



Distribution Test Policy

**Georgia Power Company
Power Delivery Distribution
Standards and Reliability
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SCHEDULE OF DEFINED TERMS AND RULES OF CONSTRUCTION

This Distribution Test Policy uses the defined terms identified in this Schedule or in the body of this Distribution Test Policy, and the rules of construction identified in this Schedule.

AC: Alternating current.

Access Route: The suitable, all-weather access route from the nearest public roadway to the change of ownership that is acceptable to GPC and that will be available to GPC at all times (24/7/365(366)) throughout the IA term to facilitate GPC's provision of construction, operation, or maintenance of the Interconnection Facilities or other related GPC activity.

DCC: GPC's Distribution Control Center.

Distribution Standards and Reliability: GPC's Distribution Standards of Reliability team, or any successor team.

Distribution System: Electric System facilities owned by GPC that operate at a nominal operating voltage below 40 kV.

Distribution Test Policy: This Distribution Test Policy.

Electric System: The network of electric generation, transmission, or distribution facilities owned or operated by GPC or other electric utilities.

Facility: A source of electric power that is directly connected to the Distribution System, as further defined in the IA. "Facility" in this Distribution Test Policy is equivalent to "**Distributed Energy Resource**" or "**DER**" in the Southern Company DER Policy.

Final Facility Documents: As may be further defined in the applicable PPA, the final Facility documents that provide all Facility technical details, or that are required by GPC.

Generator: The counterparty to GPC in the IA. "Generator" in this Distribution Test Policy is equivalent to "DER Owner" in the Southern Company Policy. If Generator is a GPC behind-the-meter (BTM) customer, Generator is equivalent to "Customer Generator" in the applicable BTM IA or Service and IA.

GPC: Georgia Power Company, a Georgia corporation, which is a subsidiary of Southern Company and any permitted successor or assign.

Initial Synchronization (Initial Synch): GPC's initial energization of the Interconnection Facilities to allow trial parallel operation of the Facility with the Electric System, including export of test energy to the Electric System.

Interconnection Agreement (IA): The agreement between GPC and the Generator with terms and conditions for Facility interconnection and operation of the Facility while connected to the Distribution System.

Interconnection Facilities: As further defined in the applicable IA, the physical facilities, installed or modified to allow interconnected operations of the Facility with the Electric System, that are additional to the physical facilities that would otherwise have been installed or modified absent Generator's interconnection request.

Installation Costs: The costs of procuring, constructing, installing, and testing Interconnection Facilities.

Mechanical Completion: As further defined in the applicable PPA, Generator's satisfaction of the mechanical completion criteria and conditions specified in the PPA.

Mechanical Completion Certificate: As further defined in the applicable PPA, a certificate certifying that the Facility achieved Mechanical Completion and specifying the claimed Mechanical Completion date.

Power Purchase Agreement (PPA): A power purchase agreement between GPC and Generator (Generator is equivalent to "Seller" or "QF" in some GPC PPAs).

Pre-Witness Test Checklist: A checklist that is substantially in the form of Exhibit A (*Witness Testing Guidelines for Solar Facilities \geq 250 kW*), Attachment 1 (*Pre-Witness Test Checklist*) and Attachment 2 (*Pre-Witness Test Checklist Inverter Information*).

Required Notice Date for Initial Synchronization: As further defined in the applicable PPA (if required), the date specified in the PPA by which Generator must request Initial Synchronization.

Southern Company Policy: Southern Company Operation of Distributed Energy Resources (DER) in Parallel with the Distribution System Policy, available at https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/solar-pdfs/SOCO_Interconnection_Policy_Binder_06-15-2021.pdf, or any successor policy.

Witness Test or Witness Testing: Live testing of the Facility while operating in parallel with the Electric System in accordance with this Distribution Test Policy.

Witness Testing Fee: The fee that Generator must pay for GPC to conduct Witness Testing, as further described in Exhibit A (*Witness Testing Guidelines for Solar Facilities \geq 250 kW*), Part 2 (*Witness Testing Fee*) and Exhibit B (*Witness Testing Guidelines for Solar Facilities $<$ 250 kW*), Part 2 (*Witness Testing Fee*) for the applicable Facility.

Rules of Construction:

In this Distribution Test Policy: (i) whenever the term “**include**,” “**including**,” or “**e.g.**” is used, in connection with a listing of items included within, or as an example of, the prior reference, the listing will be interpreted as illustrative only and not as a limitation on, or as an exclusive listing of, the items included in the prior reference (e.g., “**include**” means “include, but is not limited to”; “**including**” means “including, without limitation”); and (ii) “**or**” means either or both (i.e., “A or B” means “A or B or both A and B”).

