree with this concept. Entities should be allowed to demonstrate the radial characteristics to determine if they are permitted for an exception.
Yes
We agree with the criteria set out in 1(c), but suggest the SDT to avoid prescribing values and eliminate bullet (iv). The SDT should describe the intended performance outcome but avoid setting values. This should have little, if any impact on reliability of the transmission network if the items 1, 2 and 3 are satisfied.
Yes
Yes
We agree that entities should be given an option to conduct an analysis to demonstrate if an element is necessary or not for the operation of transmission network. We also support that NERC should specify all the relevant criteria category to be listed as under 2 (a). However, we suggest that NERC should avoid prescribing numerical values but establish a range of value (or reference industry standard) that would be consistent with industry/ regional standards or practices without compromising the reliability of transmission network.
The SDT should avoid setting values and instead describe the intended performance outcomes from the measurement
We suggest SDT to make references to relevant industry standard such as IEEE standards
The SDT should avoid setting values and instead describe the intended performance outcomes from the measurement
The SDT should avoid setting values and instead describe the intended performance outcomes from the measurement
Yes
Technical Analysis must fundamentally use NERC – TPL methodology and testing requirements.
Yes
We agree that entities should be allowed to conduct an analysis to demonstrate if an element is necessary or not for the operation of transmission network. We also support that NERC should specify all the relevant criteria category to be listed as under 2 (a). However, we suggest that NERC should avoid prescribing numerical values but establish a range of value (or reference industry standard) that would be consistent with industry/ regional standards or practices without compromising the reliability of transmission network.
See comments in section 5
See comments in section 5
See comments in section 5
See comments in section 5
No
Yes
NERC's revised definition will have a direct impact on entities across North America and may conflict with regulatory requirements, Codes, and Licenses. FERC in its Order 743 and 743A has directed NERC to address these concerns. We suggest the SDT and RoP teams should: • modify the exception criteria and procedure to provide regulatory flexibility with requirements to conduct basic technical analysis , to allow entities to consistently present their case to the ERO and/or the regulator for a step by step expedited evaluation. • Include provisions in both the NERC exception criteria and exception process for federal, state and provincial jurisdictions. These provisions should provide clear guidance

so that, if and when there are deviations from the exception criteria, they are identified with technical and regulatory justifications ensuring there is no adverse impact on the interconnected transmission network. • Understand that the path to generating facilities need not be always BES contiguous. Generating units can/should be required to be planned, designed, and operated in accordance with a subset of NERC Standards, but should not always require contiguous paths.
Yes
Exception criteria should be crafted at a high-level with key menu items of assessment that can be followed continent-wide by entities to put forward their exception for element(s) that are not necessary for the interconnected transmission network and based on technical assessment, evidence and justification for its unique characteristics, configuration, and utilization.
Individual
Clint Gerkensmeyer
Benton Rural Electric Association
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
Benton REA agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Benton REA agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Benton REA agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Benton REA agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may

be for a small embedded generation unit owned by a different party that may be “scheduled” out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Benton REA supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish’s White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish’s White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comments Question 5
See exclusion comments Question 5
See exclusion comments Question 5
See exclusion comments Question 5
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No

As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Benton REA generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Individual
Robert Ganley
Long Island Power Authority
Yes
Agree with close proximity to load concept but further direction (define suggested methodology) is required for how to calculate impedance value. In addition to impedance value suggest consideration of adding mileage or relative phase angle differences between locations be also an allowable criteria.
Yes
Elements could be included in a regional dispatch such as a large regional ISO, but still serve only local load and therefore should still be treated as radial.
Yes
Item iv. The maximum amount of energy flowing out is (TBD-1,752,000) MWh per year. Another measure that may be more appropriate is a percent % of total energy requirements in the area.
Yes
In addition to Operating Procedures, electrical elements that restrict or control flow over the line should be allowed to be used as evidence.
Exclusion under this criteria would require that the analysis be performed by the registered TP. Criteria identified is based on interconnection to neighboring utilities.
No
Yes
Yes

The Reliability Coordinator would be required to provide much of the data needed to perform the technical analyses.
Individual
Thad Ness
American Electric Power
Yes
Using “proximity to load” is a reasonable metric, but would require further consideration given the impedance value eventually chosen to replace “TBD”.
Yes
Considering whether or not the element is treated as radial is a reasonable approach.
Yes
Requiring that “power flows into the system, but rarely flows out” is a reasonable approach, but would require further consideration given the MWh value eventually chosen to replace “TBD”.
Yes
Requiring that “power entering the system is not intentionally transported through the system to some other system” is a reasonable approach.
Yes
No
No
Yes
Each criterion specified would not be able to be provided, or even applicable, for each exclusion requested. If the criteria provided may be selected from as necessary for each request, then we have no concerns on our ability to provide the data. Our only concern would be if the intent is that each and every criterion specified must be provided for each request made.
No
AEP is not aware of any conflicts between the proposed approach and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, or jurisdictional issue.
Yes
AEP appreciates the work that the drafting teams have done within the various deliverables related to the BES definition, technical principles for demonstrating BES exceptions, and the BES definition exception process. AEP acknowledges the benefits of agreeing to a BES definition and exception process, and appreciates the drafting teams’ requests for industry involvement. Due to the interrelated nature of the deliverables currently out for review regarding the BES definition and exception processes, it is difficult if not impossible, to comment “in isolation” on any individual facet of the project. For example, there needs to be a defined relationship between an approved definition of BES, the technical principles for demonstrating BES exception, and the exception process itself. When closely related projects such as these are done simultaneously, no individual deliverable can rely on the completed work of another. As a result, we risk having conflicting decision making across

these projects. As a result, AEP is not in the position to make further comments at this time beyond those recently and concurrently made regarding the BES definition and technical principles for demonstrating BES exceptions. We suggest that further work on these efforts, when appropriate, become more consolidated and that care be taken to not undertake concurrent efforts before sufficient progress has been made on important aspects of the project. AEP appreciates the drafting teams' requests for industry input, and looks forward to its future involvement after additional progress has been made on these issues.
Individual
David Burke
Orange and Rockland Utilities, Inc.
No
The approach does not differentiate between transmission and distribution. There is no direct relation between impedance and load. A study of the particular system should be performed to assess impact on BES.
Yes
Yes
The "TBD" value should be reasonable and well justified.
Yes
No
This approach is not necessary since NERC TPL Reliability Standards already addressed how to maintain a reliable electric system.
Yes
FERC Order No. 888 – Seven Factor Test.
No
The Inclusion criteria should mirror Exclusion criteria. See comments 5.
No
No
No
Individual
David Thorne
Pepco Holdings Inc
No
A specific impedance value would not be appropriate for all regions and all configurations.
No
Radial system is already an explicit Exclusion by definition (E1). Does this imply that ALL radial systems require a request to be submitted for the RE and NERC approval that the elements are in fact radial? There may not be internal written procedures describing the radial system operation. The

evidence that an entity can provide should include a description or justification of the radial operation and non impact to the BES.
No
The characteristic statement should be reworded to say: “Power flow is generally load serving.” The criteria as written have very burdensome MWh record requirements. Yearly totals for flows in and out and an overall description or justification for this exception should be allowable.
No
This criterion is very similar to the third item. Written operating procedures may not exist. The entity should be allowed to summit a description and justification.
No
Generally agree that a specific technical analysis approach (power flow studies) showing no impact on BES is appropriate, but don’t know how to define specific criteria on which to base decision.
No
No
Same comments as question #5
Yes
The entity may not have the tools, model or resources to do a full transmission planning study
Yes
Facilities defined as local distribution facilities should not be forced into BES classification due to this new bright line definition.
Yes
Concern that as this proposal is written such that each exclusion in the BES definition (E1, E2 and E3) will require a submittal to approve that is an exclusion.
Individual
Paul Titus
Northern Wasco County PUD
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
Northern Wasco County PUD agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider’s point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility’s service territory. To be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree

that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Northern Wasco County PUD agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Northern Wasco County PUD agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Northern Wasco County PUD agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Northern Wasco County PUD supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of

that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Northern Wasco County PUD generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Individual
Alice Ireland
Xcel Energy
Yes
Yes

Yes
Regarding the question on MWH, one possible approach is to use 175,000 MWH/ year which would be just under the annual hourly output from the smallest generator (not at a plant) that must be registered under the registry criteria.
Yes
It is not clear what ‘some other system’ would be. Is this another point on the BES in general?
Yes
Yes
Xcel Energy would like the SDT to consider a Capacity Factor exclusion for generating resources that are rarely used. For example, at least two standards that are currently being drafted exempt generators that have an average Capacity Factor of 5% or less over a three year period.
Yes
No
No
No
Individual
Jianmei Chai
Consumers Energy Company
No
Consumers Energy Company (CECo) proposes that this criterion be eliminated, as it is not a definitive BES criterion. There is no correlation between the proximity of Elements that are 100kV and above to load.
Yes
Yes
Yes
No
Generally, this approach seems sound.
This criterion raises concerns. If based on transfer distribution factor it may have some merit, depending on the TBD value. However, the criteria should not be based on outage transfer distribution factor, as Draft 1 implies, since loss of certain local distribution facilities can result in local distribution load being transferred to other local distribution facilities. Distribution facilities should not be prevented from exclusion from BES.
The criterion related to Transient Voltage Deviations should be removed. This criterion, regardless of

value TBD, would be impossible to achieve, and would render this process meaningless. A fault on non-BES elements will cause significant transient voltage dips on nearby BES elements until the fault is cleared. If the non-BES element is at the same voltage level, the dip will result in near-zero voltages; if at different voltage levels, the dip magnitude will be determined by the ratio of the system Thévinen impedance at the BES to the intervening transformer impedance - if the system Thévinen impedance is 2% and the transformer impedance is 18%, the voltage on the BES will dip to 10%.

The criterion relative to frequency response should be removed. Frequency deviations can result from large changes in distribution load. Distribution facilities should not be prevented from being excluded from BES.

This criterion may be reasonable, depending on the TBD value. The TBD value may need to vary for different voltage levels or system configurations. The criteriona needs to recognize that loss of multiple capacitors at the distribution level could result in significant voltage deviation at the BES and this must not prevent distribution facilities from being excluded from BES.

No

We believe all of the Inclusion criteria should be replaced by a single criterion, which would include any element that could cause cascading outages of greater than 1,000 MW.

If our suggestion in 7a is not adopted, we propose the following: If based on transfer distribution factor this criterion may have some merit, depending on the TBD value. However, the criterion should not be based on outage transfer distribution factor, as Draft 1 implies since loss of certain distribution facilities can result in distribution load being transferred to other interconnection points. Distribution facilities should not be classified as BES.

If our suggestion in 7a is not adopted, we propose the following: The criterion related to Transient Voltage Deviations should be removed from the Inclusion Process. This criterion, regardless of value TBD, would cause any element, perhaps even including radial Primary Distribution Facilities (8.2 kV, etc.) to be sequentially included as BES. A fault on non-BES elements will cause significant transient voltage dips on nearby BES elements until the fault is cleared. If the non-BES element is at the same voltage level, the dip will result in near-zero voltages; if at different voltage levels, the dip magnitude will be determined by the ratio of the system Thévinen impedance at the BES to the intervening transformer impedance - if the system Thévinen impedance is 2% and the transformer impedance is 18%, the voltage on the BES will dip to 10%.

If our suggestion in 7a is not adopted, we propose the following: The criterion relative to frequency response should be removed. Frequency deviations can result from large changes in distribution load. Distribution facilities should not be classified as BES.

If our suggestion in 7a is not adopted, we propose the following: This criterion may be reasonable, depending on the TBD value. The TBD value may need to vary for different voltage levels or system configurations. Loss of multiple capacitors at the distribution level could result in significant voltage deviation at the BES and the criterion should be developed so as not to result in Distribution facilities being classified as BES.

Yes

CECo is not able to formulate detailed comments at this time, as the criteria have not been finalized. There are a number of items that are somewhat open ended, i.e. TBD and Other. Once those gray areas are filled in, we will have a better idea of our ability to obtain the necessary data.

Yes

The Technical Principles for Demonstrating BES Exceptions should not conflict with the seven-factor test provisions of FERC Order 888. In particular, provisions should not be established by the Standard Drafting Team that contradict prior Commission rulings associated with seven-factor test provisions.

Yes

In addition to the owner, only those with jurisdictional authority, such as the ERO and RRO, should be permitted to register Exception Requests. A third party may have a business reason for wishing to encumber another entity with regulatory compliance risk and responsibility. In addition, this could create an additional strain on the Exception Request process due to an excessive number of requests from third parties. We do want to ensure that the term "Other", used in Exclusion Section 2.a.iv.8., and Inclusion Section 1.c.8., not remain in the final Technical Principles document.

Group
PPL Supply
John Cummings
No
See comments in Questions 9 and 10
No
See comments in Questions 9 and 10
No
See comments in Questions 9 and 10
No
See comments in Questions 9 and 10
No
See comments in Questions 9 and 10
Yes
See comments in Questions 9 and 10
No
See comments in Questions 9 and 10
Yes
See comments in Questions 9 and 10
Yes
Based on FERC Order 743 paragraph 120, radial and local distribution facilities should be excluded from the definition of the Bulk Electric System (BES). The exclusion of non-networked facilities such as radial lines is further re-enforced with Order 743 paragraph 73 which describes the characteristics of a network and does not include most generator interconnection facilities. In that order, FERC justified its bright-line, 100 kV threshold, explaining that "many facilities operated at 100 kV and above have a significant effect on the overall functioning of the grid" because they share the following characteristics: 1. "operate in parallel with other high voltage and extra high voltage facilities" i. The “bright line” at 100 kV recognizes many 100 kV lines parallel other HV/EHV lines and can be significantly loaded by failure of the HV/EHV lines. This does not apply to radial lines, even at 100 kV and above. 2. "interconnect significant amounts of generation sources" (emphasis added) 3. "operate as part of a defined flow gate" 4. have a "parallel nature" and are capable of “caus[ing] or contribute[ing] to significant bulk system disturbances”. i. Radial lines cannot cause significant BES disturbances since the outage of a radial line is studied in all N-1 planning studies and if the TPL standards are followed, an N-1 should not cause such disturbances. Excluding generator lead lines is very practical because the physical reality of a radial generator lead line is that it cannot be overloaded by outages on parallel paths because there are no parallel paths. Further, the MW flow on a radial line is well known and limited to a known maximum (limited to the larger of the generation or load on the end of the line); clearly these are reasons for excluding radial lines. When and if a generator lead line is tapped by another generator or load, it is possible that the line between the tap point and the original point of interconnection might need to be rolled into the electrical network. However, at that time, it might also be possible for the transmission owner to purchase the line and make the tap point the new point of interconnection.
Yes
General PPL Supply concerns with draft Technical Principles for exclusion/inclusion: 1. It may be

premature to work on an exclusion/exemption/inclusion process since the BES definition is not established yet. A lot of work could be done on the Exclusion/Inclusion that is meaningless because there is some chance the exclusion/inclusion process will not complement or might duplicate the BES definition. 2. The proposal will result in inclusion of generation facilities that are not significant to BES reliability. 3. The exclusion/inclusion drafting team does not appear to have considered the FERC assessment in Order 743-A (17-Mar-11) that “material impact assessments” cannot be unduly subjective and must be technically based as stated in paragraph 47. a. For the material impact tests in the Exclusion/Inclusion Technical Principles to be technically based, it is important that the tests actually measure what FERC states are the characteristics of the BES (see Order 743 paragraph 73), namely 1) operate in parallel, 2) carry significant amounts of generation, 3) operate as part of a defined flowgate, 4) are parallel in nature and 5) are capable of causing or contributing to significant disturbances. The proposed tests do not make these measurements. b. Further, since all facilities already meet the technically based NERC planning and operating standards, any additional measure beyond these standards such as those created by the BES Exclusion/Inclusion drafting team will be unduly subjective, as these new measures go beyond the technical basis of the NERC standards. 4. It is unclear how the exclusion/inclusion drafting team considered FERC’s concerns with the use of “material impact assessments,” as described in Order 743, paragraph 85 (“no grounds on which to reasonably assume that the results of the material impact assessment are accurate, consistent, and comprehensive”). Specific comments on Technical Principles paper from NERC DT 20110510 A. Please add wording to make complete sentences as needed in order to clarify whether facilities meeting these criteria are included or excluded. For example, the clarifying words are added to the following Exclusion 1 to help the reader better understand the meaning. 1. “The elements that meet all of the following characteristics are not necessary for the reliable operation of the grid and are thus excluded:” a. System elements that are located in close electrical proximity to Load are exempt from inclusion in the BES. B. Notwithstanding the need for complete sentences to assure proper interpretation, the following comments should be considered by the drafting team: o Exclusion 1 a) uses an unduly subjective, non-technically based material impact test. o Exclusion 1 b) i and ii attempts to introduce disconnect procedures in the classification as “radial” which may hurt reliability by disconnecting radial equipment that could provide voltage support. The exclusion also introduces commercial (dispatch) considerations which may not be appropriate in a reliability-based document. o Exclusion 1 c) assuming “system” is short for “system elements”, this requirement for exclusion is overly discriminatory to generators which flow power out. o Exclusion 1 d) is too vague to be useful because “system” seems to have more than one meaning in this requirement. o Exclusion 2 and Inclusion 1 in their entirety are unduly subjective, non-technically based material impact tests. We are concerned that the proposed inclusion and exclusion procedures could result in not only significant generation interconnection facilities being included in the BES – but also less significant generation interconnection facilities. Such a result would be inconsistent with FERC Order 743. Accordingly, PPL Supply respectfully requests NERC to: o Exclude radial facilities less than 100 kV and not black start (these facilities are excluded in the latest definition of the BES). o Exclude radial facilities greater than 100 kV but less than 200 MVA (proposed BES now includes generators over 20 MVA) o Exclude local distribution networks (LDNs) with flow into network up to 200 MVA o Currently, LDNs are excluded if they only absorb (not produce) net power (Technical Principles Exclusion 1-c). It is also appropriate to exclude LDNs with less than net 200 MVA flow into the BES electrical network. o Inclusion efforts should not consider such issues as proximity to markets, proximity to load or nuclear facilities, or length of generator lead line.

Individual

Jo Elg

United Electric Co-op Inc.

No

We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

United Electric Co-op Inc agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.

Yes

United Electric Co-op Inc agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.

Yes

United Electric Co-op Inc agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, United Electric Co-op Inc agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. United Electric Co-op Inc supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.

Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B

contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment.
See exclusion comment.
See exclusion comment.
See exclusionn comment.
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
United Electric Co-op Inc generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Individual

Ned Ratterman
Oregon Trail Electric Cooperative, Inc.
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
Oregon Trail Electric agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Oregon Trail Electric agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Oregon Trail Electric agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Oregon Trail Electric agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Oregon Trail Electric supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to

the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric m. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish’s White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish’s White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment
See exclusion comment
See exclusion comment
See exclusion comment
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Oregon Trail Electric generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics

test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.

