

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Risk-Based Registration

Draft White Paper

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**RELIABILITY | ACCOUNTABILITY**



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## Preface

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This document sets forth recommendations for proposed enhancements to the North American Electric Reliability Corporation (NERC) Registration program for discussion purposes. Proposed changes to the NERC Statement of Registry Criteria<sup>1</sup> as outlined herein will not result in an automatic change to such functional categories in the Functional Model.<sup>2</sup>

Pursuant to the Energy Policy Act of 2005, NERC and the Federal Energy Regulatory Commission (FERC or Commission) have jurisdiction over users, owners and operators of the Bulk Power System (BPS). Section 215 of the Federal Power Act (FPA) defines BPS as the:

- 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.

To date, FERC has not directly defined the limits of its jurisdiction under Section 215 of the FPA. However, FERC has recognized that users, owners and operators of the BPS are users, owners and operators of the Bulk Electric System (BES).<sup>3</sup> FERC recently approved NERC's new BES Definition.<sup>4</sup> Users, owners and operators of the BES are subject to compliance with NERC Reliability Standards. NERC's Registration program identifies specific entities that are responsible for compliance with NERC Reliability Standards.

Nothing in this document limits the jurisdictional authority of NERC and FERC pursuant to the Energy Policy Act of 2005 and Section 215 of the FPA.

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<sup>1</sup> NERC Rules of Procedure at Appendix 5B, *NERC Statement of Registry Criteria* (Registry Criteria), available at [http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/Appendix\\_5B\\_RegistrationCriteria\\_20121220.pdf](http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/Appendix_5B_RegistrationCriteria_20121220.pdf).

<sup>2</sup> The Implementation Plan associated with this effort will address issues related to the Functional Model.

<sup>3</sup> The term BES does not include facilities used in the local distribution of electric energy.

<sup>4</sup> See Appendix C hereto.

# Executive Summary

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NERC has launched the Risk-Based Registration (RBR) Initiative to ensure that the right entities are subject to the right set of applicable Reliability Standards, using a consistent approach to risk assessment and registration across the Electric Reliability Organization (ERO) Enterprise. The goal is to develop enhanced Registry Criteria, including the use of thresholds and specific Reliability Standards applicability, where appropriate, to better align compliance obligations with material risk to the BES reliability. The proposed enhancements reduce unnecessary burdens by all involved, while preserving BES reliability, and avoid causing or exacerbating instability, uncontrolled separation, or cascading failures. All reliability stakeholders should benefit from RBR.

NERC has established a Risk-Based Registration Advisory Group (RBRAG) to provide input and advice for the RBR design and implementation plan. This white paper is a starting point for discussion and includes input from the RBRAG. Conceptually, there appears to be general agreement on the need to have: (i) clearly defined terms, criteria and procedures that are risk-based and ensure reliability of the BES, (ii) refined thresholds, where warranted, based on sound technical analysis and support, and (iii) reduced Reliability Standard applicability, where warranted, based on sound technical analysis and support.

Taking into account experience to date and current practices, the white paper explores possible options for reform of the NERC Registration program. Other options may exist. The instant options would:

- eliminate up to two functional categories that may not be material to BES reliability;
- revise the thresholds for registration of two functions to better align with risk;
- for selected functions, move away from a “one-size-fits-all” approach by using risk-based criteria to define classes of Registered Entities for application of a properly scoped subset of applicable Reliability Standard requirements;
- develop a consistent approach to determining materiality and fine-tuning registration determinations to include or exclude entities where generally applicable thresholds do not accurately reflect the BES reliability risk posed by a particular entity, along with enhanced ERO-wide processes and procedures for registration and de-registration; and
- identify associated business practices and IT requirements.

There are several possible options, three of which were explored by the RBRAG, to facilitate the implementation of the RBR. These options may be used together or separately. These approaches need more discussion and analysis to consider the most effective and efficient way forward:

1. The Compliance Monitoring and Enforcement Program (CMEP) approach involves establishing that certain requirements do not apply to a Registered Entity, based on uniform characteristics.
2. A Materiality approach involves using the existing thresholds, at their current levels or revised as appropriate, but providing more specificity on the risk-based criteria an entity would use to demonstrate that it no longer needs to be registered for a given function.
3. Revising Reliability Standards is another option. Under the Reliability Standards approach, Reliability Standard requirement applicability classes refer to applying subsets of Reliability Standard requirements to subcategories of certain functions of Registered Entities, and not developing a custom tailoring of applicability for each individual registered entity.

This white paper also includes several “straw” proposals for RBR reforms to the Registry Criteria and Reliability Standard applicability for consideration and further evaluation. Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications or gaps resulting from these proposals. The new

BES Definition also will be central to the analysis to be conducted. Jurisdictional issues are presented by tariff, interconnection agreement and NAESB standard options, and reliance on these is not a substitute for the technical analysis to be conducted. An industry survey will be used to identify issues to be considered as part of the technical analysis.

Feedback on the concepts outlined within the white paper will help inform the ultimate RBR design and related implementation plan. The draft RBR design and implementation plan will be posted in May 2014 for public comment. Based on the current plan, the Registration program redesign and implementation plan will be discussed at the Member Representatives Committee's (MRC's) and NERC Board of Trustees' (Board's) committee meetings in May and August 2014, followed by approval at the Board's November 2014 meeting. The schedule allows for modifications to the NERC Rules of Procedure, as needed, in the third quarter of 2014. NERC requests that stakeholders consider the following questions as they develop comments on the white paper and provide input on the end-state Registration program reform and redesign.

- Have all RBR design elements been covered? If not, what are the other elements?
- Which options should be considered to best facilitate RBR implementation?
- Have appropriate modifications to the functions requiring registration and thresholds for Registry Criteria been identified for further examination? How should they be revised to achieve the risk-based objective while being complete, clear, not unduly complex, and repeatable?
- How should classes of Reliability Standard requirement applicability be set to achieve the risk-based objective, while being complete, clear, not unduly complex, and repeatable? Is the initial identification of Reliability Standard applicability for the lesser risk class appropriate to ensure BES reliability? Please explain.
- Are there other registration reforms that should be considered? If so, please elaborate.
- Are there additional detailed facts and circumstances that influence risk that support an entity's risk assessment in determinations that are above or below the thresholds?
- What technical studies should be completed to justify the threshold changes objectively?

# Introduction

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## Background

NERC launched the RBR Initiative in early 2014, following on the heels of reform in the Reliability Standards program, as well as the Compliance Monitoring and Enforcement programs. The purpose of the Registration program is to identify those entities that are responsible for compliance with the FERC-approved Reliability Standards. NERC's Registration program is set forth in Section 500 of the NERC Rules of Procedure,<sup>5</sup> as well as Appendices 5A and 5B. Notably, NERC registers entities, not facilities. Approximately 1,900<sup>6</sup> entities are registered on NERC's Compliance Registry (NCR) for approximately 4,800 functions.

Pursuant to the NERC Rules of Procedure and its appendices, the Regional Entities identify candidates for registration. In addition, Regional Entities review and evaluate entity registration requests and changes and make recommendations to NERC when a request or change may affect the NCR.

Users, owners and operators of the BPS are required to register, and NERC and the Regional Entities may identify additional entities that should be registered. An entity may be registered in one or more appropriate functional categories and is responsible for complying with the Reliability Standards applicable to the functional categories in which it is registered.<sup>7</sup> If an entity is not listed on the NCR, it is not legally required to comply with Reliability Standards.<sup>8</sup>

The significant experience of NERC and the Regional Entities to date in implementing the Registration program will help inform enhancements to the Registration program.<sup>9</sup>

## Purpose

NERC has launched the RBR Initiative to ensure that entities are properly registered and subject to the right set of applicable Reliability Standards to ensure reliability of the BPS. The RBR initiative uses a consistent approach to risk assessment and registration across the ERO Enterprise. The goal is to develop revised Registry Criteria and Reliability Standard applicability, where appropriate, to better align compliance obligations with risk to BES reliability. These enhancements are designed to reduce unnecessary burdens on all involved, while preserving BES reliability and avoid causing or exacerbating instability, uncontrolled separation, or cascading failures.

The goals of the NERC RBR Initiative are twofold. The first is to develop and deploy a sustainable Registration program design that incorporates evaluation of the reliability risks and benefits provided by an entity to ensure reliability, and where appropriate, define classes of Registered Entities for application of a properly scoped set of Reliability Standard requirements. The second goal lays a foundation for the first goal by creating an implementation plan that supports a 2016 or sooner launch, along with business practices and IT requirements, with the possibility of early adoption options that can address undue industry burden, while also preserving reliability.

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<sup>5</sup> See [http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/NERC\\_ROP\\_Effective\\_20140130.pdf](http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/NERC_ROP_Effective_20140130.pdf)

<sup>6</sup> The number of unique Registered Entities is 1,652, and they are responsible for 4,427 registered functions. Because some Registered Entities are in multiple footprints, the total number of Registered Entities is 1,921, and they are responsible for 4,784 registered functions. This white paper will use 1,900 Registered Entities.

<sup>7</sup> *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 96, *order on reh'g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

<sup>8</sup> Order No. 693 at P 97.

<sup>9</sup> See Appendix B for additional discussion of the current NERC Registration program, Functions, Functional Model, Regional Entity roles, and Thresholds.

The white paper will be released for public comment as part of the NERC request for MRC's policy input in April 2014. Further, based on the current plan, the Registration program redesign and implementation plan will be discussed at the MRC and Board committee meetings in May and August 2014, and will be approved at the Board's committee meeting in November 2014.

Benefits of deploying an RBR program include:

- aligning entity registration and compliance burden to its risks and contributions to BPS reliability;
- reducing the industry burden associated with registration, while sustaining continued BPS reliability;
- improving use of NERC, Regional Entity , and Registered Entity resources;
- providing feedback to Reliability Standards development to enhance the applicability of currently enforceable and future Reliability Standards; and
- increasing consistency in registration across the eight Regional Entities by developing a common and repeatable approach, along with improving registration and de-registration procedures.

In addition, coordination of this effort will enhance the ERO's ability to:

- evaluate risks to reliability for use across the ERO Enterprise; and
- align changes to the Registry Criteria with other NERC activities and the BES Definition.

RBR will include the use of consistent terminology, a common approach to criteria application, appropriate oversight and improved procedures.

## **Formation of an advisory group**

In 2014, NERC established the RBRAG to provide input and advice for the RBR design and implementation plan. The RBRAG is comprised of representatives from NERC staff, Regional Entity staff and FERC staff, along with United States and Canadian industry representatives. This white paper was developed with input from the RBRAG, industry responses to a focused survey, and assessment of information about the current Registration program attributes.

# Recommendations

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## Clarify terms and improve current procedures

### Materiality

The issue of materiality arises in evaluating whether to register an entity that does not meet the criteria or to determine not to register an entity that meets the criteria. Further, materiality assessments can come into play in connection with assigning Registered Entities to appropriate classes of Reliability Standard applicability (discussed in more detail below). Thus, RBR recommends a consistent approach to assessing materiality.

The RBR design should take into account risk assessment considerations across the ERO Enterprise. Generally, the ERO risk assessment involves a review of individual and aggregate system-wide risks and considerations that include the inherent or structural risk to reliability of the BPS, as anchored in the new BES Definition.

### BES references

The proposed changes include revising references from BPS to BES in specific threshold criteria; however, such changes would not apply when discussing NERC and FERC jurisdiction over the BPS. Moreover, flexibility to register entities that do not meet threshold criteria will be retained in the Registry Criteria, in recognition of the jurisdiction of NERC and FERC over users, owners and operators of the BPS.

### General terms

As part of the RBR effort, NERC will ensure the terms used in the Registry Criteria are clear and defined.

