South Carolina Generator Interconnection Procedures Stakeholder Meeting

July 22, 2021

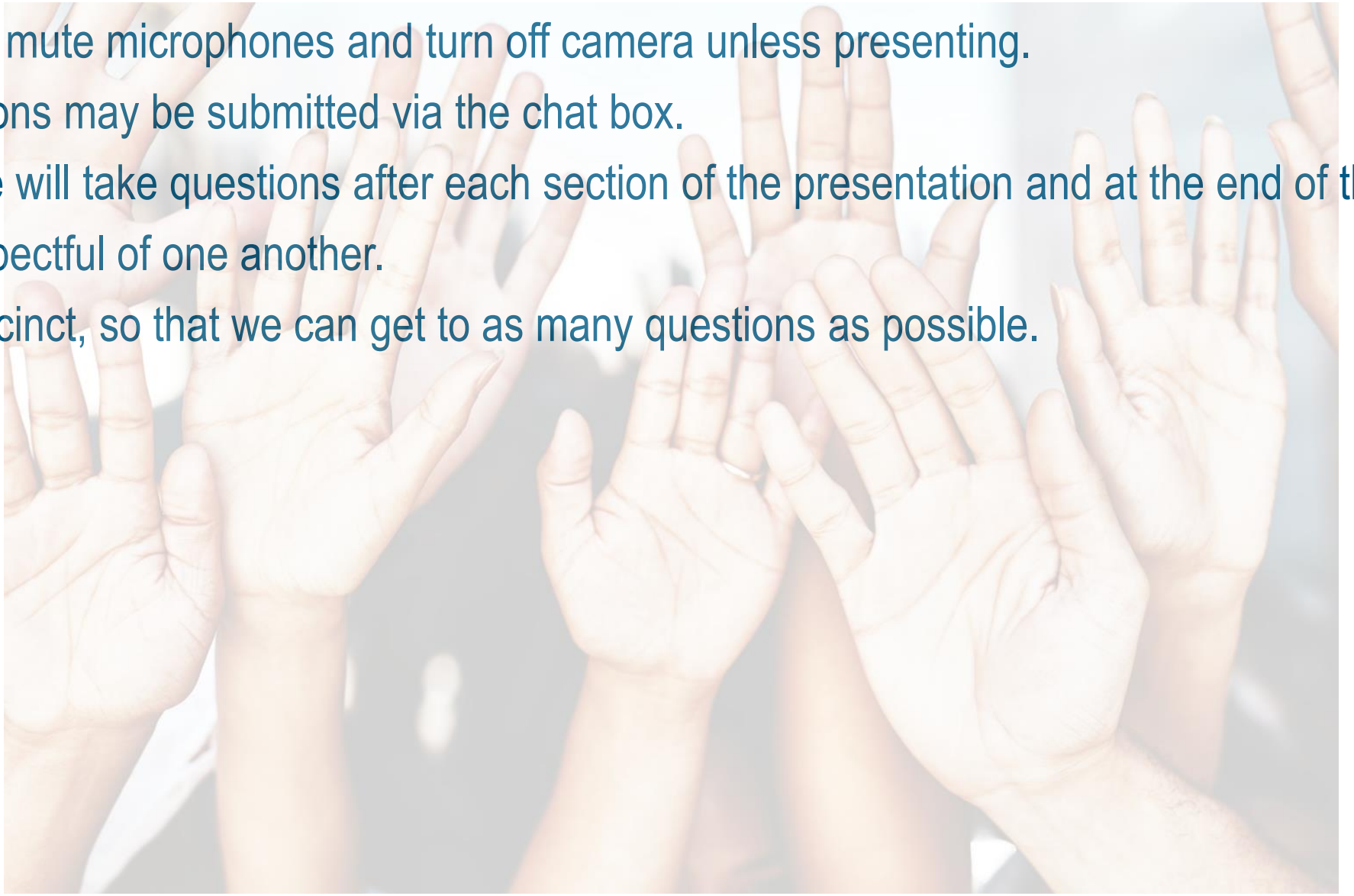


Dominion Energy®

DUKE ENERGY®

Welcome and Ground Rules

- Please mute microphones and turn off camera unless presenting.
- Questions may be submitted via the chat box.
  - We will take questions after each section of the presentation and at the end of the meeting.
- Be respectful of one another.
- Be succinct, so that we can get to as many questions as possible.