Individual

Steve Alexanderson

Central Lincoln

No

Central Lincoln agrees in principle that one characteristic of local distribution systems is that they are usually confined to a relatively limited geographic area, as opposed to transmission systems, which (especially in the West) tend to cover very large distances. We also believe the proximity test may be a sensible way to identify local distribution facilities. However, as explained in more detail in our response to Question 10, we believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield consistent demarcations. High voltage relative or per-unit impedances are typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance. Central Lincoln proposes that “proximity” be determined in the dictionary manner with units of distance.

No

Central Lincoln agrees that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider’s point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility’s service territory. To be consistent with the draft BES definition, the term “radial in character” should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

Central Lincoln agrees that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. Central Lincoln also agrees that the fact that power may flow out of a local distribution system onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the system as local distribution. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude local distribution facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can

be used to demonstrate that demand within a local distribution system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify systems that are not necessary for the operation of the BES under this test, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal (“N-0” or All Lines in Service) operating conditions should be held to meet this test. That a system meets this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course of two years. In addition, the presence of generation within a local distribution system that only modifies the level of the load served by the bulk system, but does not result in power being injection into the bulk system, does not change the reliability effect of the local network and therefore should not require the local network to be classified as BES.

No

Central Lincoln agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Local distribution systems do not share any of these operational characteristics. Accordingly, Central Lincoln agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to a particular system will provide a ready guide to whether power is intentionally scheduled across that system. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary’s definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test.

Yes

We agree that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish PUD has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which are attached to their comments and we recommend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in Snohomish’s White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, Central Lincoln suggests that a detailed technical exemption process be allowed on an interconnections wide basis. The Western Interconnection is a “hub and spoke system” where loads are very remote from large generation

plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of operations. For example, the Western Interconnection uses a rated paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC order 743-A Central Lincoln supports exemption criteria for individual frequency independent regions, or interconnections.
Fault induced transient voltage measurements will always be low if taken at a point electrically close to the fault during the fault. The question should be about voltage recovery following the clearing of the fault as in the TPL standards. The Technical Principles do not make this distinction, and the resulting effect would be the exclusion of elements that should be included and the inclusion of elements that should be excluded.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.
Please see 5b.
Please see 5c.
Please see 5d.
Please see 5e.
No
As discussed on page 12 of the Snohomish PUD White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.
No
As we explained in our response to Question 1 of the Comment Form on the 1st Draft of Definition of BES, filed on May 27, Central Lincoln believes that the proposed BES Definition could conflict with

Section 215 of the Federal Power Act if the Definition, the Exception Process, and the Technical Criteria do not effectively exclude facilities used in local distribution from the BES or if the BES definition does not focus on cascading outages, separation events, and instability on the interconnected bulk system. These statutory limits on the scope of the BES and reliability standards are a minimum that must be met.
Yes
Central Lincoln generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Group
New York State Reliability Council
Roger Clayton
No
NERC's Glossary definition of Load is "An end-use device or customer that receives power from the electric system." which is not specific enough to permit the definition of an appropriate impedance value. It is not clear from the proposed wording whether the exception applies to the Loads or the electrically close System Elements or both. In any case, the concept of a single impedance value as a metric is flawed because it could be a low impedance breaker or a relatively high impedance transformer connecting the BES to a "radial" Load center. This exclusion is superfluous given the radial test in item 2. Suggest dropping this exclusion test. N.B. The proposed criteria in items 1 – 4 must all be met in order for an element to qualify for an exclusion.
Yes
It should be clarified that radial Element(s) include all system elements in load pockets.
Yes
It should be clarified that this exclusion should not apply to inter-regional transfers, which clearly are candidates for inclusion as BES.
Yes
Yes
A single threshold value for performance based testing does not recognize differences in regional system characteristics. Therefore, regional approaches for at least generation exclusions should be used, like NPCC's A-10 criterion.
Yes
See answer to 5a.

Yes
See answer to 5a.
No
NPCC A-10 criteria data is freely available.
No
Group
Electricity Consumers Resource Council (ELCON)
John P. Hughes
Yes
We recommend that this item be added to the BES definition.
Yes
We recommend that that the item be added to the BES definition.
Yes
The thresholds for power flows out of the system should be made consistent with Exclusion E2 in the definition. We recommend that this item be added to the BES definition.
Yes
This requirement should be further relaxed to allow for intentional flows that are provided as a courtesy to the local distribution company. In such cases, private, customer-owned facilities may be used to deliver power from a DP to a small number of the DP's retail customers who are unaffiliated with the owner/operator of the private network. These flows are generally de minimis. We also recommend that this item (with our qualification) be added to the BES definition.
Yes
Yes
We recommend an additional method (or alternatively this be added to the BES Definition Exception E1): System Elements are part of facilities, generally radial in nature, supplying a retail customers from the point of delivery to the load regardless of voltage. Evidence to support this position could be an interconnection agreement indicating the point of delivery, a one-line diagram showing the point of delivery and load etc. The technical rationale is that protection of the BES for facilities serving load is the responsibility of the service provider (e.g., TO/TOP). These facilities are distribution facilities and are not now part of the BPS.
Yes
NERC (and the BES SDT) should not assume that data pursuant to Large Generator Interconnection Agreements (LGIA) or the Large Generator Interconnection Procedures (LGIP) will be forthcoming on a timely basis for the purpose of demonstrating BES exceptions. While such information is generally available from ISOs and RTOs, it is not so forthcoming from vertically-integrated utilities in regions of the country not served by ISOs or RTOs because such utilities are generally hostile to third-party

generation in their service territory. They are capable of delaying or otherwise obstructing requests for data and information. We recommend that NERC or the SDT identify mechanisms for requesting and getting the necessary data and information. This process should be included in the NERC Rules of Procedure.
Yes
The proposed technical principles violate the exemption in FPA section 215 against the inclusion in the BES of facilities used in the local distribution of electric energy, given that the BES is a subset of the BPS.
Yes
The bright-line tests used in the revised BES definition and technical principles may capture the facilities of hundreds of entities that may not know that NERC exists or the enforceability of NERC Reliability Standards. The technical principles should be supplemented with a technical guide or appendix that provides examples of the steps that may be necessary to demonstrate BES exceptions.
Individual
Darryl Curtis
Oncor Electric Delivery
Yes
Oncor Electric Delivery agrees with the proposed language as it is stated, related to load proximity.
Yes
Oncor Electric Delivery agrees with the proposed language that describes the exclusion criteria for system Elements that are radial in character.
Yes
Oncor Electric Delivery agrees with the proposed language that describes the exclusion criteria based upon power flows.
Yes
Oncor Electric Delivery agrees with the proposed language that describes the exclusion criteria based upon the non – intentional flow of power through the system to some other system.
Yes
Oncor Electric Delivery agrees with the proposed language that describes the exclusion criteria based technical analysis.
No
Yes
Oncor Electric Delivery agrees with the proposed language that describes the inclusion criteria based technical analysis.
No
No
No
Although Oncor Electric Delivery understands the need for the ERO to be in a position to override the inclusion criterion, Oncor desires more clarity on what factors contribute to an overriding action.
Individual

Jerome Murray
Oregon Public Utility Commission Staff
Yes
Use of the 100 kV brightline and the core BES definition as proposed is an overreach into local distribution systems and an overreach of FERC's authority as set out in the FPA 215. A full engineering technical analysis - required every 2 years - is too onerous and not necessary for identifying most local distribution elements miss-identified as BES Elements. A simple screening methodology consistent with the 7-Factor Test (from FERC Order 888) is needed as the first stage of the exception process.
Yes
Use of the 100 kV brightline and the core BES definition as proposed is an overreach into local distribution systems and an overreach of FERC's authority as set out in the FPA 215. A full engineering technical analysis - required every 2 years - is too onerous and not necessary for identifying most local distribution elements miss-identified as BES Elements. A simple screening methodology consistent with the 7-Factor Test (from FERC Order 888) is needed as the first stage of the exception process.
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Yes
Use of the 100 kV brightline and the core BES definition as proposed is an overreach into local distribution systems and an overreach of FERC's authority as set out in the FPA 215. A full engineering technical analysis - required every 2 years - is too onerous and not necessary for identifying most local distribution elements miss-identified as BES Elements. A simple screening methodology consistent with the 7-Factor Test (from FERC Order 888) is needed as the first stage of the exception process.
Individual
Anthony Schacher
Salem Electric
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered

typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
Salem Electric agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Salem Electric agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Salem Electric agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Salem Electric agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Salem Electric supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the

approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment
See exclusion comment
See exclusion comment
See exclusion comment
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Salem Electric generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider

eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Group
Edison Electric Institute
Mark Gray
No
We do not believe that a meaningful “not to exceed” impedance value can be proffered which would be appropriately useful across all regions. EEI recommends that Exclusion benchmarks should directly correlate to the BES definition exclusions as written. Although the “4 Item” approach was obviously intended to provide a simple approach, the outcome suggested in the draft was less than satisfactory and we submit it does not hold true to the exclusions provided by the Drafting Committee in their proposed BES Definition. (see additional comments provided at the end of the Comment form)
Yes
The verbiage used in the BES Principles document does not closely match the verbiage used in the NERC Bright-line Exclusion. For that reason, we submit the following alternative language. System Elements and Facilities treated in total as a radial system shall have the following characteristics: 1. Shall be separated from the BES with an Automatic Interrupting Device, AND 2. Only load serving and must be isolated from other radial systems through a normally open switching device, OR 3. Only include generation resources but cannot include any of the Inclusions (i.e., I2, I3, I4 and I5) identified in the BES Definition, OR 4. Is a combination of Load and Generation but cannot include any of the Inclusions (i.e., I2, I3, I4 and I5) identified in the BES Definition Evidences to be supplied shall include: • One-line Diagram clearly showing all demarcations between BES Facilities and the Radial System (including the Automatic Interrupting Device, AND • Operating procedures or interconnection agreements that indicate Generating Units contained within the Radial System are not dispatchable (if applicable), AND/OR • Operating procedures that show that the Radial System is not operated as part of the BES
Yes
Although EEI agrees in principle to the exclusion, we feel the current language has some problems which need to be addresses. Note the following: The word “rarely should be struck. It is meaningless in the context for which it is used and offers little to characterize an element or connection since it does not contain a measure. A more appropriate statement to broadly characterize a Non-BES element or connection would be the following: “Power flows are broadly characterized as Load Serving.” Items i. and iii. are excessive requirements which do not aide in defining what is “necessary for operating an interconnected electric transmission network”. What might be more a more useful measure is a comparison of total MW hours of load consumed vs. MW hours fed back into the BES as measured on an annual basis. Item v. – Hourly energy data (MWh) for the most recent 12 month period for every excluded BES element is an excessive requirement. Annual records indicating that MW hours consumed annually verses MW hours that flow through the non-BES element would be a better indicator in line with the definition.
Yes
A radial system by definition transports power from the BES System to a Distribution System, similarly an LDN operates in a like manner. A strict reading of the above criteria would exclude both from consideration yet the definition allows both. We believe that in an attempt to develop a set of criteria useful for all situations, the outcome has weakened the original intent as set in the Definition. Although much of the criteria used is largely appropriate, a stricter adherence to the BES definition criteria would substantially help to avoid confusion between what was developed as principles and what was developed as the BES Definition.
Yes
In general, we agree that an alternative path allowing a technical analysis to demonstrate that a Facility (or Element) should not be considered part of the BES is appropriate. However, we disagree with the measures offered and suggest an alignment with efforts already being developed within NERC’s Event Analysis Working Group. EEI proposes that the technical analysis criterion which has been proposed is too complicated, inconsistent with what is currently being done across the regions and submits that a better approach would be to align reliability impacts with the Event Analysis Criteria being developed by NERC’s EAWG. These criteria would be a better benchmark as to whether

a Facility or Element should be excluded from the BES. The proposed alternate criteria are as follows: (1) The loss of the Facility (or Element) would not interfere or negatively impact the BES from staying within acceptable limits (i.e., frequency, voltage and System Operating limits) following a fault on or loss of that Facility (or Element); (2) The loss of the Facility (or Element) would not interfere or negatively impact the BES from performing acceptably after credible contingences; (3) Facility (or Element) faults, failures, or trips do not push the system to a point of Instability or otherwise initiate cascading outages; (4) BES facilities are protected from unacceptable damage by operating the Facility (or Element) within its ratings; and (5) The unexpected loss of the Facility (or Element) does not negatively impact the BES from achieving its mission of to supply the aggregate electric power and energy requirements of its customers.
In general, we do not agree this is a relevant factor for consideration and should be excluded.
Presently no regional standards exist for allowable transient voltage dip beyond WECC. It is also doubtful a useful standard could be developed for all regions or interconnections.
Presently no regional standards exist for allowable transient frequency response beyond WECC. It is also doubtful a useful standard could be developed for all regions or interconnections.
Presently no regional standards exist for allowable voltage deviation beyond WECC. It is also doubtful a useful standard could be developed for all regions or interconnections.
No
None beyond what was offered under question 5
Yes
See comments for Question 5 above
See comments for Question 5 above
See comments for Question 5 above
See comments for Question 5 above
See comments for Question 5 above
Yes
Method 2 is largely based on System Planning Criteria developed by WECC. At the present time, we do not believe that any of the other regions have similar planning criteria for which they could use or could easily integrate similar criteria into useable Planning Standards which could be applied in useful manner across all regions. For this reason, it is recommended that a separate Design Committee be created which would include representatives from all regions. It is expected that this effort may be substantial but is necessary before Method 2 or the Inclusion Process as written could be used. We would further caution the use or imposition of such a process since some transmission owners may not have the necessary skills or tools required to conduct studies of this type (in-house) and imposing this level of evidence will likely cause many who cannot meet this requirement to include unnecessary elements diluting the BES as defined and negating the value of the exclusion process.
Yes
EEI is concerned that under the technical principles, some facilities that are local distribution facilities may be included the BES. This is in conflict with the definition of the Bulk Power System in Section 215 which excludes facilities used in local distribution. In particular, EEI is concerned that the provision of the technical principles prohibiting the seeking an Exclusion for a cranking path will include local distribution within the definition of BES.
Yes
We are concerned that the method used to characterize exclusions in Method 1 did not follow the proposed BES Definition and believe the process developed for Method 2 (and reused for Sub-100kV Inclusions) is overly complicated, lacks necessary regional standards to support the process and may prove too difficult for some companies to fully comply with thereby discouraging a consistent and uniform application of the definition across all regions and affected BES element owners. In the proposed (BES) definition and accompanying Inclusions and Exclusions, the Drafting Committee went to some effort to clearly and methodically define what was included and what was permissible to exclude. Unfortunately the NERC proposed “Technical Principles for Demonstrating BES Exceptions” did not follow that same clear and concise manner adding some confusion which could lead to inconsistent application of the Exclusion (and Inclusion) Criteria. For example, at no point did the “Principles” ever identify Inclusions I2 through I5 which were liberally used in the exclusion criteria

within the BES definition. Additionally within the body of the Proposed BES definition, there are three (3) approved Exclusions (E1 – Radial System; E2 – Small Customer Generator/Generation System and E3 – Local Distribution Networks). Each of the Exclusions have its own set of criteria used to define and characterize the methodology necessary to meet each exclusion, however, the "Principles" contained in this document only loosely follow the criteria provided and in some cases miss that criteria all together. We refer the SDT to the EEI comments previously submitted on the BES Definition regarding the relationship of the BES definition to the statutory exclusion of local distribution facilites.

Group

Florida Municipal Power Agency

Frank Gaffney

No

Impedance is a function of a line's length; it does not measure whether a line serves a BES function. A very long line can exist only to serve load, and a short line in an urban area (where the load is physically close to the grid) could be needed for transmission but would have low impedance. This proposed metric is thus both over- and under-inclusive, and should be discarded. Transfer distribution factor is a more appropriate metric, as described in FMPA' response to Question 4. FMPA supports having two paths for exclusions, one that includes extensive technical analysis and another that does not. The path with less technical analysis is appropriate for Elements that a relatively high-level examination shows to be not relevant to the reliability of the grid. This opportunity should be available in the context of exclusions to reduce the burden on small entities. Reliability will not be impaired by this option; all exception requests will be reviewed by NERC, and in any case where NERC is less than certain that an exception is appropriate, NERC can perform any or all of the analyses that would be required for a more technical exclusion or inclusion, and a positive result on any one of the analyses would be sufficient justification to deny the exclusion request.

We believe that this criterion is intended, like those in 1(a) and (d), to determine whether an Element is planned and operated to function as part of the interconnected grid. It is, however, too vague to be useful and should be discarded.

The third item is "power flows into the system, but rarely flows out." This criterion is vague. FMPA suggests instead the following language, which is consistent with FMPA' comments on Exclusion E3 of the BES definition: "Neither the Element, nor any Elements that it connects to the grid (in aggregate), includes more than 75 MVA of generation used to meet the resource-adequacy requirements of electric utilities."

Yes

FMPA supports the criterion in concept, but "intention[]" is a vague term and not relevant to an Element's impact on the grid. We suggest instead that to obtain an exclusion for such a quasi-radial Element, the owner be required to demonstrate that the Element has no more than a 5% transfer distribution factor on any BES Element for transfers that could be curtailed through the NAESB TLR procedure (e.g., interchange transactions, or generator to load distribution factors (GLDF) for BES generators). Transfer distribution factor (or GLDF) is a good measure of an Element's impact on the grid and is not subject to varying interpretations. In addition, NAESB standards are also approved by FERC and mandatory to jurisdictional entities. Hence, the 5% TDF "Curtailment Threshold" has already been approved by FERC as indicating an insufficient impact on the BES to be considered for TLR. And, it shows consistency between NERC and NEASB standards.

Yes

FMPA supports including specific technical criteria that Elements must meet to obtain an exclusion through the exception process. This approach will facilitate uniform application of the exception process. FMPA responds to the first five proposed criteria in response to 5b-5e below. In the sixth proposed criterion, "steady state stability" is ambiguous, does the SDT mean voltage stability, power angle curve stability, or small signal stability? The seventh proposed criterion, "No cascading outages," is insufficiently granular and should be discarded. The criteria are intended to measure whether, among other things, a particular Element can cause a cascading outage. They need to set out how decision-makers will determine whether an Element can cause a cascading outage, not simply state that an Element that can cause a cascading outage cannot be excluded from the BES.