Unless otherwise specified, reference to: (a) an agreement or document includes any exhibit, attachment, appendix, or schedule; and (b) an applicable law, agreement, document, policy, procedure, standard, or provision is to the law, agreement, document, policy, procedure, standard, or provision as modified, amended, supplemented, or restated, and then-effective or current.

A defined term may be singular or plural, as the context requires. Captions are for convenience only and do not affect interpretation.

Distribution Test Policy

PART 1. OVERVIEW OF WITNESS TESTING REQUIREMENTS

Witness Testing is required under the applicable IA and by the Southern Company Policy (incorporated by this reference), which policy is included in the technical requirements applicable to a Facility. This Distribution Test Policy addresses general requirements that apply to all Witness Testing. Technology-specific and size-specific Witness Testing requirements are set out in Exhibit A (*Witness Testing Guidelines for Solar Facilities \geq 250 kW*) and Exhibit B (*Witness Testing Requirements for Solar Facilities $<$ 250 kW*).

PART 2. SCHEDULING PREREQUISITES; ACCESS ROUTE; DOCUMENTS AND DATA

Before scheduling a Witness Test for a new Facility, all on-site Facility construction must be complete and the Facility must be synchronized, commissioned, and fully operational. **It is Generator's responsibility to ensure that all Facility equipment works correctly before requesting a Witness Test.** If applicable, any other utility modifications also must be completed.

Additionally, Generator must: (i) provide and maintain an Access Route and ensure GPC has unfettered permanent access (with cars, trucks, or equipment) to the Facility; and (ii) ensure the Access Route is maintained with proper vegetation management and maintenance, including but not limited to regular trimming, pruning, and removal of any obstructions that may restrict GPC's access, including the facilitation of any Witness Test.

Before requesting Initial Synchronization, Generator must have timely submitted all required documents and data and, if applicable, by the Required Notice Date for Initial Synchronization. The submission deadline is the earlier of the date specified in: (a) the PPA, if applicable; or (b) Southern Company Policy Section 8.6.2 (*Completion of DER Construction*). Generator must have timely submitted the following required documents and data (depending on technology type):

- Applicable to all Facilities:
 - Final detailed one-line diagram for the Facility;
 - Mechanical Completion Certificate (if required by PPA); and
 - All other data required by Section 8.6 of the Southern Company Policy.
- Applicable to solar photovoltaic Facilities:
 - UL Authorization-to-Mark Letter from inverter manufacturer (proves that the inverters have been type-tested to meet UL-1741 and IEEE 1547 Standards);
 - Make, model, serial number, firmware, and software revision number for each inverter;
 - Completed pre-Witness Test checklist (form attached as Exhibit A, Appendix 1); and
 - Inverter settings.

Generator must submit the preceding required documents and data for each subsequent Witness Test that may be required for the Facility. Additionally, if required by the PPA, before GPC can schedule Initial Synchronization, GPC must have accepted the Final Facility Documents as complete and acknowledged that the Facility has achieved Mechanical Completion.

PART 3. INITIAL SYNCHRONIZATION

After fulfilling the applicable Facility prerequisites described in Part 2 (*Scheduling Prerequisites; Access Route; Document Data*), Generator must request GPC to schedule Initial Synchronization. Generator must contact the designated GPC representative at least 10 business days in advance to schedule Initial Synch. Following GPC's receipt of the request and GPC's completion of its Interconnection Facilities (as described in the

applicable IA), if applicable, and subject to successful interconnection protection demonstration and consent by the DCC, GPC and Generator will jointly determine the date for Initial Synch.

During the Initial Synch trial operation period, Generator will have the opportunity to commission and operate the Facility to prepare for Witness Testing. At its option, Generator, using its own AC disconnecting device, may safely disconnect (de-energize) and then re-connect (re-energize) the Facility during this trial operation phase. However, if Generator requires GPC to disconnect and re-energize the Facility, Generator will be responsible for an additional charge for the multiple site visits, which Generator must pay in advance as described in Part 6 (*De-Energization/Re-Energization Fee*).

For reasons of safety, if the period of Initial Synchronization and trial operation exceeds seven days, GPC reserves the right to temporarily disconnect the Facility and de-energize GPC's Interconnection Facilities. In that event, GPC reserves the right to determine when to reconnect the Facility and re-energize the Interconnection Facilities to proceed with Witness Testing. Advance payment would be required as provided in Part 6 (*De-Energization/Re-Energization Fee*).

PART 4. SCHEDULING OF WITNESS TESTING

GPC requires at least 10 business days advance notice (to the designated GPC representative) to schedule Witness Testing, which typically will be done in conjunction with the scheduling of Initial Synch. GPC and Generator will select a date and time for the test, but GPC will not schedule an initial Witness Test during December. Further details regarding required personnel are provided in the applicable Exhibit (Exhibit A (*Witness Testing Guidelines for Solar Facilities \geq 250 kW*), Part 4 (*Generator Representatives Required at Witness Testing*) or Exhibit B (*Witness Testing Guidelines for Solar Facilities < 250 kW*), Part 3 (*Generator Representatives Required at Witness Testing*)).

