

Conference Call Agenda Project 2014-01 Standards Applicability for Dispersed Generation Resources Standards Drafting Team

February 7, 2014 | 4:00 p.m. to 5:00 p.m. Eastern

Dial-in: 866.740.1260 | Access Code: 4458510 | Security Code: 1979

Administrative

1. **Review NERC Antitrust Compliance Guidelines and Public Announcement***
2. **Participant Conduct Policy***
3. **Email List Policy***
4. **Review Meeting Agenda and Objectives**

Agenda Items

1. **Introductions and Expectations**
2. **Review Project Scope and Timeline**
 - a. Implement Standard Authorization Request
 - i. Review SAR and comments
 - ii. Review GO/GOP standards for inclusion
 - iii. Consider NERC white paper and other resources
 - iv. Receive feedback from BES SDT members and other forums
 - v. Develop DGR position paper including grouping of potential standard revisions for posting
 - vi. Consider industry comments
3. **Next Steps**
 - a. SDT members review NERC position paper
 - b. Finalize GO/GOP standard list to inclusion
 - c. Prioritize or group potential standard revisions
 - a. Request NERC use CEAP or ask for cost data from NAGF

- d. Develop individual recommendations on implementing the SAR
4. **Discuss Future Meeting and Action Dates**
- b. Conference call on February 19, 20, and/or 21, 2014
 - c. SDT meeting in Atlanta on March 10-12, 2014
 - d. Conference call on March 21 or 28, 2014
 - e. Post DGR SDT position paper in March 2014
 - f. Industry webinar in April or May 2014
 - g. Future SDT meeting dates and locations to be determined (expect at least 3-4)
5. **Adjourn**

*Background materials included.

Team Roster

Project 2014-01 Standards Applicability for Dispersed Generation Resources Standards Drafting Team

	Participant	Entity
Chair	Tony Jankowski	We Energies
Vice Chair	Tom Pruitt	Duke Energy
Member	David Belanger	Exelon Generation
Member	George Brown	Acciona Energy North America
Member	Stephen Enyeart	Bonneville Power Administration
Member	Brian Evans-Mongeon	Utility Services, Inc.
Member	Jessie Nevarez	Terra-Gen Operating Company
Member	Jeffrey Plew	NextEra Energy Resources
Member	Dana Showalter	E.ON Climate & Renewables
Member	Randhir Singh	PSEG Fossil
Member	Eric White	MidAmerican Energy
NERC Staff	Sean Cavote (Lead Standards Developer)	NERC
NERC Staff	Ryan Stewart (Supporting Standards Developer)	NERC
NERC Staff	Laura Hussey (Director of Standards Development)	NERC
PMOS	Gary Kruempel	MidAmerican Energy Company
FERC		

Standards Authorization Request Form

When completed, please email this form to:
sarcomm@nerc.com

NERC welcomes suggestions to improve the reliability of the bulk power system through improved reliability standards. Please use this form to submit your request to propose a new or a revision to a NERC's Reliability Standard.

Request to propose a new or a revision to a Reliability Standard

Title of Proposed Standard:	Application of certain GO/GOP Reliability Standards and Requirements to Dispersed Generation		
Date Submitted:	10/1/2013		
SAR Requester Information			
Name:	Jennifer Sterling-Exelon, Gary Kruempel-MidAmerican, Allen Schriver-NextEra Energy, Inc., Brian Evans-Mongeon-Utility Services Inc.		
Organization:	Exelon, MidAmerican, NextEra Energy, Utility Services Inc.		
Telephone:	(630) 437-2764 – primary contact	E-mail:	jennifer.sterling@exeloncorp.com primary contact
SAR Type (Check as many as applicable)			
<input type="checkbox"/>	New Standard	<input type="checkbox"/>	Withdrawal of existing Standard
<input checked="" type="checkbox"/>	Revision to existing Standard	<input type="checkbox"/>	Urgent Action

SAR Information

Industry Need (What is the industry problem this request is trying to solve?):

The industry is requesting that the application section of certain GO/GOP Reliability Standards or the requirements of certain GO/GOP Reliability Standards be revised in order to ensure that the Reliability Standards are not imposing requirements on dispersed generation that are unnecessary and/or counterproductive to the reliable operation of the Bulk Electric System (BES). For purposes of this SAR, dispersed generation are those resources that aggregate to a total capacity greater than 75 MVA (gross

SAR Information

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.

This request is related to the proposed new definition of the Bulk Electric System (BES) from Project 2010-17, that results in the identification of elements of new dispersed generation facilities that if included under certain Reliability Standards may result in a detriment to reliability or be technically unsound and not useful to the support of the reliable operation of the BES .

Purpose or Goal (How does this request propose to address the problem described above?):

The goal of the request is to revise the applicability of GO/GOP Reliability Standards or the Requirement(s) of GO/GOP Reliability Standards to recognize the unique technical and reliability aspects of dispersed generation, given the proposed new definition of the BES.

Identify the Objectives of the proposed standard’s requirements (What specific reliability deliverables are required to achieve the goal?):

The objective of the revisions to the applicability section and/or Requirements of certain GO/GOP Reliability Standards is to ensure that these revisions are approved by the Board of Trustees and applicable regulatory agencies prior to the effective date for newly identified elements under the proposed BES definition (i.e., June 2016).

Brief Description (Provide a paragraph that describes the scope of this standard action.)

