Evaluation of Saint George's Cay Power Company Limited (SGCPC) Renewable Energy Plan and Supporting Documents

Preliminary Determination and Draft Order

ES 02/2025

Issue Date: 15 August 2025

Response Date: 07 November 2025

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1 Introduction

The Utilities Regulation and Competition Authority (URCA) is the independent regulator of the electricity sector (ES) in accordance with the Electricity Act, 2024 (EA). The EA sets out the powers, duties and responsibilities of URCA in addition to the statutory obligations of entities operating in the ES. URCA has the statutory mandate and responsibility for licensing and regulating persons who wish to generate, transmit, distribute or supply electricity within The Bahamas.

The EA requires Authorised Public Electricity Suppliers, inclusive of Saint George's Cay Power Company Limited (SGCPC), to produce a Renewable Energy Plan (REP) to increase the proportion of renewable energy capacity used in its generation the purpose of which is to help achieve the national energy and electricity sector policy objectives.[1] As the regulator for the ES, one of the functions of URCA is to review and determine whether or not to approve the REP having regard to the statutory criteria set out in the EA, the electricity sector policy objectives and the national energy policy.

URCA considers SGCPC's REP to be of significance to the public in the area served by SGCPC and is consulting on its Preliminary Determination to:

- Highlight the key elements of SGCPC's Renewable Energy Plan;
- Discuss URCA's review of the Plan; and
- Invite comments from SGCPC and other stakeholders on this document.

1.1 Background

SGCPC is an URCA licensee with the APSEL designation, exclusively serving Spanish Wells and Russell Island. As the sole electricity supplier to residences and businesses on these islands, SGCPC is mandated under Section 51(2) of the EA to develop and submit a time-bound plan for the introduction of sustainable renewable energy technologies into its electricity supply system, which requires URCA's approval.

[1] Electricity Act 2024, section 51(1)

To fulfil this requirement, SGCPC has submitted an application to URCA. This submission included the eight (8) documents listed below. These documents are contained in Annexes A to H. Collectively, the documents make up SGCPC's Renewable Energy Plan (REP).

A. Executive Summary, 01 July 2025
B. Renewable Energy Plan, 02 July 2025
C. Application for Electricity Service Account, Rev 2024-08-08
D. Grid Interconnection Application (GIA), Rev 2025-04-02
E. Terms & Conditions for Customer-Owned Solar Energy SSRG and RESG Operated Under a Grid-Interconnection Agreement (GIA), Rev 2025-0701
F. Customer Grid Interconnection Requirements (GIR) for Renewable Generation PV Systems and Off-Grid Renewable Energy Systems, Rev 2025-07-01
G. Glossary & Definitions, Rev 2025-05-11
H. St George's Cay Power Company (SGCPC) Renewable-Energy Fee Structure Addendum, Rev 2025-07-12

1.2 How to Respond and Timeline for Consultation

URCA invites comments from licensees, members of the public and interested parties on the matters set out in this Preliminary Determination. Such comments must be received by URCA within thirty (30) calendar days from the publication of this document.

The deadline for receiving written comments is 5:00 p.m. on 07 November 2025. Such written submissions and comments should be submitted to URCA by email to: info@urcabahamas.bs with the subject line, **ES02/2025 SGCPC REP PDDO**

After the period for representations closes, URCA will carefully consider such representations made and shall publish its final determination.

During the consultation period SGCPC will conduct a public hearing in relation to the REP. URCA will subsequently consider the responses and comments received on this document before issuing a Final Determination and Order.

Table 1 below summarizes the timeline and activities for this consultation process:

Event	Date
URCA published on its website a summary of the SGCPC REP	15 August 2025
URCA issues the Preliminary Determination and Draft Order	15 August 2025
Deadline for SGCPC to host public forum on proposed REP	24 October 2025
Close of Receipt of Responses	07 November 2025
Final Determination and Order	30 days from the close of receipt of responses.