### De-registration

An entity seeking to modify its current registration, including de-registration for a particular function, must inform its applicable Regional Entity. The Regional Entity will evaluate the request and notify NERC of any resulting registration changes. The new BES Definition has raised general questions on the procedures and associated timelines for pursuing de-registration of a given function. RBR includes better visibility, clarity, instruction and feedback in this process, as well as additional, improved registration and de-registration procedures and timelines.

### NERC oversight and guidance on registration practices

NERC retains responsibility and oversight to ensure that a Regional Entity implements the Registration program in a consistent manner. Towards this end, the RBR redesign should ensure that NERC is periodically performing programmatic reviews of the Regional Entities' registration activities to ensure uniformity in due process and consistency in application. This will include development of controls to ensure consistency.

Possible improvements to the program include, but are not limited to:

- sampling and auditing of Regional Entity application of RBR classes and individual entity application;
- using surveys to reach out to Registered Entities as a means of identifying that a given entity is registered for the proper functions;
- using ongoing outreach to Registered Entities on registration issues; and
- mapping entities within each Regional Entity footprint to ensure awareness of entities that may have a material impact on BEPS reliability.

### One-time attestations

As the CMEP is currently implemented, a Registered Entity may be subject to a requirement that is nominally applicable based on functional entity registration, but inapplicable based on specific facts (e.g., a coordinated functional registration agreement, entity does not own that type of equipment, etc.), must attest (with full documentation and citations), at every contact with ERO compliance, that the requirement is still inapplicable. To

reduce undue administrative burdens on the many entities subject to compliance with particular requirements that are inapplicable to them, two improvements can be implemented in the short-term.

First, with respect to self-certifications and other compliance monitoring activities, Registered Entities should be permitted to record a one-time attestation of “Not applicable” to a given Reliability Standard requirement where there is an existing physical or technical limitation, or the requirement is not applicable for another reason, unless circumstances materially change requiring the need for the registered entity to notify the appropriate Regional Entity. For example, if the registered entity does not own or operate underfrequency load shedding (UFLS) or undervoltage load shedding (UVLS) assets, it should simply use the “Not applicable” designation. The Regional Entity will then carry forward this declaration from year-to-year, without requiring the registered entity to repeat the attestation each year. NERC or the Regional Entity would have the ability to audit to verify the recordation is correct, on an as needed basis, but this should be infrequent. In addition, NERC and the Regional Entities should allow Multi-Regional Registered Entities (MRRE) to use a single, one time attestation, updated as needed to reflect material changes, which would apply to all of its registration and compliance monitoring activities across North America, regardless of the Regional Entity footprint in which it operates. In such a case, NERC and the Regional Entities would have the opportunity to audit to verify the single attestation is true and correct.

*Figure 1: Flow chart of High-Level Review*

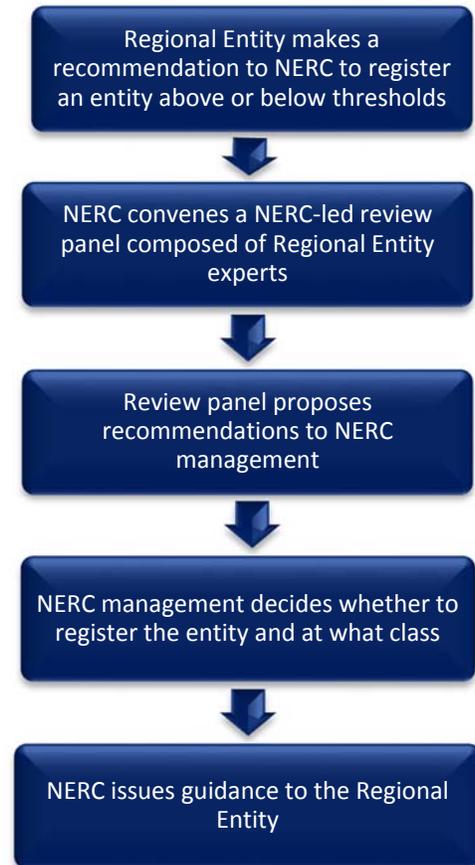
**Establish a centralized review process**

NERC intends to establish a centralized, NERC-led review process to address questions or issues that arise with respect to threshold application, materiality, or Reliability Standard requirement applicability. This process will include a panel comprised of a NERC lead with Regional Entity participants. The review panel will vet the issues and provide recommendations to NERC. Once a decision is made, it will be shared throughout the ERO Enterprise. The RBRAG expects this to result in consistency across the ERO Enterprise with respect to threshold, materiality, or applicable Reliability Standard class determinations. In addition, improved procedures, with defined timelines, would be established for registration and de-registration, as well as Reliability Standard applicability class determinations and associated appeals.

The flow diagram (Figure 1) provides a high-level view of some of the steps that might be incorporated into the final RBR design. The goal is to provide a foundation for consistent decision-making and application of the criteria and thresholds.

**Entity risk assessment in a common registration form**

The Registration and Certification Functional Group is currently developing a common registration form to help drive consistency in registration. The common registration form is pending consideration as part of the ERO Enterprise applications. The RBR provides an opportunity to finalize and implement the common registration form for use by NERC, Regional Entities, and Registered Entities. The use of a common form will facilitate uniformity in the information being collected from registration candidates regardless of where they are located in North America. The common form is intended is to capture, without undue complexity, key factors relevant to an assessment of an entity’s inherent risk. Inherent risk is a function of an entity’s various registrations and other relevant factors like its system design, configuration, size, etc.).



The RBR redesign must necessarily address potential impacts on business processes and tools needed to support RBR both within the ERO Enterprise and in industry. RBR recommends exploring use of a single, web-based design. In the interim, changes to the portals and various electronic forms used by NERC and the Regional Entities will need to be adapted to take into account Reliability Standard applicability classes. This will affect compliance monitoring and enforcement activities and will need to be addressed as part of the implementation plan.

In addition, entity risk assessments should take into account information from “neighbor” surveys that Regional Entities issue to Reliability Coordinators (RCs) as part of certification and other activities to ensure coordination with adjacent entities. This survey approach also may increase awareness and tracking by NERC, Regional Entities and RCs of entities within each RC’s footprint and help identify needed revisions to an entity’s registration.

## **New BES Definition as model and anchor for risk-based registration**

The new BES Definition goes into effect on July 1, 2014 and includes processes for self-determined exclusions and inclusions, as well as exception requests to add elements to, or remove elements from, the BES on a case-by-case basis. The new BES Definition and exception process may resolve, to some extent, the treatment of facilities that are not necessary for the reliable operation of the BPS. However, the revised BES Definition does not eliminate NERC flexibility to decide that registration is not warranted in particular cases, or to restrict the applicability of standards to entities owning or operating limited BES Facilities, where appropriate.

The BES Definition is important to the RBR for two reasons. First, the structure of the BES Definition, approved by FERC, may prove to be a useful model for the RBR. It begins with a bright-line threshold that identifies most facilities that are part of the BES, and then layers on clear exclusions and inclusions that address the most common configurations not adequately captured by the bright-line threshold. Combined, the bright-line, exclusions, and inclusions address the vast majority of elements that should be part of the BES, but elements can be included or excluded from the BES through a case-by-case exception process. The reformed registration process should similarly include revised thresholds, with a case-by-case process to adjust registration (by inclusion or exclusion) where warranted based on a materiality determination that takes into account circumstances not captured by the revised thresholds.

Second, the new BES Definition serves as an anchor for Registry Criteria. While the statutory term BPS sets the outer limit of NERC authority, it has not been defined. Now that the BES is clearly defined, the term can be used to determine on a consistent basis the entities that warrant registration and assess material impact on reliability. For this reason, the straw proposals included as Appendix A for revising Registry Criteria incorporate the BES Definition.

## **Functional registration category elimination if not material to reliability**

NERC reviewed information from various sources to determine if any of the functional categories could be eliminated as part of the RBR redesign. Three have been identified: 1) Regional Reliability Organizations,<sup>10</sup> 2) Purchasing-Selling Entities (PSEs), and 3) Interchange Authorities (IAs). As described in the Appendix A, based on an initial evaluation of risk to BES reliability, elimination of the PSE as a functional registration, which includes some 446 entities, appears promising, although further examination is required. In the event a particular function is determined not to be material to reliability going forward, NERC will evaluate the associated Reliability Standard requirements to determine if accountability for those requirements should be assigned to another function, or

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<sup>10</sup> Currently, NERC is eliminating references to Regional Reliability Organization in the NERC Reliability Standards. As a result, the RBR redesign will not include this term.

consider elimination of the requirement with assessment with NERC's Standards Committee, similar to the Paragraph 81 effort.

### **Synchronize threshold revisions with BES Definition and align with risk**

Another approach is to modify current registration thresholds for certain functions. Entities have contended that the current thresholds are too low and sweep in a large number of entities that pose little or no risk to reliability. In addition, the current Registry Criteria reference the BPS, rather than the new BES Definition, creating a lack of clarity and potential for inefficiency and confusion that has no place in a risk-based approach to registration.

Appendix A includes several straw proposals to revise the Registry Criteria for Distribution Provider (DP), Load-Serving Entity (LSE), Transmission Owners and Transmission Operators (TOs and TOPs), and Generator Owners and Generator Operators (GOs and GOPs), to more clearly anchor them in the new BES Definition. In addition, the straw proposals for DP, LSE, and TO/TOP include potential revisions to the registration thresholds to better align with risk. The revised thresholds would be subject to a case-by-case process (modeled after the BES exceptions process) to allow for registration of entities that do not meet the threshold criteria or de-registration of entities that satisfy those thresholds, based on a determination of materiality.

### **Reliability Standards/compliance and monitoring/risk-based criteria**

There are several possible options, three of which were explored by the RBRAG, to facilitate the implementation of the RBR. These options may be used together or separately. These approaches need more discussion and analysis to consider the most effective and efficient way forward.

One option, a CMEP approach, involves establishing that certain requirements do not apply to a Registered Entity, based on uniform characteristics. A matrix could be added to the CMEP that adopts many of the Reliability Standard applicability classes set forth in Appendix A to this white paper. For example, for TOPs, the matrix would indicate the core requirements that apply no matter the uniform characteristics. In addition, the matrix would indicate that certain other requirements, such as load shedding requirements, only apply if the TOP is connected to load.

Another option, a materiality approach, involves using the existing thresholds, at their current levels or revised as appropriate, but providing more specificity on the risk-based criteria that an entity would use to demonstrate that it no longer needs to be registered for a given function. There are many smaller entities that do not believe they should be registered under the current criteria; however, at present, there are no uniform risk-based criteria in place for them to justify how and why they should be de-registered, as well as a timely commitment to address registration concerns. Large TOPs and/or the RC in the region should have an opportunity for input on deregistration decisions. The procedures for submitting a deregistration request also should be part of this RBR effort.

Revising Reliability Standards is another option. Under the Reliability Standards approach, Reliability Standard requirement applicability classes refer to applying subsets of Reliability Standard requirements to subcategories of certain functions of Registered Entities, and not developing a custom tailoring of applicability for each individual registered entity. The intent is to restrict the requirements applicable to Registered Entities that satisfy specified risk-based criteria to ensure the right entities are identified for compliance with appropriate Reliability Standard requirements, and avoid burdening such entities with compliance obligations disproportionate to their risk to BES reliability. Tailoring Reliability Standard obligations has been successfully implemented in both the registration appeal context and Project 2010-07: Generator Requirements at the Transmission Interface (the GO/TO project). In addition, historically, some Regional Entities have addressed the challenges of Reliability Standard applicability to entities through their compliance monitoring activities, such as adjusting the scope of audits. These experiences will help inform RBR efforts.

All three possible approaches set forth above can be further informed by the initial evaluation in Appendix A and additional technical analysis to be conducted. The straw proposals identify a category of entities that own or operate BES Facilities, but that also warrant application of a more limited set of requirements than the more typical TO/TOP and GO/GOP. The proposals suggest a starting point for evaluating the subset of Reliability Standards to be applicable to entities that fall within that lesser risk category. In addition, Appendix A identifies targeting requirements to entities that fall below the revised DP and LSE thresholds, but that are necessary participants in a BES protection program (e.g., UFLS or UVLS).

