RENEWABLE DEVELOPMENT
CUSTOMER-CONNECTED SOLAR PROGRAM

July 22, 2020
## Agenda

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WELCOME & SAFETY
Welcome & Safety

- Safety
- All phone lines are muted
- Questions during this webinar must be submitted through the Chat Feature of the GoToWebinar platform
- This Program Conference will be posted on the Customer-Connected Solar Program webpage

www.georgiapower.com/customerconnectedsolar
GEORGIA PUBLIC SERVICE COMMISSION - OPENING REMARKS
RENEWABLE DEVELOPMENT OVERVIEW
Largest of three Southern Company electric utilities

<table>
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<th>6,950 employees</th>
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<tbody>
<tr>
<td>2.5 million customers</td>
</tr>
<tr>
<td>13k miles of transmission lines</td>
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High customer satisfaction

14% Rates below the national average

87k miles of power lines

45% of customers earning under $40k
NOTE, REC Disclaimer: A portion of the renewable generation capacity included in this chart includes capacity where the renewable generator retains the related Renewable Energy Credits and the right to use and report them.
These capacity mixes reflect nameplate capacity for renewable resources, program capacities for demand-side options ("DSOs"), and designated/demonstrated capacity for the remaining fuel types. A portion of the renewable generation capacity included in this chart includes capacity where the renewable generator retains the related Renewable Energy Credits ("RECs").
2019 IRP RENEWABLES RESULTS

PROCUREMENT & DEVELOPMENT

2,260 MW =

1,000 MW CRSP
600 MW for existing
400 MW for new

1,000 MW Utility Scale
For All Customers

210 MW DG
160 MW RFP
50 MW Customer-Sited

50 MW Biomass

PROGRAMS

- Customer Renewable Supply Procurement (CRSP) New & Existing
- Simple Solar Large Volume Flexibility

R&D

- Storage Portfolio – 80 MW
- EV Battery Reuse Pilot - $250,000
PROGRAM HISTORY
## Our Programs

<table>
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<tr>
<th>Program</th>
<th>MW Sought*</th>
<th>MW Procured</th>
<th># Projects</th>
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<tr>
<td>ASI</td>
<td>90</td>
<td>89.7</td>
<td>272</td>
</tr>
<tr>
<td>ASI Prime</td>
<td>100</td>
<td>88.3</td>
<td>189</td>
</tr>
<tr>
<td>REDI Customer-Sited II</td>
<td>50</td>
<td>47.5</td>
<td>33</td>
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<tr>
<td>REDI RFP</td>
<td>100</td>
<td>86.7</td>
<td>38</td>
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<tr>
<td>2019 IRP DG RFP</td>
<td>160</td>
<td></td>
<td></td>
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<tr>
<td>Customer-Connected Solar</td>
<td>25</td>
<td></td>
<td></td>
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<tr>
<td>REDI Customer-Sited II</td>
<td>25</td>
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*Excludes rollover
RESULTS OF GROWING SOLAR RESPONSIBLY

2013
SEIA’s #7 Top 10 Solar States for solar capacity installed in 2013
SEIA’s “fastest growing solar market in the nation”

2014
SEPA’s Investor-owned utility of the year

2015
SEIA’s Top 10 utilities for adding the most solar power to system in 2015
SEPA’s Top 10 utilities for 2015 installations

2016
SEPA’s Top 10 utilities for 2016 installations

2017
SEIA’s Top 10 Solar States for cumulative solar

2018
SEPA’s Top 10 Solar Utilities for cumulative solar & Top 10 Solar States for cumulative solar

2019
SEIA’s named Georgia as the #5 state in the U.S. for 2019 Solar PV installations
CUSTOMER-CONNECTED SOLAR PROGRAM (CCSP)
PROGRAM SCHEDULE

CCSP Program Conference

July 22, 2020

July 30, 2020

Application Period Opens

Application Period Closes

January 2022*

*or until the 25 MW AC portfolio is filled
Information found on the CCSP website:

► Overview of program
► Program schedule
► Program Documents
► Link to Interconnection Guidance
► Link to Apply (PowerClerk)
► FAQ’s
► Ability to “Contact Us” for program questions

www.georgiapower.com/customerconnectedsolar
PROGRAM BENEFITS

► Monthly payments directly to Customer

► Renewable Energy Credits (RECs)
  - Georgia Power will retire the RECs associated with a participant’s solar facility, allowing the customer to claim the renewable benefits of the local solar energy.