All Witness Testing will be done during standard business hours (Tuesday to Friday between 8:00 a.m. and 4:00 p.m. Eastern Time). Distribution Standards and Reliability typically will not schedule Witness Testing on Mondays or weekends, holidays, or any other time that is not standard business hours. In limited circumstances, GPC may allow Witness Testing on weekends or holidays. Weekend and holiday requests require 15-business days advance notice. Distribution Standards and Reliability will have sole discretion to approve or deny the Witness Testing request.

If Generator contacts (by phone and confirming email) the designated GPC representative at least seven business days before the scheduled start time to cancel testing for any reason, there will be no Witness Testing Fee.

If, as noted in the applicable Exhibit, the Witness Testing requires appropriate weather conditions, Generator should pay attention to the weather forecast and postpone scheduled Witness Testing if needed. So long as Generator contacts (by phone and confirming email) the designated GPC representative at least two business days before the scheduled start time to cancel Witness Testing due to weather concerns, there will be no Witness Testing Fee charge.

GPC reserves the right to cancel and re-schedule Witness Testing at any time. If GPC cancels Witness Testing for GPC's convenience, there will be no charge for the re-scheduled test.

GPC also reserves the right to cancel Witness Testing up to the day of testing if Generator has not provided documentation specified in Part 2 (*Facility Prerequisites*), completed all installation, corrected faulty equipment, still needs to make changes to the Facility, or is continuing to install equipment on the scheduled test day. The re-testing fee will apply and must be paid before the rescheduled Witness Test.

PART 5. WITNESS TESTING FEE

The Witness Testing Fee is discussed in the applicable Exhibit (Exhibit A (*Witness Testing Guidelines for Solar Facilities \geq 250 kW*), Part 2 (*Witness Testing Fee*) and Exhibit B (*Witness Testing Guidelines for Solar Facilities < 250 kW*), Part 2 (*Witness Testing Fee*)). If an additional day of Witness Testing or a follow-up Witness Test is required, GPC will coordinate the scheduling with Generator. Generator must pay an additional testing fee before GPC will schedule the additional Witness Testing. Billing and payment will be as described in Part 6

(*De-Energization/Re-Energization Fee*). Scenarios where an additional day of Witness Testing may be required, include, without limitation, the following:

- Witness Testing was not feasible on the originally scheduled day due to weather and there was no timely cancellation as noted above;
- Failure of the Facility to pass the Witness Tests; and
- Witness Testing in follow-up to a provisional acceptance (described Exhibit A (Witness Testing for Solar Facilities \geq 250 kW, Part 3 (*Inverter Based Facility Witness Testing*))).

PART 6. DE-ENERGIZATION / RE-ENERGIZATION FEE

If the Facility requires de-energization from the Electric System, or re-energization onto the Electric System, additional fees will be required to cover the expense of the GPC resources performing the service. The cost for the initial energization of the Facility is included in the Installation Costs paid under the IA and is not subject to any additional fee.

If there is the need for a Facility de-energization or re-energization at any time, whether during Initial Synchronization or initial Witness Testing or otherwise during the term of the IA, GPC will determine the GPC resources needed to safely satisfy the request. Once the GPC resources are identified, GPC will determine the cost according to GPC accounting guidelines.

GPC will inform Generator of the applicable fee, by mail or email, with an attached bill from the GPC invoicing system. Generator must pay the bill, in full, before the de-energization or re-energization request can be fulfilled.

The invoice will identify acceptable forms of payment, which include wire transfer (GPC's preferred method) or cashier's check. If Generator desires to pay with a cashier's check, Generator must first arrange with the designated GPC representative. Payments submitted by regular check could cause delays in scheduling the desired service due to check processing times. GPC will not accept cash payments. Regardless of payment method, GPC cannot schedule the desired service until payment is processed and cleared.

PART 7. FACILITY CHANGES AND ADDITIONAL WITNESS TESTING

As required by the IA and the Southern Company Policy, once a Facility has been successfully tested and interconnected, Generator must notify GPC in advance of any change desired in Facility design or equipment. GPC retains the right to determine whether the desired change is permitted and whether additional Witness Testing is required after the change. GPC also reserves the right to conduct periodic Witness Testing to confirm compliance with the IA and the Southern Company Policy.

PART 8. GPC CONTACT INFORMATION

For any questions regarding Witness Testing or any Exhibit regarding specific guidelines, please contact Distribution Standards and Reliability at G2GPCDISREL@southernco.com, Haile Gashaw at 404-608-5758, or Eric Mikell at 404-654-7563.

