

DOMINION ENERGY SOUTH CAROLINA, INC.

Standard for Interconnecting Standby Generation with Electric Power Systems (EPS) (Interconnection Standard)

1. Overview:

This Standard contains the requirements, in addition to applicable tariffs and service regulations, for parallel interconnection to Dominion Energy South Carolina, Inc. (“Dominion Energy”) by non-utility owned standby generation systems, which have a capacity of 200 to 2500 kW and utilize closed transition switches for normal operation, for the purpose of load testing no more than once a month (“Standby Generators”).

A Standby Generator is considered to be Load Testing if it is paralleled.

A Standby Generator is considered to be paralleled if the closed transition time is greater than 100 milliseconds. Standby Generators meeting the criteria and conditions included and/or referenced herein will normally be approved for interconnection except in extenuating site-specific circumstances.

1.1 Scope:

This Standard applies only to load testing of Standby Generators installed at existing radial fed Area EPS (Area Electric Power System) distribution customers, with a determination of minimal impact, to provide backup generation to serve customer’s premises.

1.2 Purpose:

This document was developed to provide a uniform simplified standard for interconnecting certain Standby Generators with capacity from 200 kW to 2500 kW to Dominion Energy’s system.

1.3 Limitations

This Standard does not cover parallel systems used for cogeneration of power, an alternative fuel source under an interruptible load agreement or similar arrangement with Dominion Energy or any other utility company or peak-shaving. The interconnection of Standby Generators is subject to applicable Public Service Commission of South Carolina (“PSCSC”) approved tariffs and service regulations in addition to compliance with this Standard.

Although outside the scope of this document, generators failing to meet the requirements of this Standard may still be considered for interconnection after more detailed review specific to the proposed application and generator.

1.4 Conflicts

In Case of conflict between any provision of a tariff and this Standard, the provision of the tariff shall prevail.

2. References:

IEEE 1547 – (Standard for Interconnecting Distributed Resources with Electric Power Systems, latest published edition).

IEEE 1547.1 – (Standard for Conformance Tests Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems).

IEEE P1547.2 – (Draft: Application Guide for IEEE Standard 1547, Interconnecting Distributed Resources with Electric Power Systems).

IEEE P1547.3 – (Draft: Guide For Monitoring, Information Exchange, and Control of Distributed Resources Interconnected with Electric Power Systems).

IEEE P1547.6 – (Draft Recommended Practice For Interconnecting Distributed Resources With Electric Power Systems Distribution Secondary Networks)

UL 1741 – (Inverters, Converts and Controllers for use in Independent Power Systems, latest published edition).

NFPA 70 – (National Electrical Code, latest published edition).

PSCSC Tariffs – (Public Service Commission of South Carolina) approved tariffs including, but not limited to, rate schedules, riders, service regulations and terms and conditions.

3. Definitions:

3.1 Area EPS: Area Electric Power System: The electric facilities of the local utility.

3.2 Company and/or Dominion Energy: Dominion Energy South Carolina, Inc. which owns and operates the Area EPS to which the Standby Generator will interconnect.

3.3 Closed Transition of Loads: A make-before-break load transfer scheme, in which the Generator is operated in parallel with the Area EPS for a brief period of time, to ensure that the load is maintained while in transition from the Company to the Generator or vice versa. This transition scheme includes fast transfer systems, generally less than 100 msec, and soft load systems where the parallel condition is maintained for seconds.

3.4 Customer: The electric Customer of record for the location where the generation will be interconnected.

3.5 Generator: The distributed “generation system” and equipment to be interconnected to the Area EPS.

3.6 Isolation Device: A manual load-break disconnect switch or safety switch with a clear visible indication of switch position between the Area EPS and the Generator. The switch must have pad lock provisions for locking in the open position. The switch must be visible to, and accessible to Company personnel. The switch must be in close proximity, and visible from, the Customer’s point of electrical interconnection with the Company’s Area EPS. The switch must be labeled “Generator Disconnect Switch”. The switch may isolate the Generator system and its associated load from the area EPS or disconnect only the Generator from the Area EPS.

The Company shall have access to the Isolation Device at all times.

3.7 Momentary Parallel Systems: A Generator utilizing only a Closed Transition mode of operation.

3.8 Point of Common Coupling: “Point of common coupling” means the point in the interconnection of a customer-generator facility with an electric delivery system and shall have the same meaning as in IEEE Standard 1547.