Particularly under the CMEP and the Reliability Standards approach, described above, once Reliability Standard applicability classes are established and applicable Reliability Standard requirement compliance obligations are aligned with the classes, a number of implementation approaches are available. Under the CMEP approach, a standardized compliance matrix can be maintained to identify which Reliability Standard requirements apply to a given class. Entities registered to the functions with Reliability Standard class applicability will be formally assigned to the appropriate class. Class assignment should be subject to a process that enables the entity to challenge inappropriate application of the criteria, as well as a process (modeled after the BES Exception Process) to assign outliers to the appropriate class, based on an individualized risk assessment and technical justification.

Under the Reliability Standards approach, class compliance responsibility may be reflected within the Applicability section of a given Reliability Standard. Alternatively, as in the GO/TO project, a class approach may be implemented through limited changes in the Reliability Standard applicability, along with associated registration modifications. The latter approach may be suitable to DPs with limited BES transmission facilities, eliminating the need to register such entities as TOs or TOPs. Either of these approaches will require modification of Reliability Standards through the Standards Development Process.

## **Status quo for other functional registration categories**

As discussed above, recommendations for changes apply to eight of the fifteen functional categories, including PSEs, IAs, DPs, LSEs, GOs, GOPs, TOs and TOPs. At this time, there are no proposed recommendations with respect to the following seven functional categories:

Balancing Authorities (BAs), Planning Authorities (PAs)/Planning Coordinators (PCs), Reliability Coordinators (RCs), Transmission Planners (TPs), Resource Planners (RPs), Reserve Sharing Groups (RSGs) and Transmission Service Provider (TSPs).

## **Task forces for risk criteria and Reliability Standard applicability classes**

As part of RBR, NERC plans to form task forces to develop risk criteria to apply to: (i) entities that meet the thresholds but seek to make a case that they should not be registered because they do not have a material impact on reliability; and (ii) entities that do not meet the thresholds but the Regional Entity, NERC or a reliability entity, such as a BA, RC or TOP, asserts such entities need to be registered and subject to some or all of applicable Reliability Standard requirements.

In addition, NERC plans to form a task force, modeled on the GOTO Task Force, to identify a common set of Reliability Standards that need to be applied to BES resources owned and operated by certain TO/TOPs and GO/GOPs, as discussed in greater detail in Appendix A. This task force will also assess the merits of alternative approaches to targeting registration, standards applicability, and compliance monitoring and enforcement to entity risk.

The resulting analysis can then be used as the basis for establishing appropriate registration categories and making appropriate classes of Reliability Standard applicability.

## **Issues that require a longer time horizon**

Possible rule changes have been identified with respect to the NERC Rules of Procedure Section 500, Appendix 5A, and Appendix 5B to implement risk-based registration. For example, the opportunities for change include modification of the Registry Criteria, and improving procedures, Reliability Standard requirement applicability classes, determinations and associated appeals. Other changes are appropriate to memorialize practices in place today because of FERC orders, and to implement other improvements to these sections. As also noted above, to the extent classes of applicable Reliability Standards are adopted for certain functions, long-term implementation is best achieved through modification of Reliability Standards through the Standards Development Process.

While these efforts can be launched, and interim implementation steps can be taken, as part of Phase 1, completion of these more formalized implementation efforts will likely extend into Phase 2. More details such as scope, outreach, and timing will be addressed in the RBR implementation plan.

Another longer-term related issue is ensuring that Standard Drafting Teams develop standard applicability language for new or revised standards that provides for the most granular applicability language possible.

## Appendix A – Risk-Based Registration Threshold Reviews

### Purchasing-Selling Entity (PSE)

#### Current Definition and/or Threshold in Statement of Compliance Registry Criteria

##### **Definition**

The entity that purchases, or sells, and takes title to, energy, capacity, and Interconnected Operations Services. The Purchasing-Selling Entity may be affiliated or unaffiliated merchants and may or may not own generating Facilities.

##### **Threshold**

N/A

##### **Functional Model Description**

The PSE arranges for and takes title to energy products (capacity, energy and reliability-related services) that it secures from a resource for delivery to a Load-Serving Entity. The Purchasing-Selling Entity also arranges for transmission service with the Transmission Service Provider that provide transmission service to the Load-Serving Entity under a tariff or market rule. The Purchasing-Selling Entity initiates a bilateral Interchange between Balancing Authority Areas by submitting a Request for Interchange to the Interchange Coordinator.

##### **Proposed Elimination**

Recommend that the functional category of PSE be eliminated as part of the RBR effort. For all Reliability Standards that apply to PSEs, this function should be removed through the Standards Development Process.

##### **Proposed Revised Threshold**

N/A- Proposed Function for Elimination

##### **Proposed Critical Sub-function(s)**

Dynamic Transfers could be a critical sub-function. However, a survey should be conducted to determine how many entities still use Dynamic Transfers.

##### **Analysis and Support for Proposed Action**

There are 447 unique entities registered as a PSE. Five (5) FERC-approved Reliability Standard Requirements currently apply to PSEs. Those standards and requirements are:

- INT-001-3, Requirement R1
- INT-004-2, Requirement R2
- IRO-001-1.1, Requirement R8
- IRO-005-3.1a, Requirement R10
- TOP-005-2a, Requirement R3

With regard to violations, there have only been 40 instances of PSE noncompliance out of 29,545 total instances of noncompliance. The NERC and Regional CMEP efforts have recently begun to utilize more self-certifications (rather than audits) for entities registered only as PSEs, and only one PSE standard is currently listed on Compliance's 2014 Actively Monitored List, IRO-005-3.1a. In addition, only one requirement listed above has a High Violation Risk Factor (VRF), IRO-001-1.1, Requirement R8, which states as follows:

Transmission Operators, Balancing Authorities, Generator Operators,  
Transmission Service Providers, Load-Serving Entities, and Purchasing-Selling

Entities shall comply with Reliability Coordinator directives unless such actions would violate safety, equipment, or regulatory or statutory requirements. Under these circumstances, the Transmission Operator, Balancing Authority, Generator Operator, Transmission Service Provider, Load-Serving Entity, or Purchasing-Selling Entity shall immediately inform the Reliability Coordinator of the inability to perform the directive so that the Reliability Coordinator may implement alternate remedial actions.

IRO-001-1 will eventually be replaced by a new set of IRO standards, together with revised Transmission Operator (TOP) standards.<sup>11</sup> The proposed standard IRO-001-3, which will replace IRO-001-1, has removed applicability for the PSE functions. Further, the Independent Experts Review Panel (IERP) recommended INT-004 standards for potential retirement reasoning that a NAESB guideline exists in the *Electronic Tagging Functional Specification* document.

The remaining standards have a Lower VRF. In reviewing the remaining standards that still apply to PSEs, the Standards Development Process would need to address removing PSEs from individual requirements and must determine if there is a suitable replacement entity or if a business practice/process can be transferred to North American Energy Standards Board (NAESB). Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

Finally, Dynamic Transfers may not apply to organized markets. RTO/ISOs usually only dispatch generation in their operational jurisdiction, but this will need to be confirmed as part of the survey to determine if Dynamic Transfers are a critical sub-function. In addition, PSEs do not have the authority to initiate a curtailment on a transaction due to a reliability event, and PSEs do not have the authority to reload transactions or the ability to release a limit.

## **Interchange Authority/Interchange Coordinator (used interchangeably) (IA)**

### **Current Definition and/or Threshold in Statement of Compliance Registry Criteria**

#### ***Definition***

The responsible entity that authorizes implementation of valid and balanced Interchange Schedules between Balancing Authority Areas, and ensures communication of Interchange information for reliability assessment purposes.

#### ***Threshold***

N/A

### **Functional Model Description**

The Interchange Coordinator collects approvals or denials for Arranged Interchange from Balancing Authorities and Transmission Service Providers and verifies the validity of the source and sink. The NERC Tag Authority provides this service assigned to the Sink Balancing Authority.

The Interchange Coordinator provides the Balancing Authority with the individual bilateral Arranged Interchange. The Balancing Authority must track the individual Interchange Schedules in case one or more of them are curtailed by the Reliability Coordinator or by the Balancing Authority in those cases where a generator or load is interrupted.

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<sup>11</sup> However, both sets of proposed standard were subject to a recent FERC NOPR recommending a remand. A standard development project is ongoing to address the NOPR's proposed remand. FERC did not take issue with the elimination of PSEs in IRO-001-1.

The Balancing Authority then creates a “net” interchange total for use in its energy management system as well as a “net” interchange for each neighboring Balancing Authority. The net Interchange Schedule for each neighboring Balancing Authority is used by the Receiving Balancing Authority for checkout with the neighboring Balancing Authorities.

All bilateral Interchange Transactions that cross a Balancing Authority Area boundary are coordinated through the Interchange Coordinator.

While the approval/denial process may utilize tools (such as computer software and communication protocols), the Model envisages that the Interchange function will be assigned to an actual organization. A Balancing Authority may serve as its own Interchange Coordinator or have this service provided by a separate organization.

**Assessing ramping capability and connectivity.** The Balancing Authority approves/denies the capability to ramp the Arranged Interchange in or out and notifies the Interchange Coordinator. The connectivity of adjacent Balancing Authorities is also verified by the Balancing Authorities before responding to the Interchange Coordinator.

**Ensuring balanced, valid Interchange Transactions.** The Interchange Coordinator also ensures that the resulting Confirmed Interchange Transactions is balanced and valid prior to physical delivery. This means:

- The source MW must be equal to the sink MW (plus losses if they are “self-provided”), and
- All reliability entities involved in the Arranged Interchange are currently in the NERC registry.

Only when it receives approvals from the Transmission Service Providers and Balancing Authorities, does the Interchange Coordinator direct the Balancing Authorities to implement the Transaction. If any of these entities — Transmission Service Providers, or Balancing Authorities — does not approve the Arranged Transaction, then the Interchange Coordinator does not authorize the Transaction to become Confirmed Interchange.

**Curtailments.** The Interchange Coordinator coordinates curtailments of Confirmed Interchange ordered by the Reliability Coordinator by notifying the Balancing Authorities, Transmission Service Providers, and Purchasing-Selling Entities. The Interchange Coordinators also communicates and coordinates the resulting modified Arranged Interchange that result from the curtailments.

### **Proposed Elimination**

The functional category of IA has been identified for potential elimination as part of the RBR effort. The industry must be surveyed to determine if a reliability gap will be created by removing the IA function from the Registry Criteria. Most notably, the industry must answer whether the Balancing Authority (BA) function and applicable requirements are sufficient for ensuring reliability. In eliminating the IA, the BA will not take over all of the IA standards and requirements. The industry must provide whether the existing BA function and existing BA requirements are sufficient for maintaining reliability after the IA has been removed. Industry feedback should provide particular attention to how a BA would balance generation, manage load and schedules, avoid unscheduled transfers, and the ability of the BA to implement congestion management.

### **Proposed Revised Threshold**

N/A

### **Proposed Critical Sub-function(s)**

N/A

## Analysis and Support for Proposed Action

There are currently forty-one (41) uniquely registered IAs. Of those forty-one entities, only one (1), Peak Reliability, is not also registered as a BA. Currently, the following families of Reliability Standards apply to IAs:

- CIP
- INT-005-3
- INT-007-1
- INT-008-3
- IRO-010-1a

However, NERC recently submitted a filing that recommended the retirement of INT-005-3, INT-007-1, and INT-008-3.<sup>12</sup> That leaves only one non-CIP requirement that would apply to IAs: IRO-010-1a, Requirement R3. Although the changes have not been adopted, the latest recommendations from the IRO Five-Year Review Team are to remove IAs from the applicability of IRO-010-1a.<sup>13</sup> Although the IERP did not recommend deletion of IRO-010-1a, Requirement R3 due to this being the only data-sharing requirement, the IERP did state this requirement could be consolidated with a TOP requirement.