EXHIBIT A – WITNESS TESTING GUIDELINES FOR SOLAR FACILITIES ≥ 250 KW

This is a general overview of the procedures for Witness Testing the interconnection to the Distribution System of solar, inverter-based Facilities equal to or greater than 250 kW. **Consistent with the Southern Company Policy, these Guidelines do not apply to Facilities with a point of interconnection (POI) on a transmission line, at a substation, or on a direct dedicated feed into a substation.**

PART 1 SCHEDULING CONSIDERATIONS

GPC will conduct Witness Testing for fixed axis solar Facilities will be conducted between 10:00 a.m. and 3:00 p.m. GPC will conduct Witness Testing for tracking solar Facilities starting at 9:00 a.m. and continue until 85% output is achieved or until GPC determines that 85% output cannot be achieved that day. For Generator-owned transformers, GPC also will need an additional hour on site before testing begins.

For a Facility to pass a Witness Test, each individual inverter must achieve 85% of the maximum capable AC output, which requires appropriate weather conditions. Accordingly, Generator should pay attention to the weather forecast and postpone scheduled Witness Testing if needed. So long as Generator contacts (by phone and confirming email) the designated GPC Representative no later than two business days before the scheduled start time to cancel testing due to weather concerns, there will be no test fee charge.

PART 2 WITNESS TESTING FEES

Table A1: Witness Testing Fees by Day		
Facility Size	Weekday Fee	Weekend Fee
≥ 250 kW & < 1MW	\$ 3,900	\$ 4,400
≥ 1 MW	\$ 3,200	\$ 3,700

Initial weekday Witness Testing fees are included in the Installation Costs paid under the IA. Any additional Witness Testing or re-testing fees must be paid before GPC conducts Witness Testing.

If additional testing or re-testing is required, GPC will coordinate the scheduling with Generator. Generator must pay applicable Witness Testing fees and submit to GPC all requested documentation (Attachment 1 (*Solar PV Inverter Pre-Witness Test Checklist*) and Attachment 2 (*Solar PV Inverter Pre-Witness Test Checklist Inverter Information*)) before GPC will schedule the Witness Test. Billing and payment will be as described in Part 6 (*De-Energization/Re-Energization Fee*) of this Distribution Test Policy.

PART 3 INVERTER-BASED FACILITY WITNESS TESTING

This Part 3 (*Inverter Based Facility Witness Testing*) outlines the minimum Witness Testing requirements. Testing requirements for additional relaying that may be required in some interconnections are not included in these Guidelines. GPC will discuss the requirements with Generator's test engineer before Witness Testing. GPC also may perform other tests as GPC deems appropriate.

The Facility must pass all tests during Witness Testing. Failure of any one of the tests will result in failure of the Facility as a whole. Upon failure of any test, GPC personnel, in their discretion, may remain onsite to allow Generator an opportunity to correct the deficiency and GPC will then repeat the tests. All tests will be repeated after Generator has established that the cause of the previous failure has been corrected. GPC retains the right to determine whether Witness Testing will continue that same day.

The Facility is tested as a whole. If Generator wishes for an inverter or other piece of equipment to be excluded from the Witness Test, that inverter or equipment will be isolated and disconnected from both the DC and AC side. In the case of an inverter, the serial number will be deleted in GPC's records. If Generator later wishes to reconnect the inverter, the entire Facility will require new Witness Testing.

In addition to other requirements in this Distribution Test Policy, all loads that are connected to the bus that the Facility is connected to are required to be disconnected from the bus during the entire period of Witness Testing. This requirement applies to all Generator loads regardless of size, type, and application. It is Generator's responsibility to disconnect all local loads and be ready for the Witness Test before GPC testing personnel arrive for testing.

There are some periods during the year when 85% output from the Facility is not achievable, either due to panels installed at a fixed angle or fixed angle single east-west axis trackers not advantageous to the season in which it is being tested. The following provisions describe the process for granting a provisional acceptance until such time as an 85% maximum output test can be completed. A provisional acceptance is not guaranteed and is granted at GPC's sole discretion.

1. Witness Testing must be performed on a clear sunny day, as determined in GPC's sole discretion.
2. The three-phase disconnect test will be done at the maximum achievable output of the Facility on that clear sunny day. This may require more than three sets of three-phase Witness Tests as the day progresses. The number of tests is based on the GPC's sole discretion of the GPC test personnel on site if, in the GPC test personnel's opinion, the previous measured maximum output has been exceeded as the day progresses. This increase typically results from tracker systems that have different maximum output peaks during the day. This may require testing to proceed until late in the day when the expected afternoon peak has passed.
3. Provisional acceptance requires that all equipment must be operational and in proper working order during the entire period of Witness Testing. If a tracker or inverter, etc., fails during the day, even for a short period, no provisional acceptance can be granted.
4. A Facility granted commercial operation approval (COA) based on a provisional acceptance may operate for no longer than six months, after which the Facility will be disconnected if there has been no successful Witness Testing.
5. Provisional acceptance can be granted to a Facility only once.

