

## Comment Form for 1<sup>st</sup> Draft of Definition of BES (Project 2010-17)

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Please **DO NOT** use this form to submit comments on the 1<sup>st</sup> draft of the Definition of the Bulk Electric System (Project 2010-17). This comment form must be completed by **May 27, 2011**.

If you have questions please contact Ed Dobrowolski at [ed.dobrowolski@nerc.net](mailto:ed.dobrowolski@nerc.net) or by telephone at 609-947-3673.

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

The SDT responded to the comments received for the posting of the SAR for this project by clarifying the core definition and expanding the definition to contain specific inclusions and exclusions to meet the concerns of the industry. The SDT has also used 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 Order No. 743 (and Order No. 743a) which provided several specific directives on clarifying the existing definition. The revised definition does not address functional entity registration or the applicability of standard requirements. 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 are proposed for addition to the core definition. At the present time, the SDT has drafted 5 specific inclusions and 3 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:

- **Inclusion I1** – Transformers, other than Generator Step-up (GSU) transformers, including Phase Angle Regulators, with two windings of 100 kV or higher unless excluded under Exclusions E1 and E3.
  - Since transformers have windings operating at different voltages, clarification was required to explicitly identify which transformers to include in the BES. The SDT believes that the present draft provides this needed clarification.
- **Inclusion I2** – Individual generating units greater than 20 MVA (gross nameplate rating) including the generator terminals through the GSU which has a high side voltage of 100 kV or above.
  - This item mirrors the NERC Compliance Registry Criteria for individual generating units. One of the basic tenets that the SDT is following is to avoid changes to registration due to the revised definition if such changes are not technically required for the definition to be complete.
  - In the comments received from the posting of the SAR for this project, the SDT found no technical rationale for changing from the present greater than 20 MVA threshold. To provide clarity on these conditions, the SDT has spelled out that the BES includes the generator terminal leads through the generator step-up transformer (GSU).
- **Inclusion I3** – Multiple generating units located at a single site with aggregate capacity greater than 75 MVA (gross aggregate nameplate rating) including the

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generator terminals through the GSUs, connected through a common bus operated at a voltage of 100 kV or above.

- This item mirrors the NERC Compliance Registry Criteria for multiple generating units at a single site. One of the basic tenets that the SDT is following is to avoid changes to registration due to the revised definition if such changes are not technically required for the definition to be complete.
- In the comments received from the posting of the SAR for this project, the SDT has found no technical rationale for changing from the present greater than 75 MVA threshold. To provide clarity on these conditions, the SDT has spelled out that the BES includes the generator terminal leads through the generator step-up transformer (GSU).
- **Inclusion I4** – Blackstart Resources and the designated blackstart Cranking Paths identified in the Transmission Operator's restoration plan regardless of voltage.
  - Blackstart units and their respective cranking paths are considered vital to the overall operation of the BES.
  - Consequently, the SDT has included Blackstart Resources and their respective Cranking Paths in the BES regardless of voltage level.
- **Inclusion I5** – Dispersed power producing resources with aggregate capacity greater than 75 MVA (gross aggregate nameplate rating) utilizing a collector system through a common point of interconnection to a system Element at a voltage of 100 kV or above.
  - This item was added 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 at one location and was considered different enough from what was proposed in Inclusion I3 to warrant its own inclusion statement for clarity.

In addition to inclusions, to complete the picture, specific exclusions also need to be considered. The SDT has currently drafted 3 specific exclusions:

- **Exclusion E1** – Any radial system which is described as connected from a single Transmission source originating with an automatic interruption device and:
  - a) Only serving Load. A normally open switching device between radial systems may operate in a 'make-before-break' fashion to allow for reliable system reconfiguration to maintain continuity of electrical service. Or,
  - b) Only including generation resources not identified in Inclusions I2, I3, I4 and I5. Or,
  - c) Is a combination of items (a.) and (b.) where the radial system serves Load and includes generation resources not identified in Inclusions I2, I3, I4 and I5.
    - This item was added to address the basic issue of radial systems. A radial exclusion is 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 by specifying that protection for the BES is a required element of the system to be excluded. The SDT believes that faults on radial lines without protection devices could negatively impact the BES.

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- **Exclusion E2** – A generating unit or multiple generating units that serve all or part of retail Load with electric energy on the customer’s side of the retail meter if: (i) the net capacity provided to the BES does not exceed the criteria identified in Inclusions I2 or I3, and (ii) standby, back-up, and maintenance power services are provided to the generating unit or multiple generating units or to the retail Load pursuant to a binding obligation with a Balancing Authority or another Generator Owner/Generator Operator, or under terms approved by the applicable regulatory authority.
  - This item was added to address the situation of behind-the-meter generation. The wording is basically extracted from the NERC Compliance Registry Criteria.
- **Exclusion E3** – Local Distribution Networks (LDN): Groups of Elements operated above 100 kV that distribute power to Load rather than transfer bulk power across the Interconnected System. LDN’s are connected to the Bulk Electric System (BES) at more than one location solely to improve the level of service to retail customer Load. The LDN is characterized by all of the following:
  - a) Separable by automatic fault interrupting devices: Wherever connected to the BES, the LDN must be connected through automatic fault-interrupting devices;
  - b) Limits on connected generation: Neither the LDN, nor its underlying Elements (in aggregate), includes more than 75 MVA generation;
  - c) Power flows only into the Local Distribution Network: The generation within the LDN shall not exceed the electric Demand within the LDN;
  - 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).
    - Local distribution 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 and is providing adequate protection should be excluded from the BES.