The scope of this SAR involves revisions to the applicability section of the following GO/GOP Reliability Standard applicability sections and/or Reliability Standard Requirements: (a) PRC-005-2 (-3); (b) FAC-008-3; (c) PRC-023-3/PRC-025-1; (d) PRC-004-2a (-3) ; and (e) VAR-002-2 so it is clear what, if any, requirements should apply to dispersed generation. Also, IRO,MOD, PRC or TOP Standards that require outage and protection and control coordination, planning, next day study or real time data or reporting of changes in real and reactive capability should be examined and revised, as needed, to ensure it is clear that these activities and reporting are conducted at the point of aggregation to 75 MVA, and not at an individual turbine, inverter or unit level for dispersed generation. This scope would also include development of a technical guidance paper for standard drafting teams developing new or revised Standards, so that they do not incorrectly apply requirements to dispersed generation unless such an application is technically sound and promotes the reliable operation of the BES.

To the extent, there are existing Reliability Standard Drafting Teams that have the expertise and can make the requested changes prior to the compliance date of newly identified assets under the BES definition (i.e., June 2016), those projects may be assigned the required changes as opposed to creating new projects.

SAR Information

Detailed Description (Provide a description of the proposed project with sufficient details for the standard drafting team to execute the SAR. Also provide a justification for the development or revision of the standard, including an assessment of the reliability and market interface impacts of implementing or not implementing the standard action.)

The following description and technical justification(including an assessment of reliability impacts) is provided for the standard drafting teams to execute the SAR for each applicable Standard.

PRC-005-2

Testing and maintenance of protection and control equipment for dispersed generation should start at the point of aggregation to 75 MVA. Manufacturers of dispersed generation turbines and solar panels recommend against specific testing and maintenance regimes for protection and control equipment at the dispersed generation turbine and panel level. In fact it is counterproductive to implement protection and control at the individual turbine, solar panel, or unit level. Instead this is best done at an aggregated level. Therefore, PRC-005 should indicate that the standard applies at the point of aggregation to at 75 MVA or greater for dispersed generation. This change would clarify that the facility section 4.2.5.3 is the section that would apply to dispersed generating facilities and that the remaining sections would not apply.

FAC-008-3

For dispersed generation, it is unclear if in FAC-008-3 the term “main step up transformer” refers to the padmount transformer at the base of the windmill tower or to the main aggregating transformer that steps up voltage to transmission system voltage. From a technical standpoint, it should be the point of aggregation at 75 MVA or above that is subject to this standard for dispersed generation, such as wind. It is at the point of aggregation at 75 MVA or above that facilities ratings should start, since it is this injection point at which a planner or operator of the system is relying on the amount of megawatts the dispersed generation is providing with consideration of the most limiting element. To require facility ratings at for each dispersed turbine, panel or generating unit is not useful to a planner or operator of the system, and, therefore, FAC-008-3 should be revised to be clear that facility ratings start at the point of aggregation at 75 MVA or above for dispersed generation.

SAR Information

Also consider that the BES definition specifically excludes collector system equipment at less than 75 MVA from being included in the BES. Thus, those portions of the collector systems that handle less than 75 MVA are not BES "Facilities," and, therefore, need not be evaluated per R1 or R2. Given this, there seems to be no technical value to conduct facility ratings for individual dispersed generation turbines, generating units and panels.

PRC-023-3/PRC-025-1

In keeping with the registration criteria for Generator Owners as well as the proposed BES Definition, the 75MVA point of aggregation should be the starting point for application of relay loadability requirements.

PRC-004-2

There is no technical basis to claim that misoperation analysis, corrective action plan implementation and reporting for dispersed generation at the turbine, generating unit or panel level is needed for the reliable operation of the BES. Similar to the statements above, the appropriate point to require misoperation analysis, corrective action plan implementation and reporting is at the point of aggregation at 75 MVA and above.

VAR-002-2

Voltage control for some types of dispersed generating facilities is accomplished by a controller that is able to adjust either generating unit controls or discrete reactive components to provide transmission system voltage adjustment. The VAR-002 standard should be modified to allow this type of control for dispersed generation facilities under the requirements of the standard.

General review of IROs, MODs, PRCs, TOPs

IRO, MOD, PRC or TOP Standards that require outage and protection and control coordination, planning, next day study or real time data or reporting of changes in real and reactive capability should be examined and revised, as needed, to ensure it is clear that these activities are conducted at the point of aggregation at 75 MVA, and not an individual turbine, generating unit or panel level for dispersed generation. Unless this clarity is provided applicability at a finer level of granularity related to dispersed generation may be seen as required and such granularity will result in activities that have no benefit to

Standards Authorization Request Form

SAR Information

reliable operation of the BES. Furthermore applicability at a finer level of granularity will result in unneeded and ineffective collection, analysis, and reporting activities that may result in a detriment to reliability.

Reliability Functions

The Standard will Apply to the Following Functions (Check each one that applies.)

<input type="checkbox"/> Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator’s wide area view.
<input type="checkbox"/> Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
<input type="checkbox"/> Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
<input type="checkbox"/> Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
<input type="checkbox"/> Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
<input type="checkbox"/> Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
<input type="checkbox"/> Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
<input type="checkbox"/> Transmission Owner	Owns and maintains transmission facilities.
<input type="checkbox"/> Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.

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Reliability Functions	
<input type="checkbox"/> Distribution Provider	Delivers electrical energy to the End-use customer.
<input checked="" type="checkbox"/> Generator Owner	Owns and maintains generation facilities.
<input checked="" type="checkbox"/> Generator Operator	Operates generation unit(s) to provide real and reactive power.
<input type="checkbox"/> Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
<input type="checkbox"/> Market Operator	Interface point for reliability functions with commercial functions.
<input type="checkbox"/> Load-Serving Entity	Secures energy and transmission service (and reliability-related services) to serve the End-use Customer.

