

Project 2010-07: Generator Requirements at the Transmission Interface Background Resource Document

Introduction

The integrated grid consists of many parts such as power plants, Transmission, and Facilities¹, some of which are known as generator interconnection Facilities and operate like extension cords to connect generating plants to the overall interconnected grid. Some plants consist of just a single generating unit, other plants consist of multiple generating units, and still others consist of multiple generating units spread over several thousand acres. While not all power plants and their associated Facilities are considered part of the Bulk Electric System (BES)², of concern is how to classify all such generating Facilities, including their generator interconnection Facilities, to ensure that NERC's Reliability Standards provide an appropriate level of reliability for the BES.

When such generator interconnection Facilities are owned by the Generator Owner, are part of the BES, and meet the criteria in the *Statement of Compliance Registry Criteria*, the Project 2010-07—Generator Requirements at the Transmission Interface standard drafting team (drafting team) concludes that such Facilities are only to be included in the reliability standards requirements applicable to the Generator Owner or Generator Operator. To ensure that responsibility for the generator interconnection Facilities is included in all necessary standards, however, a select number of standards need to have Generator Owners added to their applicability.

Objective

The purpose of Project 2010-07 is to ensure that all generator-owned Facilities are appropriately covered under NERC's Reliability Standards. The drafting team believes it is appropriate to classify various generating Facilities and Elements (sometimes including generator interconnection Facilities) as part of the BES. That does not mean, however, that a Generator Owner or Generator Operator should be required to automatically register as a Transmission Owner or Transmission Operator simply because it owns and/or operates BES Elements or Facilities that are considered by some entities to be Transmission. While Generator Owners and Generator Operators meeting the criteria in the *Statement of Compliance Registry Criteria* own and operate Elements and Facilities that are considered by some entities to be Transmission, these are most often not part of the integrated grid, and as such should not be subject to all of the same standards applicable to Transmission Owners and Transmission Operators who own and operate transmission Elements and Facilities that are part of the integrated grid.

¹ "Facility" is defined in [NERC's Glossary of Terms](#) as "A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)."

² The current definition of "Bulk Electric System" in the [NERC's Glossary of Terms](#) reads: "As defined by the Regional Reliability Organization, the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition." The drafting team interprets "electrical generation resources" as inclusive of generator interconnection Facilities. Note that this definition is undergoing significant revision under [Project 2010-17—Definition of Bulk Electric System](#).

When the Elements and Facilities owned and operated by Generator Owners and Generator Operators are considered by some entities to be Transmission and deemed part of the integrated grid, registering the Generator Owner or Generator Operator as a Transmission Owner or Transmission Operator is appropriate. But most often the Facilities are limited to interconnecting generation to the Transmission system and as such have little, if any, measurable effect on the overall reliability of the BES. In fact, registering a Generator Owner or Generator Operator as a Transmission Owner or Transmission Operator may decrease reliability by diverting the Generator Owner's or Generator Operator's attention from the operation of the equipment that actually produces electricity – the generation equipment itself.

The drafting team's goal is to ensure that an adequate level of reliability is maintained in the BES by clearly describing which standards need to be applied to generator interconnection Facilities that are not already applicable to Generator Owners or Generator Operators. This can be accomplished by properly applying selected standards or specific standard requirements to Generator Owners and Generator Operators. The drafting team recommends a plan to modify the requirements and measures of a selected number of standards to make them applicable to appropriate Generator Owners and Generator Operators.

Proposed Next Steps and Review of Reliability Standards

Below, the drafting team outlines its recommendations to clearly identify the appropriate generation Facilities and standards requirements that should apply to such generation Facilities to ensure that the reliability of the BES is maintained:

FAC-001-0—Facility Connection Requirements currently applies to Transmission Owners and addresses the need for Transmission Owners to establish Facility connection and performance requirements for interconnection to their Facilities. Because Generator Owners may be requested to allow interconnection to their Facilities, the STD recommends the following:

- Revise FAC-001 so that it applies to a Generator Owner if, and when, it executes an Agreement to evaluate the reliability impact of interconnecting another Facility to its existing generation Facility. (See accompanying draft standard FAC-001-1.)
 - In its first posting for informal comment, the drafting team set the “trigger” for the application of FAC-001 as the receipt of a request for interconnection. Many commenters disagreed with this approach and suggested that the “trigger” be based upon “the intent or obligation” to interconnect a new Facility to an existing interconnecting Facility that is owned by a generator. Accordingly, the drafting team has proposed language to address this concern. The intent of this modified language is to start the compliance clock at such time as the Generator Owner executes an Agreement to perform the reliability assessment required in FAC-002-1. This step should occur whether the generator voluntarily agrees to the interconnection request or is compelled by a regulatory body to do so. In either case, we expect the Generator Owner and the requestor to execute some form of Agreement. We intentionally excluded a specific reference to the form of Agreement (such as a feasibility study) in deference to comments that we should avoid comingling of commercial and reliability aspects in reliability standards.