1.3 Confidentiality

URCA considers that, as a matter of transparency and good regulatory practice, it is important for the public and interested parties to this consultation process to have sight of the views and positions expressed by all respondents. As such, as soon as reasonably practicable after the close of the response date for this consultation, URCA intends to publish all responses on the URCA website at www.urcabahamas.bs.

URCA may treat as confidential responses that are clearly marked (in part or full) as being confidential. An explanation should be provided to justify any information that is submitted on a confidential basis. In such circumstances, a redacted version should also be submitted to URCA. URCA has the sole discretion to determine whether to publish any submission marked as confidential.

1.4 Intellectual Property

Respondents agree that by submitting a response to this document, they represent to URCA to have the authority to licence any material subject to copyright law or any other intellectual property protection to URCA. Additionally, Respondents agree that by submitting a response to this document copyright and all other intellectual property that form any part of a response to this

document shall be licensed to URCA for its use during the consultation process and implementation process for any resulting regulatory or other measure issued by URCA.

1.5 Structure of the Remainder of this Document

The remainder of this document is structured in the following way:

- Section 2: sets out the Regulatory Framework under which UIRCA has exercised it powers to issue this document;
- Section 3: sets out a summary of SGCPC's proposed REP;
- Section 4: sets out URCA's preliminary analysis and questions relative to SGCPC's REP;
- Section 5: sets out URCA's preliminary determination;
- Section 6: sets out URCA's draft order; and
- Section 7: provides the Next Steps in this process.

2 Regulatory Framework

This section sets out the regulatory framework under which URCA has exercised its powers to issue this Preliminary Determination.

The Electricity Sector in The Bahamas operates under the Electricity Act 2024, which establishes the legal framework for the regulation of the sector by the Utilities Regulation and Competition Authority. URCA is tasked with implementing, monitoring, and enforcing the provisions of the EA, holding extensive powers, particularly concerning its licensees.

The Electricity Sector policy aims to provide a safe, cost-effective, reliable, and environmentally sustainable electricity supply across The Bahamas. Key objectives include advancing economic growth and international competitiveness, enhancing energy security, fostering competition in electricity generation, protecting the environment, promoting energy efficiency and renewable energy use, encouraging private investment and innovation, and incentivizing improved performance in operations and customer service.

Section 7 of the EA mandates URCA to issue regulatory processes that are fair, objective, non-discriminatory, and transparent, aligning with the National Energy Policy (NEP) and the Electricity Sector Policy (ESP).

Under Section 51(2) of the EA, all PES and APES must develop and submit a time-bound plan for integrating sustainable renewable energy technologies into their systems. Further, section 51(3) of the EA mandates that this plan must include provisions for facilitating residential renewable energy generation and addressing the reliability of intermittent resources, considering cost-effective storage technologies.

Section 54 outlines the procedures for connecting residential renewable energy systems to the grid. Property owners can apply to a PES or APES (depending on the location of the resident) for permits to install and operate renewable energy systems, which must be registered and interconnected according to URCA's regulatory measures. The grid interconnection agreement will

ensure that the public electricity supplier purchases or credits the owner for excess power generated.

Section 55 addresses renewable energy projects by small-scale businesses, commercial enterprises, and government agencies. PES or APES must approve these projects, ensuring they meet URCA's regulations and do not negatively impact the electricity supply system. URCA will maintain and publish a list of approved projects, including their sizes and capacities.

Finally, Section 51(5) requires URCA to publish summaries of proposed renewable energy plans for public information and determine their consistency with sector policy objectives and national energy policy. Having regard to the language used in section 51(5)(b) of the EA, this approval may be given by URCA through a determination process since URCA is required to publish the REP and to "determine whether to approve the plan as consistent with the sector policy objectives and national energy policy."

URCA is empowered by section 49 EA to make determinations and, prior to issuing a determination, may issue a notice of preliminary determination. URCA may also issue an order to enforce a determination. A copy of the order it proposes to issue with the final determination shall be enclosed with the preliminary determination. Except in the case of repeated breaches, URCA will not issue an enforcement order where the relevant person has complied with the obligations or remedied the consequence of the contraventions set out in the preliminary determination.