Reliability and Market Interface Principles	
Applicable Reliability Principles (Check all that apply).	
<input checked="" type="checkbox"/>	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
<input type="checkbox"/>	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
<input checked="" type="checkbox"/>	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
<input type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
<input checked="" type="checkbox"/>	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
<input type="checkbox"/>	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
<input type="checkbox"/>	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
<input type="checkbox"/>	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles?	
Enter (yes/no)	
1. A reliability standard shall not give any market participant an unfair competitive advantage.	Yes

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Reliability and Market Interface Principles	
2. A reliability standard shall neither mandate nor prohibit any specific market structure.	Yes
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard.	Yes
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.	Yes

Related Standards	
Standard No.	Explanation
PRC-005-2, FAC-008-3, PRC-023-3/PRC-025-1/PRC-004-2a, VAR-002-2b and various IRO, MOD, PRC and TOP Standards	See explanation under technical analysis.

Related SARs	
SAR ID	Explanation
	N/A

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Related SARs	

Regional Variances	
Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
RFC	
SERC	
SPP	
WECC	

Individual or group. (28 Responses)
 Name (17 Responses)
 Organization (17 Responses)
 Group Name (11 Responses)
 Lead Contact (11 Responses)

IF YOU WISH TO EXPRESS SUPPORT FOR ANOTHER ENTITY'S COMMENTS WITHOUT ENTERING ANY ADDITIONAL COMMENTS, YOU MAY DO SO HERE. (1 Responses)

Comments (28 Responses)
 Question 1 (27 Responses)
 Question 1 Comments (27 Responses)
 Question 2 (24 Responses)
 Question 2 Comments (27 Responses)
 Question 3 (0 Responses)
 Question 3 Comments (27 Responses)
 Question 4 (0 Responses)
 Question 4 Comments (27 Responses)
 Question 5 (0 Responses)
 Question 5 Comments (27 Responses)
 Question 6 (0 Responses)
 Question 6 Comments (27 Responses)

Group
Caithness Shepherds Flat, LLC
Jeffrey Delgado
Yes
Yes
Caithness Shepherds Flat Wind Farm (CSF), located in Oregon, supports the SAR as written and believes the scope should address dispersed generation resources with collector systems only. In the development of CSF's NERC compliance program, it became apparent that some GO/GOP applicable Reliability Standards were written with fossil fuel facilities in mind, and not generation resources such as wind. The VAR-002 standard for example, requiring reactive and voltage control of individual generators and notification of the TOP when there is a change in status, would appear to be irrelevant to the TOP, but rather the aggregate MW output at the point of interconnection should be what is relevant. CSF's wind farm consists of several hundred wind turbines, all < 3 MW in nameplate capacity. The TOP does not need to be notified about individual turbine voltage status, as any loss of voltage control of an individual turbine will not be detected by the TOP. The relevant factor is in the voltage at the point of interconnection which is controlled by a "Wind Farm Management System" WFMS voltage control system. Change in status of the WFMS would be of interest to the TOP, so the standard should allow for this variance.
Yes
No
No
No
Group
Arizona Public Service Company
Janet Smith, Regulatory Affairs Supervisor
Yes
No

Scope should be expanded to include all small generators regardless of types. There is no specific reason to not include all. Generally, there is little reliability benefits to BES by applying NERC standards to small generators regardless of the type.
Yes
No
No
No
Group
SPP Standards Review Group
Robert Rhodes
Yes
No
We believe that this evaluation should be extended to all small generation regardless of type because the impact on the BES would be the same regardless of the source or prime mover of the generation.
While we may agree with the list of standards as presented in the SAR we would encourage the SAR drafting team to not limit itself to just those particular standards. For example, once a drafting team is established and work begins on the project, we don't want the project to be limited by the scope as currently defined in the SAR. We need to factor in some flexibility to go beyond this specific list to capture all those standards/requirements/definitions which may be impacted in this review.
Not at this time.
Although we are not aware of any specific federal regulatory requirements, the drafting team needs to keep in mind that there may be state regulatory requirements established for dispersed generation that may need to be considered in this project.
Regarding the July 2016 deadline, the drafting team needs to be sure that this effort is complete in time for the industry to be ready by July 2016. We need to be sure that as the deadline approaches, compliance preparations aren't made and then un-made as a result of a modification to an existing standard which is impacted by this effort. In the 1st line of the 1st paragraph of the Industry Need section under SAR Information, we suggest replacing 'application' with 'applicability'. In the 5th line of the 1st paragraph of the Brief Description section under SAR Information, replace 'real time' with 'Real-time', the NERC Glossary term. In the 1st line of the FAC-008-3 paragraph under SAR Information, hyphenate step-up. In the next to last line of the General review of IROs, MODs, PRCs, TOPs paragraph, change 'unneeded' to 'unnecessary'.
Group
Northeast Power Coordinating Council
Guy Zito
Yes
Yes.
No.
Yes. It must be considered that the operating system in Quebec follows chapter R-6.01 An Act Respecting the Regie de L'Energie, which details: (1) an owner or operator of a facility with a capacity of 44 kV or more connected to an electric power transmission system; (2) an owner or operator of an electric power transmission system; (3) an owner or operator of a production facility with a capacity of 50 megavolt amperes (MVA) or more connected to an electric power transmission system; (4) a distributor with a peak capacity of over 25 megawatts (MW), whose facilities are connected to an electric power transmission system; and (5) a person who uses an electric power transmission system under an electric power transmission service agreement with the electric power carrier or with any other carrier in Québec.