Background and Act 62 Overview

Rebecca Dulin, Duke Energy

Director, Stakeholder Engagement

Agenda for the Meeting

1.	Welcome, Safety & Logistics	1:00 - 1:10pm
2.	Background and Act 62	1:10 - 1:20pm
3.	Duke Energy Presentation	1:20 - 1:50pm
4.	Stakeholder Presentation(s)	1:50 - 2:30pm
5.	Dominion Energy South Carolina Presentation	2:30 - 3:00pm
6.	General Q&A	3:00 - 3:20pm
7.	Wrap-Up and Next Steps	3:20 - 3:30pm

History and Background

- April 2016: South Carolina Generator Interconnection Procedures adopted (Order No. 2016-191)
  - *Note*: SCGIP very similar to NC Interconnection Procedures
- May 2019: Act 62 (South Carolina Energy Freedom Act) Adopted
- June 2019: NCUC approves revisions to NC Interconnection Procedures
- Oct. 2019: PSC established Docket No. 2019-326-E
- Sept. 2020: DESC, Duke, and CCEBA petition for approval to approach Docket No. 2019-326-E in two phases
- Nov. 2020: Duke files for approval of revisions to SCGIP to establish process for cluster studies
- Feb. 2021: PSC approves Duke's request revisions to the SCGIP to allow for cluster studies
- Feb. 2021: DESC begins stakeholder process to discuss cluster studies
- July 22, 2021: Commence stakeholder discussions for "Phase II"
- Q3 - Q4 2021: SCGIP Stakeholder Meetings

Phase II Description

- <u>What is intended by “Phase II”?</u>
  - The second phase of work would involve comprehensive revisions to the other portions of the SCGIP not implicated by the Duke cluster study (“or Queue Reform”) proposal or Dominion Energy South Carolina cluster study queue reform
  - Revisions would be proposed by the Duke Utilities, DESC, the Solar Intervenors, and potentially other interested parties, after a series of stakeholder meetings intended to seek consensus on proposed reforms.
    - This phase of work would also address certain directives in Act 62 (as addressed in the next slide)

Scope of Today's Meeting

In Scope	Out of Scope
Section 2 (Option 20 kW Inverter Process)	Duke Energy Queue Reform Proposal
Section 3: Fast Track Process	DESC Cluster Study Proposal
General discussions about stakeholder process and goals	Debating the merits of each presenter's presentation
Questions intended to gain greater understanding of each presenter's presentation	

Act 62 Overview

- **<u>S.C. Code Ann. Section 58-27-460</u>**:
  - PSC shall establish proceedings to consider revisions to SCGIP
    - No time requirements for when PSC must issue an order
  - SCGIP shall provide for:
    - **efficient and timely processing** of interconnection requests and
    - take into account the **impact** of generator interconnection on
      - **electrical utility system assets,**
      - **service reliability, and**
      - **power quality**
  - SCGIP must address **energy storage**:
    - the impact of the addition of **energy storage** and
    - the process for **amending existing interconnection** requests to include energy storage.
  - SCGIP must be:
    - **fair, reasonable, and nondiscriminatory** *(with respect to interconnection applicants, other utility customers, and electrical utilities)*
    - shall **serve the public interest** in terms of **overall cost and system reliability.**

Duke Energy: SCGIP Focus and Priorities

Jeff Riggins, Duke Energy

Director, Interconnection

Goals of SCGIP Revisions

- Collaborate with stakeholders to improve the process to interconnect renewable generation and other generation facilities safely, reliably and efficiently.