The cumulative effect of the above provisions of the EA established URAC's legal authority to determine whether to approve or disapprove a REP presented in accordance with the above stated provisions of the EA.

3 SGCPC's Renewable Energy Plan Summary

This section provides a high-level overview of the contents of the REP submitted to URCA by SGCPC.

As indicated previously, SGCPC's REP is divided into eight (8) parts as contained in documents annexed to this document as Annexes A to H, collectively.

Annex A contains the Executive Summary of their Renewable Energy Plan (REP) provided by SGCPC. Annex B contains the plan itself. As the sole electricity supplier on Spanish Wells and Russell Island currently using diesel generators, SGCPC in its REP proposes a transition to include renewable energy sources that aligns with National Energy Policy (NEP) goals and ensures cost-effectiveness.

According to the plan, SGCPC intends to achieve the policy goal of generating 30 percent of its energy from renewables by 2027 in three phases. Each phase requires land to install the PV panels and battery energy storage systems to ensure grid stability. This will require approximately 2 MW of PV capacity. According to SGCPC's calculations the lowest cost of electricity to customers would be achieved if they were able to generate up to 90 percent of their electricity using renewables. However, this would require about 8 MW of PV capacity and a 35 MWh battery with available land being a further constraint.

The REP also proposes to allow customers to install their own RE systems, provided customers meet the connection standards and do not compromise system safety and grid stability. Approved systems would be registered and permitted to export power generated to the grid, which they will be compensated for by SGCPC. Section 7.12 explains how persons will be compensated for power they export to the grid. The REP also accommodates persons who wish to be off-grid – that is to have no connection to and be completely independent of SGCPC. The REP also contains information on how to open an electricity account and apply to connect to the grid; see Annexes C and D. The terms and conditions of the Grid Interconnection Agreement (GIA) are contained in Annex E, and the Grid Interconnection Requirements (GIR) are set out in Annex F. Among other

things, the GIR stipulates the size system persons may install, the technical parameters the system must comply with, and the approval process.

Annex H details the costs associated with installation and administration of private PV systems.

SGCPC will monitor and inspect installations to ensure they do not negatively impact grid stability or safety. Unauthorized or non-compliant systems will be subject to removal or disconnection until proper approvals are secured.

4 URCA's Assessment of the SGCP Renewable Energy Plan

This section of the document first looks at compliance with the EA, then discusses specific points within the REP.

4.1 Compliance with the Electricity Act 2024, Section 51(3)

Law – Statutory Requirements

URCA's review of the SGCPC REP is conducted against the requirements set out in section 51(3) of the EA which provides that the REP should include:

(a) provisions for facilitating persons, including other public electricity suppliers, to apply to URCA to be licenced as independent power producers to participate in utility electricity generation to the relevant grid using renewable resources and technologies;

(b) a policy statement giving preference to renewable electricity resources in all procurement actions in the absence of compelling reliability or cost considerations;

(c) a plan to procure increasing specified minimum percentages of electricity products from eligible renewable electricity resources by a specified date, thereby allowing the phased increase in renewable generation;

(d) provision to ensure the reliability of intermittent resources, taking into account the availability of cost-effective storage technologies;

(e) provisions for facilitating residential renewable energy generation to the grid and renewable energy self-generation projects;

(f) an annual requirement for reporting the progress by the public electricity supplier with respect to its renewable electricity plan; and

(g) a mechanism for formal review by URCA of the renewable electricity plan once every three years, which review will result in the public electricity supplier updating the plan to reflect developments in renewable electricity resources.

Additionally, in conducting its assessment of the REP, URCA is guided by the National Energy Policy and Electricity Sector Policy Objectives.

Analysis

Compliance of the REP with each of the requirements (a to g) in the EA are addressed below.