► Available Federal Tax Incentives
  - Federal tax incentive for 2020 = 26%
  - Federal tax incentive for 2021 = 22%
  - Federal tax incentive for 2022 = 10% (non-Residential)
Customers must own, lease, or lease the production of the solar facility from a third party.

Projects can be sized from 1 kW up to 3 MW AC, capped at 125% of peak demand.

Only existing Georgia Power customers are eligible to participate - contracts must be in the customer’s name.

Solar facility must be located on or adjacent to a customer’s premise.

Payments will be made directly to customer.

Renewable Energy Credits (RECs) retired by Georgia Power on behalf of participating customers.
PROGRAM ELIGIBILITY

- One application per Customer Account
- Customer account must be active for at least 6 months prior to application
- Customer account must not be delinquent
- Participation in previous GPC DG programs
WHAT IS A SEPA?

Customer
► No upfront money required
► Makes ongoing SEPA payment to developer
► Receives ongoing PPA payment and RECs from GPC

Georgia Power
► Monthly payments directly to customer
► Retire REC’s on behalf of customer

Developer
► Invests in project
► Earns return through ongoing SEPA payment from customer

SEPA Payment
Rights to Solar
PPA Payment & RECs
Solar kWh
WHAT IS A REC?

Renewable Energy Certificates/Credits (RECs) are the intangible certifiable environmental attributes created with each megawatt hour of energy generated by a renewable asset.

RECs are a way to capture/track and quantify environmental benefits of replacing or offsetting traditional energy generation with renewable resources.
PROJECT EVALUATION

- Failure to provide all information requested may invalidate the Application
- Projects will be reviewed for grid impact
- Project-specific interconnection studies will be conducted
- If there are multiple facilities in close proximity, project evaluation will be sequenced on the date/time of the Application, as applicable.
The RMCD is the date by which the Facility must achieve Mechanical Completion and the Customer must submit the Mechanical Completion Certificate to Georgia Power.

The RMCD is selected by the Customer and included/identified in the Application.

The RMCD cannot exceed 210 days and is calculated from the date Georgia Power executes the PPA.

Once the PPA is fully executed, Seller may not request an amendment to the RMCD.
**MECHANICAL COMPLETION**

- Instituted to provide milestones to each Customer based on the specific project construction schedule
- Mutually agreed-upon between Georgia Power and the Customer’s construction obligations
- Requires Customer to submit Mechanical Completion Certificate and demonstrate that the Facility is Mechanically Complete by the RMCD
  - Customer provided Georgia Power the final Facility documents
  - Customer completed the assembly, construction and installation of the Facility and the Facility is mechanically, electrically and functionally complete and sound
  - Facility passed an electrical inspection (as evidenced by an inspection certificate) by either the appropriate city or county inspection authority
  - Customer obtained any and all other governmental approvals
  - Facility is ready for Initial Synchronization; and
  - Customer submitted the Mechanical Completion Certificate to Georgia Power

*Full definition included in the PPA*
Initial Synchronization & Witness Testing

Customer must give at least 7 Business Days advanced written notice of the date requested for Initial Synchronization.

If the period of Initial Synchronization exceeds 7 consecutive Days, Georgia Power reserves the right to temporarily disconnect the Facility and to re-energize its interconnection facilities at a later date.

Georgia Power will grant Commercial Operation Authorization to Seller within seven Business Days after the successful completion of Witness Testing.