With regard to violations, IAs have had 598 instances of noncompliance out of 29,545 total instances of noncompliance since 2007. A large majority of those violations were CIP violations.

The IA function itself has evolved greatly since the Registry Criteria was first created. Several aspects of the IA function have become automated over time. Also, because most of the IAs are already registered as BAs, it is recommended that BAs serve as the entity ultimately responsible for the historically-IA functions in the Registry Criteria. This would not entail transferring all of the applicable IA requirements to BAs. Instead, the recommendation is to first survey the industry in order to determine if a reliability gap is created by removing IAs and have the BAs maintain reliability through their on-going operations and requirements.

## Distribution Provider (DP)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria

#### **Definition**

Provides and operates the “wires” between the transmission system and the end-use customer. For those end-use customers who are served at transmission voltages, the Transmission Owner also serves as the Distribution Provider. Thus, the Distribution Provider is not defined by a specific voltage, but rather as performing the distribution function at any voltage.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.b.1 Distribution Provider system serving >25 MW of peak load that is directly connected to the Bulk Power System.

*[Exclusion: A Distribution Provider will not be registered based on this criterion if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including*

<sup>12</sup> See *Petition of the North American Electric Reliability Corporation for Approval of Proposed Reliability Standards for Interchange Scheduling and Coordination*, submitted on February 27, 2014 (available at <http://www.nerc.com/FilingsOrders/us/NERC%20Filings%20to%20FERC%20DL/Petition%20for%20Approval%20of%20INT%20Reliability%20Standards.pdf>).

<sup>13</sup> See [http://www.nerc.com/pa/Stand/Project201209IROReview/IRO-010-2\\_redline\\_2013Oct01.pdf](http://www.nerc.com/pa/Stand/Project201209IROReview/IRO-010-2_redline_2013Oct01.pdf).

*reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, Balancing Authority, Transmission Operator, generation and transmission cooperative, or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

or;

ROP Appendix 5B at III.b.2 Distribution Provider is the responsible entity that owns, controls, or operates Facilities that are part of any of the following Protection Systems or programs designed, installed, and operated for the protection of the Bulk Power System:

- a required UFLS program.
- a required UVLS program.
- a required Special Protection System [(SPS)].
- a required transmission Protection System [(TPS)].

*[Exclusion: A Distribution Provider will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, Balancing Authority, Transmission Operator, generation and transmission cooperative, or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

### **Functional Model Description**

The Distribution Provider provides the physical connection between the end-use customers and the electric system, including customers served at transmission level voltages. The Distribution Provider is not defined by a specific voltage, but rather as performing the Distribution function at any voltage. One Distribution Provider may be directly connected to another Distribution Provider and not directly connected to the Bulk Electric System.

The Distribution Provider maintains “local” safety and reliability. The Distribution Provider provides the switches and reclosers necessary for emergency action. The Distribution Provider may need to demonstrate load-shedding capability to the Balancing Authority and Transmission Operator.

The same organization may serve as the Distribution Provider and Load-Serving Entity, but they may be separate organizations as well. Unlike the Load-Serving Entity, the Distribution Provider has the facilities or assets (“wires”) and does not take title to any energy. However, while these functions are distinct, in many cases an organization, such as a vertically integrated utility, bundles these functions together.

### **Proposed Elimination**

N/A

### **Proposed Revised Threshold**

Recommend that the peak load threshold in Registry Criteria III.b.1 be increased to 75 MW or 100 MW (or other number as determined based on further analysis) and directly connected to the BES.

Replace Registry Criteria III.b.2 with the following two paragraphs. Using the risk-based criteria, which is to be developed, DPs with peak load between 25 MW and the new peak load threshold and directly connected to the BES generally would not be subject to registration even if they participate in a BES protection program (e.g., UFLS, UVLS, SPS or TPS), unless it has been demonstrated that their participation in such a program is necessary for the reliable operation of the BES. To the extent that they are registered, they should be subject only to a sub-list class

of Reliability Standards, including the relevant protection system Reliability Standards, which is to be determined based on further analysis.

Entities with less than 25 MW peak load, or not directly connected to the BES, generally would not be registered, even if they participate in a BES protection program, except in extraordinary circumstances under the risk-based criteria, which is to be developed. To the extent that they are registered, they should be subject only to a sub-list class of Reliability Standards, including the relevant protection system Reliability Standards, which is to be determined based on further analysis.

### **Proposed Critical Sub-function(s)**

DPs with peak load between 25 MW and the new peak load threshold and directly connected to the BES are subject to registration for participation in a BES protection program if it has been demonstrated that their participation in such a program is necessary for the reliable operation of the BES.

### **Analysis and Support for Proposed Action**

#### **Increase DP threshold to a peak load of 75-100 MW and directly connected to the BES**

Consistent with a risk-based approach to registration, the general threshold for DP registration should be modified to 75 MW or 100 MW (or other number as determined based on further analysis) and directly connected to the BES. The new threshold should be accompanied by a risk-based process, like the BES Exception Process, that allows Regional Entities to register entities below the threshold on the basis of a demonstration of material impact on the BES, and allows entities above that threshold to seek relief from registration as a DP where the entity demonstrates lack of a material impact on the BES. Replacing the reference in the threshold with BES (rather than BPS) is consistent with FERC's determination in the SLECA case<sup>14</sup> and a risk-based approach because it would take into account the results of the application of the new BES Definition, including its exception process.

Reliability Standards applicable to DPs fall into the following categories: coordination with higher-level entities when adding new facilities; nuclear plant service; compliance with reliability directives issued by higher-level entities; cybersecurity (in limited circumstances); reporting of certain events; operator training (if the DP has field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks); and protection systems (addressed in a separate section below).

Except in very unusual cases, imposing all of these requirements on entities with a peak load below 75 MW-100 MW or not directly connected to the BES may not be necessary from a risk-based perspective. According to data assembled by NERC, there were only 0.21 DP violations per registered DP per year in 2007-2014—far less than the rate for other functions, such as TOP and BA. In addition, a preliminary review of Energy Information Administration (EIA) data—which does not present a complete view of Registered Entities—suggests that DPs with peak load under 75 or 100 MW serve a very small proportion of U.S. load, and that including these entities on the NCR may not be needed to accomplish the primary reliability objectives of standards applicable to DPs, particularly when viewed in the context of the purpose of Reliability Standard, which is to avoid BES instability, uncontrolled separation and cascading outages. Further, an initial analysis of applicable Reliability Standards suggests that a risk-based approach to registration generally would not require registration of small (below 75 MW-100 MW peak load) DPs, although further analysis is warranted:

- FAC-002-1 requires DPs “seeking to integrate generation facilities, transmission facilities, and electricity end-user facilities” to coordinate and cooperate on assessments with their TP and PA. DPs are already required by tariff or interconnection agreement to coordinate with the TO/TOP(s) to which they are

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<sup>14</sup> *S. La. Elec. Coop. Ass'n*, 144 FERC ¶ 61,050 (2013).

connected before adding another point of interconnection. There may not be a need for a Reliability Standard to ensure that small DPs do not add new facilities without permission. To the extent that any gap in coverage may exist with respect to such small entities, it may not be material.

- It would be unusual for a DP under 100 MW to have Nuclear Plant Interface Requirements (NPIR) responsibilities. To the extent that there are any such DPs, they could be retained on the NCR (for compliance with NUC-001) through the case-by-case material impact process.
- Other DP requirements focus on compliance with reliability directives. In the unlikely event a small (below 75 MW – 100 MW) DP is issued a reliability directive, it would most likely be to shed load. The Open Access Transmission Tariff (OATT) includes provisions for curtailing transmission service for point to point service (§§ 13.6, 14.7) and network service (§ 33). Furthermore, a small DP’s failure to follow a reliability directive is unlikely to have a material impact on BES reliability, because the entity is too small to have such an impact. If, however, a particular DP under 100 MW could materially impact BES reliability by failing to comply with a reliability directive, the entity can be registered through the material impact process.
- As for cybersecurity, CIP-002-5 applies to very few DPs with peak load under 100 MW: those with an SPS, Remedial Action Scheme (RAS), or other transmission Protection System (other than UFLS or UVLS) subject to NERC Reliability Standards, and those that own a “Cranking Path and group of Elements meeting the initial switching requirements from a Blackstart Resource up to and including the first interconnection point of the starting station service of the next generation unit(s) to be started.” To the extent a particular small DP’s compliance with cybersecurity standards is demonstrated to be necessary to prevent a material risk to BES reliability, that DP can be registered on a case-by-case basis through the risk-based criteria.
- DPs are required to have, and follow, an event reporting plan under EOP-004-2; but the events to be reported, for DPs, are only of damage or threats to a Facility (i.e., a BES Element); automatic shedding of at least 100 MW; and the loss of at least 200 MW of firm load. Most if not all small DPs, in their capacity as DPs, do not own Facilities; and by definition, a DP with a peak load under 100 MW will not shed 100 MW or lose 200 MW of firm load. Making EOP-004-2 inapplicable to small DPs would not result in increased risk to BES reliability.
- Operator training is required by EOP-005-2 only where a DP is identified in a TOP’s restoration plan, and the DP has field switching personnel identified as performing unique tasks associated with the TOP’s restoration plan that are outside of their normal tasks. The subset of DPs that meet those criteria and are under 100 MW is not expected to be large. To the extent the participation of any such DP in the TOP’s restoration plan is shown to be material to BES reliability, however, the DP can be registered through the material impact process.

As discussed above, the registration threshold for DPs could be raised from the present 25 MW peak load to 75 MW or 100 MW without a significant impact on risk to BES reliability. While the EIA data suggests that the proportion of load served by DPs with peak loads under 100 MW is *de minimis* on a continent-wide basis, that data may not provide a complete picture. Because tariff and interconnection agreements arise under Section 205 of the FPA, technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

#### **Restrict DP registration of below-threshold entities based on UFLS/UVLS/SPS/TPS**

DPs with peak load between 25 MW and the revised threshold and directly connected to the BES—i.e., entities below the revised threshold who were previously registered based on the minimum 25 MW size—would not be registered based on their participation in a BES protection program, unless there is a demonstrated reliability

need; to the extent that they are registered, they should be subject only to the relevant protection system reliability standards and such other Reliability Standards as determined to be necessary based on further analysis. Rather, consideration of materiality of risk to BES reliability calls for restricting registration of such entities except where demonstrated necessary in light of unusual circumstances, and in such cases limiting the applicable standards.

In unusual situations (i.e., significant portion of load is served by small DPs), the DPs could be registered on a case-by-case basis based on their material impact on reliability, and made subject only to the relevant system protection standards and such other Reliability Standards as determined to be necessary based on further analysis. Where the Planning Coordinator PC or Regional Entity demonstrates that the participation of a particular directly-connected DP between 25 MW and the revised 75MW or 100MW threshold is necessary to protect BES reliability, the DP should be required to comply only with the relevant system protection standards and such other Reliability Standards as determined to be necessary based on further analysis. Removal of small DPs from compliance with other DP requirements would be unlikely to materially increase the risk to BES reliability. Small entities who are no longer subject to DP registration but wish to remain a part of a BES protection program should be permitted to opt in to compliance with such programs and the applicable Reliability Standards, so that small utilities that need to choose which portions of their load to shed can continue to do so.

Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

## Load-Serving Entity (LSE)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria

#### **Definition**

Secures energy and Transmission Service (and related Interconnected Operations Services) to serve the electrical demand and energy requirements of its end-use customers.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.a.1 Load-Serving Entity peak load is > 25 MW and is directly connected to the Bulk Power (>100 kV) System, or;

ROP Appendix 5B at III.a.2 Load-Serving Entity is designated as the responsible entity for Facilities that are part of a required underfrequency load shedding (UFLS) program designed, installed, and operated for the protection of the Bulk Power System, or;

ROP Appendix 5B at III.a.3 Load-Serving Entity is designated as the responsible entity for Facilities that are part of a required undervoltage load shedding (UVLS) program designed, installed, and operated for the protection of the Bulk Power System.