Once a Facility has been successfully tested and interconnected, GPC must be notified in advance of any change desired, such as, for example, any change to the inverter control programming and set points. GPC retains the right to determine whether the desired change is permitted and whether additional Witness Testing is required after the change. If the requested change is permitted, GPC may require Generator to submit an updated Pre-Witness Test Checklist.

A change to the AC power source (including but not limited to different generating equipment (inverters), grounding, step-up transformer, software, hardware, firmware, gateways, Power Plant Controllers (PPC), or interconnection protection and control devices or scheme) that GPC deems to have a material effect on Interconnection Facilities, or the Electric System will require a re-test. A change to the DC power source (e.g., changing out solar panels, DC fuses, or other DC-related protection or control equipment) that does not increase the maximum AC output of an inverter will not require a re-test.

PART 4 GENERATOR REPRESENTATIVES REQUIRED AT WITNESS TESTING

The following Generator personnel may be required at Witness Testing. *Note that one person may fulfill multiple functions. Depending on the complexity of the Facility, some people or functions may not be required.*

- **Settings Engineer:** To adjust interconnection protection equipment, if needed.
- **Test Engineer:** To perform secondary injection testing on interconnection protection equipment, if needed.
- **System Operator:** To perform Generator switching of DC and AC systems, if needed.
- **Inverter Control Engineer:** To adjust set points of the inverter, if needed.

PART 5 TRANSIENT OVERVOLTAGE TEST

5.1 Overvoltage Test Operational Requirements

Upon de-energization by a three-phase disconnect device it is possible for an inverter-based Facility device to produce a short duration overvoltage condition. The maximum limits for the allowed overvoltage are described below. Refer to Figure 1 for conditions (B) through (D).

- A. The Facility must shut down within 120 cycles after the three-phase disconnect has been completed.
- B. Maximum Root-Mean-Square ("RMS") voltages produced by the Facility at the POI ranging from 1.1 pu to 1.2 pu must not exceed 60 cycles duration.
- C. Maximum RMS voltages produced by the Facility at the POI ranging from 1.21 pu to 1.5 pu must not exceed 10 cycles duration.
- D. Maximum RMS voltages produced by the Facility at the POI ranging from 1.51 pu to 2.0 pu must not exceed 3 cycles duration.

E. If any instantaneous peak voltages are produced in excess of 2 pu, they will be evaluated for acceptance based on the ITIC CBEMA curve.