1. Seller must request and be prepared for Initial Synchronization within 60 Days following Mechanical Completion.

2. After (i) Georgia Power’s receives the Initial Synchronization Request, (ii) Seller has met all pre-Initial Synchronization requirements in the IA, including payment of Interconnection Costs, and (iii) Georgia Power’s interconnection facilities are ready for Initial Synchronization, the Parties will jointly select a date and time for the Facility’s Initial Synchronization.

3. The Facility must successfully pass all testing in accordance with the Georgia Power Distribution Test Policy (“Witness Testing”) by no later than 120 Days after the date of Initial Synchronization.
POWERCLERK APPLICATION
PROCESS
Register a new account, or log-in with existing PowerClerk credentials.
Once an account has been created, you will receive an e-mail with a unique, time-sensitive link to complete account set-up.

From there, you will activate your account and have access to the Customer-Connected Solar Program Application portal.
APPLICATION PROCESS

Click here to begin the Application process!
SAMPLE APPLICATION INFORMATION

► Customer information
► Applicant information
► Counterparty (Seller) name
► Basic facility information
  – Address
  – Latitude/Longitude
  – Facility size (kW)
  – Parcel number
  – Project contingencies, if any

► Required documents:
  – Site Control Affidavit and Landowner Confirmation
  – Customer Contractor Designation Form
  – Preliminary Site Plan
  – Facility Construction Timeline
  – PV & Inverter Specification Sheet
  – Facility One-Line Diagram
  – GPC Customer Bill

All application information must be submitted, documents uploaded, and fees paid before application is complete.
- Technical Interconnection Overview
DEFINITIONS

► Georgia Power Distribution Circuit: The Georgia Power owned circuit operating at greater than 1kV but less than 34.5 kV, excluding facilities, equipment or other devices inside a substation.

► Point of Interconnection (POI): The unique point at which the facility is interconnected to the Georgia Power Distribution Circuit, in accordance with the Interconnection Agreement, where the customer delivers energy and Georgia Power purchases energy generated from the facility.

► Point of Change of Ownership: The point at which customer’s facilities stop and Georgia Power’s interconnection facilities start.

► Interconnection Limit: The maximum power output (kW AC) at which the facility will not export power above

The POI does not necessarily coincide with the point of change of ownership of equipment.
**EXAMPLE INTERCONNECTION OPTIONS: TRANSFORMER OWNERSHIP**

For CCSP, customers may choose to own the transformer or have Georgia Power own the transformer.

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**Georgia Power Owned Transformer**

- **Standard Service Voltages**
  - Voltage (V): 120/240V OH XFMR
    - Configuration: Delta, 1 phase
    - Size (kVA): <100
  - Voltage (V): 120/208V OH Bank
    - Configuration: Wye-Wye, 3 phase
    - Size (kVA): 45 - 500
  - Voltage (V): 120/208V UD Pad
    - Configuration: Wye-Wye, 3 phase
    - Size (kVA): 45 - 1000
  - Voltage (V): 277/480V UD Pad
    - Configuration: Wye-Wye, 3 phase
    - Size (kVA): 75 - 3750

*GPC reserves the right to approve transformer options.*

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**Customer Owned Transformer**

*Must be two-winding only, with no Delta Tertiary winding, grounded-wye on the GPC and DER side.

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*Solar PV Power Plant*
** More detailed info in the GPC Construction Guidelines

Georgia Power Distribution Circuit

30’ wide access route for entirety of ICF Site

“POI”

15’ of clearance on all sides around transformer

ICF Site

DER Facility

Facility Fence (Optional)

Facility Gate (Optional)
The customer must arrange and purchase Auxiliary Service for the DER facility under standard retail rates. This electric service must be purchased from the electric service provider and will be a separate metered service.

The customer is not allowed to “self-serve”, to meet it’s electrical requirements:

- Lighting
- Security Systems and equipment
- Electric Gate
- Etc.

If Georgia Power is the electric service provider for the territory, a separate estimate and design will be created to serve auxiliary equipment at the same time that the interconnection facilities are being estimated. The customer will be required to install applicable metering equipment for auxiliary service, per the GPC Blue Book for Electrical Service.