The first proposed criterion, "Having a distribution factor of 5% for any other Element," should instead be "Having a distribution factor of 5% for Interchange Transactions or BES generator to load

curtailable in Transmission Loading Relief stages one through five."
The second criterion, "Allowable transient voltage dip – criteria TBD," should specify where the transient voltage dip is, i.e. "Allowable transient voltage dip on another BES Element for events on the Element that is a candidate of the Exception Request—criteria TBD."
The third proposed criterion, "Allowable transient frequency excursion – criteria TBD," should be rephrased like the second: "Allowable transient frequency excursion on another BES Element for events on the Element that is a candidate of the Exception Request – criteria TBD."
The fourth proposed criterion should be revised in the same way as the second and third: "Voltage deviation on another BES Element for events on the Element that is a candidate of the Exception Request – criteria TBD." The fifth proposed criterion should be similarly revised: "Transient Stability on another BES Element for events on the Element that is a candidate of the Exception Request – positively damped."
Yes
TAPS proposes a simpler set of exclusion exception criteria: 1. Having a distribution factor of 5% for curtailable Interchange Transactions or BES generator – load identified in Transmission Loading Relief stages one through five, and 2. Category B and C contingencies on the Element that is the subject of the Exception Request meet the TPL-002 criteria for other BES Elements. (With the new TPL-001-3 standard recently approved by ballot, Category P0 through P7 contingencies on the Element that is subject of the Exception Request meets the criteria of P0 through P3 for other BES Elements) 3. The Element that is the subject of the Exception Request is not: (1) part of an IROL, (ii) part of a blackstart or cranking path used in a TOP's restoration plan, and (iii) is not used in NUC-001 to provide service to a nuclear plant. TAPS believes these three criteria meet the intent of all of the criteria presented by the SDT.
FMPA supports using a uniform set of technical criteria to decide inclusion exceptions. Such an approach will facilitate uniform application of the criteria. In addition to having clear and uniform criteria, the technical analysis for inclusions and exclusions should use the same criteria (though one should of course be the inverse of the other). We note that the steps laid out for Inclusions do not quite track those in Exclusions 2(a). For example, Inclusions 1(b) states, confusingly, "Monitor the contribution of the disputed Element(s)," but there is no corresponding step in Exclusions 2(a). FMPA suggests that Inclusions 1 be revised to mirror Exclusions 2.
See FMPA comments in response to Question 5.
See FMPA comments in response to Question 5.
See FMPA comments in response to Question 5.
See FMPA comments in response to Question 5.
Yes
The third paragraph of the introduction to the Technical Principles is awkwardly worded and might be misconstrued. FMPA suggests the following rewording: "Entities are not required to seek exceptions under the Exception Procedure to exclude from the BES Element(s) that are already excluded under the BES definition and designations." For the sake of consistency, Exclusions (1) should contain a provision analogous to Exclusions (2)(b) and Inclusions (1)(f) addressing the circumstances under which the ERO can override a demonstration based on these criteria. As noted above, one of those circumstances would be a demonstration by NERC that the Element in question meets the criteria for inclusion in the BES.
Individual
Laura Lee
Duke Energy
No
Duke Energy does not agree that this characteristic materially demonstrates that an Element is not necessary for operating an interconnected electric transmission network. There is no correlation between the electrical proximity of an element to load and its necessity for operating an interconnected transmission network. In general, the path that does not include extensive technical analysis is not adequate to distinguish between the Elements that are and that are not necessary for

said operation.
No
This second characteristic does not add clarity to the E1 Exclusion in the proposed BES definition. And in general, the path that does not include extensive technical analysis is not adequate to distinguish between the Elements that are and that are not necessary for operating an interconnected electric transmission network.
No
This third characteristic does not add clarity to the E3 Exclusion in the proposed BES definition. And in general, the path that does not include extensive technical analysis is not adequate to distinguish between the Elements that are and that are not necessary for operating an interconnected electric transmission network.
No
This fourth characteristic does not add clarity to the E3 Exclusion in the proposed BES definition. And in general, the path that does not include extensive technical analysis is not adequate to distinguish between the Elements that are and that are not necessary for operating an interconnected electric transmission network.
Yes
Duke Energy agrees with the approach of using a technical analysis based on transmission system modeling but the specific criteria do not need to be specified here – they should be consistent with the latest revision of the TPL-001. R5 of TPL-001-2, Transmission System Planning Performance Requirements states that each Transmission Planner and Planning Coordinator shall have criteria for acceptable System steady state voltage limits, post-Contingency voltage deviations, and the transient voltage response for its System. The technical analysis required for exclusion of an Element from the BES should evaluate the loss of the Element against a more conservative set of criteria than that specified by the Transmission Planner and Planning Coordinator responsible for that Element. There are currently no continent-wide performance levels defined for these evaluations, and there is no technical basis for developing performance levels that would be applicable continent wide.
This should be removed – there is no correlation between distribution factor and whether or not an element is necessary for reliable operation of the interconnected transmission network.
See general comment on approach.
See general comment on approach.
See general comment on approach.
No
Yes
The approach and evaluation values should be consistent with those for the Exclusions.
No
No
No
Individual
Bill Dearing
Grant County PUD No. 2 (Grant)
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does

not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

Grant agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.

Yes

Grant agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.

Yes

Grant agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Grant agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Grant supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand

that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
See responsde to 5d
No
No comments
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment
See exclusion comment
See exclusion comment
See exclusion comment
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Grant generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is

not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.

Individual

Si Truc PHAN

Hydro-Quebec TransEnergie

No

Close electrical proximity to load does not appear to be an appropriate criteria. There is no reason that this criteria would prevent exclusion of a radial system with long lines feeding far away loads. Instead of considering proximity to load, it would be better to consider the way the Element is connected to the BES and the function of the excluded part of the system, mainly to deserve loads or integrate some generation, but not to transfer power to another Balancing Authority. Those are covered by criteria b., c. and d., so we believe that criteria a. should not be maintained.

Yes

However, the point B.i. is hard to understand and would need clarification. Here is a proposal: "For an Element to be excluded from BES, its should be demonstrated that there are a proper disconnection procedure when facing a disturbance that would prevent this Element to impact the BES" ?. The point should be to make sure a fault on the Element will be isolated effectively without adverse impact on the BES, even when we have a second transmission source for the syb system seeking exclusion. Also, for point B. ii., it should be explained what is meant by the expression "regional dispatch". Is it an alternate way of transfer of power outside the Balancing Authority ?

Yes

However, this is only part of an exclusion. The point c. iv and v, MWh is not relevant for real-time operation. It would be more simple to put a time reference, such as a total number of days or a % of the time. In number iii, do you mean the first self certification ? In fact, the evidence for exclusion will be done once, but ROP suppose that the self certification will be done many times (every two years).

Yes

Yes

Comments on distribution factor measurement: The choice of the maximum distribution factor could be difficult to establish. For this point, the comparison of the distribution factor prior and after the events could be considered.

Comments on allowable transient voltage dip measurement: The TPL-001 to 004 do not specify any reference measurement for stability (such as Allowable transient voltage, frequency excursion, voltage deviation, etc.). Instead, it request that the system shall remain stable, without cascading or uncontrolled islanding. Also, it is requested that the Planning Entities shall define and document the criteria or methodology used in the analysis to identify System instability for conditions such as Cascading, voltage instability, or uncontrolled islanding. This is exactly what should be requested in the analysis and demonstration of Element seeking exclusion from BES. The analysis and burden of proof should be left to the Entity as is done in the TPL, considering that there are no common values with the different interconnection.

Yes

Technical demonstration should not be limited to technical principles stated in the "Technical Principles for Demonstrating BES Exceptions". Entities should be allowed to do their own demonstration with their own technical arguments. As an example, an Entity could consider a few level of application for the standards. As an example, the level #1 being the most important level, all standards would apply to this level, including more stringent criteria than the TPL standards. This would bring BES level #1 very robust and reliable, ensuring the reliability of the main system. A second BES level #2 could be define for local transmission to which would be applied most standards but excluding some of the C section of TPL. Attention would be given to proper reliable operation of the BES level #2, but with smaller level of investment on the design aspect, those regional

transmission part of the system being able to face higher risk for loss of continuity of service. Finally, for generation or Load Facility that would be excluded from both level of BES, minimum standards would still apply such as in protection or for generation. Through its own technical principles, the Entity could demonstrate that the highest level of BES is more reliable than what is expected by NERC's standard, but that in regional transmission part of the system, the C TPL standard would not apply with the only risk of lower continuity of service.
Yes
No
Yes
However, there is a conflict between the proposed approach and the regulatory framework applicable in the Quebec's Interconnexion or at least there are some important differences between both. Paragraph 95 of FERC Order 743 acknowledged the situation of non-FERC juridiction. As for the Quebec's Interconnexion, the BES definition and exclusion approach shall meet the expectations of Quebec's regulator, the Régie de l'Énergie du Québec, (Quebec Energy Board) which has the responsibility to ensure that electric power transmission in Quebec is carried out according to the reliability standards it adopts. In a recent order (D-2011-068), the Régie de l'Énergie du Québec has recognized several level of application for the Reliability Standards in Québec. It stated specifically that most reliability standards in Québec shall be applied to the Main Transmission System (MTS). One other level of application recognised by this decision is the NPCC Bulk Power System (BPS) to which the standards related to the protection system (PRC-004-1 and PRC-005-1) and those related to the design of the transmission system (TPL 001-0 to TPL-004-0) will be applicable (including the rest of the standards). The Main Transmission System definition is somewhat different than the Bulk Electric System definition. The Main Transmission System includes elements that impact the reliability of the grid, supply-demand balance and interchanges. It can be described as follows : The transmission system comprised of equipments and lines generally carrying large quantities of energy and of generating facilities of 50 MVA or more controlling reliability parameters: • Generation/load balancing • Frequency control • Level of operating reserves • Voltage control of the system and tie lines • Power flows within operating limits • Coordination and monitoring of interchange transactions • Monitoring of special protection systems • System restoration Therefore, it will be necessary to accommodate NERC's proposed definition of BES or the exception process with the Quebec situation where Entities are under a different jurisdiction. These differences include more than one level of application for the reliability standards, the Main Transmission System definition being the main one to which most reliability standards apply.
No
Individual
Eric Lee Christensen
for Snohomish County PUD
No
Snohomish agrees in principle that one characteristic of local distribution systems is that they are usually confined to a relatively limited geographic area, as opposed to transmission systems, which (especially in the West) tend to cover very large distances. We also believe the proximity test may be a sensible way to identify local distribution facilities. However, as explained in more detail in our response to Question 10, we believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Further, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting

transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

Snohomish agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not, and cannot legally, be classified as BES.

Yes

Snohomish agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. Snohomish also agrees conceptually that the fact that power may flow out of a local distribution system onto the grid during a few hours in a year or during extreme contingencies should not change the characterization of the system as local distribution. Accordingly, we support inclusion of power flow analysis as one element of characteristics that can be used to exclude local distribution facilities from the BES even if the facilities do not pass each of the bright-line thresholds laid down in the BES definition. We also agree that transactional and hourly generation records are an appropriate basis for making the determination since these can be used to demonstrate that demand within a local distribution system exceeds generation within that system in most hours and that power therefore does not flow onto the grid, and also to determine the number of hours where this is not the case and the amount by which generation within the system exceeds demand. In order to identify systems that are not necessary for the operation of the BES under this test, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal ("N-0" or All Lines in Service) operating conditions should be held to meet this test. That a system meets this test could be demonstrated using metering or supervisory control and data acquisition ("SCADA") data records over the course on two years. In addition, the presence of generation within a local distribution system that only modifies the level of the load served by the bulk system, but does not result in power being injection into the bulk system, does not change the reliability effect of the local network and therefore should not require the local network to be classified as BES.

Yes

Snohomish agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. As a matter of operation, power is scheduled across transmission lines. Further, transmission lines in the Western Interconnection (either individually or as part of a transmission path) are rated for total transmission capacity and available transmission capacity, and transmission rights can be purchased on such lines, if available, on an OASIS. Local distribution systems do not share any of these operational characteristics. Accordingly, Snohomish agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. We also agree that examining the Operating Procedures applicable to a particular system will

provide a ready guide to whether power is intentionally scheduled across that system. We suggest, however, that the SDT look beyond those protocols that fall within the NERC Glossary's definition of Operating Procedure. For example, in the West, transmission paths are almost all listed in the WECC Path Rating Catalog. Similarly, it is not clear whether scheduling protocols, OASIS operations, and the other factors listed above qualify as Operating Procedures. Hence, we urge the SDT to list such specific operational characteristics as part of this test.

Yes

We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Snohomish has prepared a White Paper proposing a performance-based approach to support the technical determination whether Elements should be excluded from the BES, which we attach to these comments and commend to the SDT for study. We also commend the work of the WECC BES Task Force and the WECC Technical Studies Subcommittee, both of which have devoted substantial time and resources to developing a workable and technically defensible process for excluding Elements classified as BES based upon their electrical characteristics. See WECC BES Task Force Proposal 6, App. A at 3-9 & App. B at pp. B-4 to B-7 (posted Feb. 18, 2011) (available at: http://www.wecc.biz/Standards/Development/BES/default.aspx). We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in our White Paper, which is based upon the approach recommended by the WECC BES Task Force.

The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection, such factors have never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection. Based on the significant differences between the four major interconnections in North America, Snohomish suggests that a detailed technical exemption process be allowed on an interconnection- wide basis. The Western Interconnection is a "hub and spoke system" where loads are very remote from large generation plants, with margins that are based on stability limits. By contrast, the Eastern Interconnection is a tightly meshed system with loads and generation in close proximity, often creating margins that are based on thermal limitations. These differences manifest themselves in a variety of operations. For example, the Western Interconnection uses a rated paths methodology while the Eastern Interconnection uses transmission load relief mechanisms. Consistent with FERC Order 743-A, Snohomish supports exemption criteria for individual frequency independent regions, or interconnections.

Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.

Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.

Please see our response to Question 5d.

No

SNPD supports the exemption of generation interconnected to local distribution networks if the generation is less than 300 MW capacity and where the power generated is consumed within the LDN and rarely flows out of the LDN, using the proposed criteria described in our response to question 3. This proposal is consistent with the section III.c.4 [Exclusion] of the NERC Statement of Compliance Registry Criteria as well as the Load modifiers used in the Eastern Interconnection. "Load Modifiers" (small generators that only affect load at the distribution level)."

Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in our White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5. While we support the SDT's overall approach, we believe subsection (f) of the proposed inclusion criteria, which would allow NERC to "override this criterion" if it provides "additional justification" for doing so is both unnecessary and creates confusion and uncertainty in what is otherwise a clear and concise process. Subsection (f) is unnecessary because if the technical process laid out in subsections (a) through (e) fails to provide any evidence that the contested Element(s) create a material impact on the reliability of the bulk interconnected transmission network, there is no reason to classify those Element(s) as BES, and that should be the end of the question. Subsection (f) creates needless uncertainly because it allows NERC to override the technical criteria laid out in subsections (a) through (e) if "additional justification" is provided, but there is no suggestion as to what this additional justification might be. Nor is there any explanation as to why additional justification might be necessary after the criteria in subsections (a) through (e) have been exhausted.
Please see our response to Question 5b.
Please see our response to Question 5c.
Please see our response to Question 5d.
Please see our response to Question 5d.
No
As discussed on page 12 of our White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant RE, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data, although we propose that the relevant owner or operator be relieved of this burden if it can be demonstrated that the nearest electrically interconnected Element has no material impact on the bulk system.
Yes
As we explained in considerable detail in our response to Question 1 of the Comment Form on the 1st Draft of Definition of BES, filed on May 27, Snohomish believes that the proposed BES Definition could conflict with Section 215 of the Federal Power Act if the Definition, the Exception Process, and the Technical Criteria do not effectively exclude facilities used in local distribution from the BES or if the BES definition does not focus on cascading outages, separation events, and instability on the interconnected bulk system. These statutory limits on the scope of the BES and reliability standards are a minimum that must be met.
Yes
Snohomish County PUD generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as

demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four. We have pasted in the text of our White Paper below. Please contact us for a more readable version of the White Paper. White Paper A Performance-Based Exemption Process to Exclude Local Distribution Facilities from the Bulk Electric System April 2011 This White Paper proposes a transmission planning ("TPL") "performance-based" process to determine the local distribution facilities the North American Electric Reliability Corporation ("NERC") must exclude from the Bulk Electric System ("BES") pursuant to Section 215(a)(1) of the Federal Power Act ("FPA"). This process would apply to those local distribution facilities that are not automatically excluded under a bright-line BES definition. Consistent with Federal Energy Regulatory Commission ("FERC") Order Nos. 743 and 743-A, a performance-based exemption process would be objective, consistent, and transparent, and would adequately differentiate between local distribution and transmission, i.e., BES, facilities. I. What Is Reliability? FPA Section 215 authorizes NERC to promulgate "reliability standards," subject to FERC approval. Section 215 defines "reliability standard" to mean a properly-approved requirement "to provide for the reliable operation of the bulk-power system." The statute, in turn, defines "reliable operation" to mean "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 sudden disturbances, including . . . unanticipated failure of system elements." II. What Is "Customer Service" or "Level of Service" ("LOS")? Local customer service or LOS relates to service failures on local utility systems that are wholly internalized rather than spilling onto the interconnected regional grid. These types of service failures relate to local customer service and LOS standards. The customers of those utilities will bear the full cost of complying with internal LOS standards and will obtain the full benefit of compliance to the extent that service levels on those systems improve. Accordingly, state public utility commissions (for regulated utilities) and independent boards (for non-regulated utilities) can fully and accurately weigh whether the benefits of compliance with such standards are justified by the costs they will pay. Intervention by NERC and a Regional Entity is not needed because a utility's actions related to level of service on its own system will neither unduly burden the customers of other systems, threaten the reliable delivery of power to those customers, nor create incidental benefits to those remote customers. In the absence of the need to protect customers of systems remote from the consequences of decisions made by an individual utility, there is no warrant for NERC or a Regional Entity to interfere with a utility's internal decision-making about the appropriate LOS to its own customers, and the costs that will be borne by those customers to achieve any particular level of service. In fact, in the "Savings Provisions" of Section 215, Congress specifically included language prohibiting NERC and Regional Entities from enforcing "compliance with standards for adequacy" of electric service. By law, these remain the exclusive province of local decision-makers. III. The Need for a Material Impact Test In Order No. 743-A, FERC clarified that a material impact test is appropriate in the reliability context if the test can be shown to identify facilities needed for reliable operation. The following example of an outage demonstrates the need for an impact test to distinguish between LOS and Reliability, i.e., local distribution facilities and BES facilities. A. Pre-Event Facts Local Utility Administration ("LUA") owns a 115 kV system that moves power from two points of delivery ("POD") and serves 1000 MW of load. A DC battery rack had an unexpected failure a few days after it was routinely inspected and LUA has not implemented Supervisory Control and Data Acquisition ("SCADA") so the DC battery voltage is not continuously monitored. The LUA system interconnects with BES Company's system which consists of 230 kV and 500 kV lines. B. Event Facts A fault occurs and the breakers in substation 2 fail to operate due to a battery failure (Figure 1). This results in an outage for customers served by substations 1, 2, and 3 on the LUA system. Figure 1 C. Post-Event Facts Immediately after the outage, LUA customer service receives numerous customer calls followed by a call from its Public Utility Commission/Local Utility Board ("/PUC/LUB"). LUA dispatches crews immediately after being informed of the outage to identify and resolve the problem. Within 45 minutes, the fault is sectionalized and the all load is restored. The PUC/LUB receives complaints from LUA customers who identify economic and other adverse impacts of the outage. The PUC/LUB demands a report from the LUA that describes the event and restoration, as well as potential solutions. LUA submits a report which finds that the main solution to this problem involves the implementation of a SCADA system. The SCADA system scope of work includes battery voltage telemetry and would have identified the DC system issue and prevented the protection system failure,