No.
Individual
Thomas Foltz
American Electric Power
Yes
AEP would prefer that the solution for applicability of dispersed generation at the turbine or generating unit level would be by adjusting the BES definition accordingly. Creating a new SAR, allowing this topic be discussed within the framework of the BES definition itself, would seem the most direct and efficient way of debating the topic. However, if that cannot be accomplished, AEP supports the effort of this SAR as an alternative (though less desirable) means to accomplish the same goal.
No
We believe it is preferable, at least initially, for the scope to remain limited to dispersed generation resources.
Every standard that involves the GO and/or GOP should be included in the scope of the SAR. This does not imply that all standards should be modified, but the SDT and commenters should be afforded the opportunity to consider the impacts of such changes. For example, PRC-024, PRC-001, CIP-002 through CIP-011, etc. should be considered.
No.
No.
No.
Individual
Shirley Mayadewi
Manitoba Hydro
Yes
Yes
No
No
Although we do not have any concerns with this SAR, we have the following suggestions to improve clarity. (1) Industry Need - remove the words "Bulk Electric System" from the second paragraph to leave only the acronym, BES because this is the second instance of BES in the document. (2) SAR Information - capitalize 'misoperation' because it appears in the Glossary of Terms.
Individual
Patricia Metro
National Rural Electric Cooperative Association
No
NRECA does not believe this SAR is necessary. If entities with dispersed generation are registered as a Generator Owner (GO)/Generator Operator (GOP), it is the obligation of the registered entity to determine applicable standards and associated requirements and be able to explain how it complies accordingly. There is no need to modify the applicability of standards to specifically recognize dispersed generation as there is no recognizable reliability gap with the existing applicability of the standards included in this SAR.
No
See response to Question 1
See response to Question 1

Individual
David Jendras
Ameren
Yes
(1) The proposed SAR appears to advocate the GSU as the Element within these standards' applicability, which appears reasonable for a SAR. However, we believe that this conflicts with the BES Definition Phase 2 Reference figures. Our expectation is that the BES Definition would be included in the scope of this SAR.
Yes
Yes, we agree.
(1) Apply the Generator Site Boundary used in the BES Definition Reference (e.g. Figure I2-5) consistently for dispersed generation so that multiple GSU do not circumvent the 75MVA aggregate. (2) Develop a NERC Glossary definition for the term 'dispersed generation'.
Individual
Silvia Parada Mitchell
NextEra Energy
Agree
MidAmerican
Individual
Jonathan Meyer
Idaho Power
No
The BES definition in process has addressed the concerns raised in the SAR (in our opinion). Application of Standards applies to BES elements unless specifically excluded.
No
I see no need for a SAR.
No
N/A
N/A
Individual
Alice Ireland
Xcel Energy
Yes
We strongly support the objective of this SAR.
We believe that in addition to the approved standards mentioned in the SAR, NERC should communicate this issue directly to drafting teams working on active projects such as PRC-004-3 or PRC-027-1 to assure that they consider the applicability of their standard relative to dispersed generation and, if it is intended to include dispersed generation as in scope, to assure that correct terminology is used within their draft standard to avoid ambiguity and inconsistencies such as the SAR discusses for use of the term "main step up transformer" in FAC-008-3.

Individual

John Seelke

Public Service Enterprise Group

No

The SAR relies upon the phase 2 BES definition, as recently approved by the ballot body, but which has yet to be approved by the NERC Board or FERC. Under this definition, traditional generators at a site that exceed 75 MVA in aggregate as well as the all the equipment from terminals of each generator to the connection point with the BES are included in BES. Dispersed generators are treated differently. The individual dispersed generators are part of the BES if they are at a site where their aggregate nameplate capacity exceeds 75 MVA and they are connected to the BES; however, only equipment that delivers capacity from the point where those resources aggregate to greater than 75 MVA are included in the BES. Stated differently, traditional generators are contiguous with the BES, from the individual BES generators to their connection to the BES. Dispersed generators are not contiguous with the BES – the equipment that aggregate their output prior to it exceeding 75 MVA is excluded. These exclusions create a gap between dispersed BES generators and the BES they connect to. All generators should be treated comparably. The Eastern Interconnection Reliability Assessment Group (ERAG) manual supports our recommendation regarding inclusion equipment for dispersed generators. Wind farm modeling, as specified in the ERAG manual,

(<https://first.org/reliability/easterninterconnectionreliabilityassessmentgroup/mmwg/Documents/MMWG%20Procedure%20Manual%20V10.pdf>) requires a high level of detail – see p. 30, item 6, which states: “Wind Farms - Include all 34.5 kV collector bus(es) and the main facility step-up transformer(s) from 34.5 kV to transmission voltage, as well as one 0.600 kV (or whatever the wind generator nominal voltage is) level bus off each collector bus with a lumped generator and lumped GSU representing the aggregate of the wind turbines attached to that collector bus and their GSUs.” Thus, the ERAG manual requires modeling of non-BES Elements under phase 2 BES definition – see the BES Webinar slides nos. 5-7.

(http://www.nerc.com/pa/Stand/WebinarLibrary/bes_phase2_third_posting_20131010_webinar_final.pdf) Setting aside our phase 2 definition concerns, the SAR does not make a coherent technical case for any standards changes. As an example, the justification for a change in PRC-005-2 has contradicting statements: “Manufacturers of dispersed generation turbines and solar panels recommend against specific testing and maintenance regimes for protection and control equipment at the dispersed generation turbine and panel level. In fact it is counterproductive to implement protection and control at the individual turbine, solar panel, or unit level. Instead this is best done at an aggregated level.” In the first sentence, it appears that manufacturers install protection and control equipment at the “dispersed generation turbine and panel level,” yet the next sentence states that “it is counterproductive to implement protection and control at the individual turbine, solar panel, or unit level.” Which is it? During the balloting of PRC-005-2, no comments were submitted to the drafting team regarding the changes proposed in the SAR for PRC-005-2. Yet only a year after the final ballot on PRC-005-2, the SAR proposes changes to PRC-005-2 (and other standards) because the phase 2 definition, according to the SAR, would result in BES equipment at “dispersed generation facilities that if included under certain Reliability Standards may result in a detriment to reliability or be technically unsound and not useful to the support of the reliable operation of the BES.” We believe that dispersed generators will have less equipment, not more, under the proposed BES definition because of the excluded equipment under that definition. Finally, there has been no justification put forth that would justify different treatment of dispersed generation from traditional generation. See our remarks in questions 2 and 6 below.