- Achieve as much consensus with stakeholders as possible prior to filing with the PSC – reduce number of litigated issues

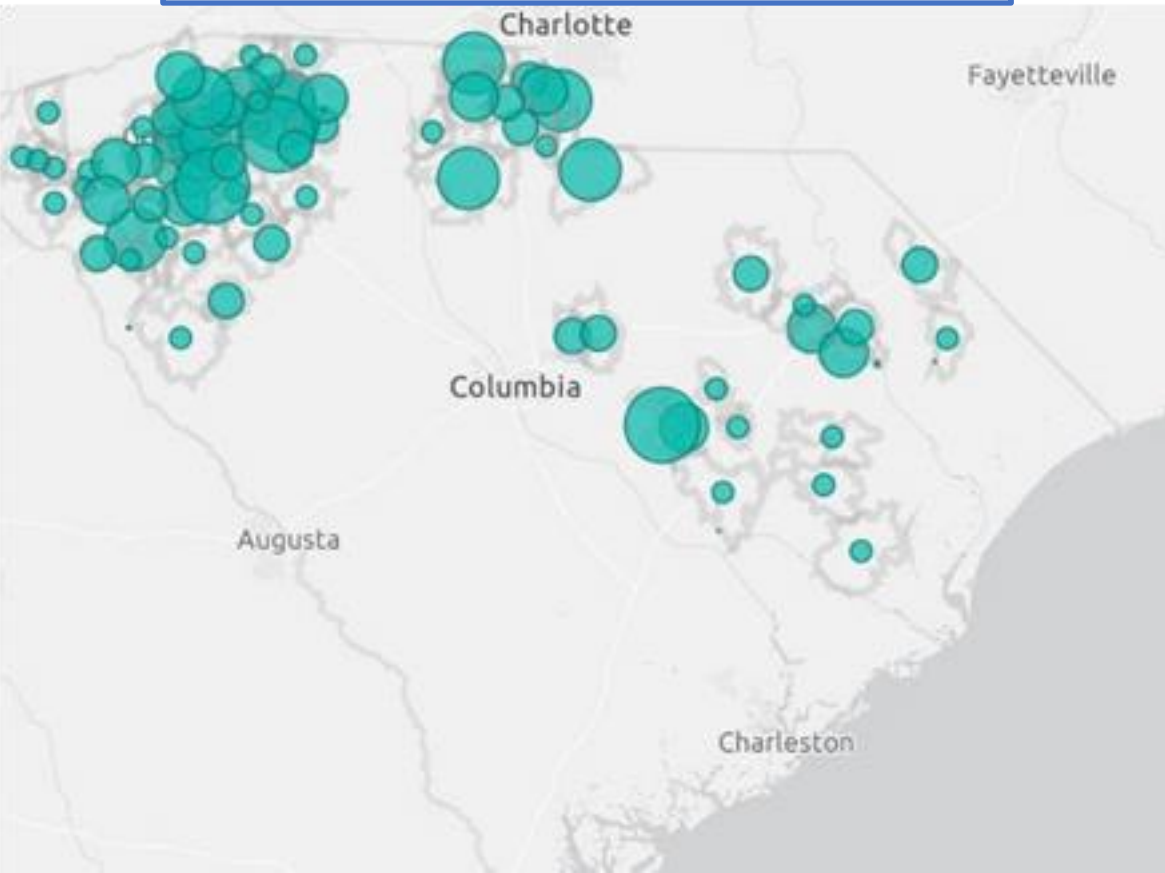
- Position Duke Energy and its customers to meet renewable energy goals.

Current Status of Interconnections in SC

- 10,502 net metering (NM) projects totaling 120 MW (projects <1MW)

- 51 non-NM customer owned projects totaling 119 MW (projects ≤ 10MW)

Net metering projects only, shown by zip code



Successes and Lessons Learned

Successes and Lessons Learned to Inform SCGIP Revisions

- Revise Fast Track screens and Supplemental Review criteria (EPRI Recommendations)
  - Improve pass rates
  - Improve effectiveness of screens and clarify language
- Clarify process for commissioning and inspections
  - Focus on utility scale generators, not net metering projects
  - Address safety and reliability issues with generation facilities interconnected prior to current inspection and commissioning requirements
- Provision to expedite review of Standby Generator projects
  - Standby Generators do not export so they do not compete for circuit capacity with other generators
  - Does not impact other interconnection requests in queue