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 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. Finally, this process would also be used for those situations where the core definition does not clearly identify whether an Element is part of the BES or not. This ROP team will develop the process for seeking an exemption from the definition but the DBES SDT will develop the criteria necessary for inclusion with a request for an exemption through the standards development process.

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**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: Yes

No:

Comments: Please quantify that Reactive Resources within the BES definition are meant to be generator resources and not static resources.

2. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I1? 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: Yes

No:

Comments: Please clarify that an exclusion would be a tertiary winding for example an auto transformer.

3. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I2? 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: Yes

No:

Comments:

4. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I3? 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:

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No: No

Comments:

The wording "connected through a common bus" is drawn from the NERC Compliance Registry Criteria. NSRF agrees with the language if the intent is to let entities classify the applicable multiple generating units as part of the BES only when it is connected to one (common) bus. However, if the intent is for entities to also classify multiple generation as part of the BES when it is connected through two or more GSUs to different bus sections of a set of (common) buses that are interconnected through bus-tie breakers [which may be done to provide improved reliability and maintenance flexibility], then wording like "connected through a common bus or set of interconnected buses" would be more appropriate.

It is the NSRF's understanding that entities do not have to classify applicable multiple generating units as part of the BES when the aggregate MVA is connected to different buses at different voltage levels and no more than 75 MVA is connected to any one bus (or set of interconnected buses) at a single voltage level of 100 kV or more. Is this a correct interpretation?

5. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I4? 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: Yes

No:

Comments: It does provide a defense in depth with CIP-002-4.

6. The SDT has added specific inclusions to the core definition in response to industry comments. Do you agree with Inclusion I5? 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: We propose the following questions for your consideration:

Which components of the dispersed power resources would be classified as BES? Are the individual small wind generator units and terminals through the GSUs to a higher voltage (e.g. 34.5 kV) collector bus classified as BES Elements? Are the higher voltage bus, the associated elements (e.g. protection system, cap bank, SVC, etc.), and step up transformer to a system Element of 100 kV or above to be classified as BES Elements?

With these questions, the NSRF is confused on what the SDT is trying to formulate as an Inclusion. If a dispersed power systems meets the threshold of 75MVA and connected at 100kV or higher, does this make the entire dispersed system considered to be part of the BES?

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We recommended that one solution is that I5 to be revised as follows “Dispersed power producing resources with aggregate capacity greater than 75 MVA (gross aggregate nameplate rating) utilizing a collector system **from the point where the aggregated rating exceeds 75 MVA** through a common point of interconnection to a system Element at a voltage of 100 kV or above. ”

7. The SDT has added specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E1? 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: Yes

No:

Comments: We recommend the phrase “originating with an automatic interruption device” be clarified as to the location of the interruption device. An entity may not have interruption devices at both ends of a radial fed line. If the interruption device is at the load end of the radial line, then the “up-stream” portion of the radial line is unprotected. Please clarify.

Please add the Brightline Criteria that all facilities less than a 100kV are excluded unless those facilities meet the criteria of an Inclusion.

8. The SDT has added specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E2? 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: Yes

No:

Comments:

9. The SDT has added specific exclusions to the core definition in response to industry comments. Do you agree with Exclusion E3? 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: No

Comments: The SDT is defining what a Local Distribution Network is but the term transfer bulk power is ambiguous. Please clarify what the intent of this exclusion is.

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10. The SDT is discussing an exclusion from the Bulk Electric System (BES) for small utilities based on statements in Order No. 743 that FERC does not believe its suggested approach to the BES definition and exemption process will have a significant economic impact on a substantial number of small entities and that small entities will not adversely impact the reliability of the Bulk Electric System. The SDT has been made aware that organizations that are not presently required to be registered by the NERC Statement of Compliance Registry Criteria would meet the requirements to be registered as Transmission Owners given the current proposed BES definition. These small utilities could use the Rules of Procedure (ROP) exception process but this may be an issue that could be handled more appropriately through the BES definition. This would alleviate the paperwork burden for these small utilities and also avoid a possibly unnecessary and significant impact on the administration of the ROP exception process during the transition period to the revised BES definition. The proposed exclusion language is:

Exclusion E4: Transmission Elements, from a single Transmission source connected at a voltage of 100 kV or greater, owned by a small utility whose connection to the BES is solely through this single Transmission source, and without interconnected generation as recognized in the BES Designation Inclusion Items I2, I3, I4, or I5. A small utility is recognized as an entity that performs a Distribution Provider or Load Serving Entity function but is not required to register as a Distribution Provider or Load Serving Entity by the ERO.

Do you agree with this approach and the proposed language? If not, please be specific in your response with a technical reason for your disagreement and, if appropriate, suggested language for such an exclusion if you agree in general but feel that alternative language would be more appropriate.

Yes: Yes

No:

Comments:

11. In Order No. 743, the Commission addressed the need to differentiate between Transmission and distribution in the revised definition of the Bulk Electric System (BES). Specifically, the Commission stated that local distribution facilities are to be excluded from the BES. The SDT believes that it has excluded local distribution facilities through the revised bright-line core definition and specific inclusions and exclusions. Do you agree with this position? If not, please provide specific comments and suggestions on what else needs to be addressed or added.

Yes: Yes

No:

Comments:

12. Are you aware of any conflicts between the proposed definition 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: Yes

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No:

Comments: Within the Commission's definition of BPS, it is clearly stated that BPS does not include facilities used in the local distribution of electrical energy.

13. Are there any other concerns with this definition that haven't been covered in previous questions and comments?

Yes: Yes

No:

Comments: In order to provide a clear and concise definition, please add the Brightline Criteria that all facilities less than a 100kV are excluded unless those facilities meet the criteria of an Inclusion.