No

As stated previously, “small generators” (traditional versus dispersed) are not treated comparably in the phase 2 definition – traditional BES generators must be contiguous with the BES but dispersed generators need not be. While we would welcome changes that provide for comparable treatment for small generators, regardless of type, the unequal treatment embedded in the phase 2 definition must be corrected before those changes are considered.

No comments
No comments
No comments
Section 303 of the NERC ROP addresses "Relationship between Reliability Standards and Competition." Item 1 states: "Competition — A Reliability Standard shall not give any market participant an unfair competitive advantage." By not treating all generators comparably, the SAR violates item 1. Based upon this and our prior comments, we recommend that the SAR be rejected by the Standards Committee.
Individual
Barbara Kedrowski
Wisconsin Electric Power Company
No
The SAR needs to include applicability to CIP-002-5, proposed for the identification of BES Cyber Assets and BES Cyber Systems. If individual wind turbines are included in the BES, those cyber assets which support their operation (monitoring and control functions local to each turbine) would become BES Cyber Systems subject to some level of compliance requirements of the CIP v5 standards. The SAR needs to include all the CIP version 5 standards, including CIP-010 and CIP-011. Additionally, these standards need to be listed: PRC-001/027 – Coordination for distributed resources needs to be accomplished with the collector system of the distributed resource, not with the transmission system. The collector system needs to be coordinated with the transmission system, however, the BES definition specifically excludes collector system equipment at less than 75 MVA from being included in the BES. PRC-024 – In most cases most distributed resources are many identical units. It would seem reasonable to document the relay data for one unit and then use it for many. PRC-019 – Voltage control for some types of dispersed generating facilities is accomplished by a controller that is able to adjust either generating unit controls or discrete reactive components to provide transmission system voltage adjustment. The PRC-019 standard should be modified to allow coordination with this type of control for dispersed generation facilities under the requirements of the standard. MOD 012/032 – In most cases most distributed resources are many identical units. It would seem reasonable to provide an example model of one resource and then use it for many. MOD 025 & 026 and 027 – In most cases most distributed resources are many identical units. It would seem reasonable to validate one unit and then use the results for many.
Response from Q1: The SAR needs to include applicability to CIP-002-5, proposed for the identification of BES Cyber Assets and BES Cyber Systems. If individual wind turbines are included in the BES, those cyber assets which support their operation (monitoring and control functions local to each turbine) would become BES Cyber Systems subject to some level of compliance requirements of the CIP v5 standards. The SAR needs to include all the CIP version 5 standards, including CIP-010 and CIP-011. Additionally, these standards need to be listed: PRC-001/027 – Coordination for distributed resources needs to be accomplished with the collector system of the distributed resource, not with the transmission system. The collector system needs to be coordinated with the transmission system, however, the BES definition specifically excludes collector system equipment at less than 75 MVA from being included in the BES. PRC-024 – In most cases most distributed resources are many identical units. It would seem reasonable to document the relay data for one unit and then use it for many. PRC-019 – Voltage control for some types of dispersed generating facilities is accomplished by a controller that is able to adjust either generating unit controls or discrete reactive components to provide transmission system voltage adjustment. The PRC-019 standard should be modified to allow coordination with this type of control for dispersed generation facilities under the requirements of the standard. MOD 012/032 – In most cases most distributed resources are many identical units. It would seem reasonable to provide an example model of one resource and then use it for many. MOD 025 & 026 and 027 – In most cases most distributed resources are many identical units. It would seem reasonable to validate one unit and then use the results for many.

Group
MRO NERC Standards Review Forum
Russel Mountjoy
Yes
The SAR indicates several standards that should be considered for modification for dispersed generating units. It also provides for examination of other standards that may need to be similarly modified to accommodate the unique aspects of dispersed generation. In addition the SAR provides an explanation of which types of generation are to be reviewed in this project and this explanation is appropriate to define the scope of the project.
Yes
The SAR does not specify what types of generation should be included for analysis as "dispersed generation resources. It only refers to those that are a part of a facility that aggregates to 75 MVA or more. As written the SAR is not limited to any particular type of small generation. Under the SAR all types could and should be considered for revision.
The SAR provides a list of several specific standards application to Generator Owners and/or Generator Operators that would be reviewed as part of the project. In addition it proposes a review of several project families (IRO,MOD, PRC and TOP) that would be examined. The specific list is recommended as proposed in the SAR and with the flexibility to review other standards the list as indicated is appropriate Consideration should be given to an addition to the Attachment in CIP-002 to add an item that would exclude components below the 75MVA aggregation point. The reasoning would be parallel to the other standards addressed in the SAR where the aggregation point would be identified as the point at which the standard would apply. For CIP the result would be that the components below the aggregation point would not have to be addressed, i.e. they would not be high, medium, or low.
The SAR includes the objective to complete the changes and obtain regulatory approval prior to the completion of the implementation of the BES definition. It is essential that this schedule is met so that dispersed generation owners and operators can plan and implement their compliance programs without having to temporarily implement requirements that will be superseded by this project.
Individual
Chris Scanlon
Exelon
Yes
The SAR indicates several standards that should be considered for modification for dispersed generating units. It also provides for examination of other standards that may need to be similarly modified to accommodate the unique aspects of dispersed generation. In addition the SAR provides an explanation of which types of generation are to be reviewed in this project and this explanation is appropriate to define the scope of the project.
Yes
Yes, the SAR should focus on generation resources that are part of a facility that aggregates dispersed resources at 75 MVA or more. We believe the intent is to exclude individual units from certain requirements when those units do not meet the reporting criteria but are part of a facility that aggregates those units at the BES voltage level. We note that the question may lead to confusion. As written the use of "or" appears to be implying there is a choice between "dispersed generation" as used in the first clause of the question and some generation "types" (undefined but commonly understood to refer to fuel source) as used in the second clause. We do not believe the SAR should exclude generation based on fuel type.
The SAR provides a list of several specific standards application to Generator Owners and/or Generator Operators that would be reviewed as part of the project. In addition it proposes a review of several project families (IRO,MOD, PRC and TOP) that would be examined. The specific list is