Successes and Lessons Learned

- Implementation of Technical Standards Review Group (TSRG)
  - Prioritized the most important requirements of IEEE 1547 and worked collaboratively to define the requirements for implementing 1547
  - Identified and remediated specific operational concerns. Duke added an operations engineer to monitor and track outages to help reduce downtime and improve customer communications
  - Develop and periodically provide DER commissioning training to share common inspection issues and answer industry questions so that DER have a better chance of passing on the first inspection

- Allow Generating Facility output to be limited by controls and smart inverter capabilities
  - Enables utilities to reduce upgrade costs in some cases

- Clarify Utilities' ability and responsibility to recover overhead administrative costs from Interconnection Customers


Questions?

KILPATRICK TOWNSEND

July 22, 2021

SCGIP Revisions: Utility-scale issues

Ben Snowden, Kilpatrick Townsend & Stockton LLP

Solar industry priorities for SCGIP revisions

- Energy storage
- Cost controls & other cost-related issues
- Transparency & review of study methods / technical information
- Self-build option for Interconnection Facilities and Standalone Upgrades
- Affected system coordination
- Dispute resolution

Energy Storage

- Specifically referenced in Act 62
- Expedited study process for addition to / removal of storage from IRs in the study process
- Expedited study process for addition of storage to existing facilities
  - May apply to certain other reconfigurations of existing facilities
- Definition of nameplate capacity
- Use of storage to mitigate system impacts

Interconnection Costs

- High-priority issue for developers
- Limitation on cost overruns in construction
- Clarity on what cost estimates mean
- Monthly facilities charges and interest charges
- Clarification regarding payment schedules and refundability

Transparency and review of study methods / technical information

- Advance publication of new study criteria, methodologies, and requirements
- Transparency of existing study models and criteria
- Hosting capacity maps, ISOP data, and other information relevant to efficient siting should be made available to interconnection customers

Self-build option

- Interconnection Facilities and Standalone Upgrades
- Already exists under OATT and was expanded by FERC Order 845

Dispute Resolution

- Referenced in Act 62
- Clarify tolling of certain deadlines
- Alternative dispute resolution by mutual agreement

Affected System Coordination

- Currently a significant issue in NC and other jurisdictions
- Greater clarity on process and timing

Non-Residential SC GIP Considerations

Donald R. Zimmerman

7/21/2021

Issue 1: Reserve Capacity (a.k.a. "Solar Holdout")

SC GIP, Section 2.1: "The Utility shall reserve circuit capacities specifically designated for Generating Facilities that meet the criteria for inclusion in the 20kW Inverter Process. These projects will be streamlined and not require a study process, unless it is deemed necessary by the Utility. Once a reserved circuit phase capacity is exceeded, any subsequent Generator Interconnection Requests on that circuit will follow the defined Section 3 Fast Track Process. The table below lists the circuit voltage levels and the associated reserved capacities."

Reserved Circuit Capacities for 20 kW and Less	
Line-Line Voltage	Reserved Capacity Per Phase
< 10 kV	150 kW
≥ 10 kV and < 15 kV	450 kW
≥ 15 kV and < 25 kV	500 kW

alderenergy SYSTEMS

Recent Fast Track Projects

Case Study	kW Requested	kW Holdout	Min. Daytime Load kW	Disposition	Reverse Flow Cost
Restaurant	60	3,000	1,100	Reduced System to 20kW	N/A
Industrial Park Workshop	500	6,000	3,670	TBD: In Facilities Study	TBD
Fire Station	36	3,000	1,740	Reduced System to 20kW	N/A
Industrial Park Warehouse	150	6,000	3,113	Project Cancelled	$150,000
Boat Assembly Plant 1	60	1,350	1,200	Built; paid for reverse flow	$150,000
Boat Plant 2	86	1,350	1,200	Shared Cost with Plant 1	

Note: All Holdouts were greater than the Minimum Daytime Loads

alderenergy SYSTEMS

Observations:

The "one size fits all" calculations used for allocating reserve capacity for under 20kW causes unnecessary and expensive upgrade costs to be borne by non-residential solar customers.