resulting in only the loss of substation 3. The SCADA plan cost estimate is $30 million and was presented three years earlier. The PUC/LUB evaluated the costs and benefits of the new SCADA system, but did not approve the project in order to reduce the budget and/or provide rate stability for the struggling local economy. LUA, the PUC/LUB, and customers will re-evaluate the merits of adding SCADA as well as other solutions such as increasing substation inspection runs, updating the batter fleet, and further investigating battery manufacture reliability records. Based on the LUA report, the battery bank failure rate immediately after routine inspections is expected to occur once every 3,500 years. Seventy battery banks are used on the LUA system, so a bank failure should be expected every 50 years. BES Company's neighboring 230kV and 500kV system does not experience an adverse system impact. Subsequently, BES Company identifies that one of its breakers operated at the LUA South POD. BES Company and LUA coordinate a review of the system protection scheme and BES Company determines that it operated correctly. BES Company verifies that the LUA outage did not create any thermal, voltage, or transient stability limit violations on the BES Company system. The Regional Entity, NERC, and FERC treat the outage as a Reliability Standards issue. The LUA System (highlighted in yellow) is considered part of the BES because it meets the "bright line" 20 MVA and 100 kV thresholds under the current BES definition and the NERC Statement of Compliance Registry Criteria ("SCRC"). The event would most likely be considered a TPL-003 category C event specifically C8 SLG Fault, with delayed clearing that may include a stuck breaker or protection system failure. The LUA Substation Department reviews its inspection records and has adequate documentation for the battery banks involved in the outage. As a result, LUA avoids substantial fines. However, during the inspection review, LUA notices that the battery bank in a similar distribution substation inspection schedule was completed three days late. Upon following further internal procedures, LUA finds that the battery bank was inspected three days late due to restorations efforts after a major wind storm. Although there were no LOS impacts, and the inspection schedule was unrelated to the outage, the Reliability Standards triggered a LUA self report to its Regional Entity which ultimately resulted in a $50,000 penalty. D. Summary This example identifies that in addition to a "bright line" BES exclusion process a more refined process such as a "performance based" reliability assessment is needed to distinguish BES facilities from distribution facilities if the NERC Statement of Compliance Registry Criteria ("SCRC") continues to be the benchmark for assessing BES facilities. It is clear from this example that the current 100 kV and 20 MVA thresholds cannot accurately classify what is and is not considered part of the BES. Defining BES facilities is important from the "Reliability Standard" and "LOS" perspectives as well as from a local and regional jurisdictional standpoint. There are multiple agencies identifying and approving what facilities should and should not be built, what programs should and should not be implemented, and if a fine should be paid by customers experiencing an outage without determining if it could have had an adverse impact on neighboring electric systems. Without a performance-based process, many small and medium electric utilities would be unnecessarily burdened. IV. Neighboring System Rule It is important but not always easy to distinguish the difference between "reliability" and "LOS" impacts. One way to resolve this is to use the "neighboring system rule." Simplistically, if events on the host system's facilities can create an "adverse" or "material" impact on a neighboring electric (TO, TOP, BA) system, those facilities should be considered part of the BES as they are creating a reliability impact. If not, these facilities should not be considered part of the BES. V. "Adverse" or "Material" Impact A key question in applying the "neighboring system rule" is what is an "adverse" or "material" impact, and what "performance based" assessment should be used to benchmark adverse or material. Because the electric system within an interconnection is frequency interdependent, theoretically every system change impacts the interconnected system to some degree. Turning on a light-switch that is connected to an operational 20 watt CFL (light bulb) theoretically impacts frequency, although to an undetectable degree. Therefore the term "material" or "adverse" impacts must be defined to distinguish observable impacts that affect reliability from minutia. A number of performance based exclusion examples have been proposed that use, Power Transfer Distribution Factors ("PTDF"), Line Outage Distribution Factors ("LODF"), fault duty or short circuit levels, reactive margin studies (P-V and Q-V), abbreviated or focused powerflow and transient stability analysis, as well as complete TPL assessment using multiple seasonal base cases, loading conditions, transfer levels. These methods demonstrate various metrics, they rank system strength (both real and reactive), the ability of power to flow through system under normal and outage conditions, and they determine steady state, voltage stability and transient (angular) stability performance. Although there may be advantages to a multi-step "performance based" approach that includes the exclusion examples above, this paper proposes a TPL-based assessment that is consistent with BES performance benchmarks used in assessing transmission

system performance in North America. The Western Electricity Coordinating Council ("WECC") BES Exclusion/Inclusion Assessment – 2-16-11 version provides a sound metrics in assessing the performance of a system as well as determining if a system can materially impact a neighboring system (Figure 2). It would be envisioned that each interconnection would develop a "Disturbance Performance Table of Allocable Effects on Other System". This table is necessary because the NERC TPL Performance Table does not provide actual performance details on acceptable transient and post transient voltage perturbations or minimum transient voltage frequencies. Figure 2 show the approved TPL-001 through TPL-004 performance tables. Figure 3 - Table 1 from the NERC TPL Reliability Standards VI. Performance Based Assessment Process The "performance based" methodology below is based on the "neighboring system rule" and the WECC BES Exclusion/Inclusion Assessment – 2-16-11 that was developed by the WECC Bulk Electric System Definition Task Force ("BESDTF"). The process focuses on exclusions rather than inclusion and specific response times, schedules, and process details have been removed as this will likely need to be determined by each, Regional Entity Representing the Interconnection ("RERI") A. Purpose The purpose of this document is to set forth a "performance based" technical process for assessing whether elements with a nominal operating voltage greater than 100 kV and outside the NERC SCRC based excursion process should be excluded from the Bulk Electric System. An element is necessary to reliably operate an interconnected transmission system if it significantly affects neighboring Transmission Owners, Operators, and Balancing Authorities as described in Table 1 below. This paper proposes a method for assessing whether an element is necessary to support the reliability of an interconnected transmission system or if the element is limited to supporting local customer service levels. B. Terms Exclusion Assessment (EA) An assessment of whether a Subject Element or System has a material impact on neighboring Transmission Owners, Operators, and Balancing Authorities as described in Table 1 below and conducted in accordance with the process set forth in this document. EA Base Case The interconnection approved, Base Case as modified to include the Subject Element, used to perform the assessment described in this document. Regional Entity Representing the Interconnection The regional entity representing the interconnection Registered Entity The entity registered to comply with mandatory reliability standards for a Registered Function. Responsible Entity The entity responsible for performing the EA and verifying the results of the EA to the interconnection. Subject System or Element of a System The System or Element of a System that is being examined by the EA. C. Applicability a. An EA may be performed: i. By a registered entity, or by a third party on behalf of a registered entity, to assess whether a Subject Element or system has a material impact on neighboring Transmission Owners, Operators, and Balancing Authorities as described in Table 1 may be excluded from the BES as set forth by the RERI. ii. The RERI, or by a third party on behalf of the RERI, to assess whether a Subject Element or system has a material impact on neighboring Transmission Owners, Operators, and Balancing Authorities as described in Table 1 should be included as part of the BES as set by the RERI. b. Frequency of analysis. The confirmed findings of an EA are valid until reversed by a subsequent EA. A new EA is required if: i. Significant changes are made to the network topology in the vicinity of the Subject Element; or ii. RERI staff requests a new EA. Such request shall be provided in writing and shall include reasonable justification for the request. D. Notifying the RERI of the Responsible Entity's intent to submit an EA finding or to perform an EA. The Responsible Entity shall notify the RERI in writing of its intent to submit such a finding. Such notice shall include: a. A general description of the Subject Element(s); b. One-line diagrams representing the Subject Element and applicable neighboring Elements; and c. A description of the base case that will be used in performing the EA and how that case will be stressed for the analysis. E. Performing the Analysis Base Case The base case(s) used for the studies shall be developed from current interconnection Operating Cases and shall simulate stressed conditions in the area of the element to be analyzed which (1) are reasonably expected to be achieved, consistent with the study period selected (e.g., hydro generation shall reflect seasonal water availability patterns) and (2) are expected to provide "worst-case" results (i.e., the greatest impact on voltage, flow, or transfer capability) during the upcoming operating year. The base case(s) shall be "stressed" by committing or de-committing generating units and adjusting generating unit output to increase the flow on the candidate element and the electrically nearest rated interconnection transfer path to the greatest extent possible, but not beyond their continuous ratings, for the initial set of conditions. To help minimize the possibility of dispute as to whether the base case(s) are suitably stressed, entities are encouraged to solicit input from subregional planning groups or other planning entities as the suitability of the base case(s) before undertaking the analyses described below. i. Non-represented Elements. If the Subject Element is not represented in the EA Base case: 1. The Responsible Entity

shall provide to the RERI a written request to add the Responsible Entities data to the cases: o all data reasonably necessary to accurately and completely model the Subject Element in the EA Base case; and o A one-line diagram showing this element and other nearby Elements. If the nearest connected Element is not found to be necessary for the operation of an interconnected transmission system, the RERI shall notify the Responsible Entity to take no further action. F. Performance Based Methodology The impact an System or Element has on neighboring Transmission Owners, Operators, and Balancing Authorities as described in Table 1 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. For the purposes of this analysis, "Elements" may be: (1) lines; (2) transformers; (3) buses or bus sections; (4) generating units; (5) shunt devices . i. Simulation 1: Requirement: Meet applicable NERC Reliability Standard (TPL-002 and TPL-003) and the RERI Disturbance Performance Table of Allocable Effects on Other System" Criteria performance for NERC TPL-002 and TPL-003 disturbances. Step 1: Run appropriate TPL-002 (N-1 contingency) studies of elements in the electrical vicinity of and including the Candidate Element (i.e., simulate primary protection operates as intended) Step 2: Run appropriate TPL-003 (N-2 contingency) studies of elements in the electrical vicinity of and including the Candidate Element. This would include both N-2 contingencies in which the Candidate Element would simultaneously be lost as part of a common mode failure, as well as contingencies in which the Candidate Element's primary protection fails. Automatic Remedial Action Schemes ("RAS") or Special Protection Schemes ("SPS") that are fully redundant (i.e., their failure is not credible) may be triggered during this simulation. If the failure of the RAS/SPS is a credible event, it should be considered as part of the N-2 analysis. ii. Simulation 2: Requirement: Remove the Candidate Element. Do not allow for system adjustment, and re-solve the base case. Then conduct applicable NERC Reliability Standard (TPL-002 and TPL-003) contingencies. Step 1: Remove Candidate Element (i.e., simulate unplanned opening of facility). Step 2: Assume no system adjustment. At this point, elements may be loaded above their continuous ratings but may not be loaded above their emergency ratings. Step 3: Perform NERC TPL-002 and TPL-003 (N-1 and N-2 contingency) studies. Step 4: If the analysis demonstrates performance that meets or exceeds that called for in the NERC Reliability Standards and RERI System Performance Criteria, the Candidate Element would be determined to not be necessary for the operation of an interconnected transmission system. Note: Consequential load tripping is allowed, and consequential and out-of-step generation tripping is allowed. Criteria Table 1: RERI Disturbance-Performance Table of Allowable Effects on Other Systems NERC and WECC Categories Outage Frequency Associated with the Performance Category (outage/year) Transient Voltage Dip Standard Minimum Transient Frequency Standard Post Transient Voltage Deviation Standard A System normal Not Applicable Nothing in addition to NERC B One element out-of-service ≥ 0.33 Not to exceed 25% at load busses or 30% at non-load busses. Not to exceed 20% for more than 20 cycles at load busses. Not below 59.6Hz for 6 cycles or more at a load bus. Not to exceed 5% at any bus. C Two or more elements out-of-service 0.033 – 0.33 Not to exceed 30% at any bus. Not to exceed 20% for more than 40 cycles at load busses. Not below 59.0Hz for 6 cycles or more at a load bus. Not to exceed 10% at any bus. D Extreme multiple-element outages < 0.033 Nothing in addition to NERC Figure 1. Voltage Performance Parameters RERI TPL criteria related to reactive power resources: 1. For transfer paths, voltage stability is required with the pre-contingency path flow modeled at a minimum of 105% of the path rating for system normal conditions (Category A) and for single contingencies (Category B). For multiple contingencies (Category C), post-transient voltage stability is required with the pre-contingency transfer path flow modeled at a minimum of 102.5% of the path rating. 2. For load areas, voltage stability is required for the area modeled at a minimum of 105% of the reference load level for system normal conditions (Category A) and for single contingencies (Category B). For multiple contingencies (Category C), post-transient voltage stability is required with the area modeled at a minimum of 102.5% of the reference load level. For this criterion, the reference load level is the maximum established planned load limit for the area under study. 3. Specific requirements that exceed the minimums specified in 1 and 2 may be established, to be adhered to by others, provided that technical justification has been approved by the RERI. 4. Item 3 applies to internal interconnection Systems. Submitting a Proposed Finding of Exclusion to the Regional Entity Information required. Once the analysis has been performed and the Subject Element/System has been determined to not have a material impact on neighboring Transmission Owners, Operators, and

Balancing Authorities as described in Table 1, and is unnecessary for the operation of an interconnected transmission system, the Responsible Entity shall submit the findings to the RERI. RERI Review of Proposed Findings The RERI operational/planning staff with technical expertise in powerflow studies shall review Proposed Findings of Exclusion submittals and shall determine if the assessment is deficient or agrees with the finding of exclusion. The RERI shall exempt the system elements from the BES, if the elements are approved for exclusion. If the exclusion of the BES elements change the Responsible Entities NERC functional registrations the Region shall support the Responsible Entity through the NERC deregistration process. Dispute Resolution A Responsible Entity or Registered Entity or Owner may appeal a Disputed Finding of Exclusion with the RERI to NERC. Ongoing Responsibilities a. Logging. The RERI shall create and maintain a comprehensive list, available for public review, of: i. All Elements with nominal operating voltages at or above 100 KV that have Confirmed Findings of Exclusion, or, through other aspects of the BES definition, have been excluded from the BES including an explanation of how the element was excluded through the definition; ii. All Elements with nominal operating voltages below 100 kV that have Findings of Inclusion; and iii. The status of all EAs in dispute. iv. The Responsible Entity would continue to provide system data to the neighboring Balancing Authorities and Transmission Owners and Operators and if applicable continue to coordinate underfrequency load shed and under voltage load shed scheme information. VII. Conclusion NERC should adopt the TPL-based assessment as proposed herein. A bright-line BES test will not exclude all load distribution facilities as required by the FPA. Further, a performance-based exemption process would be objective, consistent, and transparent, and would adequately differentiate between local distribution and transmission, i.e., BES, facilities.

Individual

Bill Dearing

Northwest Public Power Association (NWPPA)

No

We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

NWPPA agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.

Yes

NWPPA agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems

that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
NWPPA agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, NWPPA agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. NWPPA supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish's White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
See response to 5d
No
None
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment
See exclusion comment
See exclusion comment
See exclusion comment
No

As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.

No

As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.

Yes

NWPPA generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.

Individual

Ben Friederichs

Big Bend Electric Cooperative, Inc.

No

We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.

Yes

BBEC agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.

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Yes
BBEC agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, BBEC agrees that if power is not intentionally transported through a particular system, that system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be "scheduled" out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. BBEC supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors ("PTDF") and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish's White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
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Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical

approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See exclusion comment
See exclusion comment
See exclusion comment
See exclusion comment
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.
No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215
Yes
BBEC generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Group
Transmission Access Policy Study Group
Cynthia S. Bogorad
No
Impedance is a function of a line's length; it does not measure whether a line serves a BES function. A very long line can exist only to serve load, and a short line in an urban area (where the load is physically close to the grid) could be needed for transmission but would have low impedance. This proposed metric is thus both over- and under-inclusive, and should be discarded. Transfer distribution factor is a more appropriate metric, as described in TAPS' response to Question 4. TAPS supports having two paths for exclusions, one that includes extensive technical analysis and another that does not. The path with less technical analysis is appropriate for Elements that a relatively high-level examination shows to be not relevant to the reliability of the grid. This opportunity should be available in the context of exclusions to reduce the burden on small entities. Reliability will not be impaired by this option; all exception requests will be reviewed by NERC, and in any case where NERC is less than certain that an exception is appropriate, NERC can perform any or all of the analyses that would be required for a more technical exclusion or inclusion, and a positive result would be sufficient justification to deny the exclusion request.