recommended as proposed in the SAR and with the flexibility to review other standards the list as indicated is appropriate.

No

No

The SAR includes the objective to complete the changes and obtain regulatory approval prior to the completion of the implementation of the BES definition. It is essential that this schedule is met so that dispersed generation owners and operators can plan and implement their compliance programs without having to temporarily implement requirements that will be superseded by this project.

Individual

David Greyerbiehl

Consumers Energy Company

Yes

Yes

Yes

The SAR is required at a minimum, but a change to the BES definition is more appropriate. From the comments below submitted during the BES, the BES definition should at minimum be modified to provide consistency between generating resources (12) and dispersed power producing resources (14). Generating resources are required to be 20MVA in order to be considered an BES element, while dispersed power producing resources have no size consideration as long as they meet the net total MVA. Consumers Energy has completed studies with an operating wind farms and the loss of individual resources makes no impact the BES. The addition of individual resources does not make improve reliability as they have no effect on the system. The SAR intention is to modify the individual standards to define the requirements for all the additional BES elements that are being added that are not presently addressed in the standards or are against the manufacturers recommendations. While this approach can be used, and is required if the BES definition is not changed. A better method would be to include dispersed power producing resources at a point in which the total affects the BES and not as individual units. Previous Comments on BES definition: The inclusion and the clarification of the inclusion seem to contradict each other. The highlight portion above seems to indicate inclusion only from the point of aggregation of 75MVA or above. This, in most Wind Park cases would include a collector bus but probably not individual wind turbines. However I4 seems to indicate that the case of a Wind Park that has a total aggregation of 75 MVA, all associated equipment including every individual wild turbine would be included. There is inconsistency. If and when Distributed Generation gains saturation is it our intent that whole neighborhoods or industrial parks be considered BES resources? Technical justification should be needed to include resources in the BES, not the other way around. Is there a real expectation that a single collector circuit containing ten, 1.2MW wind turbines can cause cascading or uncontrollable outages of the surrounding system? It is extremely doubtful. We can support the inclusion of equipment where the aggregation of 75 MVA or more connects to the Bulk Electric System at voltages of 100kv or greater. There is a clear indication here that a single contingency can remove the total of the capacity from the system where with this definition as proposed, that is simply not the case.

No

No

Group

ISO/RTO Council Standards Review Committee

Greg Campoli

Yes

Yes

Small generators that do not meet the individual 20 MVA criteria and are not part of the aggregated 75 MVA group that meets the BES inclusion criteria are not regarded BES facilities and therefore do not need to be addressed by this SAR. The scope therefore does not need to be expanded to all small generators.
Yes
No
No
No
Individual
Gary Kruempel
MidAmerican Energy Company
These comments were developed by NextERA (contact Brian Murhpy), MidAmerican, and Exelon
Yes
The SAR indicates several standards that should be considered for modification for dispersed generating units. It also provides for examination of other standards that may need to be similarly modified to accommodate the unique aspects of dispersed generation. In addition the SAR provides an explanation of which types of generation are to be reviewed in this project and this explanation is appropriate to define the scope of the project.
Yes
The SAR does not specify what types of generation should be included for analysis as "dispersed generation resources. It only refers to those that are a part of a facility that aggregates to 75 MVA or more. As written the SAR is not limited to any particular type of small generation. Under the SAR all types could and should be considered for revision.
The SAR provides a list of several specific standards application to Generator Owners and/or Generator Operators that would be reviewed as part of the project. In addition it proposes a review of several project families (IRO,MOD, PRC and TOP) that would be examined. The specific list is recommended as proposed in the SAR and with the flexibility to review other standards the list as indicated is appropriate Consideration should be given to an addition to the Attachment in CIP-002 to add an item that would exclude components below the 75MVA aggregation point. The reasoning would be parallel to the other standards addressed in the SAR where the aggregation point would be identified as the point at which the standard would apply. For CIP the result would be that the components below the aggregation point would not have to be addressed, i.e. they would not be high, medium, or low.
No
No
The SAR includes the objective to complete the changes and obtain regulatory approval prior to the completion of the implementation of the BES definition. It is essential that this schedule is met so that dispersed generation owners and operators can plan and implement their compliance programs without having to temporarily implement requirements that will be superseded by this project.
Individual
Bill Fowler
City of Tallahassee (TAL)
Yes
Should the 75MVA be differentiated for Solar PV and other generating units that have both a DC and AC rating?
Yes
Dispersed generation should include intermittent power sources such as wind and solar, but also non-intermittent such as WTE, biogas and biomass generation sources.
yes
No. The City of Tallahassee is not aware of other business practices to be included.
No. The City of Tallahassee is not aware of such.

