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

The SDT responded to the comments received for the first posting of the definition for this project by clarifying the core definition, inclusions, and exclusions to meet the concerns of the industry. The SDT has also utilized a variety of other inputs including work that was done by regional entities such as WECC, NPCC, RFC, and FRCC in coming up with the present definition. Another input was FERC Orders No. 743 and 743a which provided several specific directives on clarifying the existing definition. It should be noted that the revised definition does not address functional entity registration or standards requirements applicability. Those are separate issues.

The core definition represents a true bright-line; but, it is clear that by itself, it does not cover all of the known situations and configurations that are needed for a complete definition. Therefore, the SDT developed several specific inclusions and exclusions that will be added to the core definition to complete it. At the present time, the SDT has drafted five specific inclusions and four specific exclusions.

Inclusions represent those items that are included as part of the Bulk Electric System (BES) where they would not have been included as part of the simple core definition. The reasons that the SDT has added these items are as follows:

- **I1** – Since transformers have windings operating at different voltages, it was felt that clarification was required so as to more explicitly identify which transformers were to be included in the BES. The SDT believes that the present draft provides this needed clarification.
- **I2** – This inclusion represents a merger of the original Inclusion I2 and the original Inclusion I3 concerning generation thresholds.
- **I3** – Blackstart units are considered vital to the overall operation of the BES. Consequently, the SDT has included Blackstart Resources. However, due to industry comments, the SDT has deleted the inclusion of Cranking Paths.
- **I4** – This item was added in order to accommodate the effects of variable generation on the BES. The intent of this configuration is to include variable generation (e.g., wind and solar resources) with an aggregate rating greater than 75 MVA and was considered different enough from what was proposed in Inclusion I2 as to warrant a separate inclusion statement in order to provide greater clarity in this area.
- **I5** – This is a new inclusion brought about by industry comments to clarify the inclusion of Reactive Power devices.

In addition to inclusions, in order to complete the picture, specific exclusions also need to be considered. The SDT has currently drafted four specific exclusions:

- **E1** – This item was added to address the basic issue of radial systems. Radial exclusion was part of the existing definition and was supported moving forward in all of the regional work as well as Order No. 743 (and Order No. 743a). The SDT has
clarified this exclusion in response to industry comments by deleting the automatic interruption device.

- **E2** – This item was added to address the situation of behind-the-meter generation. The wording is basically extracted from the ERO Statement of Compliance Registry Criteria.

- **E3** – Local networks were added to the exclusion list after considerable discussions among the SDT and various registered entities that have configurations meeting these conditions. The SDT believes that any network that simply supports distribution should be excluded from the BES. The SDT has clarified the language for the exclusion and added a 300 kV upper limit.

- **E4** – The SDT has added an exclusion for Reactive Power devices used solely by retail customers for their own use as a result of comments received.

Several commenters objected to simply carrying through the generation and voltage thresholds from the ERO Statement of Compliance Registry Criteria as part of the revised definition. However, no respondents provided technical justifications for changing these values. Furthermore, the scope of this project deals mainly with responding to FERC Orders 743 and 743a which clearly stated that the intent of the order was to maintain the status quo and to only address those urgent issues identified in the order. Hence, the tight schedule that was provided in the order. After consulting with the NERC Board of Trustees and the NERC Standards Committee, the SDT has decided to forgo any attempt at changing generation or voltage thresholds at this time. There simply isn’t enough time or resources to do those topics justice with the mandated schedule. Therefore, the focus of the SDT efforts will be to address the directives in Orders 743 and 743a. However, this does not mean that the issues will be dropped. Both the NERC Board of Trustees and the NERC Standards Committee have endorsed the idea that the Project 2010-17 SDT take a phased approach to this project with a new Standards Authorization Request (SAR) to address generation thresholds as well as several other issues that have arisen from SDT deliberations. Issues such as what is necessary for the reliable operation of the BES, whether the BES needs to be a contiguous, possible interconnection difference, who is a user of the BES, and correlation of the definition of BES and the ERO Statement of Compliance Registry Criteria will be addressed with this new SAR. The proposed SAR has been posted for information purposes only concurrent with the second posting of this project. A formal comment period will follow.

In parallel with the definition project, another team has been set up to develop a change to the NERC Rules of Procedure (RoP) to allow for entities to technically justify excluding Elements from the BES that might otherwise be included according to the proposed definition. 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. This RoP team will develop the process for seeking an exemption from the definition but the DBESSDT will develop the criteria necessary for applying for an exemption through the standards development process. The DBESSDT developed exception criteria is posted separately but simultaneously to the second posting of the definition.
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.

The SDT has asked one specific question for each specific aspect of the definition.

1. The SDT has made clarifying changes to the core definition in response to industry comments. Do you agree with these changes? If you do not support these changes 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:

2. The SDT has revised the specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I1 (transformers)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.
   Yes: 
   No: X
   Comments: More specific description is needed for the equipment intended to be included in I1. For example, is it intended to include autotransformers, PARs, primary, secondary, tertiary windings, etc.? There will be difficulty applying the definition to facilities without this detail. Suggest rewording to: All transformers (including auto-transformers, voltage regulators, and phase angle regulators and all windings) with primary and secondary terminals operated at or above 100kV, and generator step-up (GSU) transformers with one terminal operated at or above 100kV, unless excluded by E1 or E3.