4. General Requirements:

4.1 Service Regulations and Tariff/Rate Schedule: This Standard for Interconnecting Standby Generators with Electric Power Systems is governed by the Company’s Service Regulations and Tariff/Rate Schedules as filed and approved by the regulatory authorities having jurisdiction over the Company’s electric utility operations. Customer understands, however, that no power generated by the Standby Generator will be purchased by Dominion Energy from Customer under this Agreement. This does not prevent Customer from entering into a separate agreement with Dominion Energy for such purposes.

4.2 Acceptance for Interconnection: Each application and Standby Generator is evaluated individually and accepted or denied for interconnection with the Company’s Area EPS. Any Company evaluation is from the perspective of the impact of the interconnection on the Company and its system. The Customer is solely responsible for ensuring the safe installation and operation of the Standby Generator. Standby Generators shall not be interconnected until the requirements and process described in this Standard have been satisfied.

The acceptance for interconnection is for the original applicant only. Subsequent owners or occupants of a site with an interconnected Standby Generator must submit a new Application to the Company. The existing customer assumes the responsibility of ensuring a new customer is aware the new customer must re-apply and obtain the

Company's written acceptance or the equipment must be removed or disabled to prevent future interconnection and/or operation. The application fee for the re-applying new customer is waived and the technical requirements may be grandfathered for subsequent owners as long as the Standby Generator's maximum output capacity has not been changed and/or the interconnection protection system has not been modified.

- 4.3 Waiving Requirements:** All requirements of this Standard must be met although the Company may, in its sole discretion, waive all or some of the requirements of this Standard. Waivers must be issued in writing.
- 4.4 Interconnect Cost:** The Customer will bear all the cost of interconnection on the Customer's side of the point of interconnection as well as necessary changes or upgrades to the Area EPS to meet all technical and protection requirements to address any power quality, reliability or safety issues caused by the Standby Generator operation or connection to the Area EPS.
- 4.5 Isolating or Disconnecting the Standby Generator:** The Company may isolate the Customer's premises and/or Standby Generator from Company's Area EPS when necessary in order to construct, install, repair, replace, remove, investigate, or inspect any of Company's equipment or part of Company's system; or if Company determines that isolation of the Customer's premises and/or Standby Generator from Company's Area EPS is necessary because of emergencies, forced outages, force majeure or compliance with prudent electrical practices. Whenever feasible, the Company shall give the Customer reasonable notice of the isolation of the Customer's premises and/or Standby Generator from Company's Area EPS. Notwithstanding any other provision of this Standard, if at any time the Company determines that either the Standby Generator may endanger the Company's personnel or other persons or property, or the continued operation of the Customer's Standby Generator may endanger the integrity or safety of the Company's electric system, the Company shall have the right to isolate the Customer's premises and/or Standby Generator from the Company's Area EPS.

The Company may disconnect the Area EPS electric service to any Standby Generator determined to be malfunctioning, or not in compliance with this Standard. The Customer must provide proof of compliance with this Standard before the electrical service will be reconnected.

- 4.6 Limitation of Liability:** Each party's liability to the other party for any loss, cost, claim, injury, liability, or expense, including reasonable attorney's fees, relating to or arising from any act or omission hereunder, shall be limited to the amount of direct damage actually incurred. In no event shall either party be liable to the other party for any indirect, special, incidental, consequential, or punitive damages of any kind.
- 4.7 Indemnification:** The parties shall at all times indemnify, defend and save the other party harmless from any and all damages, losses, claims, including claims and actions relating to injury or death of any person or damage to property, demand, suits, recoveries, costs and expenses, court costs, attorney's fees, and all other obligations by

or to third parties, arising out of or resulting from the other party's action or inaction of its obligations hereunder on behalf of the indemnifying party, except in cases of gross negligence or intentional wrongdoing by the indemnified party.

4.8 Access to and Operation of the Standby Generator: The Customer shall limit access to and operation of the Standby Generator to qualified persons and assumes the responsibility of maintaining control of the operation of the Standby Generator.

4.9 Insurance: The Customer shall obtain and retain, for as long as its Standby Generator is interconnected with the Company's system, liability insurance which protects the Customer from claims for bodily injury and/or property damage. For a non-residential Customer the minimum coverage shall be comprehensive general liability insurance with coverage at least \$500,000 per occurrence. This insurance shall be primary for all purposes. The Customer shall provide certificates evidencing this coverage as required by the Company. The Company reserves the right to refuse to establish, or continue the interconnection of the Customer's Standby Generator with the Company's system, if such insurance is not in effect.

4.10 Standby Generator Alterations: Changes to the Standby Generator output capacity and/or modification to the protection system required to meet this Standard are prohibited without submitting a new "Application to Interconnect Standby Generator" and obtaining a new acceptance from Company.

4.11 Discontinuing Operation: The Customer shall notify the Company prior to discontinuing operation of the Standby Generator interconnected with the Company.