*[Exclusion: A Load-Serving Entity will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, Balancing Authority, Transmission Operator, generation and transmission cooperative or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

ROP Appendix 5B at III.a.4 Distribution Providers registered under the criteria in III.b.1 or III.b.2 will be registered as a Load Serving Entity for all load directly connected to their distribution facilities.

*[Exclusion: A Distribution Provider will not be registered based on this criterion if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, Balancing Authority, Transmission Operator, generation and transmission cooperative, or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

### **Functional Model Description**

The Load-Serving Entity arranges for the provision of energy to its end-use customers, but does not provide distribution services (“wires”). The Load-Serving Entity defined in the Model is not to be confused with or equated to the Load-Serving Entity as defined in any tariff or market rule.

Today, organizations serving as Load-Serving Entities may also be Generation Owners and can self-provide, or have contracts with other Generator Owners for capacity and energy to serve the Load-Serving Entity’s customers, or purchase capacity and energy from non-affiliated Generator Owners through a Purchasing-Selling Entity (or Market Operator), or employ a combination of these three options.

The Load-Serving Entity reports its generation (affiliated and non-affiliated) arrangements to serve load to the Balancing Authority, which forwards this information to the Reliability Coordinator, for day-ahead analysis.

The Load-Serving Entity may contract for reliability-related services through the Market Operator (if the Load-Serving Entity is part of a market or pool) or directly from Generator Owners or loads.

The same organization may serve as the Distribution Provider and Load-Serving Entity, but they may be separate organizations as well. Unlike the Distribution Provider, the Load-Serving Entity, does not have Bulk Electric System assets (“wires”) but does take title to energy. However, while these functions are distinct, in many cases an organization, such as a vertically integrated utility, bundles these functions together.

The Functional Model assigns to the Load-Serving Entity the identification of loads for curtailment and the development of load profiles and load forecasts. Please see Section II, 114: Roles in Load Curtailment for more detailed information.

The Load-Serving Entity communicates requests for voluntary curtailment to the appropriate end-use customer loads, thereby ensuring that these loads will, in fact, be curtailed.

### **Proposed Elimination**

N/A

### **Proposed Revised Threshold**

Recommend that the peak load threshold in Registry Criteria III.a.1 be increased to 75 MW or 100 MW (or other number as determined based on further analysis) and directly connected to the BES.

Also, revise that section to reflect the following two paragraphs. Using the risk-based criteria, which is to be developed, LSEs with peak load between 25 MW and the new peak load threshold, and directly connected to the BES, generally would not be subject to registration even if they participate a UVLS program, unless it has been demonstrated that their participation in such a program is necessary for the reliable operation of the BES. To the extent that they are registered, they should be subject only to a sub-list class of Reliability Standards, including the relevant protection system Reliability Standards, which is to be determined based on further analysis.

Entities with less than 25 MW peak load, or not directly connected to the BES, generally would not be registered, even if they participate in a BES protection program, unless there is a demonstrated reliability need. To the extent that they are registered, they should be subject only to a sub-list class of Reliability Standards, which is to be determined based on further analysis.

### **Proposed Critical Sub-function(s)**

LSEs with peak load between 25 MW and the new peak load threshold, and directly connected to the BES, generally would not be registered, even if they participate in a UVLS program, except in extraordinary circumstances under the risk-based criteria, which is to be developed. To the extent that they are registered, they should be subject only to a sub-list class of Reliability Standards, including the relevant protection system Reliability Standards, which is to be determined based on further analysis.

### **Analysis and Support for Proposed Action**

#### **Change the LSE registration threshold to LSEs with peak load of at least 75 MW-100 MW and directly connected to the BES**

Consistent with a risk-based approach to registration, the threshold for registration should be increased to 75 MW or 100 MW (or other number as determined based on further analysis) and directly connected to the BES. The new threshold would be accompanied by a risk-based process that enables Regional Entities to register entities below the threshold based on a demonstration of material impact on the BES, and allows entities above that threshold to seek relief from registration as an LSE where the entity demonstrates lack of a material impact on

the BES. Replacing the reference in the threshold with BES (rather than BPS or above 100 kV) is consistent with FERC's determination in the SLECA case and a risk-based approach because it would take into account the results of the application of the new BES Definition, including its exception process.

Reliability Standards applicable to LSEs fall into the following categories: coordination with higher-level entities; nuclear plant service; compliance with reliability directives issued by RCs and TOPs; cybersecurity (under currently-effective version 3, but not under version 5); procedures during Energy Emergencies; Requests for Interchange for intra-BA transfers; operate the BES to the most limiting parameter; provide data and information to higher-level entities; appropriately determining Capacity Benefit Margin (CBM) need, where applicable; coordinate operations with host BA and TSP; and UVLS (addressed in Section B below).

Except in very unusual cases, imposing these requirements on entities with peak load below 75 MW or 100 MW or not directly connected to the BES may not be necessary from a risk-based perspective. According to data assembled by NERC, there were only 0.86 LSE violations per registered LSE per year in 2007-2014—far less than the rate for other functions, such as TOP and BA. In addition, a preliminary review of EIA data—which does not present a complete view of Registered Entities—suggests that LSEs with peak load under 75 MW or 100 MW likely serve a very small proportion of U.S. load. Including these entities on the Compliance Registry is not needed to accomplish the primary reliability objectives of standards applicable to LSEs. Specifically:

- LSEs are subject to FAC-002-1, NUC-001-2.1, and Reliability Standards requiring compliance with reliability directives. The analysis of these issues in the discussion of DP registration applies to LSEs as well.
- LSEs are to be removed from CIP requirements under CIP version 5, which suggests that de-registering a subset of LSEs will not pose a risk to BES reliability.
- Energy-deficient LSEs must follow certain procedures under EOP-002-3.1. However, the amount of energy likely to be needed by an energy-deficient LSE whose *peak* load is under 100 MW is unlikely to pose a reliability risk; moreover, such an LSE could voluntarily follow the EOP-002-3.1 R1-R8 procedures to remedy its deficiency. If those procedures were inadequate and firm load needed to be shed to protect reliability, and the unregistered LSE refused to do so, its transmission provider would have the authority and obligation to do so under the OATT and NAESB Wholesale Electric Quadrant Standard WEQ-008, Transmission Loading Relief (TLR) – Eastern Interconnection.
- INT-011-1 (which is pending before FERC) requires that *“Each Load-Serving Entity that uses Point to Point Transmission Service for intra-Balancing Authority Area transfers shall submit a Request for Interchange unless the information about intra-Balancing Authority transfers is included in congestion management procedure(s) via an alternate method.”* The purpose of the standard is “[t]o ensure that transfers within a Balancing Authority Area using Point to Point Transmission Service are communicated and accounted for in congestion management procedures.” Intra-BA transfers by LSEs with peak load between 25 and 100 MW are subject to tariff, operating agreement, and interconnection agreement requirements and, in any case, are unlikely to be a significant contributor to congestion.
- LSEs, among other entities, are required to operate the BES to the most limiting parameter. LSEs, as such, do not operate the BES, IRO-005-3.1a should not be applicable to LSEs. Making the requirement inapplicable to LSEs with peak load under 100 MW does not pose a material risk to BES reliability.
- Providing data for modeling and planning purposes is the concern often identified with respect to raising the registration threshold for LSEs. Based on the EIA data available, however, it appears that the aggregate load of LSEs under 75 MW or 100 MW is likely within the margin of error in their regions, provides little technical significance to the models, and is accordingly not needed. In the event that data from such entities is needed to avoid an undue risk to BES reliability in a particular region, however, the necessary LSEs can be registered on a case-by-case basis through the material impact process.

- In regions that use CBM, a registered LSE determining the need for transmission capacity to be set aside as CBM must use one of several studies or other methods of determining needed CBM. The TP must then establish a CBM value to use in its Available Transfer Capability (ATC) calculations that reflects consideration of the LSE's study. Subjecting small LSEs to compliance with the CBM-related reliability standard may not be needed to prevent material impact on the BES. Either small LSEs seeking a CBM set-aside will perform the required studies, or their TP will not set aside any CBM for them.
- Finally, TOP-002-2.1b requires that, to the extent permitted by confidentiality agreements, LSEs coordinate their current-day, next-day, and seasonal operations with their BAs and TSPs—i.e., that they provide load forecasts. To a significant degree, such coordination is achieved through tariff provisions or through an LSE's power supplier. To the extent not covered, such coordination by LSEs under 100 MW is unlikely to be material to BES reliability.

As shown above, the registration threshold for LSEs could be raised from the present 25 MW peak load to 75 MW or 100 MW without a significant impact on risk to BES reliability. While the EIA data suggests that the proportion of load served by LSEs with peak loads under 100 MW is *de minimis* on a continent-wide basis, that data may not provide a complete picture. As noted above, because tariff and interconnection agreements arise under Section 205 of the FPA, technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

#### **Restrict LSE registration of below-threshold entities based on UFLS/UVLS**

LSEs with peak load between 25 MW and the revised threshold and directly connected to the BES generally would not be registered, even if they participate in a UVLS program, unless there is a demonstrated reliability need. To the extent that they are registered, they should be subject only to the relevant protection system reliability standard or such other Reliability Standards as determined necessary based on further analysis. No entity should be registered as an LSE based on its participation in a UFLS program, because UFLS standards no longer apply to LSEs. Rather, consideration of materiality of risk to BES reliability calls for restricting registration of such entities except where demonstrated necessary in light of unusual circumstances, and in such cases limit the applicable standards to those directly pertaining to the relevant protection program.

In unusual situations (i.e., significant portion of load is served by small LSEs), the LSEs could be registered on a case-by-case basis based on their material impact on reliability, and made subject only to the UVLS standard or other Reliability Standards based on further analysis. As a general matter, Registered Entities should be encouraged to avoid requiring small LSEs to own or operate UVLS equipment as a mandatory part of the entities' UVLS programs, because direct participation of such entities is not likely to significantly affect the effectiveness of those programs except in unusual circumstances. Where the PC or Regional Entity demonstrates that the participation of a particular directly connected LSE between 25 MW and the revised MW threshold in a UVLS program is necessary to protect BES reliability, the LSE should be required to comply only with the Reliability Standards relevant to the UVLS program or other Reliability Standards based on further analysis. Removal of such small entities (or entities not directly connected with the BES) from compliance with other LSE requirements would be unlikely to materially increase the risk to BES reliability. Small entities should be permitted to opt in to compliance with such programs and the applicable Reliability Standards, so that small utilities that need to choose which portions of their load to shed can continue to do so.

Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

## Transmission Owner (TO)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria in Statement of Compliance Registry Criteria

#### **Definition**

The entity that owns and maintains transmission Facilities.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.d.1 An entity that owns/operates an integrated transmission Element associated with the Bulk Power System 100 kV and above, or lower voltage as defined by the Regional Entity necessary to provide for the Reliable Operation of the interconnected transmission grid; or

ROP Appendix 5B at III.d.2 An entity that owns/operates a transmission Element below 100 kV associated with a Facility that is included on a critical Facilities list that is defined by the Regional Entity.

*[Exclusion: A Transmission Owner/Operator will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, generation and transmission cooperative or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

#### **Functional Model Description**

The Transmission Owner owns its transmission facilities and provides for the maintenance of those facilities. It also specifies equipment operating limits, and supplies this information to the Transmission Operator, Reliability Coordinator, and Transmission Planner and Planning Coordinator.

In many cases, the Transmission Owner has contracts or interconnection agreements with generators or other transmission customers that would detail the terms of the interconnection between the owner and customer.