- *GPC Metering Requirements (Blue Book) are available online
Facility Testing Requirements

**Facility <250 kW**

- **Cease-to-Energize Functionality Test**
  - Check the cease-to-energize functionality by operating a GPC interrupting device and verifying that Facility ceases to energize its output terminals and does not restart/reconnect for the required time delay
  - Verify the voltage at the customer side of the meter to make sure it is de-energized

**Facility 250 kW or Above**

- **Transient Overvoltage Test**
  - 3 phase test
  - Check to ensure inverter based DG device overvoltage condition does not compromise the GPC system
  - Each individual inverter must achieve 85% of the maximum capable AC output for testing purposes
  - Facility must shut down within 120 cycles after the three-phase disconnect has been completed

- **Single Phase Disconnect Test**
  - Facility must shut down within two seconds after single phasing has been initiated
  - 5 minute delay verification

- **Inverter Control Mode Test**
  - Facility must control the power factor to the predetermined set point agreed to by GPC
  - Facility must not attempt to actively control the PCC voltage
  - Verify the voltage at the customer side of the meter to make sure it is de-energized
DG INTERCONNECTION OVERVIEW

- Distribution Interconnection Information
GPC DISTRIBUTION LINES & EQUIPMENT

Single Phase Lines & Equipment
► <100 kW facility typically is able to interconnect to single phase distribution line

Three Phase Lines & Equipment
► ≥ 100 kW facility required to interconnect to three phase lines
► ≥ 1 MW facility requires an electronic recloser & interval metering equipment
CCSP Interconnection Process
Integrating Distributed Generation Solar Resources

PLANNING
- Customer submits application in PowerClerk
- Customer submits Initial facility drawings
- GPC conducts Interconnection Study

CONTRACTING
- GPC notifies Customer of project moving forward
- Customer executes Agreement(s)
- Customer pays Required IC costs
- Customer provides final Facility documents
- Customer notifies GPC of Facility Mechanical Completion

CONSTRUCTION
- GPC conducts Interconnection Study
- GPC issues PPA and IA to Customer
- GPC designs ICF and Determines Interconnection Costs
- GPC obtains permits
- GPC obtains ICF Site for GPC Construction
- GPC provides acceptable Initial Sync
- GPC energizes Facility & site commissioning begins
- GPC provides Pre-Witness Test Checklist

INITIAL SYNCH
- Customer submits Initial Synch Request
- Customer provides final Facility documents
- Customer sets up GPC Account
- GPC ICF construction complete
- Customer notifies GPC of Facility Mechanical Completion

TESTING
- Customer & GPC Determine Witness Test Date
- GPC Witness Testing of the Facility
- Witness Test review
- Commercial Operation Authorization

For illustration purposes only.
DG INTERCONNECTION OVERVIEW

- Optional Interconnection Guidance Program
DG INTERCONNECTION GUIDANCE PROGRAM

To request Interconnection Guidance, please visit https://georgiapowericg.powerclerk.com

Tier 1: $800

- Substation system one-line diagram
- Substation name, ownership, & circuit
- POI information* including:
  - Primary operating voltage, number of phases, and conductor size
  - Distance to closest upstream three phase protective device
  - Distance to the substation
- Existing distributed generation on the circuit (total MW)
- Identification of whether transmission upgrades would be required

*Results will include the closest circuit to the POI indicated in the initial request

Tier 2: $2,700

- All items in Tier 1 analysis
- Load-rejection Temporary Over-Voltage Analysis (Identification of Direct Transfer Trip)
- Stiffness Analysis
- Recent annual peak load data for the circuit
- Ratio of proposed facility to peak load
- Reliability coordination study and identification of upstream device upgrades

Tier 3: $9,500

- All items in Tier 1 and Tier 2 analyses
- Detailed load flow study (Identification of Facility Power Factor Requirements)
Conclusion