3. The SDT has revised the specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I2 (generation) including the reference to the ERO Statement of Compliance Registry Criteria? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.
   Yes: 
   No: X
   Comments: In deference to direction given to the Drafting Team, Inclusion I2 should remove the reference to the Statement of Compliance Registry Criteria. The current
language induces circular arguments without a true governing document. The definition should drive what appears in the registration criteria. I2 should be revised to read: “Generating resources with a gross nameplate rating of 20MVA or greater, or generating plant/facility connected at a common bus, with an aggregate nameplate rating of 75MVA or greater and is directly connected to a BES Element.” This is consistent with the proposed I2 and the current Compliance Registry Criteria. Ultimately the definition should be the governing document and provide the details of what generation should be included. It is understood that Phase 2 of this project will address this.

4. The SDT has revised the specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I3 (blackstart)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

Yes: X

Comments: Eliminating I3 should be considered based on the availability and performance expectations of black start resources being ensured by existing standards, and unless they meet the BES definition under the I2 inclusion they do not have any reliability impact on BES operation.

If I3 is retained, suggest rewording Inclusion I3 to read as follows: Black start resources material to and designated as part of the Transmission Operator's restoration plan.

5. The SDT has revised the specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I4 (dispersed power)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

Yes: X

Comments: Suggest the term “common point” needs clarification and/or definition (is risk of single mode failure intended, i.e. where all the resources could be lost for a single event?). Suggest the following wording: “connected at a common point through a dedicated step-up transformer with a high-side voltage of 100 KV or above.”

Dispersed power producing sources such as wind and solar should not be included as BES elements because of the variable and intermittent nature of these resources. If these dispersed power producing resources had dedicated energy storage facilities only
then that could make them BES elements. Generally the collector systems for these resources (from the bulk transmission system reliability perspective) do not differ from distribution systems which are excluded from the BES.

6. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I5 (reactive resources)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

Yes: X

Comments: Technical studies need to be conducted to confirm reactive resource impacts on the reliability of the BES. The inclusion of reactive resources is a significant expansion of the current BES definition and therefore requires technical justification for inclusion. Inclusion I5 as written is confusing with a reference to Inclusion I1 in the definition. Suggest removing references to reactive resources from Phase 1 until technical justification can be demonstrated (as part of Phase 2).

7. The SDT has revised the specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E1 (radial system)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

Yes: X

Comments: E1 can be simplified by not dividing in three subsets of a, b and c. The end result is that a Radial system is excluded if it does not have more than 75 MVA aggregate non-retail generation. There seems to be an error with reference to I3. Black start unit paths are not designated as BES and were taken out in this version under I3 so E1 and E3 should not reference I3. This contradicts the radial or LN exclusion from I3. Suggest deleting the reference to I3 in E1 and E3 because this reference is in contradiction to I3. I3 does not require a path to be BES, but it implied that a radial cannot be excluded if there is a black start unit on the radial.

Further clarification is needed to the language in the Note referring to the “Normally Open switch”. The E1 reference Note should be re-worded to state “Radial systems shall be assessed with all normally open switching devices in their open positions.” Explanatory figures should be included to illustrate the system configurations addressed.

Black start unit paths must be considered in the construction of E1. In E1c, what is meant by “non-retail”?

8. The SDT has revised the specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E2 (behind-the-meter generation)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.
Comment Form for 2nd Draft of Definition of BES (Project 2010-17)

Yes:

No: X

Comments: Why are references to Balancing Authority, Generator Owner, and Generator Operator included in E2 which is part of the BES definition? The wording of Exclusion E2 should be consistent with the Statement of Compliance Registry Criteria in Section III.c.4.

9. The SDT has revised the specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E3 (local network)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.
   
   Yes:

   No: X

   Comments: What is the technical justification for 300kv and higher? Local Network is capitalized (network not capitalized at the beginning of E3) throughout E3, yet it is not defined in the NERC Glossary. The installed generation limit in a Local Network should be addressed in Phase 2. Any studies supporting E3 should be made available.

10. The SDT has added specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E4 (reactive resources)? If you do not support this change or you agree in general but feel that alternative language would be more appropriate, please provide specific suggestions in your comments.

   Yes:

   No: X

   Comments: Consider using other wording to replace “retail”. The statement “owned or operated by the retail customer” is confusing and arguably inaccurate and should be revised. Refer to comments related to reactive resources for Question 6 regarding Inclusion I5. Retail and non-retail generation should be defined.

11. Are there any other concerns with this definition that haven't been covered in previous questions and comments remembering that the exception criteria are posted separately for comment?

   Yes: X

   No:
Comments: Technical bases have not been provided for the proposed definition of the BES. Additionally, the cost impacts have not been assessed and weighed against the potential benefits of this proposal.

There is confusion arising from the construction and interactions of the Inclusion, and Exclusion sections. System diagrams, put in a separate guidance document, would help in understanding. The situation of using Exceptions to understand Exclusions must be avoided. Suggest consider incorporating Inclusions directly, and leave the Exclusions as is format wise.

The Implementation period discusses a 24 month timeframe (the Order suggests 18) from when the standard becomes effective to begin Compliance obligations. If construction is required to become compliant or meet performance requirements with standards, or CIP Version 5 standards increase the amount of BES assets this will be insufficient when considering budgeting, designing, siting requirements, and permitting.

Concern exists over the paradigm that the definition should “mirror” the NERC Compliance Registry Criteria regarding who is registered. Some RSC members believe the definition should drive any changes to the registry criteria and not the criteria perpetuating the thresholds in the definition. However, there is a need to confirm that Phase 2 of this project will address this.

The Inclusions and Exclusions listed need clarifications and perhaps diagrams and accompanying guidelines to clarify and explain the intent.