**Relationship with the Transmission Operator.** The organization serving as Transmission Owner may operate its transmission facilities or arrange for another organization (which may or may not be a Transmission Owner) to operate and/or maintain its transmission facilities.

#### **Proposed Elimination**

N/A

#### **Proposed Modification of Registration Criteria**

Recommend that section III(d) of the Statement of Compliance Registry Criteria be revised to read:

*Any owner or operator of one or more Bulk Electric System transmission Elements.*

#### **Proposed Revised Threshold/Classes of Standards Applicability**

The detailed registration thresholds located at section III(d) of the Registry Criteria are no longer needed to determine whether the owner or operator of an electric transmission Facility is subject to NERC Reliability Standards. The BES Definition and BES Exception Process set forth in the NERC Rules of Procedure perform the same tests, with greater precision and consistency. However, there is merit to establishing criteria to determine the applicability of Reliability Standards to different classes of TO and TOP entities. The following sub-threshold is proposed for consideration:

An entity that owns/operates only transmission lines operated below 200 kV and/or transformers with low voltage terminals connected at below 200 kV, and whose transmission Facilities do not meet the other criteria in Attachment B to reliability standard PRC-023-2, Relay Loadability.

The intent of establishing criteria to differentiate classes of TO/TOPs is not to remove entities owning and operating BES transmission Facilities from the NCR. Rather, such owners and operators would remain registered and subject to compliance with a subset of TO/TOP standards, but those that do not exceed the threshold set in this process would be subject only to the pre-determined subset of TO/TOP requirements appropriate for entities with limited BES transmission Facilities. The resulting sub-set of applicable TO/TOP standards could be accomplished by a variety of approaches:

Three options are proposed for consideration to implement the revised threshold:

- (i) Register the BES Element owner/operator as a DP and where necessary, make corresponding changes to the applicability sections and requirements of Reliability Standards.
- (ii) Establish a new Registry function, Local Transmission Owners, with corresponding changes to Reliability Standards.
- (iii) Develop and post a standard set of TO and TOP requirements that are determined to be applicable to BES transmission owners that meet the revised Local Transmission Facility threshold described above.

Option (i) is discussed in detail below.

**Proposed Critical Sub-function(s)**

N/A

**Analysis and Support for Proposed Action**

Under the revised Statement of Compliance Registry Criteria, an entity is subject to registration as a TO/TOP if it owns/operates “transmission Facilities,” i.e., BES Elements used for transmission. Entities will thus be registered only if they own/operate BES transmission Elements, i.e., if their transmission equipment meets the revised BES Definition or has been added through the exceptions process, and has not been *excluded* through the exceptions process.

However, the simple revisions outlined above will not, without more analysis,<sup>15</sup> provide for a rational risk-based registration of BES transmission owners and operators. The current registration criteria for TOs and TOPs assume that all TOs and all TOPs perform similar BES functions and have similar capabilities. For example, a small DP entity that owns a single 115 kV switching station on a BES 115 kV transmission circuit that is part of an integrated transmission network owned and operated by others will normally be registered a TO and TOP, and be responsible for the same requirements as a large vertically integrated utility. A strict reading of the Registry Criteria has led to the result that an entity that owns one 138-kV BES loop being subject to the full set of standard requirements that were written to apply to TOs and TOPs with extensive transmission networks and a wide-area view.

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<sup>15</sup> Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

The results of these processes result in: (i) time consuming reviews of facts and circumstances required for Registered Entities to attest that specific requirements are not applicable; and/or (ii) unduly burdensome efforts to comply with requirements that are inappropriate to an entity with such limited BES facilities and do not significantly contribute to BES reliability.

Consistent with a risk-based approach to registration, entities that own/operate insignificant BES transmission could be registered as DPs instead of TO/TOPs, and any requirements that must apply to such entities be revised to include such entities in the applicability (hereinafter, "DP/TO registration"). This approach to registration was successful in the GO/TO project, which could be emulated here. As in the GO/TO project, some transmission Facilities that fall below the threshold(s) set for DP registration:

[a]re more complex and may therefore require individual assessment. The reliability gaps associated with such Facilities should not be addressed simply through application of all standards applicable to Transmission Owners and Transmission Operators, but instead through an assessment of the impact of such a Facility on neighboring transmission Facilities. Such assessment should then be used to determine exactly which Reliability Standards and requirements should apply to that Facility and whether additional entity registration is warranted. This assessment should, at a minimum, be based upon the output of transmission planning and operating studies used by the Reliability Coordinator, Transmission Operator and Transmission Planner in complying with applicable Reliability Standards (specifically, IRO, TOP and TPL).

Order 785 at P 8.

#### ***Threshold for DP/TO Registration***

The applicability of Requirements R1-R5 of PRC-023-2, which is established by Attachment B to that standard, provides a possible starting point for setting a threshold for DP/TO registration. Based on Attachment B, an entity that owns/operates only transmission lines operated below 200 kV and transformers with low voltage terminals connected at below 200 kV, and whose transmission Facilities do not meet the other criteria in Attachment B, would be registered as a DP. Entities that own other transmission Facilities would be registered as TO/TOP.

Separate consideration should be given to operational responsibility for BES transmission Elements operating at below the threshold.

#### ***Standards Applicability***

Further analysis is required to determine the TO/TOP standards that should apply to DPs that own/operate only the lower voltage transmission Facilities as defined by PRC-023-2 Attachment B.

#### ***Special Considerations for Load-Only Manufacturing Facilities***

Because most large manufacturing facilities are served by multiple feeds, this configuration may result in BES classification and therefore a candidate for registration based on the bright-line application of the new BES definition. The following Entity Risk Assessment is proposed to assess whether such a facility poses a material risk to the reliability of the BES. It would normally be applied to candidates for registration as TOs/TOPs because the facility did not qualify for the E1/E3 Exclusions. The key concept underlying the Entity Risk Assessment is that, in the case of these retail loads, BES reliability is assured by the real-time actions of the RC/BA/TOP service providers.

#### ***Entity Risk Assessment Applicable to Load-Only Manufacturing Facilities***

The following criteria could be applied to load-only manufacturing facilities that become candidates for TO/TOP registration by application of the revised BES Definition, with a rebuttable presumption that the entity should not be so registered if the following criteria are met:

1. No BES behind-the-meter generation at facility.
2. Utility maintains the element (e.g., the interconnecting substation and/or protection equipment under the terms and conditions of the applicable interconnection agreement or tariff).
3. Not an “integrated transmission Element” necessary to provide for the reliable operation of the interconnected transmission grid. Element is embedded in a retail customer facility and serves only a local distribution function.
4. No third-party usage of element under terms and conditions of a FERC-jurisdictional OATT.
5. Wide-area view is not relevant to the facility (e.g., it is a retail load).
6. The following additional factors may be used in support of the above criteria, which include that the organization is not required to participate in SPS (or RAS), UVLS or UFLS programs.

The application of the above criteria would not preclude the ability of the facility’s Regional Entity, in consultation with the entity’s RC/BA/TOP service providers, to register the facility if the Regional Entity can establish that the facility is material to the reliability of the BES. Such demonstration of materiality shall include a fact-specific analysis reflecting technical judgment.

In the event that such load-only manufacturing facilities are determined to be subject to registration as TO/TOP under this analysis, they could be addressed as a separate subclass such as "Customer Distribution." Review of the TO/TOP Reliability Standards should be undertaken to determine if a sub-list of applicable requirements is appropriate from a risk-based perspective.

Moreover, because tariff and interconnection agreements arise under Section 205 of the FPA, technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. The technical analysis should take into the need for coordinating high voltage protection schemes and recognizing dependency by BAs and RPs on reserves, resource adequacy and ancillary services, which are important fundamental aspects needed to support reliability.

As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

## Transmission Operator (TOP)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria in Statement of Compliance Registry Criteria

#### **Definition**

The entity responsible for the reliability of its local transmission system and operates or directs the operations of the transmission Facilities.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.d.1 An entity that owns/operates an integrated transmission Element associated with the Bulk Power System 100 kV and above, or lower voltage as defined by the Regional Entity necessary to provide for the Reliable Operation of the interconnected transmission grid; or

ROP Appendix 5B at III.d.2 An entity that owns/operates a transmission Element below 100 kV associated with a Facility that is included on a critical Facilities list that is defined by the Regional Entity.

*[Exclusion: A Transmission Owner/Operator will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, generation and transmission cooperative or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

#### **Functional Model Description**

The Transmission Operator operates or directs the operation of transmission facilities, and maintains local-area reliability, that is, the reliability of the system and area for which the Transmission Operator has responsibility. The Transmission Operator achieves this by operating the transmission system within its purview in a manner that maintains proper voltage profiles and System Operating Limits, and honors transmission equipment limits established by the Transmission Owner. The Transmission Operator is under the Reliability Coordinator's direction respecting wide-area reliability considerations, that is, considerations beyond those of the system and area for which the Transmission Operator has responsibility and that include the systems and areas of neighboring Reliability Coordinators. The Transmission Operator, in coordination with the Reliability Coordinator, can take action, such as implementing voltage reductions, to help mitigate an Energy Emergency, and can take action in system restoration.

Note that the Model does not attempt to define what is and is not a transmission facility, versus a generating facility. As discussed in Section II-13, this is assumed to be defined elsewhere by NERC or by governmental authorities.

**Maintenance.** The Transmission Owner provides the overall maintenance plans and requirements for its equipment, specifying, for example, maintenance periods for its transformers, breakers, and the like. The Transmission Owner then develops or arranges for the development of the detailed maintenance schedules (dates and times) based on the Transmission Owner's maintenance plans and requirements, and provides those schedules to the Reliability Coordinator and others as needed.

The organization serving as Transmission Operator may also physically provide or arrange for transmission maintenance, but it does this under the direction of the Transmission Owner, which is ultimately responsible for maintaining its owned transmission facilities.

**Bundled with the Reliability Coordinator or Transmission Owner.** A single organization may be the functional entity for multiple Functions. In such a case, the functional entities are said to be “rolled up” or “bundled” into a single organization. An organization may be a Transmission Operator without being a Reliability Coordinator or Transmission Owner. However, in many cases the Transmission Operator is bundled with one of these functional entities.

**Bundled with Reliability Coordinator.** For example, consider a regional transmission organization (RTO) with several members. The RTO registers with NERC as a Reliability Coordinator and Transmission Operator and is NERC-certified for both. The RTO then delegates/assigns some of the Transmission Operator Tasks to its members.

**Bundled with the Transmission Owner.** In other situations, the RTO registers with NERC as the Reliability Coordinator, and its members register as Transmission Owners and Transmission Operators. In this case, the Model views the RTO as responsible for complying with Reliability Standards associated with the Reliability Coordinator and would be NERC-certified as such. The RTO members would be responsible for complying with all Reliability Standards associated with the Transmission Operator, and would be NERC-certified as such.

**Proposed Elimination**

N/A

**Proposed Revised Threshold**

Yes, see the discussion of registration thresholds, standards applicability and implementation options under Transmission Owner.

## Generator Owner (GO)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria in Statement of Compliance Registry Criteria

#### **Definition**

Entity that owns and maintains generating units.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.c.1 Individual generating unit > 20 MVA (gross nameplate rating) and is directly connected to the Bulk Power System, or;

ROP Appendix 5B at III.c.2 Generating plant/facility > 75 MVA (gross aggregate nameplate rating) or when the entity has responsibility for any facility consisting of one or more units that are connected to the Bulk Power System at a common bus with total generation above 75 MVA gross nameplate rating, or;

ROP Appendix 5B at III.c.3 Any generator, regardless of size, that is a Blackstart Resource material to and designated as part of a Transmission Operator entity's restoration plan, or;

ROP Appendix 5B at III.c.4 Any generator, regardless of size, that is material to the reliability of the Bulk Power System.