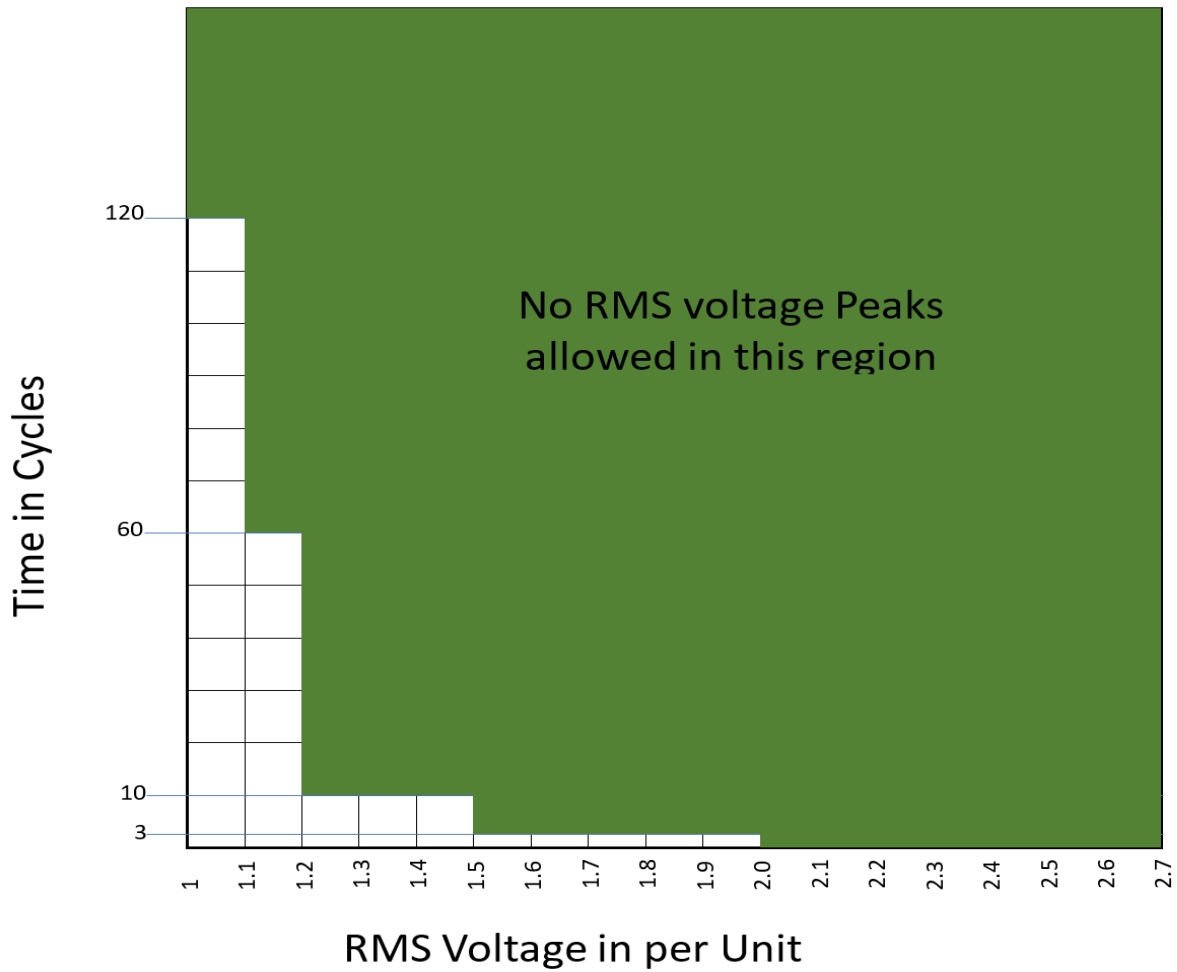


Figure 1: RMS Voltage Limit

5.2 Testing Configuration

- A. A power recorder supplied and operated by GPC will be connected to monitor voltages at the POI.
- B. A switch that disconnects all three phases will be opened on the GPC side of the POI.

5.3 Testing Conditions

- A. During the three-phase disconnect test, the Facility must produce power in excess of 85% of the maximum AC output. If the Facility is not capable of producing 85% of the maximum AC output, the test will be rescheduled for another day at Generator's expense. All inverters must contribute 85% or more of the confirmed maximum output during the three-phase disconnect tests. Facilities with multiple inverters not only have to provide 85% of the confirmed Facility maximum output, but each inverter individually must also contribute 85% or more of its confirmed maximum output. This ensures against some inverters producing 100% output and others not producing 85% or more.
- B. All inverters must be producing power (no inverter is allowed to be disabled or switched off).
- C. No other load is permitted to remain on the inverter-based Facility after the three-phase disconnect occurs.

5.4 Testing Procedure

- A. While recording the output of the Facility at the POI, open the three-phase disconnect switch and record and analyze the transient overvoltage amplitudes and durations.
- B. The test will be repeated three times, and the Facility must pass each time.
- C. Sometime after each three-phase disconnect, the three-phase disconnect switch will be closed for a very short time, opened again, and then closed once more. GPC will verify that the Facility does not start producing power until five minutes after the last energization.

PART 6 SINGLE PHASE DISCONNECT TEST

6.1 Single Phasing Operational Requirements

- A. The Facility must shut down within two seconds after single phasing has been initiated.
- B. The Facility must wait a minimum of five minutes before producing power again after the single-phase condition has been restored to three-phase service.

6.2 Testing Configuration

- A. A voltage and current recorder, supplied and operated by GPC, will be connected to monitor the voltages at the POI.
- B. A switch that disconnects a single phase will be opened on the GPC side of the POI.

6.3 Testing Conditions

- A. All inverters must be in service and must produce power.

6.4 Testing Procedure

- A. While recording the output of the Facility at the POI, open one phase on the utility side for more than two seconds and close it back in again.
- B. Once all inverters have come back online, repeat the test for the next phase.
- C. Do the same for the third phase.

PART 7 INVERTER CONTROL MODE TEST

7.1 Facility Control Operational Requirements

- A. The Facility must control the power factor to the pre-determined set point agreed to by GPC.
- B. The Facility must not attempt to actively control the POI voltage.

7.2 Testing Configuration

- A. The inverter-based Facility must be in the normal operating mode.

7.3 Testing Conditions

- A. The Facility must produce power in excess of 20% of the Facility rating for 30 minutes continuously during the test.
- B. All inverters must be producing power during the test.

7.4 Testing Procedure

- A. Record approximately 30 minutes of continuous Facility output for analysis.

PART 8 FACILITY POWER QUALITY TEST

8.1 Facility Control Operational Requirements

- A. The Facility's Total Demand Distortion (TDD) and Total Harmonic Distortion (THD) must stay within the allowable limits as stipulated in IEEE 1548 and IEEE 519.
- B. Individual current and voltage harmonic distortions must meet the requirements set in IEEE 1547 and IEEE 519 for Facility.