4.12 Interconnection Application Fee: The nonrefundable interconnection application fee covers only the application process for interconnection of Standby Generators and shall be \$500.

5. Standby Generator, Inverter and Protective Equipment Technical Requirements:

5.1. **General:** The Company may elect to visit the site and verify compliance with any requirement of these Standards.

5.2. **Required Standards:** The Customer must certify the following requirements:

5.2.1. The installation of the Standby Generator and all equipment in the system must comply with the latest published edition of IEEE 1547 and 1547.1 as applicable.

5.2.2. Future IEEE Standards and/or Recommended Practices: P1547.2, P1547.3 and P1547.6 are still proposed draft documents and still in working groups at the time of writing this Standard. Standby Generators interconnected after these standards are published may be required to comply with these IEEE documents.

- 5.2.3. The Customer's inverter or interconnection protection system must be tested and listed for compliance with the latest published edition of Underwriters Laboratories, Inc. (UL) 1741, if applicable.
- 5.2.4. The Standby Generator must pass the anti-islanding test in UL 1741, if applicable.
- 5.2.5. The Customer's inverter or interconnection protection system must be manufactured after November 7, 2000, if UL 1741 is applicable.
- 5.2.6. Any protection settings affecting anti-islanding performance must not be adjusted after passing anti-islanding tests.
- 5.2.7. A copy of Customer's proposed protection settings for the Standby Generator interface IEEE 1547 protection device shall be forwarded to Dominion Energy for approval prior to interconnection.
- 5.2.8. Other Technical Considerations
 - 5.2.8.1. Dominion Energy uses automatic reclosing on its distribution and transmission circuits. The Standby Generator owner must assure that, if the Standby Generator is paralleled with the utility, the Standby Generator protection detects separation from the utility and isolates the Standby Generator from the utility before automatic reclosing occurs (at approximately 20 cycles after the utility circuit opens). Customer will be responsible for damage to the Standby Generator and to utility equipment from out-of-phase reclosing.
 - 5.2.8.2. Prior to interconnection, Dominion Energy approves the type of transformer connection proposed by the Customer.
 - 5.2.8.3. Dominion Energy may refuse to interconnect a Standby Generator if: the distribution circuit cannot withstand the maximum generated KVA of the Standby Generator or the voltage regulation and/or distribution circuit fault protection may be negatively affected by the Standby Generator.
 - 5.2.8.4. **Area EPS Circuit Level Saturation.** Dominion Energy may also refuse to connect a Standby Generator if the cumulative total of the maximum rated output of all interconnected Standby Generators exceeds the limits, per circuit, for the given Area EPS distribution circuit, as determined by Dominion Energy.

5.3. Electrical Contractors and NEC Code Inspections: All installed wiring, protection devices, cabinets and connectors, etc. must comply with the latest published edition of the NEC as used by the local jurisdiction and all applicable local codes. An approved electrical inspection by the authority having jurisdiction is required.

5.4. **Isolation Device:** An Isolation device as defined in Section 3.6 is required. The Company in its sole discretion determines if the device is suitable.

6. **Screens and Requirements for determination of minimal impact:**

6.1. **Limitations of Area EPS Facilities:**

- 6.1.1. **General:** The Standby Generator shall meet each of the following requirements to qualify for interconnection and each requirement must be maintained after commissioning.
- 6.1.2. **Area EPS Capacity Limitation:** The maximum rated output of the Standby Generator or total aggregate of multiple Standby Generators shall not exceed the capacity or ratings of the Area EPS facilities as determined by the Company.
- 6.1.3. **Secondary, Service and Service Entrance Limitation:** The Standby Generator capacity shall be less than the capacity of the Area EPS owned secondary, service and service entrance cable connected to the Point of Common Coupling. The Company will make this determination after reviewing the Area EPS installed facilities.
- 6.1.4. **Transformer Loading Limitation:** The Standby Generator shall not have the ability to overload the Area EPS transformer or any EPS transformer winding beyond manufacturer or nameplate ratings.
- 6.1.5. **Integration with Area EPS Grounding:** The grounding scheme of the Standby Generator shall comply with IEEE 1547.
- 6.1.6. **Balance Limitation:** The Standby Generator shall not create a voltage imbalance of more than 3% if the Area EPS transformer, with the secondary connected to the Point of Common Coupling, is a three-phase transformer.
- 6.1.7. Any changes or upgrades to Area EPS to accommodate the Standby Generator will be pursuant to Section 4.4.2 above.