No.
Group
ACES Standards Collaborators
Ben Engelby
Yes
We find this SAR timely and necessary to avoid confusion in the application of the revised definition of the Bulk Electric System.
No
No, we do not agree that the scope of the SAR should be limited. The scope of the SAR should be to review standards applicable to GO/GOP and to limit the applicability based on the revised definition of the BES. Small generation regardless of type should be included in this review.
We agree with the list of standards to be reviewed. We would like to see flexibility in the scope of standards to be reviewed in the event that another standard is added during the standards development phase.
No.
No.
No other concerns.
Group
Duke Energy
Michael Lowman
Yes
Yes
(1) Duke Energy agrees that the scope of the SAR should be limited to Disperse Generation only.
(1) PRC-004-WECC-1 should also be included in this SAR with the same justification provided for the NERC Standard PRC-004-2
(1) Duke Energy is concerned that Dispersed Generation will have to be compliant with the BES definition Phase 1 prior to the Implementation of this Project and the implementation of Phase 2 of the BES definition. (2) Financial implications to registered entities should be considered and included in the Industry Need section of the SAR such as additional human resources required to maintain compliance if the standards are not revised for the applicability of dispersed generation resources at the point of aggregation to 75 MVA or greater.
Group
DTE Electric
Kathleen Black
Yes
Yes
Yes As stated in the background information, any relevant standard should be revised as necessary to insure that it is being applied at the point of aggregation.
No
No
No
Individual

Scott Langston
City of Tallahassee
Yes
Should the 75MVA be differentiated for Solar PV and other generating units that have both a DC and AC rating?
Yes
Dispersed generation should include intermittent power sources such as wind and solar, but also non-intermittent such as WTE, biogas and biomass generation sources.
Yes
No
No
No
Individual
Carla L. Holly
BP Wind Energy North America Inc.
Yes
Yes
The scope of the SAR should be limited to considering revisions necessary to address the unique technical and reliability aspects of dispersed generation resources as dispersed generation resources are unique and have operational characteristics that are not similar to most conventional generators, including generators that are considered to be classified as small.
Yes. We agree with the list of standards to be reviewed; however, we suggest more clarification about which specific IRO, MOD, PRC, and TOP standards would be considered as the SAR currently lists these categories generically.
No.
No.
No.
Individual
Karen Webb
City of Tallahassee
Yes
Should the 75MVA be differentiated for Solar PV and other generating units that have both a DC and AC rating?
Yes
Dispersed generation should include intermittent power sources such as wind and solar, but also non-intermittent such as waste-to-energy, biogas, and biomass generation sources.
Group
Southern Company: Southern Company Service, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing
Wayne Johnson

Yes
No
We believe the scope should include consideration of changes to standards applicability for all small generation. In particular, individual generators < 75 MVA should be exempted from model validation requirements unless transmission planning studies demonstrate such individual generators are critical to BES reliability. This would significantly reduce the compliance burdens being imposed on many GOs and GOPs and improve the focus on generators that are critical to reliability.
No. Need to also add those included in the Generator Verification Standard suite, including PRC-019, PRC-024, MOD-025, MOD-026, MOD-027. We are concerned with how certain standard requirements such as VAR-002 R3 can be applied to facilities with multiple "mini" units operating in parallel. For example, in the case of small turbine-generators one or more units operating in manual regulator mode would not have the same impact to the BES as a single large unit. Similar issues exist when some of the other listed standard requirements are applied such as model validation of excitation systems and governors (MOD-026 & MOD-027, as noted above).
No
No
No
Individual
Peter A. Heidrich
Florida Reliability Coordinating Council, Inc.
No
The SAR should not be limited to dispersed power producing resources only. A significant issue that will prove to derail this project is the potential inequitable treatment of generation. The scope should include all small generators regardless of fuel source or prime mover force. The scope should further identify small package style units that are typically considered 'run to fail' units. Provisions with in the 'Applicability' of the appropriate Reliability Standards that take into account these types of units would significantly reduce the compliance obligations for units that simply are replaced (in whole)when a failure occurs.
No
The scope should include all small generators regardless of fuel source or prime mover force. The scope should further identify small package style units that are typically considered 'run to fail' units. The reliability benefit of a generating facility is based on the MVA output of the unit, not on the fuel source or the prime mover force. Within a generating facility that aggregates to >75 MVA, there is no difference in the reliability benefit of a single wind turbine or a single gas fired turbine with the same MVA nameplate rating.
No
No
Group
Bonneville Power Administration
Andrea Jessup
Yes
No
(a) BPA feels that the term "dispersed generation resource" is typically associated with facilities that produce electric power through cogeneration and through renewable resources — such as biomass, solar, hydro, wind, municipal waste, tidal, wave, geothermal, and energy storage. It doesn't matter which type of resource is used to generate power; what matters is the aggregated output at the

point of interconnection, which may have an effect on the electric power system. IEEE Standard 1001-1988 (IEEE Guide for Interfacing Dispersed Storage and Generation Facilities with Electric Utility Systems) and IEEE Standard 1547 (IEEE Standard for Interconnecting distributed Resources with Electric Power Systems) provide information regarding the technical aspects of dispersed generation resources. (b) BPA feels that for PRC-005 & PRC-023, the SAR needs to include individual turbine equipment dynamic response, such that the aggregate collector system provides the required relay response, not just the protective devices from the point of aggregation. It serves no reliability purpose if each turbine internally trips for a system event that requires continuation of the generation in a coordinated manner. (c) BPA feels that FAC-008 requires documentation from the generator to the high side of the main step-up transformer. For dispersed generation, this is the transformer at the main collector transformer. The SAR needs to consider including documentation for the collector system capability. BPA has found that when reactive current was not considered in earlier projects, overloads on some collectors were possible, which limited response to system events. (d) BPA has been requiring a collector system study provided by the generator owner to determine the reactive losses of the generation project and to ensure that reactive requirements are met. BPA has recently developed a collector system performance requirement to demonstrate compliance with reactive capability requirements. BPA recommends that this be added to the scope of the SAR to ensure that the generation in aggregate responds as required for a BES generation project.