No
We believe that this criterion is intended, like those in 1(a) and (d), to determine whether an Element is planned and operated to function as part of the interconnected grid. It is, however, too vague to be useful and should be discarded.
The third item is “power flows into the system, but rarely flows out.” This criterion is vague. TAPS suggests instead the following language, which is consistent with TAPS’ comments on Exclusion E3 of the BES definition: “Neither the Element, nor any Elements that it connects to the grid (in aggregate), includes more than 75 MVA of generation used to meet the resource-adequacy requirements of electric utilities.”
Yes
TAPS supports the criterion in concept, but “intention[]” is a vague term and not relevant to an Element’s impact on the grid. We suggest instead that to obtain an exclusion for such a quasi-radial Element, the owner be required to demonstrate that energy transfers subject to NAESB TLR procedures (Interchange Transactions or BES generator to load) have no more than a 5% transfer distribution factor (TDF) on the Element that is a candidate for exception. Transfer distribution factor is a good measure of an Element’s impact on the grid and is not subject to varying interpretations.
Yes
TAPS supports including specific technical criteria that Elements must meet to obtain an exclusion through the exception process. This approach will facilitate uniform application of the exception process. TAPS responds to the first five proposed criteria in response to 5b-5e below. The seventh proposed criterion, “No cascading outages,” is insufficiently granular and should be discarded. The criteria are intended to measure whether, among other things, a particular Element can cause a cascading outage. They need to set out how decision-makers will determine whether an Element can cause a cascading outage, not simply state that an Element that can cause a cascading outage cannot be excluded from the BES.
The first proposed criterion, “Having a distribution factor of 5% for any other Element,” should instead be “Having a distribution factor of 5% for curtailable Interchange Transactions or BES generator to load identified in Transmission Loading Relief stages one through five.” An Element with a higher distribution factor only on a non-BES Element should not be considered part of the BES on that account.
The second criterion, “Allowable transient voltage dip – criteria TBD,” should specify where the transient voltage dip is, i.e. “Allowable transient voltage dip on another BES Element for events on the Element that is the subject of the Exception Request—criteria TBD.”
The third proposed criterion, “Allowable transient frequency excursion – criteria TBD,” should be rephrased like the second: “Allowable transient frequency excursion on another BES Element for events on the Element that is the subject of the Exception Request – criteria TBD.”
The fourth proposed criterion should be revised in the same way as the second and third: “Voltage deviation on another BES Element for events on the Element that is the subject of the Exception Request – criteria TBD.” The fifth proposed criterion should be similarly revised: “Transient Stability on another BES Element for events on the Element that is the subject of the Exception Request – positively damped.”
Yes
TAPS proposes a simpler set of exclusion exception criteria: 1. Having a distribution factor of 5% for curtailable Interchange Transactions or BES generator to load identified in Transmission Loading Relief stages one through five; 2. Category B and C contingencies on the Element that is the subject of the Exception Request meet the TPL-002 criteria for other BES Elements. (With the new TPL-001-3 standard recently approved by ballot, Category P0 through P7 contingencies on the Element that is subject of the Exception Request meets the criteria of P0 through P3 for other BES Elements); and 3. The Element that is the subject of the Exception Request is not: (1) part of an IROL, (ii) part of a blackstart or cranking path used in a TOP’s restoration plan, or (iii) used in NUC-001 to provide service to a nuclear plant. TAPS believes these three criteria meet the intent of all of the criteria presented by the SDT.
TAPS supports using a uniform set of technical criteria to decide inclusion exceptions. Such an approach will facilitate uniform application of the criteria. It is appropriate for there to be only one path, using technical analysis, for inclusions, because the analysis for inclusions should be performed

by Regional Entities and NERC (see TAPS comments on the BES Exception Process, also submitted today), which have more resources available than do the small entities that TAPS believes are likely to request exclusions based on the path for exclusions that does not include extensive technical analysis. In addition to having clear and uniform criteria, the technical analysis for inclusions and exclusions should use the same criteria (though one should of course be the inverse of the other). We note that the steps laid out for Inclusions do not quite track those in Exclusions 2(a). For example, Inclusions 1(b) states, confusingly, "Monitor the contribution of the disputed Element(s)," but there is no corresponding step in Exclusions 2(a). TAPS suggests that Inclusions 1 be revised to mirror Exclusions 2.
See TAPS comments in response to Question 5.
See TAPS comments in response to Question 5.
See TAPS comments in response to Question 5.
See TAPS comments in response to Question 5.
Yes
The third paragraph of the introduction to the Technical Principles is awkwardly worded and might be misconstrued. TAPS suggests the following rewording: "Entities are not required to seek exceptions under the Exception Procedure to exclude from the BES Element(s) that are already excluded under the BES definition and designations." For the sake of consistency, Exclusions (1) should contain a provision analogous to Exclusions (2)(b) and Inclusions (1)(f) addressing the circumstances under which the ERO can override a demonstration based on these criteria. As noted above, one of those circumstances would be a demonstration by NERC that the Element in question meets the criteria for inclusion in the BES.
Individual
Andrew Z Pusztai
American Transmission Company, LLC
No
ATC believes the relevance and rationale for this criterion is unknown. If this criterion is intended to exempt elements, like circuit switchers, that are part of the distribution transformer circuits operated above 100 kV, and located within a mile of the BES interconnection point, then ATC would expect the wording to be "in close electric proximity to the BES" rather than in "close electric proximity to Load". Otherwise, ATC requests the SDT explain the relevance and rationale for this criterion before agreeing on its inclusion.
No
Radial in Character – ATC proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E1 of the bright-line BES definition.
No
ATC proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the bright-line BES definition.
No
ATC proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the BES definition.
No
ATC proposes that this technical analysis criterion be replaced by criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. The following alternate criteria are offered as possible examples, "(1) the BES can be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES performs acceptably after credible contingences of the Element; (3) the Element does not limit the impact and scope of instability and cascading outages when they occur; (4) BES facilities are protected from unacceptable damage by operating the Element within its ratings; and (5) the BES has the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. In addition, ATC is not aware of any continent-wide appropriate BES performance measures for voltage dip, frequency excursion, voltage deviation,

stability, etc. and ATC speculates that different values are likely for different regions and system characteristics across the continent. As a result, ATC believes it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
ATC proposes replacing this factor with those cited above in 5a because a distribution factor measurement indicates how much system changes affect the element, not how much a fault or loss of the element would compromise the ALR of the BES. There is no clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
ATC proposes replacing this factor with those cited above in 5a because there is presently no established, continent-wide, acceptable transient voltage dip performance level for evaluating whether a fault or loss of the element would not compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
ATC proposes replacing this factor with those cited above in 5a because there are established, continent-wide transient frequency performance levels in the PRC-006-1 standard, but the elements that are applicable to the standard do not have to be BES elements and the transient frequency response requirements are not intended to be a criterion for BES classification.
ATC proposes replacing this factor with those cited above in 5a because there is presently no established, continent-wide, acceptable (steady state) voltage deviation performance level for evaluating whether a fault or loss of the element would not compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
Yes
ATC recommends this process address the five characteristics of the Definition of Adequate Level of Reliability (ALR) as listed in the comments above in Question #5a.
No
ATC proposes that the technical analysis criterion be replaced by criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. The following alternate criteria are offered as possible examples, “(1) the BES cannot be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES does not perform acceptably after credible contingences of the Element; (3) the Element limits the impact and scope of instability and cascading outages when they occur; (4) BES facilities are not protected from unacceptable damage by operating the Element within its ratings; and (5) the BES does not have the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. In addition, ATC is not aware of any continent-wide appropriate BES performance measures for voltage dip, frequency excursion, voltage deviation, stability, etc. and ATC speculates that different values are likely for different regions and system characteristics across the continent. As a result, ATC believes it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
ATC proposes replacing this factor with those cited above in 7a because a distribution factor measurement indicates how much system changes affect the element, not how a fault or loss of the element would compromise the ALR of the BES. There is no clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
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No

No

Yes

1. ATC proposes replacing the wording in the Exclusion preface, Exclusion 2 preface, and Inclusion 1 preface of “not necessary to reliably operate the interconnected transmission network” with “necessary to maintain an Adequate Level of Reliability (ALR) of the Bulk Electric System”. 2. ATC has reservations on the following statement made in the introduction of this document: ” Due to the importance of Blackstart Resources and their designated blackstart Cranking Paths to restoration efforts, no exceptions will be allowed for those items.” This does not allow for a provision to exclude any designated Blackstart Cranking Path (at any voltage) even though there may be technical justification for it. 3. The first page states that “Specific content of this application is spelled out elsewhere in this appendix.” ATC requests the SDT describe where this appendix will be published. Furthermore, is it a compliance document or just technical “guidance”? 4. Having the following statement included for both exclusions and inclusions will create disagreement: “The ERO can override this criterion but would need to provide additional justification to support their finding.” ATC believes any override should have adequate technical justification and not interfere with other statutory requirements. Also, it does not clarify or identify who would make the determination whether NERC has made adequate justification to override the criterion.

Individual

Joe Petaski

Manitoba Hydro

No

The purpose of this exception is unclear. It would be possible that a large transmission station with many network connections, which is close to a load (irrespective of size), would be excluded from the BES definition. Similarly, a reduction of system impedance, by transmission line re-conductoring for example, could remove assets out of the scope of the BES definition. The listed proposed criteria suggest values yet to be determined. It is unclear how this exception would support BES reliability.

No

The proposed criteria to substantiate a request for an exception should be removed as it does not introduce anything different than what is already proposed under the exclusions in the bright line BES definition. Specifically, radial systems are already excluded in the bright line definition E1.

No

Vague language such as “rarely” or “not intentionally” does not support a “bright line” approach, and is not measureable or auditable. Also, the sample evidence should not be included as part of the criteria. In addition, the proposed criteria to substantiate a request for an exception should be removed as it does not introduce anything different than what is already proposed under the exclusions in the bright line BES definition. Specifically, this item is already excluded in the bright line definition E3.

No

Vague language such as “rarely” or “not intentionally” does not support a “bright line” approach, and is not measureable or auditable. Also, the sample evidence should not be included as part of the criteria. In addition, the proposed criteria to substantiate a request for an exception should be removed as it does not introduce anything different than what is already proposed under the exclusions in the bright line BES definition. Specifically, this item is already excluded in the bright line definition E3.

No

Manitoba Hydro does not agree with an impact based approach to establishing BES elements as we believe it will result in regional differences in the application of the BES definition. In addition, the resources required to verify the assumptions made in the models used to substantiate a BES exception would be substantial with no benefit to reliability. As well, this section appears to be an incomplete process. As currently worded, if the model was not updated in step ii, then there is no requirement to run the TPL studies indicated in the remainder of step ii.

No
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No
We are concerned however that assumptions could be made to complete the technical analysis to support an exclusion that may not be appropriate.
Yes
Canadian Entities are not under FERC jurisdiction, so the revised BES Definition may not apply. A number of Canadian Entities have the BES defined within their provincial legislation. This may introduce differences and even contradictions between elements that are included in the BES according to provincial legislation and the NERC definition.
Yes
The exception procedure is a complicated and resource intensive process. To be most effective, the BES definition should be a stand-alone 100kV bright line with any exception criteria being specified within the definition. Additionally: -FERC Order 743 directed the revision of the Bulk Electric System (BES) definition to improve clarity, to reduce ambiguity, and to establish consistency across all Regions. The proposed impact based exception procedure undermines all three of these targets. -The Technical Exceptions eliminate the 100kV 'bright-line' definition and introduce regional differences, both of which are contradictory to the goals of the BES revision project. -The commitment for NERC to review and continuously monitor BES exceptions made through this process would be extremely onerous and resource intensive with little benefit to reliability. -To obtain industry consensus on the precise limits to determine if an element has sufficient impact on the BES to be included in the BES is not a reasonable or attainable endeavor.
Group
ISO/RTO Standards Review Committee
Albert DiCaprio
No
The SRC fails to see how electrical proximity to load qualifies an element for exclusion from the BES. Such elements may indeed be involved in serving electricity to those loads. If those loads are critical loads, then why should the element be excluded from the BES?
No
The SRC generally agrees that radial elements likely may be excluded from the BES. However, there is insufficient information given as to what it means to be "not operated as part of the BES with disconnection procedures for when a Disturbance occurs". Further, is it possible that such radial elements are serving a remote "critical" load? One would think that, normally, critical loads would have arrangements for multiple sources, but could those multiple sources be individually considered to be radial?
No
The SRC believes that, if power EVER flows out, then the area is either not radial or it includes generation resources. There is insufficient information to determine whether this "limited quantity of energy" is indeed small. There could be very large amounts of load and generation resources within

that area. Such large quantities could represent a significant potential for sudden increases in load or unexpected energy injections.
No
Hasn't the reliability concern associated with "loop flows" been related to the unintentional flow of power through parts of the system?
Yes
Predictive analysis of an accurate model is useful in determining the importance of various elements of the system.
Distribution factors by themselves are not sufficient evidence that elements are not important to the system. Multiple elements may have significant distribution factors related to various portions of the system, but that doesn't necessarily mean that loss of those elements will result in a reliability risk to the system.
These "transient" and "voltage deviation" analyses are highly dependent upon sound and accurate dynamic system models. Much has been said in recent days about the suspicions that many such models are not truly accurate enough to predict system response that is close to what actually occurs.
See 5c
See 5c
Very small elements may be candidates for exclusion because such a small loss cannot cause reliability risk. An exception to this statement may be that, though small, the element is important to the service of a critical load.
Yes
The SRC generally agrees with the technical analysis approach to determining whether an element should be included in the BES. However, consideration should also be given to valid and supported evidence given by RCs and PCs, and, possibly TOPs and BAs to actual historical events that indicate significant importance of elements which, when lost, have resulted in reliability risk to the system.
Group
New York Power Authority
Randy D. Crissman
No
NYPA does not see a need for this requirement. A radial element that specifically serves a load center will perform that task regardless of the electrical distance from the source to the load. Similarly, any loss of load in the load center will result in a corresponding need to reduce generation in the source system, regardless of the proximity of the load.
Yes
The definition of radial systems needs to be modified to include radials that are connected to a single transmission source by more than one automatic interruption devices, such as occurs with a "breaker and a half" arrangement.
Yes
NYPA generally agrees with this item. However, the term "system" needs to be better defined. It is not clear how power could flow out of a load only system. If reversing power flows on a feeder caused it to fail one of the criteria, could the radial still be excluded, or is it necessary for the Element to pass all requirements? Alternatively, could the entity choose to file for Exclusion of that Element under the technical analysis option? What happens and what are the implications when the two approaches produce different outcomes? An example of revised wording for "iv. The maximum amount of energy flowing out" would be no more than 24 hours of reverse power flows within any rolling 12-month

period. Consider avoiding prescribing values and eliminate bullet (iv). The intended performance outcome should be described, but without setting values. This should not have any impact on the reliability of the transmission network if items 1, 2 and 3 are satisfied.
Yes
NYPA agrees that power flow wheeled through a system indicates that the system potentially has more than one source. Therefore, the element in question is not radial.
Yes
In general, NYPA agrees with this approach except as noted below.
NYPA does not agree with this measurement. Distribution factors are dependent on the number of radial transmission lines that connect a single source to a load. For example, if two lines connect a single source to a load, and one line trips, the distribution factor provides a 100% increase in flow on the remaining line. If three lines connect the source to the load, and one line trips, the distribution factor for the remaining lines would be 50%. The SDT should avoid setting values and instead describe the intended performance outcome from a distribution factor measurement. Note that ultimately NERC as an ERO or relevant regulatory authority will approve the application and can assess the performance outcome in their decision making presented in an entity's application.
Suggest that either the SDT avoid using voltage dip as a criteria, or clearly specify that the transient voltage not exceed the X limit of Y cycles (time). References to relevant industry standards such as IEEE standard 1346-1998 should be made.
Suggest that for assigning a value for transient frequency response, entities conduct and submit to the SDT their quantitative and qualitative technical assessment based on the conditions of the element(s) under the application. Do not establish a fixed binary value within the exception criteria but rather focus on the performance outcome.
Voltage deviation is generally expressed as a percentage, between the voltage at a given instant at a point in the system. Do not establish a fixed binary value within the exception criteria but rather focus on the performance outcome.
No
Yes
In general, NYPA agrees with this approach except as noted below. Inclusions criteria should mirror the Exclusion criteria, and that consistent values should be employed for Inclusions here and for Exclusions above.
NYPA does not agree with this measurement. Distribution factors are dependent on the number of radial transmission lines that connect a single source to a load. For example, if two lines connect a single source to a load, and one line trips, the distribution factor provides a 100% increase in flow on the remaining line. If three lines connect the source to the load, and one line trips, the distribution factor for the remaining lines would be 50%.
Refer to the response to Question 5c.
Refer to the response to Question 5d.
Refer to the response to Question 5e.
No
No
No
Group
Iberdrola USA
John Allen
No
We do not agree with this requirement. These exclusion exception criteria should be deleted in their entirety and replaced with criteria that are objective, specific, and repeatable, or preferably not

replaced at all. Specific problems with the criteria as stated are: 1. A facility is not BES if all of “a” through “d” below apply: a. “System elements” are in “close electrical proximity to load” – this is vague, and a lower impedance between systems is higher likelihood of interaction between systems. Proximity measured in ohms should be related to the load level itself. A pair of values (ohms, load) is necessary for this purpose. Transient stability is affected by this value-pair. For a load pocket, an equivalent impedance (e.g., a sort of Thevenin impedance) between the network source and the load location could be defined. The impedances within the network source can also affect the assessment. Re-evaluation over time would be necessary if this path were adopted. This path of evidence (i.e., the path of engineering judgment) which does not include extensive technical analysis is an attempt to provide a definitive criteria for exception without going through the other path of evidence (i.e., the analytical path) which includes extensive technical analysis. Unless the analytical path has been clearly defined and sufficient data obtained from/on it, the path of engineering judgment could become difficult to establish. System parameters such as proximity to load, radial (or non-radial) configuration, power flow direction over time (either unintended or intended) will directly influence results of technical analysis evaluated for distribution factors, transient voltage dip and frequency excursions, voltage deviations, transient and steady-state stability, and sequence of events following a disturbance (i.e., either a cascading outage or a controlled outage). The two paths of evidence cannot be in conflict with each other.
No
We do not agree with this requirement. These exclusion exception criteria should be deleted in their entirety and replaced with criteria that are objective, specific, and repeatable, or preferably not replaced at all. Specific problems with the criteria as stated are: 1. A facility is not BES if all of “a” through “d” below apply: b. “System elements” are “treated as” radial “in character” – this is also vague, and based on operating procedures… what does “treated” involve? What is “character” in the context of system elements?
No
We do not agree with this requirement. These exclusion exception criteria should be deleted in their entirety and replaced with criteria that are objective, specific, and repeatable, or preferably not replaced at all. Specific problems with the criteria as stated are: 1. A facility is not BES if all of “a” through “d” below apply: c. Power flows into “the system” most of the time – this is vague and covers much of the 115 kV system.
No
We do not agree with this requirement. These exclusion exception criteria should be deleted in their entirety and replaced with criteria that are objective, specific, and repeatable, or preferably not replaced at all. Specific problems with the criteria as stated are: 1. A facility is not BES if all of “a” through “d” below apply: d. Power “entering” “the system” does not “intentionally” flow into another “system” – what does intentionally versus unintentionally mean?
No
A facility is not BES if it is not necessary for reliable system operation, based on a TPL-type analysis similar to NPCC Document A-10 “Classification of Bulk Power System Elements” – this type of analysis was rejected by FERC. Besides, at 115kV, calculated distribution factors for interfaces between areas (where higher voltage lines, e.g., at 230kV and 345kV, are included as part of the interface definition) tend to be small and inaccurate. The method used to calculate distribution factors is an approximate method which must be re-evaluated for small values of distribution factors.
See 5a.
See 5a.
See 5a.
See 5a.
No
No
A facility is BES if it is necessary for reliable system operation, based on a TPL-type analysis similar to NPCC Document A-10 “Classification of Bulk Power System Elements” – this type of analysis was rejected by FERC. In addition, applicable threshold values for these parameters could differ from one system to another, and would require extensive analysis.