FAC-003-2—Vegetation Management currently applies to Transmission Owners and addresses the need to maintain a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on transmission Rights-of-Way (ROW) and minimize encroachments from vegetation located adjacent to the ROW. It has been a major concern that certain types of Facilities used to interconnect generation be required to provide the same level of vegetation management as required for the Transmission Owner operating in the BES. Numerous comments requested a specific length for the interconnecting line before considering application of the standard. The drafting team recommends:

- Revise FAC-003 so that it applies to Generator Owners that own a Facility that extends greater than one half mile beyond the fenced area of the switchyard, generating station or generating substation (up to the point of interconnection with the Transmission system). (See accompanying draft standards FAC-003-X and FAC-003-3.)
 - The drafting team elected to use the half-mile qualifier in its latest proposed changes. The GOTO Ad Hoc Group had originally proposed something similar, but their proposed criterion was a length of “two spans (generally one half mile from the generator property line).” The drafting team elected to use only the half-mile qualifier because it has been supported by industry comment and is clearer than referencing both two spans *and* the half-mile length. This distance is within the Generator Owner’s line of sight and could be visually monitored for vegetation conditions on a routine basis. Beyond the distance of one half mile, a vegetation management program is necessary to manage the Right-of-Way.
 - The drafting team also added text boxes to each proposed standard modification to help define certain terms within the context of the standard, rather than propose defined terms.

At this stage, the drafting team is developing two versions of proposed revisions to FAC-003: one to FAC-003-1, the current FERC-approved version of the standard (labeled FAC-003-X in accompanying documents) and one to FAC-003-2, the proposed version currently under development under Project 2007-07 (the Project 2010-07 team is labeling its revisions as FAC-003-3). See the accompanying proposed redline standards for further justification and detail.

The proposed changes listed above mark a significant decrease in changes originally proposed by the GOTO Ad Hoc Group in its [Final Report](#). The drafting team has again reviewed every reliability standard included in that report, as well as MOD and TPL standards identified in comments it has received. The drafting team does not believe that changes to reliability standards other than FAC-001 and FAC-003 are necessary to close any reliability gaps associated with generator interconnection Facilities that are non-network/non-integrated in nature (typically radial and used solely for the purpose of connecting the generating unit or units to the Transmission Facilities). Below, the drafting team has included its notes about why no other standards require modification as part of this project. The standards highlighted here are those about which questions were raised by commenters or regulatory staff:

- **COM-001-1.1:** This standard applies to entities with a wide-area view. The related responsibilities for Generator Operators are already addressed in COM-002-2.
- **EOP-005-2:** There was some concern that EOP-005 did not properly account for the Generator Operator’s responsibility when it comes to system restoration plans, but EOP-005-

2, R13 (which received regulatory approval on May 23, 2011) requires Generator Operators to have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols with its Transmission Operator. Requirements R14 through R18 require the Generator Operator to develop procedures, test its blackstart generators, and provide related training.