No. BPA feels that a review of PRC-024 (Generator Frequency and Voltage Protective Relay Settings) needs to be included in the scope of this SAR. Aggregated dispersed generation must be able to ride-through faults and system disturbances the same as other generation resources.

No.

No.

Yes. IRO, MODs TOPs should be reported in aggregate. Outage coordination requirements for non-dispatchable generation should be eased as the certainty of the generation is never precisely known. BPA feels focusing compliance activities at the point of aggregation to 75 MVA is acceptable; however, there are a couple areas where we need to be cautious. One area of concern is the issue of back feed. Regardless of the size of the dispersed generation resource, proper precautions must be in place to ensure that it does not unintentionally or unexpectedly feed back into the BES. This is a matter of safety for personnel who might be doing construction or maintenance activities on the BES. BPA's other area of concern is the ability of the dispersed resources to ride through faults and system disturbances. BPA's concern here is similar to the concern BPA had when large amounts of wind generation began to be integrated into the grid. Specifically, BPA is concerned that the settings on protection schemes might be set such that large numbers of them would drop off during an event. This would be the equivalent of a large, high-speed spike in load, which could make the event far worse.

NERC Email List Policy

NERC provides email lists, or “listservs,” to NERC committees, groups, and teams to facilitate sharing information about NERC activities; including balloting, committee, working group, and drafting team work, with interested parties. All emails sent to NERC listserv addresses must be limited to topics that are directly relevant to the listserv group’s assigned scope of work. NERC reserves the right to apply administrative restrictions to any listserv or its participants, without advance notice, to ensure that the resource is used in accordance with this and other NERC policies.

Prohibited activities include using NERC-provided listservs for any price-fixing, division of markets, and/or other anti-competitive behavior.¹ Recipients and participants on NERC listservs may not utilize NERC listservs for their own private purposes. This may include announcements of a personal nature, sharing of files or attachments not directly relevant to the listserv group’s scope of responsibilities, and/or communication of personal views or opinions, unless those views are provided to advance the work of the listserv’s group. Use of NERC’s listservs is further subject to NERC’s Participant Conduct Policy for the Standards Development Process.

- *Updated April 2013*

¹ Please see NERC’s Antitrust Compliance Guidelines for more information about prohibited antitrust and anti-competitive behavior or practices. This policy is available at <http://www.nerc.com/commondocs.php?cd=2>

Standards Development Process Participant Conduct Policy

I. General

To ensure that the standards development process is conducted in a responsible, timely and efficient manner, it is essential to maintain a professional and constructive work environment for all participants. Participants include, but are not limited to, members of the standard drafting team and observers.

Consistent with the NERC Rules of Procedure and the NERC Standard Processes Manual, participation in NERC's Reliability Standards development balloting and approval processes is open to all entities materially affected by NERC's Reliability Standards. In order to ensure the standards development process remains open and to facilitate the development of reliability standards in a timely manner, NERC has adopted the following Participant Conduct Policy for all participants in the standards development process.

II. Participant Conduct Policy

All participants in the standards development process must conduct themselves in a professional manner at all times. This policy includes in-person conduct and any communication, electronic or otherwise, made as a participant in the standards development process. Examples of unprofessional conduct include, but are not limited to, verbal altercations, use of abusive language, personal attacks or derogatory statements made against or directed at another participant, and frequent or patterned interruptions that disrupt the efficient conduct of a meeting or teleconference.

III. Reasonable Restrictions in Participation

If a participant does not comply with the Participant Conduct Policy, certain reasonable restrictions on participation in the standards development process may be imposed as described below.

If a NERC Standards Developer determines, by his or her own observation or by complaint of another participant, that a participant's behavior is disruptive to the orderly conduct of a meeting in progress, the NERC Standards Developer may remove the participant from a meeting. Removal by the NERC Standards Developer is limited solely to the meeting in progress and does not extend to any future meeting. Before a participant may be asked to leave the meeting, the NERC Standards Developer must first remind the participant of the obligation to conduct himself or herself in a professional manner and provide an opportunity for the participant to comply. If a participant is requested to leave a meeting by a NERC Standards Developer, the participant must cooperate fully with the request.

Similarly, if a NERC Standards Developer determines, by his or her own observation or by complaint of another participant, that a participant's behavior is disruptive to the orderly conduct of a

teleconference in progress, the NERC Standards Developer may request the participant to leave the teleconference. Removal by the NERC Standards Developer is limited solely to the teleconference in progress and does not extend to any future teleconference. Before a participant may be asked to leave the teleconference, the NERC Standards Developer must first remind the participant of the obligation to conduct himself or herself in a professional manner and provide an opportunity for the participant to comply. If a participant is requested to leave a teleconference by a NERC Standards Developer, the participant must cooperate fully with the request. Alternatively, the NERC Standards Developer may choose to terminate the teleconference.

At any time, the NERC Director of Standards, or a designee, may impose a restriction on a participant from one or more future meetings or teleconferences, a restriction on the use of any NERC-administered list server or other communication list, or such other restriction as may be reasonably necessary to maintain the orderly conduct of the standards development process. Restrictions imposed by the Director of Standards, or a designee, must be approved by the NERC General Counsel, or a designee, prior to implementation to ensure that the restriction is not unreasonable. Once approved, the restriction is binding on the participant. A restricted participant may request removal of the restriction by submitting a request in writing to the Director of Standards. The restriction will be removed at the reasonable discretion of the Director of Standards or a designee.

Any participant who has concerns about NERC's Participant Conduct Policy may contact NERC's General Counsel.