See 7a.
See 7a.
See 7a.
See 7a.
No
No
No
Group
Tri-State Generation and Transmission Association
Mark Conner
No
A long radial line with a small transformer could have a relatively high impedance. Proximity to load has no real bearing on this procedure. Requirement 1.(a) should be deleted.
No
While we generally agree, 1.(b) should be changed to “normally radial.” “Radial” should not be defined differently in the Rule of Procedure than in the BES Definition.
Yes
It may be more appropriate to use a threshold based on maximum power rather than on an annual energy threshold.
Yes
While we generally agree, "system" needs to be clarified, and should be changed to "transmission system." It may also need to be qualified by indicating a change in ownership of transmission systems. We also wonder if the concept of scheduling should be addressed rather than using the word "intentionally?"
No
This appears very similar to the “material impact” proposal that FERC has previously disallowed, so we recommend removing 2. If retained, remove 2.(b) because allowing the ERO to override the technical justification and analysis devalues such analysis to the point of it being meaningless.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
No
No
This appears very similar to the “material impact” proposal that FERC has previously disallowed, so we recommend removing it, but allowing elements that are included in Regional Entity defined bulk transfer paths that are not already included in the BES definition. If retained, remove 1.(f) because allowing the ERO to override the technical justification and analysis devalues such analysis to the point of it being meaningless.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.

If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
If this approach is used, then there needs to be a clear technical rationale for defining the metric and for determining the threshold value.
Yes
No
Yes
The proposed principles seem preliminary and immature. In addition as noted in earlier comments they are not fully consistent with the proposed BES definition, particularly with respect to radial elements and local distribution networks. Such consistency should be incorporated before the next posting. We further feel that it is very unlikely that the technical evidence path can be placed on a sound technical foundation and matured by the end of this year as directed by the FERC. Key definitions are lacking and should be added to the document. For instance “distribution factor” is not carefully defined even though such factors can be calculated in a variety of ways.
Group
Hydro One
David Curtis
No
We agree with this concept to allow entities to submit an exception application that does not include extensive technical analysis. Such an option will make the process efficient for all stakeholders, such as entities, Regions, NERC and relevant regulatory authority. However, our opinion is that there is no real relationship between reliability and the proximity of load. If impedance is to be used as a measure of electrical proximity, which in turn is a replacement for geographical proximity, then how would the presence of parallel lines, capacitors, phase-angle regulators (PARs), tap-changing transformers, generation and reactors be treated in determining electrical proximity? Consistent with references in the FERC Order, we feel that it is much more important to identify and ensure if the BES element(s) are serving load pockets associated with large metropolitan load centers, loads of significance to national security and/or as identified by relevant Federal, State or Provincial Regulatory Authority. We urge the SDT to clarify the exception criteria for exclusions, based on the following questions: •How does the proximity impedance approach effectively differentiate between transmission and distribution lines of the same voltage and length? •When using impedance, how is “greater than” determined? •What impedance would the SDT apply to a PAR (or tap-changing transformer) and to the overall path if a PAR (or tap-changing transformer) were located in-series with the measured Elements? •What is the meaning of “power flow data” used here and how is the meaning different from the term when used under “1c) Power flows into the system, but rarely flows out”? Should this sentence use the phrase “impedance data extracted from a load flow study” instead? Finally we suggest that entities should be required to identify the significance of the element’s physical characteristics. Such identification can be done through a simple checklist along with any relevant comments.
No
Entities should be allowed to demonstrate the radial characteristics to determine if they are permitted for an exception, and demonstrate compliance with radial defining criteria. The term “regional dispatch” is not defined. Therefore we suggest the SDT to provide a definition or reference to clarify regional dispatch in 1 b) II. We recommend adoption of the alternate term “operational control” and suggest that the SDT consider using the terms “under the operational control of a Balancing Authority” (It is instructive that the overarching requirement for a finding of transmission system integration in Mansfield was that the facilities be under operational control of the Independent System Operator.*) * Southern Cal. Edison Co., 92 FERC ¶ 61,070 at 61,255 (2000), reh'g denied 108 FERC ¶ 61,085 (2004).
No
We agree with the criteria set out in 1(c), but suggest the SDT to avoid prescribing values and eliminate bullet (IV). The SDT should also consider allowing: a) Power flow-out up to 20% of the minimum forecasted load for the element(s) over a 12 month period; or b) Maximum amount of

energy flowing out be set to no more than 24 hours of reverse power flows within any rolling 12-month period. The intended performance outcome should be described, but without setting values. This should not have any impact on the reliability of the transmission network if items 1, 2 and 3 are satisfied.

Yes

No

We agree that entities should be given an option to conduct an analysis to demonstrate whether or not an element is necessary for the operation of the transmission network. We also support that NERC should specify the entire relevant criteria category to be listed under exclusion criteria 2 (a). However, we suggest that NERC should avoid prescribing numerical values but establish a range of value (or reference industry standard) that would be consistent with industry/ regional standards or practices without compromising the reliability of the transmission network.

Distribution Factor is an estimate of what feeder power flow participation level material is and what non-material is. While TDF and OTDF analysis is an indication of contributions from the element, hence the SDT should avoid setting values and instead describe the intended performance outcome from a distribution factor measurement. Note that ultimately NERC as an ERO or relevant regulatory authority will approve the application and can assess the performance outcome in their decision making presented in an entity's application.

Voltage dip is specified in terms of duration and retained voltage, usually expressed in percentage. We advise against prescribing limits by the SDT, and instead suggest that either the SDT avoid relating voltage dip altogether or clearly specify that the transient voltage not exceed the X limit of Y cycles (time). We suggest SDT to make references to relevant industry standard such as IEEE standard 1346-1998. For example, a document effective in 2007 titled Ontario Resource and Transmission Assessment Criteria Issue 5.0 mentions that: "The minimum post-fault positive sequence voltage sag must remain above 70% of nominal voltage and must not remain below 80% of nominal voltage for more than 250 milliseconds within 10 seconds following a fault. Specific locations or grandfathered agreements may stipulate minimum post-fault positive sequence voltage sag criteria higher than 80%. IEEE standard 1346-1998 supports these limits."

We suggest that, in terms of assigning a value for transient frequency response, entities conduct and submit to the SDT their quantitative and qualitative technical assessment based on the conditions of the element(s) under the application. We suggest not to establish a fixed binary value within the exception criteria but rather focus on the performance outcome. See 5 (a)

Voltage deviation is generally expressed as a percentage, between the voltage at a given instant at a point in the system. We suggest not to establish a fixed binary value within the exception criteria but rather focus on the performance outcome. Adequate voltage performance does not guarantee system voltage stability. Steady state stability is the ability of the grid to remain in synchronism during relatively slow or normal load or generation changes and to damp out oscillations caused by such changes. We suggest that the requirement should suggest that following checks are carried out to ensure system voltage stability for both the pre-contingency period and the steady state post-contingency period: •Properly converged pre- and post-contingency power flows are to be obtained with the critical parameter increased up to 10% with typical generation as applicable; •All of the properly converged cases obtained must represent stable operating points. This is to be determined for each case by carrying out P-V analysis at all critical buses to verify that for each bus the operating point demonstrates acceptable margin on the power transfer as shown in the following section; and •The damping factor must be acceptable (the real part of the eigen values of the reduced Jacobian matrix are positive).

Yes

Technical Analysis must fundamentally use NERC – TPL methodology and testing requirements. We believe that an element may "not be necessary for the operation of the interconnected transmission system" if the remaining system can be operated without the element(s) for over 30 days and during peak load conditions. This assumption considers that loss of element(s) may result in outage to the connected load or generation during this period but will not have any adverse impact on the operation of the interconnected transmission network. Following are technical assessment categories that entities could be required when filing for exception: 1.Power flow •Primarily unidirectional (less than 20% of min load) 2.TPL Assessment •Load Flows Analysis •Thermal and Voltage Stability •Transient

Stability 3.TDF and OTDF assessment For entities filing an exception: [Step 1] Entities should undertake relevant and detailed technical assessment/analysis and describe their findings under each of the technical categories. Finally, the findings and conclusions should be listed in the form of maximum 6 bullets. [Step 2] Findings and conclusions from each of the technical categories should be presented in a spreadsheet including the categories that may not be relevant to the element(s). If a category is not relevant, it should be explained why. [Step 3] The final conclusion should be presented by taking the overall assessment in Step 2 by assessing contributions of each item and demonstrating that the element(s) is or is not necessary for the operation of interconnected transmission network. We suggest the above method and request entities to complete the table below, as this will allow entities to present their assessment of the element(s) that are under the consideration of exception. Measured Value ========== Load || Critical Load Affected? [yes][No] ---------- •Radial •Local supply, e.g. distribution in nature •Large load center, critical load, national security Generation Characteristics || Critical Load Affected? [yes][No] ---------- •Local load modifier, peak shaver •Behind meter or industrial load displacement •Must Run •Flow contribution outside of the elements under exception Cascading Outage || Critical Load Affected? [yes][No] ---------- Measured Value ========== Max Dip [Voltage] Applicable Industry Practice (IEEE/CSA,Market Rules,etc.) Acceptable Level [in cycles] Assessment Results [in cycles] Does the assessment confirm successful recovery? [Yes] [No] Transient Voltage Dip [voltage] Transient Frequency Excursion [Hertz] Voltage deviation [Voltage] Transient Stability Steady State Stability

No

Inclusions criteria should mirror the Exclusion criteria, and that consistent values should be employed for Inclusions here and for Exclusions above. [See our comments on exclusions]

[See Comment 5b]

[See Comment 5c]

[See comment 5d]

[See comment 5e]

No

Yes

It is imperative to understand that the NERC's revised definition will have a direct impact on entities across North America and may conflict with regulatory requirements, Codes, and Licenses. FERC in its Order 743 and 743A has directed NERC to address these concerns. As for Ontario System, the BES exception criteria shall meet the expectations of Ontario's regulator (Ontario Energy Board) which has the sole authority and responsibility for the reliability of customer connections and loads within Ontario. Therefore, it will be necessary to accommodate NERC's proposed definition of BES or the exception process with the Ontario situation. We suggest the SDT and RoP teams should: •Modify the exception criteria and procedure to provide regulatory flexibility with requirements to conduct basic technical analysis, to allow entities to consistently present their case to the ERO and/or the regulator for a step by step expedited evaluation. •Include provisions in both the NERC exception criteria and exception process for federal, state and provincial jurisdictions. These provisions should provide clear guidance so that, if and when there are deviations from the exception criteria, they are identified with technical and regulatory justifications ensuring there is no adverse impact on the interconnected transmission network. •Understand that the path to generating facilities need not be always BES contiguous. Generating units can/should be required to be planned, designed, and operated in accordance with a subset of NERC Standards, but should not always require contiguous paths.

Yes

Exception criteria should be crafted at a high-level with key menu items of assessment that can be followed continent-wide by entities to put forward their exception for element(s) that are not necessary for the interconnected transmission network and based on technical assessment, evidence and justification for its unique characteristics, configuration, and utilization. (Also see suggestions/ comments on Question 6)

Group

Alabama Public Service Commission

John Free
Yes
The second paragraph of the proposed Technical Principles states that “[d]ue to the importance of Blackstart Resources and their designated blackstart Cranking Paths to restoration efforts, no exceptions will be allowed for those items.” This sentence should be deleted from the technical principles. An unintended consequence of subjecting all blackstart cranking pathways to inclusion in the BES by default would be to cause a Registered Entity, in order to minimize costs, to not declare every possible cranking path but instead limit to the minimum required cranking paths in order to comply with the standards, as opposed to designating multiple pathways. This consequence could be avoided by allowing blackstart cranking pathways to be evaluated for exceptions just like any other element.
Individual
Heather Hunt
NESCOE
No
The New England States Committee on Electricity (“NESCOE”) appreciates the work of NERC’s standard drafting team as well as the opportunity to provide comments on this matter. NESCOE is New England’s Regional State Committee and the comments provided herein reflect the collective views of the six New England states. NESCOE’s comments below reflect its general perspective that any new costs imposed as a result of the BES and its implementation, which costs ultimately fall on consumers, should provide meaningful reliability benefits. NESCOE questions the concept as presented and seeks further clarification. As a general matter, NESCOE believes the requirement that a proposed exception must meet all four criteria is overly restrictive and will result in only a narrow category of elements qualifying for exclusion from the BES. NESCOE suggests that a better approach would allow exclusions to be based on one or more criteria, depending on the nature of the element that is the subject of the application. With respect to the proposal, NESCOE does not believe it is possible to obtain agreement on the “proximity to load” criterion for additional exclusions from the BES when the underlying impedance value has not been determined and may be the subject of significant debate. While it is possible that NESCOE could support a single impedance value that would govern exclusion determinations, it notes that a uniform value may not adequately address varying system configurations throughout ISO-New England and neighboring control areas. NESCOE suggests that the standards setting process allow for further deliberation on possible proposed values. Other terms, such as “load center,” also need definition.
No
As noted in Response 1, NESCOE believes exclusion determinations should not require a finding that all four proposed criteria are met. In addition, NESCOE believes that the criterion proposed here is

overly complex and that developing the evidence may be overly burdensome to the applicant. Radial paths should have a simple definition related to how the path is connected from a topological perspective. NESCOE suggests that a radial path be defined simply as a path having only one connection point to the BES, thereby presenting no opportunity for power flows parallel to the BES network. Under fault situations, these excluded paths can be isolated from the BES with suitable NERC compliant protection systems. Note the radial path may be comprised of parallel lines that terminate at the BES connection point. In addition, NESCOE believes that a radial path should qualify for exclusion as long as the power flowing into the BES is less than a threshold MVA. NESCOE does not at this point have a recommendation as to this specific threshold but believes it should be developed through the standards-setting process. NESCOE suggests this approach to avoid burdening the development of generation including renewable generation. As New England is working on facilitating the development of renewable resources located in and around the region to serve customers most cost-effectively, this process should take specific care not to impose undue burdens on renewable resources.
No
As noted in Response 1, NESCOE believes exclusion determinations should not require a finding that all four proposed criteria are met. Generally, NESCOE is in agreement with an exception criteria for additional exclusions that takes into account power flows into the system that rarely flows out. However, additional clarity is necessary for criteria 1(c)(i),(ii) and (iv). Specifically, what is meant by “very limited set of conditions” under 1(c)(i) and (ii) and “limited quantity of energy” under 1(c)(i)? Further, is it appropriate to establish a fixed value of X megawatt hours for the maximum amount of energy flowing out of the system? While it is possible that NESCOE could agree upon a uniform value, NESCOE is not in a position to provide specific comment or support when the MWh value is unspecified. In addition, a fixed value may not adequately address varying system configurations throughout ISO-New England and neighboring control areas.
No
As noted in Response 1, NESCOE believes exclusion determinations should not require a finding that all four proposed criteria are met. NESCOE further notes that New England’s network has numerous parallel paths operated at voltages less than 200 kV which may parallel 230 kV and 345 kV BES network paths. If flows on a given <200 kV path only exceed 200 MVA under contingency conditions and if these paths are connected to the higher voltage BES elements with suitable NERC compliant protection systems, these paths may be EXCLUDED from the BES. NESCOE suggests the value of 200 MVA based on typical thermal ratings of 115 kV transmission lines but is open to other values that the drafting team may suggest. NESCOE also suggests that the phrase “to some other system” be broadened to include any other higher voltage BES element.
Yes
NESCOE supports the concept of allowing an additional path to justifying an exclusion from the BES. NESCOE could support development of technical criteria such as those proposed, but does not have specific recommendations at this time. As stated earlier, any excluded elements must be connected to the BES using fully NERC compliant protection systems.
Yes
Please refer to comments under item 4., above. If the parallel power flow in a given < 200 kV path only exceed 200 MVA under contingency conditions and if the applicable BES points have fully NERC compliant protection systems, disturbances on this lower voltage path will not adversely affect the reliability of the BES. The exclusion determination process should be flexible enough to recognize that any requirement that may impose substantial new costs on New England transmission owners, and ultimately on consumers, should also provide meaningful reliability benefits

Yes
NESCOE believes that exclusion determinations should be based on clear but flexible criteria that do not result in the unnecessary inclusion of elements into the BES that do not adversely impact the reliability of the BES. The process described here is too limiting in its requirement that an application meet all of those four listed criteria not requiring technical analysis. Applicants and reviewers should have a broader menu of decision criteria available to them. Regarding those criteria related to exclusions based on technical analysis, NESCOE suggests that ranges of values, in recognition of regional differences in network characteristics, be suggested by the drafting team for further consideration. Finally, as discussed above in response to questions 1 through 4, NESCOE believes that additional exclusion determinations should not require a finding that all four proposed criteria are met. Rather, the various criteria set forth under 1(a) through 1(d) should be treated as alternative criteria to qualify for an additional exclusion, and entities seeking additional exclusions to the BES should be allowed to demonstrate that one or more criteria is met, depending on the nature of the element that is the subject of the application.
Individual
Michael Falvo
Independent Electricity System Operator
No
We agree with this concept to allow entities to submit an exception application that does not include extensive technical analysis. Such an option will make the process efficient for all stakeholders, such as entities, Regions, NERC and relevant regulatory authority. However, we believe that an Element's electrical proximity to load is not necessarily a relevant consideration for determining whether the Element is required for reliable operations.
Yes
We agree with this concept. Entities should be allowed to demonstrate the radial characteristics to determine if they are permitted for an exception. However, we believe some further clarification of the meaning of "radial in character" is needed. The example given in (b)I does not clarify the matter. Would a transmission line operated with a normally open point to form two radial lines be considered "radial in character"? Please clarify. The location of the Disturbance needs to be clarified. For example, if the Disturbance (e.g. a fault) occurs at the radial part of the Element, then it is necessary for the Element to have the capability to disconnect itself from the Disturbance to preserve BES reliability but the Element can be by itself a legitimate radial facility that is used solely for supplying load. The phrase "are not included in a regional dispatch" is unclear. We do not understand what this means.
No
There is an inconsistency between the language used in bullet (c) - "rarely flows out", and that used in Exclusion E3(c) of the BES definition – "Power flows only into the LDN". We have commented during the BES Definition comment period that Exclusion E3 needs to be modified to match the Exception Principles. We agree with the criteria set out in 1(c) except for bullets (iv) and (v). We do not believe it is possible to establish a limit on the energy flow out of a system for which an exception has been requested. Further, we suggest that the SDT avoid prescribing set values in the exception criteria since these would only serve to limit the flexibility of the process. As an alternative to the proposed bullet (iv), we suggest that power flow study results could be used to support the exception request. We therefore propose the following wording to replace bullets (iv) and (v). iv. Power flow simulation results to demonstrate that BES reliability is not dependent upon the power flows through the Element(s) for which an exception has been submitted, for the conditions specified in (ii).
Yes
There is an inconsistency between the language used in bullet (c) - "rarely flows out", and that used in Exclusion E3(c) of the BES definition – "Power flows only into the LDN". We have commented during the BES Definition comment period that Exclusion E3 needs to be modified to match the Exception Principles. We agree with the criteria set out in 1(c) except for bullets (iv) and (v). We do not believe it is possible to establish a limit on the energy flow out of a system for which an exception