*[Exclusions: A Generator Owner/Operator will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, generation and transmission cooperative or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.]*

*As a general matter, a customer-owned or operated generator/generation that serves all or part of retail load with electric energy on the customer's side of the retail meter may be excluded as a candidate for Registration based on these criteria if (i) the net capacity provided to the Bulk Power System does not exceed the criteria above or the Regional Entity otherwise determines the generator is not material to the Bulk Power System and (ii) standby, back-up and maintenance power services are provided to the generator or to the retail load pursuant to a binding obligation with another Generator Owner/Operator or under terms approved by the local regulatory authority or the Federal Energy Regulatory Commission, as applicable.]*

#### **Functional Model Description**

The Generator Owner owns its generation facilities and provides for the maintenance of those facilities. It also provides verified equipment operating limits and supplies this information to the Generator Operator, Reliability Coordinator, Transmission Planner and Planning Coordinator. In many cases, the Generator Owner has contracts or interconnection agreements with Transmission Owners or Distribution Providers that detail the terms of the interconnection between these parties.

**Relationship with the Generator Operator.** The organization serving as Generator Owner may operate generation facilities, or arrange for another organization to do so. In addition, the organization serving as Generator Owner may perform maintenance and facility verification, or may arrange with another organization to do so.

### **Proposed Elimination**

N/A

### **Proposed Modification of Registration Criteria**

Recommend section III(c) of the Statement of Compliance Registry Criteria be revised to read:

*Any owner or operator of one or more Bulk Electric System generating resources.*

### **Proposed Revised Threshold/Classes of Standards Applicability**

The proposal is to establish a small GO/GOP MVA threshold for owners and operators of less than 75 MVA of BES generating units and plants (or other amount agreed upon after further technical analysis), including dispersed power generating resources.

The applicability of MOD-026-1, which is established by the Facilities Applicability section of that standard, could, in conjunction with the risk-based “Verification Conditions” set out in Attachment A to that standard, provide a possible starting point for setting qualification criteria for Small GO/GOP registration. These could include capacity and connection thresholds, as in the Applicability section, as well as consideration of reactive power control, capacity factor, and other appropriate factors, as in Attachment A.

The intent of establishing a small GO/GOP threshold is not to remove any BES generator owners and operators from the registry. Rather, all BES generator owners and operators that meet the BES Definition, as well as the Registry Criteria capacity thresholds (individual units >20 MVA, plant >75 MVA), would remain registered and subject to compliance with applicable GO/GOP standards. For entities that do not exceed the small GO/GOP threshold set in the RBR process, they would be subject only to a defined subset of GO/GOP requirements (discussed below), which is to be determined after further analysis.

The following criteria could be applied to behind-the-meter generation where discretionary sales to the BES may exceed the “net” 75 MVA threshold applicable to behind-the-meter generation under Exclusion E2. These criteria are contingent on the development of a higher risk-based threshold “[X] MVA” as determined through further study:

1. Sales in excess of 75 MVA are energy only but not to exceed [X] MVA.
2. Capacity sales in excess of 75 MVA as requested and directed by the BA, TOP or RC, but not to exceed [X] MVA.
3. Additional factors in support of the above criteria, include that the entity is not a registered TO or TOP (or not otherwise a TO/TOP by virtue of generator tie lines) and does not otherwise affect SOLs or Interconnection Reliability Operating Limits (IROLs).

### **Proposed Critical Sub-function(s)**

The working assumption is that all BES generating resource owners and operators with more than 75 MVA (or other threshold as determined through further study) are providing material amounts of capacity and energy to the BES and that misoperation of such BES resources could have an adverse reliability impact, and should accordingly remain subject to the full set of applicable reliability standards. Owners and operators of Blackstart Resources would also remain subject to full compliance responsibilities.

### **Analysis and Support for Proposed Action**

When the revised BES Definition becomes effective, the Registry Criteria could be simplified to refer to an entity that owns/operates “BES generating units.” Entities will thus be registered only if they own/operate BES

generation, i.e., if their generation meets the revised BES Definition or has been added through the exceptions process, and has not been *excluded* through the exceptions process.

The current registration criteria for GOs and GOPs, however, do not distinguish between the owners and operators of a 2,000 MW baseload plant and a 30 MW peaking unit that is primarily used to serve local load centers when market prices are high. Consistent with a risk-based approach to registration, entities that own/operate only insignificant BES generation should be subject only to a subset of GO/GOP standards required to ensure that the interconnection and operation of these resources do not cause or contribute to an adverse reliability impact during normal operations or when contingencies occur on the BES. As the drafting team determined in the MOD-026 Project, it is possible to draw technically sound distinctions among applicable units for modeling and other purposes. The purpose of drawing such distinctions is to lessen undue regulatory burdens on the owners and operators of limited amounts of generating capacity, and better target use of NERC resources on reducing risks to reliable interconnected operations.

As in the GO/TO project, it may be the case that some generators that fall below the threshold(s) set for Small GO/GOP registration are more complex and may therefore require individual assessment.

The reliability gaps associated with such Facilities should not be addressed simply through application of all standards applicable to [Generator] Owners and [Generator] Operators, but instead through an assessment of the impact of such a Facility on [BES reliability]. Such assessment should then be used to determine exactly which Reliability Standards and requirements should apply to that Facility and whether additional entity registration is warranted. This assessment should, at a minimum, be based upon the output of transmission planning and operating studies used by the Reliability Coordinator, Transmission Operator and Transmission Planner in complying with applicable Reliability Standards (specifically, IRO, TOP and TPL).

Order 785 P 8.

Allowing energy-only sales in excess of 75 MVA would encourage entities with discretionary sales not to withhold power sales to the BES in order to stay below the threshold and avoid registration. Such sales would contribute to market liquidity and could be valuable in emergency situations. The variance would be capped at [X] MVA. Similarly, withholding capacity during high-load or emergency situations (to avoid registration) may have a higher reliability risk profile than exceeding the threshold on a limited basis. Any sales of capacity (such as ancillary services) that exceed the threshold by a behind-the-meter generator at the request of the BA, TOP, or RC should not be grounds for registration. The variance would be capped at [X] MVA.

### ***Standards Applicability***

The core standard requirements that need to apply across the board to small GO/GOP generators include those focused on protection systems (PRC) and modeling (MOD). Further analysis is required with respect to other Reliability Standards that should remain applicable, including, but not limited to, EOP-004-2, FAC-008-3, IRO-010, and TOP-006-2.

The task force could identify a common set of Reliability Standards that need to be applied to BES resources owned and operated by small GO/GOPs. This task force could also assess the merits of alternative approaches to targeting registration, standards applicability, and compliance monitoring and enforcement to entity risk. Technical analyses in accordance with Section 215 of the FPA will be required to identify any reliability implications so that no reliability gaps are created. As a result, this initial assessment of risk could be revised based on further analysis. An industry survey also will be used to identify issues to be considered as part of the technical analysis.

The resulting analysis can then be used as the basis for establishing a small GO/GOP registration category and making appropriate revisions to Reliability Standard applicability.

## Generator Operator (GOP)

### Current Definition and/or Threshold in Statement of Compliance Registry Criteria

#### **Definition**

The entity that operates generating unit(s) and performs the functions of supplying energy and Interconnected Operations Services.

#### **Threshold**

NERC Rules of Procedure (ROP) Appendix 5B at III.c.1 Individual generating unit > 20 MVA (gross nameplate rating) and is directly connected to the Bulk Power System, or;

ROP Appendix 5B at III.c.2 Generating plant/facility > 75 MVA (gross aggregate nameplate rating) or when the entity has responsibility for any facility consisting of one or more units that are connected to the Bulk Power System at a common bus with total generation above 75 MVA gross nameplate rating, or;

ROP Appendix 5B at III.c.3 Any generator, regardless of size, that is a Blackstart Resource material to and designated as part of a Transmission Operator entity's restoration plan, or;

ROP Appendix 5B at III.c.4 Any generator, regardless of size, that is material to the reliability of the Bulk Power System.

*[Exclusions: A Generator Owner/Operator will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated Requirements including reporting have been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a Load-Serving Entity, generation and transmission cooperative or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure.*

*As a general matter, a customer-owned or operated generator/generation that serves all or part of retail load with electric energy on the customer's side of the retail meter may be excluded as a candidate for Registration based on these criteria if (i) the net capacity provided to the Bulk Power System does not exceed the criteria above or the Regional Entity otherwise determines the generator is not material to the Bulk Power System and (ii) standby, back-up and maintenance power services are provided to the generator or to the retail load pursuant to a binding obligation with another Generator Owner/Operator or under terms approved by the local regulatory authority or the Federal Energy Regulatory Commission, as applicable.]*

### **Functional Model Description**

The Generator Owner may operate its generating facilities or designate a separate organization to perform the Generator Operation Function. The Generator Operator operates, or directs the operation of generation facilities. The Generator Operator supports the needs of the Bulk Electric System up to the limits of the generating facilities in its purview. Ultimately, the Generator Operator's role is to meet generation schedules, manage fuel supplies, and provide frequency support and reactive resources without jeopardizing equipment.

**Relationship with the Generator Owner.** The organization that serves as Generator Operator may also be the owner of the generation facilities it operates; or it may be a separate organization designated by the Generator Owner to operate the facilities. The Generator Operator receives maintenance and performance verification schedules from the Generator Owner, and develops operating and unit commitment plans based on these schedules.

**Relationship with the Transmission Operator.** The Generator Operator provides reliability related services through arrangements or by direction from the Transmission Operator for support of the Bulk Electric System. The Generator Operator provides maintenance schedules, generator status, and AVR status to the Transmission Operator. The Generator Operator receives notification of transmission system problems affecting its generator from the Transmission Operator or Reliability Coordinator.

**Relationship with the Balancing Authority.** The Generator Operator provides unit commitment schedules, generator status, and operating and availability status of generating units to the Balancing Authority.

**Relationship with the Reliability Coordinator.** The Generator Operator provides annual maintenance plans, and operational data to the Reliability Coordinator. The Generator Operator takes actions based on directives from the Reliability Coordinator for the needs of the Bulk Electric System.

**Relationship with Purchasing-Selling-Entity.** The Generator Operator receives notice of Arranged Interchange approved by the Purchasing-Selling-Entity.

**Proposed Elimination**

N/A

**Proposed Revised Threshold**

Yes, as outlined in the analysis and discussion of Generator Owner. A common technical analysis is required of standards applicable to both functions. An initial review indicates a proportionally *smaller* number of Generator Operator-related requirements would likely be determined to be applicable to small GO/GOP entities than would be the case for Generator Owner-related requirements.

For example, proposed COM-002-2a would require all Small Generator Operators to “have communications (voice and data links) with appropriate Reliability Coordinators, Balancing Authorities, and Transmission Operators [that are] . . . staffed and available for addressing a real-time emergency condition.” COM-002-3 would require small GOPs to train staff and be prepared to document the use of three-part communications in communications that are unlikely to take place. Regional Entities would similarly be responsible for ensuring compliance with these requirements.

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## Appendix B – Current State of Registration Program

### NERC's Role

NERC plays several key roles in entity registration. NERC has authority to identify candidates for registration. In addition, NERC reviews registration recommendations and changes to the NCR from Regional Entities. NERC also oversees implementation of the Registration program at the Regional Entities. Finally, NERC is responsible for registering entities, and establishing and maintaining the NCR of the BPS users, owners and operators subject to its Reliability Standards.<sup>16</sup>

Throughout implementation of the Registration program, NERC has provided formal and informal guidance to Regional Entities and industry regarding Registration requirements, roles and responsibilities. This guidance generally has been in response to issues that have arisen in execution of the Registration program, primarily through registration appeals as well as entity sales, mergers, and acquisitions of assets. However, NERC has not defined certain terms used in the Registry Criteria<sup>17</sup> or mandated a set of specific criteria that could result in the addition or removal of an entity from the NCR. NERC also has not prescribed the use of a single web-based portal or common registration form.