- Canceled Projects
- Reduced Project Sizes
- Increased Project Timelines
- Hinders Customers' Clean Energy Goals

alderenergy SYSTEMS

Suggestions for Improvement:

- Equitable Distribution of the Minimum Daylight Load limits
  - Calculate Solar Holdout by rate class (residential / non-residential) of customers using the substation.
  - Revise the calculation bi-annually.
- All current instances where the Solar Holdout exceeds the Minimum Daylight Load exemplify the problem with the current method.
- Do not assume that *all* customers' solar production is exported to the grid.

alderenergy SYSTEMS

Issue 2: Fast Track Screening Criteria

- Screen number 3.2.1.2 consistently FAILS the 15% line section annual peak load criteria but on Supplemental Review subsequently PASSES.
  - Requires a Supplemental Review be performed on almost all 20kW+ projects (incurring additional time and cost for the solar customer).
  - Propose: loosening or eliminating this screening requirement as best determined by analyzing past project screening and Supplemental Review history.

alderenergy SYSTEMS

Issue 3: Offset/Sell

- The Offset/Sell interconnection option must be made available for Behind-the-Meter installations that do not qualify for Solar Choice Net Metering. Typically, these systems would be >1MW or sized greater than the customer contracted demand. Exported power from the solar customer would be compensated at a published standard rate.
- This interconnection option must follow the Fast Track and/or Full Study interconnection processes and be made available on all interconnection application tools (e.g. PowerClerk, etc.).