has been requested. Further, we suggest that the SDT avoid prescribing set values in the exception criteria since these would only serve to limit the flexibility of the process. As an alternative to the proposed bullet (iv), we suggest that power flow study results could be used to support the exception request. We therefore propose the following wording to replace bullets (iv) and (v). iv. Power flow simulation results to demonstrate that BES reliability is not dependent upon the power flows through the Element(s) for which an exception has been submitted, for the conditions specified in (ii).
No
The technical analysis path for exclusions and inclusions allows for override of the listed “criterion”. It is not clear what will be the basis for overriding, and what process will be followed? Is the “criterion” meant to be all of (1) to (7) in (a), or is it any one of them? This needs to be clarified. We agree that entities should be given an option to conduct an analysis to demonstrate if an element is or is not necessary for the operation of transmission network. However, consistent with our earlier comments, we suggest that the exception criteria avoid prescribing numerical values. A transmission element is not necessary for the reliable operation of an interconnected electric transmission system, if it can be removed without effecting bulk transfer capabilities. In our view, testing in accordance with the TPL standards should be the basis for establishing this. One way of demonstrating that an element is not required for the transfer of bulk power is to show that with the element out of service (and with all elements that received exemptions in the past also out of service) and at the required power transfers: 1. Pre-contingency and post-contingency loadings on all BES elements are within applicable ratings. 2. Pre-contingency and post-contingency voltages on the BES are within established ratings. 3. All units on the BES remain synchronized following contingencies. 4. All voltage declines on the BES are within established limits (if any limits were defined). 5. All steady-state oscillations and oscillations following a contingency are positively damped. 6. Transient voltage dips do not exceed established limits anywhere on the BES (if any limits were defined). 7. Frequency excursions do not exceed established limits anywhere on the BES (if any limits were defined). Our view is that the exception criteria should NOT specify the voltage decline limits, allowable frequency excursion or the allowable transient voltage dip because every region will have different limits depending on the characteristics of their power system. This would be consistent with Requirement R5 of the recently balloted standard TPL-001-2, which requires each Transmission Planner and Planning Coordinator to have criteria for acceptable System steady state voltage limits, post-Contingency voltage deviations, and the transient voltage response for its System. Required power transfers are the transfers required to meet the “one day in ten year” loss of load expectation criteria. Further, exception criteria for generators must also be defined. A power system is typically planned to be able to service the load under multiple dispatch scenarios and, therefore, multiple generators disconnected from the transmission system will unlikely reduce the ability of the power system to supply the load. In fact, market forces typically determine whether or not a generator is connected. However, transmission lines are built to achieve specific transfer capabilities and, therefore, directly affect the power system’s ability to meet the electricity demand. Since, generators and transmission elements contribute to reliability in a very different ways, the criteria exempting generators should be different from the criteria exempting transmission elements.
We do not agree with setting values for this criterion. This should be left to the relevant Transmission Planner and Planning Coordinator. See our comments in response to Q5a.
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We do not agree with setting values for this criterion. This should be left to the relevant Transmission Planner and Planning Coordinator. See our comments in response to Q5a. We suggest that the exception criteria could include the following checks to be carried out in the course of the TPL analysis referred to above to ensure system voltage stability for both the pre-contingency period and the steady state post-contingency period: • Properly converged pre- and post-contingency power flows are to be obtained with the critical parameter increased up to 10% with typical generation as applicable; • All of the properly converged cases obtained must represent stable operating points. This is to be determined for each case by carrying out P-V analysis at all critical buses to verify that for each bus the operating point demonstrates acceptable margin on the power transfer as shown in the following section; and • The damping factor must be acceptable (the real part of the eigen values of the reduced Jacobian matrix are positive).”

No
No
We support the concept of technical analysis in support of Inclusions but disagree with the approach that involves setting specific values for criteria. Please refer to our comments on exclusions.
[See Comment 7a]
[See Comment 7a]
[See Comment 7a]
[See Comment 7a]
No
We anticipate that entities would be granted access to any required historical operations records and modeling data after signing of non-disclosure agreements as necessary.
Yes
Similar to the BES Exception Procedure, the document “Technical Principles for Demonstrating BES Exceptions” must explicitly recognize the authority of Canadian and Mexican Governmental Entities to adopt the Technical Principles for Demonstrating BES Exceptions in its entirety or in part with their own deviations, while ensuring there will be no adverse impact on the interconnected transmission system. Footnote 2 of the “Procedure for Requesting and Receiving an Exception from the Application of the NERC Definition of Bulk Electric System” should be repeated in the “Technical Principles” document.
Yes
We hold the view that the path to generating facilities need not be always BES contiguous. Generating units should be required to meet a subset of NERC Standards, but should not always require contiguous BES paths. Finally, we reiterate that exception criteria should be crafted at a high-level with key menu items of assessment that can be followed continent-wide by entities to put forward their exception for element(s) that are not necessary for the interconnected transmission network and based on technical assessment, evidence and justification for its unique characteristics, configuration, and utilization.
Group
MRO's NERC Standards Review Forum
Carol Gerou
No
NSRF believes the relevance and rationale for this criterion is unknown. If this criterion is intended to exempt elements, like circuit switchers, that are part of the distribution transformer circuits operated above 100 kV, and located within a mile of the BES interconnection point, then NSRF would expect the wording to be “in close electric proximity to the BES” rather than in “close electric proximity to Load”. Otherwise, NSRF requests the SDT explain the relevance and rationale for this criterion before agreeing on its inclusion.
No
Radial in Character – NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E1 of the bright-line BES definition.
No
NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the bright-line BES definition.
No
NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the BES definition.
No
NSRF proposes that this technical analysis criterion be replaced by criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. The following alternate criteria are offered as possible examples, “(1) the BES can be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES performs acceptably after credible contingences of the Element; (3) the Element does not limit the impact and scope of instability and cascading outages

when they occur; (4) BES facilities are protected from unacceptable damage by operating the Element within its ratings; (5) the integrity of the BES can be restored promptly following a fault on or loss of the Element; and (6) the BES has the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. In addition, NSRF is not aware of any continent-wide appropriate BES performance measures for voltage dip, frequency excursion, voltage deviation, stability, etc. and NSRF speculates that different values are likely for different regions and system characteristics across the continent. As a result, NSRF believes it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
NSRF proposes replacing this factor with those cited above because a distribution factor measurement indicates how much system changes affect the element, not how much a fault or loss of the element would compromise the ALR of the BES. There is no clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
NSRF proposes replacing this factor with those cited above because there is presently no established, continent-wide, acceptable transient voltage dip performance level for evaluating whether a fault or loss of the element would not compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
NSRF proposes replacing this factor with those cited above because there are established, continent-wide transient frequency performance levels in the PRC-006-1 standard, but the elements that are applicable to the standard do not have to be BES elements and the transient frequency response requirements are not intended to be a criterion for BES classification.
NSRF proposes replacing this factor with those cited above because there is presently no established, continent-wide, acceptable (steady state) voltage deviation performance level for evaluating whether a fault or loss of the element would not compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
Yes
A. NSRF recommends this process address the six characteristics of the Definition of Adequate Level of Reliability (ALR) as listed in the comments above in Question #5. B. Recommend municipalities and other small entities having transmission systems designed to serve local load, operated below 200 kV and not having any IROL's or SOL's be excluded from the BES definition. Rational: The standards, especially those for Transmission Operators (TO) aren't written for the smaller utilities. A utility may have over 75 MWs of generation and have installed a 115 kV loop around their city that is used primarily to serve load and get forced into significant compliance requirements that don't enhance the reliability of the BES.
No
NSRF proposes that the technical analysis criterion be replaced by criteria that are more closely tied to the Adequate Level of Reliability (ALR) characteristics. The following alternate criteria are offered as possible examples, "(1) the BES cannot be controlled to stay within acceptable limits following a fault on or loss of the Element; (2) the BES does not perform acceptably after credible contingences of the Element; (3) the Element limits the impact and scope of instability and cascading outages when they occur; (4) BES facilities are not protected from unacceptable damage by operating the Element within its ratings; (5) the integrity of the BES cannot be restored promptly following a fault on or loss of the Element; and (6) the BES does not have the ability to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled or reasonably expected unscheduled outages of the Element. In addition, NSRF is not aware of any continent-wide appropriate BES performance measures for voltage dip, frequency excursion, voltage deviation, stability, etc. and NSRF speculates that different values are likely for different regions and system characteristics across the continent. As a result, NSRF believes it is not advisable to try to adopt unproven values without reasonable industry investigation and development.
NSRF proposes replacing this factor with those cited above because a distribution factor measurement indicates how much system changes affect the element, not how a fault or loss of the element would compromise the ALR of the BES. There is no clear correlation between this factor and any of the six characteristics of Adequate Level of Reliability (ALR) of the BES.
NSRF proposes replacing this factor with those cited above because there is presently no established,

continent-wide, acceptable transient voltage dip performance level for evaluating whether a fault or loss of the element would compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent.
NSRF proposes replacing this factor with those cited above because there are established, continent-wide transient frequency performance levels in the PRC-006-1 standard, but the elements that are applicable to the standard do not have to be BES elements and the transient frequency response requirements are not intended to be a criterion for BES classification.
NSRF proposes replacing this factor with those cited above because there is presently no established, continent-wide, acceptable (steady state) voltage deviation performance level for evaluating whether a fault or loss of the element would compromise the ALR of the BES. In addition, the appropriate performance level for this factor may vary for different areas and system characteristics across the continent
No
No
Yes
1. NSRF proposes replacing the wording in the Exclusion preface, Exclusion 2 preface, and Inclusion 1 preface of “not necessary to reliably operate the interconnected transmission network” with “necessary to maintain an Adequate Level of Reliability (ALR) of the Bulk Electric System”. 2. NSRF has reservations on the following statement made in the introduction of this document: ” Due to the importance of Blackstart Resources and their designated blackstart Cranking Paths to restoration efforts, no exceptions will be allowed for those items.” This does not allow for a provision to exclude any designated Blackstart Cranking Path (at any voltage) even though there may be technical justification for it. 3. The first page states that “Specific content of this application is spelled out elsewhere in this appendix.” NSRF requests the SDT describe where this appendix will be published. Furthermore, is it a compliance document or just technical “guidance”? 4. Having the following statement included for both exclusions and inclusions will create disagreement: “The ERO can override this criterion but would need to provide additional justification to support their finding.” NSRF believes any override should have adequate technical justification and not interfere with other statutory requirements. Also, it does not clarify or identify who would make the determination whether NERC has made adequate justification to override the criterion. 5. NSRF believes that the “Inclusion” process should be completely removed from BES Definition. We recommend using bright-line criteria indentifying everything 100 kV and above to be BES and then allow for the “Exception” process to take out facilities that do not impact the reliability of the BES. Selecting BES facilities based on a right-line criteria is what FERC requested in its Order regarding BES Definition. This would streamline the process and remove some unnecessary paperwork.
Individual
Shane Sweet
Harney Electric Cooperative, Inc.
Yes
I don't have a suggestion for an appropriate impedance.
Yes
Yes
Yes

No
Individual
David Kahly
Kootenai Electric Cooperative
No
We believe that the proximity test may be unnecessary, and if an Element or group of Elements meets the other three tests proposed by the SDT, it should be excluded from the BES, even if it does not meet the proximity test. Secondly, using impedance to benchmark system load proximity would likely not yield clear demarcations. High voltage relative or per-unit impedances are considered typically much lower than low voltage impedances. Hence, in the absence of phase shifting transformers, service compensation, or other mitigation factors, power typically flows over the highest voltage lines, which offer the lowest impedance.
Yes
Kootenai agrees conceptually that systems operating as radials rather than as integrated portions of the integrated bulk transmission system should be excluded from the BES definition. That is because local distribution systems typically operate adjacent to, or at the end of transmission lines, and function operationally to move power from the Transmission Service Provider's point of delivery of bulk power that has moved across the integrated bulk transmission system to end-users located within the local distribution utility's service territory. To be consistent with the draft BES definition, the term "radial in character" should be explicitly defined as a system that may include one or more lines into a load area or referenced as a local distribution network. In addition, we agree that the manner in which a system is operated during BES disturbances may be an indication of whether that system is radial in character. That being said, we are concerned that, to the extent the SDT considers regional disconnect procedures, it should be careful to note that UFLS and UVLS relays are often embedded within local distribution systems and, while it is necessary for the UFLS and UVLS relays to be properly armed to protect the BES in the event of a severe system disturbance, the local distribution system interconnected with those relays should not.
Yes
Kootenai agrees conceptually that one critical characteristic distinguishing local distribution facilities that must be excluded from the BES from transmission facilities that should be included is the manner in which power flows on those facilities. Power on local distribution systems generally flows only from the interconnected transmission source and across the distribution system for delivery to end-use customers. By contrast, power on transmission systems generally flows in two (or multiple, in networked systems) directions and is delivered in bulk to distribution utilities rather than to end-users. Hence, the SDT has properly identified power flows as one important characteristic that distinguishes BES transmission systems from local distribution systems. In order to identify systems that are not necessary for the operation of the BES under this text, we propose that any system where real power flows into the local distribution system 90 percent of the time or more under normal operating conditions.
Yes
Kootenai agrees that the SDT's fourth test, which asks whether power is intentionally transported through a system, identifies a key characteristic of local distribution facilities that distinguishes such facilities from interconnect bulk transmission facilities that are properly considered part of the BES. In fact, we believe this may be the most important and readily identifiable distinction. Accordingly, Kootenai agrees that if power is not intentionally transported through a particular system, that

system is not used for transmission and should not be considered part of the BES. One exception may be for a small embedded generation unit owned by a different party that may be “scheduled” out of an area, but in reality, does not produce any physical flow. These circumstances should not trigger inclusion.
Yes
We agree conceptually with the idea that two different paths to exclusion should be adopted, one relying upon readily identifiable characteristics that are ordinarily associated with local distribution and not BES transmission facilities, and one relying on technical analysis to determine whether or not an Element or group of Elements has a measurable impact on the threat of cascading outages, separation events, or instability on the interconnected bulk system. If technical analysis demonstrates that Elements create no material threat of such reliability events, they should properly be excluded from the BES. Kootenai supports the technical arguments and the White Paper presented by Snohomish County PUD in their comments. We recommend that the SDT modify its approach to the technical exclusion process to match the approach advocated in the White Paper, which is based upon the approach recommended by the WECC BES Task Force.
The use of distribution factors, such as Power Transfer Distribution Factors (“PTDF”) and Outage Transfer Distribution Factor ("OTDF") provide insight into the relative impedance of neighboring systems. However in the Western Interconnection it has never been a definitive indicator of whether a system fault with delayed clearing would impact a neighboring electric system. While we understand that many entities from the Eastern Interconnection support the use of such factors, we believe the approach is unlikely to work in the Western Interconnection.
Specific transient voltage dip thresholds are proposed at page 15 of Snohomish’s White Paper. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should produce no more than a 20% voltage drop for no more than 20 cycles in a Category B contingency and no more than a 20% drop for 40 cycles in a Category C contingency. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
Page 15 of Snohomish’s White Paper also sets forth recommended thresholds for transient frequency response. For example, we propose that, if an Element is to be excluded from the BES, removal of that Element should not cause any load bus to drop below 59.6 Hz for 6 cycles or more. Technical justification for these thresholds is provided at pages 12-16 of the White Paper.
[Please see our response to Question 5d.
No
Yes
As a general matter, we agree with the SDT that Elements otherwise excluded from the BES should be included only upon a technically valid showing that the Elements contribute substantially to the potential for cascading outages, separation events, or instability on the interconnection bulk transmission system. We also agree that the SDT has, in general, identified the correct technical approach, although we recommend that the inclusion analysis (which mirrors the technical exclusion analysis) be modified as discussed in the Snohomish PUD White Paper, in the WECC BES Task Force Proposal 6, and in our answer to Question 5.
See Exclusion comment.
See Exclusion comment.
See Exclusion comment.
See Exclusion comment.
No
As discussed on page 12 of the Snohomish White Paper, there may be a few isolated cases where additional data will need to be provided to run a valid technical analysis under the criteria set forth in the Exception Procedure. These cases should be exceedingly rare, however, because the starting point for the technical analysis we recommend is the current base case operated by the relevant Regional Entity, and in nearly every case, the base case can be expected to model any Element that conceivably has a material impact on the reliable operation of the bulk system. In those rare cases where it does not, we believe the owner or operator of the subject Element should be able to provide the needed data.