In addition, NERC has worked closely with Regional Entity Registration activities and reviewed Registration activities and processes over time, and has recently revised internal oversight processes. As part of this initiative, NERC is reviewing best practices and procedures at the Regional Entities to incorporate them into the proposed design. This white paper identifies a summary of those practices and procedures, as well as possible improvements, such as a common registration form.

### Regional Entity's Role

As called for in the NERC Rules of Procedure and its appendices, the Regional Entities identify candidates for registration. In addition, Regional Entities review and evaluate registration requests and changes making recommendations to NERC when a request or change may affect the NCR.

The staffs of the Regional Entities actively participate in NERC-led committees, task forces, and working groups, which facilitate the exchange of information between NERC and the Regional Entities. In addition, the Regional Entities are active participants in the ERO Compliance and Enforcement Management Group (ECEMG) and the Registration and Certification Functional Group (RCFG), both of which are under the oversight of the ERO Executive Management Group, comprised of the chief executive officers of NERC and the eight Regional Entities.

As part of this initiative, the ECEMG was asked to provide a review of the Regional Entity registration practices. A summary of the observations is below:

1. The majority of the Regional Entities use the Registry Criteria to determine materiality. If the entity meets the Registry Criteria, it will be registered and considered material. Some Regional Entities invoke the footnote in Registry Criteria that allows registration of an entity if it is material to the reliability of the BPS, even if it does not meet Registry Criteria.
2. Most Regional Entities have developed internal procedures to implement registration, based on the Registry Criteria. However, some Regional Entities use the Registration Criteria to determine registration candidates and then apply a material or risk "assessment."

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<sup>16</sup> See <http://www.nerc.com/pa/comp/Pages/Registration-and-Certification.aspx>.

3. There is no consistency among Regional Entities in defining “materiality.” A major objective should be to develop a consistent approach, for use by all Regional Entities, to determine an entity’s material impact on BPS reliability.

### Functional Model

Users, owners and operators of the BPS are registered by the function they perform, based upon the Functional Model. An entity is registered by function to comply with specific Reliability Standards, because the “Applicability” section of each Reliability Standard is based on the functional approach. However, there are some exceptions (e.g., based on facility characteristics such as radial lines 200 kV and above as called for in FAC-003). Unless an entity is registered for the function to which a Reliability Standard requirement is applicable, it is not responsible for compliance with that requirement.

Fifteen function types are included in the Registry Criteria. These include Balancing Authorities (BAs), DPs, Generator Owners (GOs), Generator Operators (GOPs), Interchange Authorities (IAs), LSEs, Planning Authorities (PAs)/Planning Coordinators (PCs), Purchasing-Selling Entities (PSEs), Reliability Coordinators (RCs), Transmission Planners (TPs), Transmission Owners (TOs), Transmission Operators (TOPs), Resource Planners (RPs), Reserve Sharing Groups (RSGs) and Transmission Service Provider (TSPs). User roles, include but are not limited to, DPs, LSEs, IAs and PSEs. Once registered for a function, entities are generally subject to the full set of Reliability Standards applicable to that function.

### Thresholds

NERC’s Registration program uses threshold criteria to determine if an entity meets a functional category and qualifies for registration. A user, owner or operator of the BES is considered a user, owner and operator of the BPS. Currently, an entity that meets the threshold criteria is deemed to have a material impact on the reliability of the BPS and thus may be registered, unless a Regional Entity determines otherwise. The NERC Rules of Procedure, and specifically the Registry Criteria in Appendix 5B,<sup>18</sup> provide the flexibility needed to register the appropriate organizations and subject them to applicable Reliability Standard requirements. The Registry Criteria provides for registration of an entity based on a material impact assessment even if it does not satisfy the threshold criteria, and for declining to register an entity that satisfies the threshold criteria based on a determination of lack of material impact. Notwithstanding this flexibility, implementation of the Registration program generally has led to a one-size-fits-all approach for identification of candidates for registration and related Reliability Standard applicability.<sup>19</sup> Inconsistencies in application also appear because terms are not be consistently defined or evaluated in the same way across the Regional Entities.

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<sup>18</sup> See Registry Criteria at p. 11, “Notes to the above Criteria,” Item number 1.

<sup>19</sup> For example, an entity that owns only a single BES 115 kV line or substation cannot specify realistic voltage schedules for generators in accordance with VAR-001 R4 when it is between two neighbors with disparate voltage schedules on their systems; the voltage schedule will be driven by larger neighboring system(s) with a wide-area view and responsibility for BES operations, not the small entity operating limited transmission facilities. Another example is that a small TOP without a wide-area view should not be setting System Operating Limits.

## Reliability Standard Applicability

Once registered for a function, an entity is subject to the full set of Reliability Standards applicable to that function. There are a few exceptions, such as a technical or physical limitation (e.g., the entity does not have the asset subject to the Reliability Standard requirement such as SPS, Blackstart units, etc., or has an approved Technical Feasibility Exception, etc.).

However, this approach may result in implementation of the Registration program in a manner that does not take the size and scope of entities, and their role in BES reliability, into account in determinations as to registration and Reliability Standard applicability.

In Order No. 693,<sup>20</sup> and as part of its approval of the revised BES Definition,<sup>21</sup> FERC has encouraged Registered Entities to work with NERC and Regional Entities to determine if a sub-list of Reliability Standard requirements should be applicable to its respective registration. In some limited situations, NERC and the Regional Entities have tailored Reliability Standard requirement applicability for certain functional categories, such that the entity is not automatically subjected to the full scope of standard requirements otherwise applicable to a particular function.<sup>22</sup> This experience has shown that appropriately scoped registration better serves reliability, as it allows entities to increase their focus on their specific reliability and operational obligations, as appropriate to the reliability risk they impose. In addition, NERC's GO/TO project, which led to Order No. 785, "Generator Requirements at the Transmission Interface," demonstrated that this approach can be effective in addressing a class of Registered Entities, as well as on an individual basis.

## Registration Types

Once the functional type is identified, there are four categories of entity registration:

1. First, in an Individual Registration scenario, an entity is registered on the NCR for one or more specific functions, and that individual entity accepts full compliance responsibility and accountability regarding Reliability Standard requirements associated with those specific functions.
2. Second, in a Joint Registration Organization (JRO) scenario, an entity registers on behalf of one or more of its members or related entities for one or more functions for which its members or related entities would otherwise be required to register, in accordance with Section 507 of the NERC Rules of Procedure. In this case, the registered entity accepts full compliance responsibility and accountability regarding Reliability Standards associated with those functions.
3. Third, Section 508 of the NERC Rules of Procedure allows two or more entities to register using a Coordinated Functional Registration (CFR). In this case, both entities are registered for one or more applicable function(s) and each is assigned respective responsibility for Reliability Standard requirements applicable to those functions. In a CFR, each registered entity accepts full compliance responsibility and accountability regarding Reliability Standards associated with those functions as listed in the CFR.
4. Finally, entities may be registered as a "concurrent registration" or "co-registration." A concurrent registration may be used when two entities meet the requirements for registration individually and may have an existing arrangement, agreement or contract that assigns responsibility for taking certain reliability actions, but the entities have not entered into a JRO or CFR. In this circumstance, NERC has the ability to register both entities for the same function, and may enforce noncompliance by either or both entities for failure to take the required reliability actions.

<sup>20</sup> *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242, *order on reh'g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

<sup>21</sup> Order Approving Revised Definition, 146 FERC ¶ 61,199 (2014).

<sup>22</sup> See, e.g., *Cedar Creek Wind Energy, LLC*, 139 FERC ¶ 61,214 (2012).

The functional registration of an entity does not preclude it from delegating activities and tasks related to compliance to third parties. In such cases, only the entity that appears on the NCR are held accountable for compliance with applicable Reliability Standards.

**Multi-Regional Registered Entity (MRRE)**

MRRE is not a formal registration process. NERC and the Regional Entities are separately addressing compliance monitoring and enforcement activities for entities registered in more than one Regional Entity footprint. In some enforcement situations, the Regional Entities have worked together to identify a lead region, such that one of the respective Regional Entities has led enforcement efforts for a given MRRE.

## Appendix C – BES Definition

“Bulk Electric System” or “BES” means unless modified by the lists shown below, all Transmission Elements operated at 100 kV or higher and Real Power and Reactive Power resources connected at 100 kV or higher. This does not include facilities used in the local distribution of electric energy.

### Inclusions:

- **I1** - Transformers with the primary terminal and at least one secondary terminal operated at 100 kV or higher unless excluded by application of Exclusion E1 or E3.
- **I2** - Generating resource(s) including the generator terminals through the high-side of the step-up transformer(s) connected at a voltage of 100 kV or above with:
  - a) Gross individual nameplate rating greater than 20 MVA. Or,
  - b) Gross plant/facility aggregate nameplate rating greater than 75 MVA.
- **I3** - Blackstart Resources identified in the Transmission Operator’s restoration plan.
- **I4** - Dispersed power producing resources that aggregate to a total capacity greater than 75 MVA (gross nameplate rating), and that are connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage of 100 kV or above. Thus, the facilities designated as BES are:
  - a) The individual resources, and
  - b) The system designed primarily for delivering capacity from the point where those resources aggregate to greater than 75 MVA to a common point of connection at a voltage of 100 kV or above.
- **I5** - Static or dynamic devices (excluding generators) dedicated to supplying or absorbing Reactive Power that are connected at 100 kV or higher, or through a dedicated transformer with a high-side voltage of 100 kV or higher, or through a transformer that is designated in Inclusion I1 unless excluded by application of Exclusion E4.

### Exclusions:

- **E1** - Radial systems: A group of contiguous transmission Elements that emanates from a single point of connection of 100 kV or higher and:
  - a) Only serves Load. Or,
  - b) Only includes generation resources, not identified in Inclusion I2, I3, or I4, with an aggregate capacity less than or equal to 75 MVA (gross nameplate rating). Or,
  - c) Where the radial system serves Load and includes generation resources, not identified in Inclusions I2, I3 or I4, with an aggregate capacity of non-retail generation less than or equal to 75 MVA (gross nameplate rating).

Note 1 – A normally open switching device between radial systems, as depicted on prints or one-line diagrams for example, does not affect this exclusion.

Note 2 – The presence of a contiguous loop, operated at a voltage level of 50 kV or less, between configurations being considered as radial systems, does not affect this exclusion.

- **E2** - A generating unit or multiple generating units on the customer’s side of the retail meter that serve all or part of the retail Load with electric energy if: (i) the net capacity provided to the BES does not exceed 75 MVA, and (ii) standby, back-up, and maintenance power services are provided to the generating unit

*or multiple generating units or to the retail Load by a Balancing Authority, or provided pursuant to a binding obligation with a Generator Owner or Generator Operator, or under terms approved by the applicable regulatory authority.*

- **E3** - *Local networks (LN): A group of contiguous transmission Elements operated at less than 300 kV that distribute power to Load rather than transfer bulk power across the interconnected system. LN's emanate from multiple points of connection at 100 kV or higher to improve the level of service to retail customers and not to accommodate bulk power transfer across the interconnected system. The LN is characterized by all of the following:*
  - a) *Limits on connected generation: The LN and its underlying Elements do not include generation resources identified in Inclusions I2, I3, or I4 and do not have an aggregate capacity of non-retail generation greater than 75 MVA (gross nameplate rating);*
  - b) *Real Power flows only into the LN and the LN does not transfer energy originating outside the LN for delivery through the LN; and*
  - c) *Not part of a Flowgate or transfer path: The LN does not contain any part of a permanent Flowgate in the Eastern Interconnection, a major transfer path within the Western Interconnection, or a comparable monitored Facility in the ERCOT or Quebec Interconnections, and is not a monitored Facility included in an Interconnection Reliability Operating Limit (IROL).*
- **E4** - *Reactive Power devices installed for the sole benefit of a retail customer(s).*

*Note - Elements may be included or excluded on a case-by-case basis through the Rules of Procedure exception process.*