8.2 Testing configuration

- A. The Inverter based Facility will be in the normal operating mode.

8.3 Testing Conditions

- A. The Facility must produce power in excess of 85% of the Facility rating for at least 30 minutes continuously during the test.
- B. For facilities with multiple inverters, individual inverters are required to producing power in excess of 85% of the individual inverter rating.

8.4 Testing Procedure

- A. Record approximately 30 minutes of continuous Facility output in excess of 85% the maximum rating for analysis.

PART 9 EQUIPMENT INFORMATION

Generator must supply the make, model, serial numbers, firmware, and software version number of each inverter by completing the Pre-Witness Test Checklist prior to requesting to be scheduled for Witness Testing. During Witness Testing, GPC may verify these numbers.

PART 10 TEST RESULTS

Following Witness Test completion and GPC's review of internal test results, the designated GPC representative will be notified whether the Facility passed or failed the Witness Test. The GPC representative will then inform Generator of the results (no test report will be provided). If the Facility fails the Witness Test, and if requested, Distribution Standards and Reliability will inform Generator regarding why the Facility failed and will provide more information on the nature of the failure.

If GPC has a third party perform the Witness Test, the results of the test will be communicated to the GPC Representative after the test results are reviewed and signed off by a Distribution Standards and Reliability Engineer.

ATTACHMENT 1 – PRE-WITNESS TEST CHECKLIST

EXHIBIT A – WITNESS TESTING GUIDELINES FOR SOLAR FACILITIES ≥ 250 KW

GPC- _____

Operating Parameters*			
Nominal Operating Voltage			
Operating Voltage Range			
Operating Frequency Range			
Operating Power Factor		Absorbing <input type="checkbox"/>	Injecting <input type="checkbox"/>
Maximum DC Power (kW)			
Maximum AC Power per Inverter (kW)			
Total Maximum AC Power (kW)			
DG Reconnection Startup Time Delay (min)			
Generation Start-Up Ramp Rate (kW/Sec)			
Inverter Trip Parameters*	Pickup	Time Delay	
Over-Voltage 2 (OV2)			
Over-Voltage 1 (OV1)			
Under-Voltage 2 (UV2)			
Under-Voltage 1 (UV1)			
Over-Frequency (OF)			
Under-Frequency (UF)			
Ride-Through Options*			
Voltage Ride-Through Available	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Voltage Ride-Through	Enabled <input type="checkbox"/>	Disabled <input type="checkbox"/>	
Frequency Ride-Through Available	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Frequency Ride-Through	Enabled <input type="checkbox"/>	Disabled <input type="checkbox"/>	
Documentation			
Facility Interconnection One-Line Diagram	<input type="checkbox"/>		
Serial Numbers of All Inverters	<input type="checkbox"/>		
Firmware Version Number	<input type="checkbox"/>		
Software Version Number	<input type="checkbox"/>		

*** Generator must set all inverters per Southern Company Policy and other project specific requirements.**

As a reminder, following submission of final paperwork (including this form) in preparation for Witness Testing, Seller/Generator may not make any change to the Facility without first obtaining GPC's express written consent.

Submitted by Seller/Generator:

Seller/Generator Name: _____

Authorized Signature _____

Name Printed: _____

Title: _____

Date: _____

ATTACHMENT 2 – PRE-WITNESS TEST CHECKLIST INVERTER INFORMATION

EXHIBIT A – WITNESS TESTING GUIDELINES FOR SOLAR FACILITIES ≥ 250 KW

GPC-#ProjectNumber

Project Name:		Date:	
Inv. Make(s):		Inv. Model(s):	
Firmware #		Software #	
Detail any Changes to Facility after previous Witness Test (if applicable):			

Inverter I.D.	Inverter Serial Number	Inverter I.D.	Inverter Serial Number
1.		21.	
2.		22.	
3.		23.	
4.		24.	
5.		25.	
6.		26.	
7.		27.	
8.		28.	
9.		29.	
10.		30.	
11.		31.	
12.		32.	
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18.		38.	
19.		39.	
20.		40.	

41.		61.	
42.		62.	
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45.		65.	
46.		66.	
47.		67.	
48.		68.	
49.		69.	
50.		70.	
51.		71.	
52.		72.	
53.		73.	
54.		74.	
55.		75.	
56.		76.	
57.		77.	
58.		78.	
59.		79.	
60.		80.	
Comments:			

As a reminder, following submission of final paperwork (including this form) in preparation for Witness Testing, Seller/Generator may not make any change to the Facility without first obtaining GPC's express written consent.