No
As properly constructed Definition and Exceptions process should meet the legal requirements of Section 215.
Yes
Kootenai generally supports the approach to the exclusion process proposed by the SDT, which provides two different paths to exclusion, one based on readily-identifiable operational characteristics of a system, and one based on technical reliability analysis. We believe it is important to provide for the first path, based on operational characteristics, so that systems that are marginally disqualified under the BES Definition (because, for example, generation within the system exceeds demand for a few hours a year) can obtain an exclusion without the large investment of resources that otherwise might be required for a full-scale technical analysis. That being said, we question whether the first subsection of the characteristic test, relating to system proximity, is necessary, and we are concerned that the requirement that a system meet all four requirements of the characteristics test may be overly restrictive. For example, it is easy to imagine a distribution system in a rural area that covers a widely dispersed area, so that load is many miles from the relevant generation/transmission source, and that the system therefore does not meet the electrical proximity element, but meets the other three elements of the characteristics test. Such a system should be excluded because it clearly serves a local distribution function, and not a transmission function, as demonstrated by the fact that the system meets subsections (c) (power flows into the system but rarely flows out) and (d) (power is not intentionally transported over the system). Accordingly, we recommend that the SDT consider eliminating the first test. In the alternative, the SDT should consider allowing exempting a system from the BES if it, for example, meets three of the four criteria rather than all four.
Group
Southern Company
Antonio Grayson
No
Yes
We agree with the requirement of an element being radial in character as being a qualifier for exclusion thru the non-technical analysis. However, we recommend tha the term "radial in character" be better defined. Item ii.: The intent of this item is not clear, and the term "regional dispatch" is not defined. Recommend the item be clarified.
Yes
No
No
As written, most of this approach makes no sense. The words imply that if you have planned the system properly, you can exclude it from the BES! In TPL studies you make sure that voltage dips, frequency excursions, voltage deviations are acceptable, oscillations are damped, and no cascading outages occur. So if you meet the performance requirements of TPL studies, you can exclude the element from the BES. What good is this?
This is the only part of this technical analysis that may make sense. If the loss of any element of the BES results in a distribution factor of less than X% on the element being considered for exclusion, then exclude it. We suggest a value of 3% for this, since 3% is the threshold typically used in transfer studies.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
As stated above, it does not make sense to use this category.
Yes
No
Southern Company recommends that applications for inclusion of facilities into the BES should include

justification for doing so. However, there should not necessarily be specific criteria that must be met, but the importance of the facility to the BES should be clearly demonstrated
No
No
Yes
The Technical Principles document suggests that no exceptions be allowed for Blackstart Resources and designated Cranking Paths. Southern Company is concerned with the treatment of these facilities and recommends that certain statements be removed. In Project 2010-17 Definition of the BES, Southern Company commented that the proposed inclusion, Inclusion I4, be removed from the BES Definition because an existing NERC Reliability Standard, EOP-005-2 System Restoration from Blackstart Resources, already addresses these facilities regardless of voltage. Further, the proposed inclusion will expand the applicability of some NERC Reliability Standards to facilities below 100 kV. Southern Company believes this position will unnecessarily cause more facilities to become applicable to reliability standards without any benefit to reliability. Therefore, we recommend the following statement be deleted: “Due to the importance of Blackstart Resources and their designated blackstart Cranking Paths to restoration efforts, no exceptions will be allowed for those items.”
Individual
Keith Morisette
Tacoma Power
No
Tacoma Power does not believe that a proximity to Load criteria is useful in BES designation when the other 3 exclusion criteria of this path are applied. However, if the SDT retains this item, we suggest an impedance value of < 0.3 ohms on a 100 MVA base.
Yes
Tacoma Power generally agrees that radial elements should be an item in this path and we suggest that radial element operated at below 300 kV should be excluded from the BES. The 300 kV level is linked with NERC CIP’s proposed version 4 definition of critical asset and should be applied here with the BES definition.
Yes
Tacoma Power generally agrees that elements primarily serving load, allowing a limited flow out of the local distribution network, should be excluded from the BES. We support an annual limitation of 219,000 MWhs, equivalent to 25 aMW, since a system of elements that primarily serve load under this limit are insignificant to the BES.
Yes
Tacoma Power generally agrees with fourth item (power transport) when not intentionally transporting power through a system. In development of the supporting evidence for this item, we suggest a demonstration by operating studies or the option to demonstrate the criteria by the use of operational procedures.
Yes
Tacoma Power generally agrees with approach used on the technical analysis path for exclusions.
Tacoma Power generally agrees with the distribution factor measurement in the technical analysis path for exclusions. We suggest adopting a distribution factor not exceeding 30% on an adjacent system.
Tacoma Power generally agrees with allowable transient voltage dip measurement in the technical analysis path for exclusions. We suggest adopting an allowable transient voltage dip not exceeding 20% for more than 20 cycles on an adjacent system’s bus.
Tacoma Power generally agrees with the allowable transient frequency response in the technical

analysis path for exclusions. We suggest adopting an allowable transient frequency response of not below 59.6 Hz for up to 6 cycles on an adjacent system's bus.
Tacoma Power generally agrees with the voltage deviation measurement in the technical analysis path for exclusions. We suggest adopting a voltage deviation not exceeding 10% on an adjacent system's bus.
No
Tacoma Power is not suggesting any other methods at this time.
Yes
Tacoma Power generally agrees with approach used on the technical analysis path for inclusions.
Tacoma Power generally agrees with the distribution factor measurement in the technical analysis path for inclusions. We suggest adopting a distribution factor of 30%, or more, on an adjacent system.
Tacoma Power generally agrees with allowable transient voltage dip measurement in the technical analysis path for inclusions. We suggest adopting the criteria that includes a transient voltage dip exceeding 20% for more than 20 cycles on an adjacent system's bus.
Tacoma Power generally agrees with the allowable transient frequency response in the technical analysis path for inclusions. We suggest adopting the criteria that includes a transient frequency response that goes below 59.6 Hz for up to 6 cycles on an adjacent system's bus.
Tacoma Power generally agrees with the voltage deviation measurement in the technical analysis path for inclusions. We suggest adopting a voltage deviation that exceeds 10% on an adjacent system's bus. We have an additional concern with how the language is constructed on items d. and e. The inclusion criteria may work for simply inverting the exclusion language but in this initial draft, it does not appear to work as intended. Our suggestions above are describing criteria for defining elements that can be included in the BES. If that is the result to be adopted by the SDT, items d. and e. must be rewritten to state that elements within such criteria can be included in the BES.
No
Tacoma Power has no comment at this time.
No
Tacoma Power is not aware of any conflicts at this time.
Yes
Tacoma Power supports the SDT's efforts to create an acceptable BES definition directly linked to an exception process. We do have a concerned about the application of the standards to Elements that change status due to the Exception process. Any Elements that are determined to be newly included in the BES should have a 24-month period before the standards will apply as a BES Elements. Conversely, a determination that removes an Element from the BES should apply as soon as practicable. Please be aware that the WECC has a task force, the Bulk Electric System Definition Task Force(BESDTF), which has done some notable work on this task. See WECC BESDTF Proposal 6, Appendix C (http://www.wecc.biz/Standards/Development /BES/default.aspx). The BES definition is very complex and the BESDTF has already addressed many of the tough issues that have yet to be addressed in this process, such as: • Local Distribution Network definition for automatic exemption • Determination of radial facilities • Demarcation of BES and non-BES Elements • Alternate dispute resolution process • Assignment of the burden of proof for the exemption process • Technical approach for the inclusion/exclusion determination Thank you for consideration of our comments.
Individual
Terry Harbour
MidAmerican Energy
No
MidAmerican agrees with the NSRF. The NSRF believes the relevance and rationale for this criterion is unknown. If this criterion is intended to exempt elements, like circuit switchers, that are part of the distribution transformer circuits operated above 100 kV, and located within a mile of the BES interconnection point, then NSRF would expect the wording to be "in close electric proximity to the BES" rather than in "close electric proximity to Load". Otherwise, NSRF requests the SDT explain the relevance and rationale for this criterion before agreeing on its inclusion.
No

MidAmerican supports the NSRF comments. The NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E1 of the bright-line BES definition. If not eliminated, the IEEE definition of a radial system should be used.
No
MidAmerican supports the NSRF comments. The NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the bright-line BES definition.
No
MidAmerican support the NSRF comments. The NSRF proposes that this criterion be eliminated because it does not describe any materially different characteristics beyond Exclusion E3 of the BES definition.
Yes
The concept of using TPL analyses and normalized Transmission Distribution Factors makes basic sense as a way to determine what elements react to system transfers and what elements react primarily to distribution load. In general all facilities below 100 kV should be exlcuded by default as distribution according to the 2005 Federal Power Act. Transmission Distribution Factors tend to show low bulk power system transfers (less than 2%) based on their inherent high impedance when normalized. Normalizing the transmission impedance means diving the ohmic value by a base impedance which is dominated by a (kV^2) term. Per Unit Impedance = (transmission line ohms / base impedance) where base impedance = (kV^2 / MVA). Using a common MVA base value of 100 MVA, a base impedance at 69kV = 47.6 ohms versus at 161 kV = 259.2 or at 345 kV = 1190.2 ohms. The rapid increase of the denominator as kV goes higher insures that a 69 kV system is high impedance compared to any high kV facilities and therefore nearly insure the 69 kV system is local in nature and reacts primarily to load. Therefore it is distribution. This all supports the conclusion that all facilites below 100 kV should be classified as distribution according to the 2005 FPA and exempted by default. Facilities below 100 kV could be brought into scope if TPL analyses show instability, uncontrolled separation, or cascading as defined in the 2005 FPA.
The Distribution Factor measurement is acceptable and should exclude facilities that show a low distribution factor for bulk power system transfers. An arbitrary low value could be those facilities that show less than a 2% distribution factor.
There isn't a nation wide transient voltage dip measurement.
There isn't a nation wide transient frequency response
Determining a nation wide voltage deviation would be difficult.
Yes
In general all facilities below 100 kV should be exlcuded by default as distribution according to the 2005 Federal Power Act. Transmission Distribution Factors tend to show low bulk power system transfers (less than 2%) based on their inherent high impedance when normalized. Normalizing the transmission impedance means diving the ohmic value by a base impedance which is dominated by a (kV^2) term. Per Unit Impedance = (transmission line ohms / base impedance) where base impedance = (kV^2 / MVA). Using a common MVA base value of 100 MVA, a base impedance at 69kV = 47.6 ohms versus at 161 kV = 259.2 or at 345 kV = 1190.2 ohms. The rapid increase of the denominator as kV goes higher insures that a 69 kV system is high impedance compared to any high kV facilities and therefore nearly insure the 69 kV system is local in nature and reacts primarily to load. Therefore it is distribution. This all supports the conclusion that all facilites below 100 kV should be classified as distribution according to the 2005 FPA and exempted by default. Facilities below 100 kV could be brought into scope if TPL analyses show instability, uncontrolled separation, or cascading as defined in the 2005 FPA.
No
No

No
Yes
MidAmerican supports the NSRF comments.
Group
Bonneville Power Administration
Denise Koehn
Yes
BPA suggests that correlation between the size of the Load and the size of an element is needed. BPA would like the word “close” in the description “close electric proximity to load” to be better defined. For example, a line that carries 600 MWs in close electrical proximity to a 20-MW Load may not meet the intent of this characteristic. In planning models, loads are often aggregated to a higher voltage while, in a distribution system model, the loads are explicitly represented along the distribution feeder. Because of this, the criteria should define where the load is located/represented for the measure of electrical proximity.
No
BPA requests clarification on what the SDT considers radial through additional examples of i “the way the connections to the BES are operated” and ii “the way the Element(s) are treated in operations.” BPA emphasizes that this assessment should be conducted using normal system operations.
Yes
BPA generally agrees with the power flow concept, but suggests including language that the assessment should be “based on normal system operating conditions.” A MWh value to replace ‘TBD’ for maximum energy flowing out per year could be determined based on on an annual average MW load level of 25 MW average and below with distribution service of 50MVA and below, because 25MW loads can be served by lines under 100kv. The energy flowing out per year would be limited by the size of the load and the ability to import power to the load area (i.e. the export would never be larger than the initial distribution service minus the local area losses and load). BPA requests that the drafting team perform a cross-walk analysis on each of the 4 items to ensure the consistent application of an existing industry process, practice, or standard.
Yes
BPA suggests that the SDT provide a method for assessing power transport based on intake to serve load versus outflow. BPA requests that the SDT clarify that the qualifying statements i-v for the fourth item are “or” statements.
BPA comments on the technical analysis are as follows: 1. Who is responsible for running these studies (the BA, individual utilities….?). 2. The analysis and criteria need to be better defined for the technical analysis. 3. What did SDT mean by “having a distribution factor of TBD% for any other Element”? This should probably reference a specific PTDF for a path or source/sink group. 4. What contingencies are studied to show the elements meet the transient voltage dip, frequency excursion, etc. (i.e. are they 3 phase delayed cleared faults, single phase faults, etc.)? Furthermore, the exclusion criteria needs to be much more specific about how the study is to be conducted in general – i.e.: Regional Entities have established study guidelines and procedures to determine voltage and frequency criteria. Specifically, is it the intent that the element being proposed for exclusion be opened in the study and then the standard contingency list applied to the rest of the system? Presumably, if there is no difference in system performance with the element in or out, then it could be excluded. Alternatively, is it intended that the contingency to be tested is simply the loss of the element proposed for exclusion? 5. What elements and/or flow gates should be monitored for these analyses? 6. In “Other”, the SDT should add “The limiting element for a flow-gate cannot be excluded from the BES”. 7. How will the criteria be set? Will they follow current standards? (i.e. TPL-001)? The technical principles must identify what category(ies) of TPL studies must be run. BPA requests clarification on what the values for the threshold criteria and/or disturbances would be?

No
BPA emphasizes that exclusion criteria and analysis should be based on normal operations. An exclusion should not be unavailable based on temporary system configuration such as load service by a different transmission segment temporarily used to mitigate system operations due to planned maintenance outages, i.e. a system that is operated radially over 90% of the time and closed for maintenance outages for safety and/or reliability purposes, etc. BPA recommends that the SDT consider not only the single-phase faults, also the effect of more severe events such as two- or three-phase faults, with delayed clearing and evaluate the necessity of the element in those cases.
No
Please refer to BPA's comments on Question #5.
No
The owner of the asset should have all the data necessary to perform the analysis for an Exclusion. The Exclusion analysis should use the same data request and sharing requirements of other NERC standards and the owner conducting the Exclusion analysis should consult with other entities as necessary.
No
Under NERC Standard IRO-010, the Transmission Operators are required to obtain information relating to the operation of the bulk power system within their respective areas. Transmission Operators may still need information relating to network facilities that ultimately are determined not to be BES facilities. BPA is concerned that an exclusion could eliminate a requirement that such information be provided.
No

Comment Form for 1st Draft of Project 2010-17: Definition of BES (BES) Technical Principles for Demonstrating BES Exceptions – City of Redding - Paul Cummings

Please **DO NOT** use this form. Please use the electronic comment form to submit comments on the first draft of the Project 2010-17: Definition of the Bulk Electric System (BES) Technical Principles for Demonstrating BES Exceptions. **Only** submit comments on the first draft Technical Principles for Demonstrating BES Exceptions. The comments must be submitted by **June 10, 2011.**

If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

Background Information
Definition of the BES (Project 2010-17)

In parallel with the definition project, another stakeholder team outside the standards development process has been set up to develop a change to the NERC Rules of Procedure (ROP) to allow for entities to apply for excluding Elements from the BES that might otherwise be included according to the proposed definition and designations. This same process would be used by Registered Entities to justify including Elements in the BES that might otherwise be excluded according to the proposed definition and designations. This process would also be utilized for those situations where the core definition and designations do not clearly identify whether an Element is BES or not. The ROP team will develop the process for seeking an exception from the definition and designations, but the Definition of the BES Standards Drafting Team (DBESSDT), through the standards development process, has developed the criteria necessary for applying for an exception.

The exclusion exception process has been set up as a choice between two alternative forms of evidence. The first choice is seen as less onerous in nature as it does not require extensive technical analysis. An entity must choose which path it wants to pursue.

The inclusion exception process requires more detailed analysis and only one choice is provided.

The first draft of the criteria that has been posted contains the evidence that must be presented by an entity seeking an exception as well as specific criteria for how that evidence will be evaluated. The SDT is seeking industry feedback not just on the approach being presented but also on the specific numeric thresholds that will be used. Comments received from this posting will help to determine the final criteria that the industry will be required to adhere to. Therefore, industry feedback is vital to the development process.

It should be noted that the actual application process is described in the Rules of Procedure document that has been posted concurrent with the criteria document.

You do not have to answer all questions. Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Exclusions - The SDT has set up one path for evidence that does not include extensive technical analysis. It consists of 4 items, all of which must be addressed in order to submit a completed request for exclusion. The first item involves proximity to Load and requests industry feedback on how to measure this variable. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments. In addition, in the comment field, please provide your thoughts on the appropriate impedance value to replace 'TBD,' including technical rationale for your argument.

   Yes:

   No: x

   Comments: This could serve as one characteristic of a distribution system and is generally a good indicator that the facilities have been installed and are operating to serve a distinct geographical area (the end user). The intent should be changed to indicate it is geographical and not electrical. The electrical reference should be removed from this section and moved to the engineering section.

2. Exclusions - The SDT has set up one path for evidence that does not include extensive technical analysis. It consists of 4 items, all of which must be addressed in order to submit a completed request for exclusion. The second item involves Element(s) treated as radial. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

   Yes: x

   No:

   Comments: The term Radial could cause confusion. Clarification needs to be added to indicate that the system can have more than one connection to the BES.

3. Exclusions - The SDT has set up one path for evidence that does not include extensive technical analysis. It consists of 4 items, all of which must be addressed in order to submit a completed request for exclusion. The third item involves power flow. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments. In addition, in the comment field, please provide your thoughts on the appropriate MWh value to replace 'TBD,' including technical rationale for your argument.

   Yes: x

   No:

Comments: To be consistent with E2 of the proposed BES Definition a distribution system should be allowed to export at least 75 mw. This would be the same as a commercial retail customer can export into the distribution system.

4. Exclusions - The SDT has set up one path for evidence that does not include extensive technical analysis. It consists of 4 items, all of which must be addressed in order to submit a completed request for exclusion. The fourth item involves power transport. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

   Yes: x

   No:

   Comments: The SDT needs to address renewable energy and customer owned generation. If an aggregator adds up one thousand roof top PV units or the power from plugged in electric cars and sells them to an entity outside of this system it should not affect the ability of the distribution system to qualify for this exclusion, especially if the power is consumed inside of the distribution system.

5. Exclusions - The SDT has set up one path for evidence that includes technical analysis. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments. In addition, in the comment field, please provide your thoughts on the proposed metrics for analysis and the appropriate values to replace 'TBD,' including technical rationale for your argument.

   Yes: x

   No:

   5a. Comments on approach: It appears the industry experts have a very difficult time identifying any set of measurement factors that can be applied on a consistant basis to any system and produce similar results, therefore there needs to be geographical variation where the experts in the local systems can make a determination.

   5b.Comments on distribution factor measurement:

   5c. Comments on allowable transient voltage dip measurement:

   5d. Comments on allowable transient frequency response:

   5e. Comments on voltage deviation measurement:

6. Exclusions – Do you have other methods that may be appropriate for proving an exclusion claim? Or, other variables/measurements that may be added to the requirements already shown in the posted *Technical Principles for Demonstrating BES Exceptions*? If so, please provide your comments here with technical rationale for why they should be considered.

   Yes:

   No: x

Comments:

7. Inclusions - The SDT has set up only one path for evidence that includes technical analysis. Do you agree with this requirement? If you do not support this requirement or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments. In addition, in the comment field, please provide your thoughts on the proposed metrics for analysis and the appropriate values to replace 'TBD,' including technical rationale for your argument.

   Yes: x

   No:

   7a. Comments on approach:

   7b. Comments on distribution factor measurement:

   7c. Comments on allowable transient voltage dip measurement:

   7d. Comments on allowable transient frequency response:

   7e. Comments on voltage deviation measurement:

8. Do you have concerns about an entity's ability to obtain the data they would need to do the indicated technical analyses? If so, please be specific with your concerns so that the SDT can fully understand the problem and address it in future drafts.

   Yes:

   No: x

   Comments:

9. Are you aware of any conflicts between the proposed approach and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, or jurisdictional issue? If so, please identify them here and provide suggested language changes that may clarify the issue.

   Yes: x

   No:

   Comments: State and court rulings that have defined Transmission and Distribution. One possible solution is to state that the determination made via this methodology is for reliability purposes only and is not intended to redefine established market and rate determinations.

10. Are there any other concerns with this approach that haven't been covered in previous questions and comments? Please be as specific as possible with your comments.

    Yes: x

    No:

Comments: The SDT is encouraged to address generators installed as load modifiers to distribution load.>>>> As additional evidence of distribution line, if there is not an OATT filed on a line then it is not transmission per FERC rules.