7. **Commissioning, Maintenance and Inspections:**

7.1. **General:** The Customer or Customer's authorized representative, using qualified personnel, shall perform commissioning, and maintenance as outlined in this section for all Standby Generator equipment. All testing shall be documented and the Company shall be granted the right to audit the documentation. The Company reserves the right to require and witness testing of the Customer's Standby Generator. A copy of the commissioning tests and periodic maintenance testing of the Standby Generator protection and controls shall be forwarded to Dominion Energy.

The Customer's Standby Generator is subject to inspection by a Company representative at a mutually agreeable time, as the Company deems necessary.

The Company's inspection and/or witnessing the testing of the Customer's equipment shall not be construed as the Company warranting or implying that the Customer's equipment is safe or reliable. The Company shall not be liable to the Customer or others as a result of inspection and witnessing of tests of the Customer's Standby Generator or equipment.

7.2. Commissioning: The manufacturer's recommended and required commissioning, installation and functional tests shall be completed, with successful results, in accordance with the manufacturer's published recommendations. Commissioning tests in IEEE 1547 shall also be completed with successful results unless these IEEE 1547 tests are duplications of the manufacturer tests. Settings applicable to the IEEE 1547 protection device(s) shall be forwarded to Dominion Energy at least 30 days in advance of commission testing. After obtaining the final electrical inspection, the Customer shall invite the Company to the commissioning test and perform the test at a mutually agreed date but not later than 25 days after the invitation.

7.3. Maintenance and Testing: Maintenance shall be performed in accordance with the manufacturer's published maintenance procedures. Periodic testing shall be completed with successful results in accordance with the manufacturer's published recommendations for periodic testing at, or before, the recommended testing intervals. If the manufacturer does not publish recommendations for periodic testing, suitable testing shall be performed that assures proper protection for the Area EPS, at an interval not to exceed two years. All test results shall be documented and a copy sent to Dominion Energy. The Customer shall notify the Company 5 (five) days and 2 (two) hours prior (two separate notices) to any periodic testing, load testing or other testing where the Customer's Standby Generator will run in parallel with the EPS. Customer will also notify Company immediately when subject testing is complete.

Load Testing for each Standby Generator is limited to a maximum of one sixty (60) minute period per month. Customer shall not perform any other testing which may place load on the Area EPS without the prior permission of Dominion Energy.

7.4. Failure of Test: If a Standby Generator fails any test, it shall be disabled and the Isolation Device must be opened until the equipment is repaired.

8. Procedures

8.1. Interconnection Request: The Customer submits to the Company an "Application to Interconnect Small Generation" accompanied with the appropriate Interconnection Application Fee to a designated Company contact or department.

8.2. Queue Position: The Company considers the application based on the date a completed application is received by the Company in reference to priority when evaluating the Area EPS screen limits.

8.3. Impact Screens: The Company accepts or rejects the application for interconnection after reviewing the application and performing the screens outlined in this Standard. If the application is rejected, the Customer may request the Company to reconsider interconnection outside the scope of this Standard. If the application is accepted the process will continue.

It may be necessary to visit the site to gather information on the Area EPS facilities or the Customer's Standby Generator equipment.

The Company will complete the Impact Screen process within 30 days (absent extenuating circumstances) of receipt of a complete "Application to Interconnect Small Generation." Extenuating circumstances include, but are no limited to, Force Majeure, adverse weather conditions, and system emergencies.

8.4. Agreement for Interconnection: After all previous items in the process are complete; the Company will provide an agreement to the Customer within 20 days of the completion of the Impact Screens as stated in 8.3. Once the Customer returns the executed Agreement to the Company, the Company will execute the Agreement and return a copy to the Customer. Customer shall not interconnect the Standby Generator to Company's Area EPS Facilities unless an Agreement between the Customer and the Company has been executed by both parties.

8.5. Installation and Inspections: The Customer installs the Standby Generator and the Customer is responsible for obtaining an approved electrical inspection from the local authority having jurisdiction for the Standby Generator installation. The Customer shall request the inspector to forward a copy of the approved inspection to the Company contact processing the Standby Generator interconnect request.

8.6. Area EPS Facilities: Any necessary installation or alteration of the Area EPS facilities made by the Company to accommodate the interconnection shall be at the Customer's sole expense.

8.7. Commissioning Test: The Customer performs the required commissioning test and forwards a confirmation letter to the Company unless the Company witnesses the test and it is successful. The Customer shall invite the Company to the commissioning test and perform the test at a mutually agreed date and time if the Company elects to attend.

8.8. Completion of Application/Expiration Process: The application shall be valid for no less than one year once the Impact Screen process is completed.

Approval Initials:

 For Customer

 For Company

Effective: April 29, 2019