alderenergy SYSTEMS

South Carolina Generator Interconnection Procedure (SCGIP) Phase 2 Reform

Matt Hammond
Manager – Electric Transmission Support

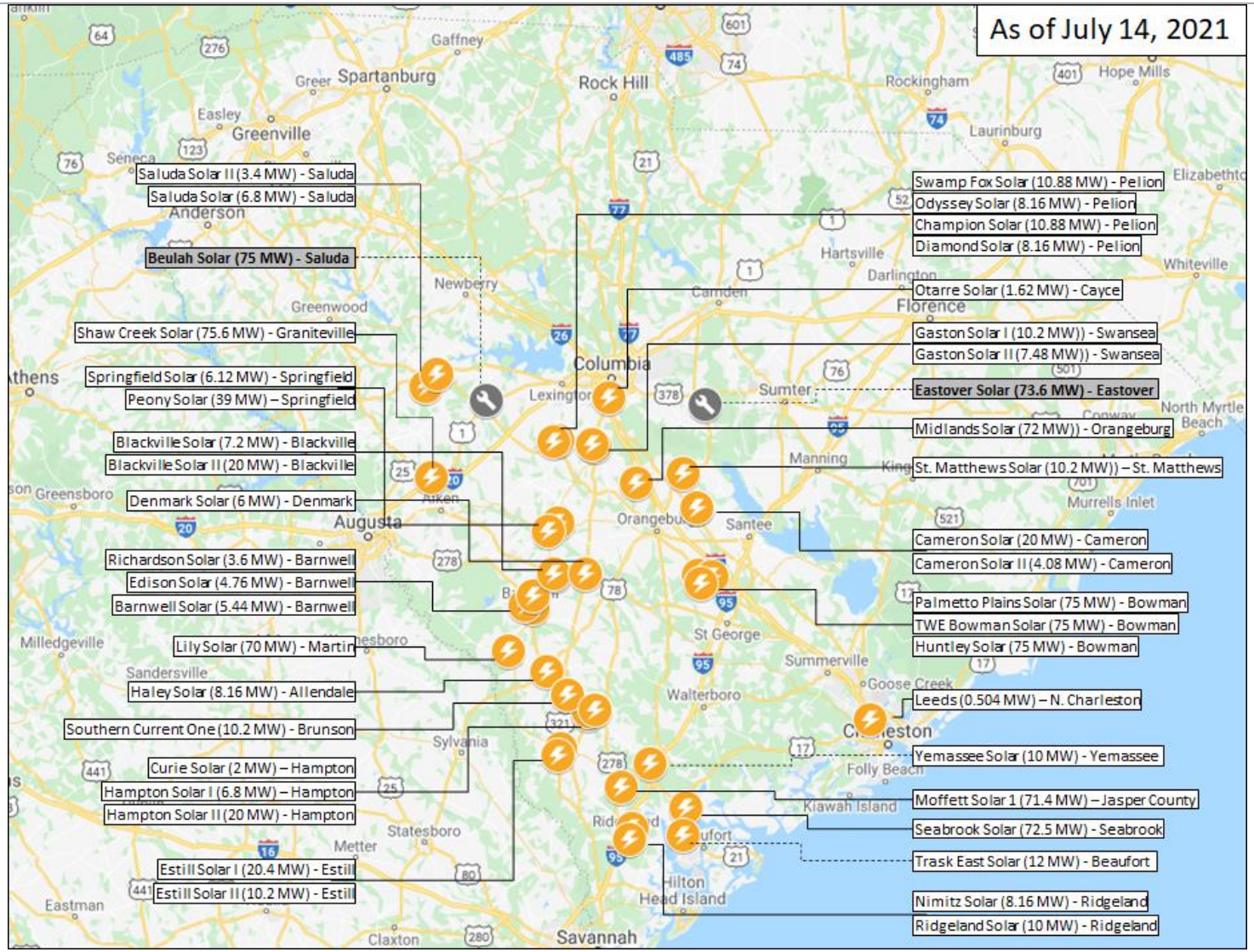
July 22, 2021

Goals of SCGIP Revisions

- Collaborate with stakeholders to improve the process to interconnect renewable generation and other generation facilities safely, reliably, and efficiently
- Address Act 62 topics around renewable energy programs
- Position Dominion Energy South Carolina and its customers to meet clean & affordable renewable energy goals

Utility Scale & Community Solar – 900 MW

- 40 Solar Farms In-Service
  - 13 Transmission
  - 27 Distribution
  - 2 Solar Farms under Construction



Dominion Energy South Carolina Renewable Energy

Solar Photovoltaic – 1,021.4 MW (12,259 Systems)

• Residential	86.0 MW	
• Commercial/Industrial	35.1 MW	Processed via Queue
• Utility Scale	884.3 MW	Processed via Queue
• Community Solar	16.0 MW	Processed via Queue

Hydro Plants – 794 MW

- Saluda, Neal Shoals, Parr, Stevens Creek (218 MW)
- Fairfield Pumped Storage (576 MW)

Wind Turbine Drivetrain Research

- Dominion Energy Innovation Center @ Clemson University Restoration Institute

Current Process

- DESC administers:
  - Small Generator Interconnection Procedure (SGIP – FERC jurisdictional)
  - Large Generator Interconnection Procedure (LGIP – FERC jurisdictional)
  - South Carolina Generator Interconnection Procedure (SCGIP – State jurisdictional)
- The generator's intent for its output dictates the jurisdiction
- DESC utilizes a serial study process based on first-in, first-studied
  - Anticipates future approval from the Commissions to authorize a cluster study process

Serial Process by the Numbers

State Interconnection Queue (< 80 MW)		
Status	MWs	Total Projects
Total	6,662	542
Complete	967	176
In Progress	1,778	104
Withdrawn	3,917	262
as of 07/14/2021; Does not include Boeing		

FERC Interconnection Queue (> 80 MW)		
Status	MWs	Total Projects
Total	6,221	43
Complete	0	0
In Progress	5,092	27
Withdrawn	1,129	16
as of 07/14/2021		

- DESC has processed 300 projects 1MW or less in size
- DESC has received 285 projects greater than 1 MW in size (Totaling 12,804 MW)
  - 63 projects (Totaling 6,855 MW) remain in process
- 63 projects (Totaling 830 MW) have executed interconnection agreements and later withdrawn from the queue.

General Comments and Feedback

Wrap-Up and Next Steps

- Please send comments or specific areas you would like to address to:
  - scinterconnection@guidehouse.com
  - Please send by Friday, August 13, 2021

- Next meeting: TBD (~Sept. 2021)
  - We will begin addressing specific sections of the SCGIP
  - Specific meeting will be dedicated to considering energy storage