- **MOD-001-1a, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1a, MOD-030-2:** To apply these standards to Generator Operators would require them to have a wide-area view of the integrated grid and to utilize commercially sensitive information that Generator Operators are currently precluded from viewing or using. In some cases, such as with MOD-001, the standard could only apply if a Generator Operator was registered as a Transmission Service Provider due to an interconnection service request and subsequently adopted an Open Access Transmission Tariff. The drafting team does not believe this is likely, unless ordered by FERC.
- **PER-002-0:** In Order 693, FERC directed NERC to “expand the applicability of the personnel training in Reliability Standard, PER-002-0, to include (i) generator operators centrally-located at a generation control center with a direct impact on the reliable operation of the Bulk-Power System...” In Order 742, the Commission said it is “not modifying the Order No. 693 directive regarding training for certain generator operator dispatch personnel, nor are we expanding a generator operator’s responsibilities.” This issue does not deal with generator interconnection Facilities and is thus outside the scope of Project 2010-07. The directive has been included in NERC’s issues database to be addressed in a future project.
- **PRC-001-1:** Generator Operators are already appropriately accounted for in this standard in requirements 1, 2, 3, and 5.
- **TOP-003-0:** TOP-003-0 already requires the Generator Owner to provide outage information to its Transmission Operator on a daily basis. Proposed TOP-003-2 R4 continues to make this responsibility clear by requiring Generator Owners and Generator Operators to satisfy the obligations of the Transmission Owner’s and Transmission Operator’s data specification plan.
- **TOP-006-2:** TOP-006-2 deals with general issues with generator reporting. Though not explicitly stated, Requirement R2 requires reporting of scheduled outages of equipment such as voltage regulators, shunt capacitors, etc. The drafting team believes that Elements associated with a generator interconnection Facility are to be reported under this requirement
- **VAR-001-1:** This standard also requires a wide-area view that is inappropriate for a Generator Operator. Generator Operators, for instance, should never be setting voltage schedules.
- **VAR-002-1.1b:** The drafting team received some comments expressing concern about capacitors under operational control of the Generator Operator. Requirement R3.2 requires notification for status or capability change on any other Reactive Power resources under the Generator Operator’s control and the expected duration of the change in status or capability. The drafting team believes that capacitors are included in this requirement.

The drafting team also decided not to propose new defined terms in the NERC Glossary, but has met with NERC and FERC staffs, regional compliance managers and industry organizations to discuss possible solutions to the issue of concern to most Generator Owners and Generator Operators – registration as Transmission Owners and Transmission Operators. The drafting team believes this issue has the attention of appropriate NERC and regional staffs and has volunteered to provide assistance in those groups’ efforts to address them. While these changes are not within the explicit

scope of the drafting team, the goal is to work with NERC and regional compliance enforcement and compliance registration staffs to develop a comprehensive package that will address all reliability gaps – whether real or perceived – so that entities are appropriately registered and the appropriate reliability standards are applied to those entities.

The drafting team acknowledges that there may be Elements and Facilities that are not radial or used solely for the purpose of connecting the generating unit(s) to Transmission Facilities. It is outside the scope of the drafting team to address this as part of its project, but it believes that the best way to address these non-radial Facilities is through changes to the criteria in the *Statement of Compliance Registry Criteria* as they apply to Generator Owner or Generator Operator. Trying to apply simple ‘bright line’ criteria to such Facilities as a drafting team would be a daunting task, as the configuration of interconnections is not consistent continent-wide, nor are all adjacent Elements and Facilities similar. Addressing these non-radial generator interconnection Facilities will require individual evaluations to ensure that no reliability gaps exist, and this is a task best suited to compliance staffs.

The drafting team also acknowledges that, if another party interconnects to a Facility owned by a Generator Owner, there may be the need to address MOD or TPL standards. However, the drafting team believes that this, too, is best handled through specific evaluation, perhaps accompanied by changes to the compliance registry. Entities that face this kind of scenario may also meet criteria applicable to other registrations such as Transmission Service Provider or Transmission Planner.

Other Solutions

Because the efforts outlined here will likely not take effect for a year or more, Generator Owners and Generator Operators that are concerned about their registration status should explore options like those explained below and in further detail in NERC Compliance Bulletin 2010-004.

On April 20, 2010, NERC Compliance published a [Public Bulletin](#) to provide guidance for situations like this, in which entities delegate reliability tasks to a third-party entity. In this bulletin, NERC Compliance emphasizes that while a registered entity may not delegate its responsibility for ensuring that a task is completed, it may delegate the performance of a task to another entity.

As is explained in the bulletin, compliance responsibility for applicable NERC Reliability Standard requirements and accountability for violations thereof may be achieved through several means, including the following:

1. By Individual: an entity is registered on the NERC Compliance Registry and such registered entity assumes full compliance responsibility and accountability; or

2. By Written Contract: parties enter into written agreement whereby:

a. A registered entity delegates the performance of some or all functional activities to a third party that is not a registered entity, and the registered entity retains full compliance responsibility and violation accountability; or

b. A registered entity delegates the performance of some or all of the functional activities to a third party, and the third party accepts full compliance responsibility for the specific functions it performs and violation accountability. In this case, there may be individual, concurrent or joint registration of

the entities, depending on the nature of the contractual relationship and, in any event, only the registered entity would be held responsible or accountable by a Regional Entity or NERC; or

3. By Joint Registration Organization (JRO): each party is registered and is required to clearly identify and allocate compliance responsibility and violation accountability for their respective functions under applicable NERC Reliability Standard requirements.