Submitted by Seller/Generator:

Seller/Generator Name: _____

Authorized Signature _____

Name Printed: _____

Title: _____

Date: _____

EXHIBIT B – WITNESS TESTING GUIDELINES FOR SOLAR FACILITIES < 250 KW

PART 1 SCHEDULING CONSIDERATIONS

GPC will conduct Witness Testing for fixed axis solar facilities between 10:00 a.m. and 3:00 p.m. Witness Testing for tracking solar facilities will start around 9:00 a.m. (dependent upon the Metering Specialists schedule). For Generator-owned transformers, GPC also will need an additional hour on site before commencing Witness Testing.

A successful test requires appropriate weather conditions. It is Generator's obligation to pay attention to the weather forecast and postpone scheduled Witness Testing if needed. Generator must contact (by phone and confirming email) the designated GPC Representative at least two business days before the scheduled start time to cancel Witness Testing due to weather or any other concerns.

PART 2 WITNESS TESTING FEE

For a Facility less than 250 kW, the Witness Testing Fee is included in the one-time interconnection fee. As determined by a qualified GPC employee, some projects may require a Witness Test in accordance with Exhibit A (*Witness Testing Guidelines for Solar Facilities ≥ 250 kW*) that will require a Witness Testing Fee in accordance with Exhibit A.

PART 3 GENERATOR REPRESENTATIVES REQUIRED AT WITNESS TESTING

Generator or another Generator representative (e.g., contractor) must be present at Witness Testing to operate the Generator-owned equipment if the Facility has a battery or transformer rated metering. Otherwise, GPC will require Generator or another Generator representative to be present as needed.

PART 4 TESTING CONFIGURATION

To perform a Witness Test for a Facility under 250 kW, all loads that are connected to the bus that the Facility is connected to are required to be disconnected from the bus during the entire period of Witness Testing. This requirement applies to all Generator loads regardless of size, type, or application. The GPC Metering Specialist will verify that the Facility does not start producing power for at least five minutes after the Electric System is restored to normal operation after the last energization. It is Generator's responsibility to disconnect all local loads and ensure the Facility is ready for the Witness Test before GPC testing personnel arrive for testing.

If this procedure described in the preceding paragraph is not achievable, as confirmed by a qualified GPC employee, GPC will perform the Witness Test at the fused or solid blade disconnect. The generator will be asked to open their disconnecting means so that a qualified GPC employee can place metering equipment to ensure inverters remain offline for the duration of at least five minutes (300 seconds) after utility is restored to normal operation after the last energization.

A. Self-Contained Meters

- (i) GPC metering specialist will verify that the generation (solar and/or battery) is operational and ready to test.
- (ii) GPC metering specialist will check voltage with the solar operating and the disconnect switched on. Customer generation may cause the voltage to increase higher than normal, due to it offsetting the customer's load. The voltage should be within 5% of nominal voltage. Refer to Table B1 for the acceptable limits depending on the operating voltage:

Table B1: Low, Nominal and High Limits per Operating Voltage			
	120/240 V	120/208 V	277/480 V
Low Limit (L-N)	114	114	263
Nominal (L-N)	120	120	277
High Limit (L-N)	126	126	290

Low Limit (L-L)	228	197	456
Nominal (L-L)	240	208	480
High Limit (L-L)	252	218	504

- (iii) GPC metering specialist will pull meter from socket to simulate power outage.
- (iv) GPC metering specialist will verify that voltage on load side drops to 0 Volts/AC within 2 seconds.
- (v) GPC metering specialist will replace the meter in the socket.
- (vi) GPC metering specialist will start the stopwatch.
- (vii) The inverters must wait five minutes before resynching with the grid. A gradual increase MUST occur after five minutes.
- (viii) If Facility passes Witness Test, GPC will grant Facility "Permission to Operate," and Generator may leave the Facility energized.

B. Transformer-Rated Meters

- (i) GPC Metering Specialist will verify that the generation (solar and battery) is operational and ready to test.
- (ii) GPC Metering Specialist will check voltage with the solar operating and the disconnect switched on. Customer generation may cause the voltage to increase higher than normal, due to it offsetting the customer's load. The voltage should be within 5% of nominal voltage. Refer to Table B1 for the acceptable limits depending on the operating voltage.
- (iii) The generator will switch the disconnect OFF.
- (iv) GPC metering specialist will measure voltage on the load-side/generation side of the disconnect.
- (v) GPC metering specialist will verify that voltage on load side drops to 0 Volts/AC within 2 seconds.
- (vi) The Generator will switch the generation disconnect ON.
- (vii) GPC metering specialist will start the stopwatch.
- (viii) GPC metering specialist will measure the amperage on the load side conductors.
- (ix) The inverters must wait a minimum of five minutes before resynching with the grid. A gradual increase MUST occur after five minutes.
- (x) If Witness Tests were successful, the GPC meter will be reprogrammed, and the system has "Permission to Operate" and can be left energized.