(a) *provisions for facilitating persons, including other public electricity suppliers, to apply to URCA to be licenced as independent power producers to participate in utility electricity generation to the relevant grid using renewable resources and technologies;*

Entities wishing to become Independent Power Producers (IPP) would apply through the process established by URCA (see Licencing at www.urcabahamas.bs).

(b) *a policy statement giving preference to renewable electricity resources in all procurement actions in the absence of compelling reliability or cost considerations;*

URCA notes that Sections 2.11 to 2.14 of the SGCPC REP contain statements expressing policy support for renewable energy solutions. Based on the language used, URCA considers that the REP may satisfy this requirement, as it gives an indication that renewable resources are prioritised in procurement processes unless there are overriding cost or reliability concerns.

(c) *a plan to procure increasing specified minimum percentages of electricity products from eligible renewable electricity resources by a specified date, thereby allowing the phased increase in renewable generation;*

URCA observes that Section 6 of the SGCPC REP outlines a three-phase approach toward achieving 30% renewable generation by 2027, consistent with the targets of the National Energy Policy. This reflects a time-bound and phased increase in renewable generation capacity. Accordingly, URCA considers that this condition may be met.

(d) *provision to ensure the reliability of intermittent resources, taking into account the availability of cost-effective storage technologies;*

The REP discusses the installation of energy storage systems alongside photovoltaic (PV) generation to support grid stability (see Section 6). At this stage, URCA considers that this requirement is likely fulfilled, as the SGCPC REP appears to recognise the reliability challenges associated with intermittent resources and proposes a quantified deployment of storage capacity as a solution.

(e) *provisions for facilitating residential renewable energy generation to the grid and renewable energy self-generation projects;*

Sections 7 through 11 of the SGCPC REP, as well as accompanying documents such as the Grid Interconnection Agreement (GIA) and Grid Interconnection Requirements (GIR), address this area.

URCA notes that these instruments appear to provide a basis for enabling residential and self-generation renewable energy projects. Accordingly, URCA considers that this requirement may likely be fulfilled.

(f) *an annual requirement for reporting the progress by the public electricity supplier with respect to its renewable electricity plan;*

This requirement is addressed in section 4.7 of the SGCPC REP.

(g) *a mechanism for formal review by URCA of the renewable electricity plan once every three years, which review will result in the public electricity supplier updating the plan to reflect developments in renewable electricity resources.*

Section 4.6 of the SGCPC REP references a formal review mechanism consistent with the Electricity Act. URCA considers that this may likely be sufficient to meet the statutory requirement for triennial review.

4.2 Questions on the SGCPC Renewable Energy Plan

URCA is interested in responses from the public to the following questions. Persons should provide reasons/explanations for their responses with supporting information where available/applicable.

1. In the REP (Annex B), are the projected energy growth (section 2) and plans to meet that growth (section 6) reasonable? If not, what changes should be made?
2. Is the Application for Electricity Service account (Annex C) and the Grid Interconnection Application (Annex D) easy to follow and comply with? If not, what changes should be made?
3. Are the Terms & Conditions for Customer-Owned Solar Energy SSRG or RESG Operated Under a Grid-Interconnected Agreement (Annex E) reasonable? If not, what changes should be made?
4. Are the method and amount of compensation for persons exporting power to the grid reasonable, as outlined in section 7.12 of the SGCPC REP (Annex B)? If not, what changes should be made?

5. Are the Capacity Limits as outlined in section 2 of the Customer Grid Interconnection Requirements (GIR) for Renewable Energy Generation PV Systems and Off-Grid Renewable Energy Systems (Annex F) reasonable? If not, what changes should be made?
6. Is the Application and Interconnection Process for All Systems as outlined in section 3 of the GIR (Annex F) reasonable? If not, what changes should be made?
7. Does the System Architecture set out in sections 5.4 and 5.5 of the REP (Annex B) cover the types that will be needed? If not, what changes should be made?
8. Are the Definitions in the Glossary and Definitions (Annex G) easily understood? If not, which ones need to be revised and what is the difficulty?
9. Are the fees outlined in SGCPC Renewable Energy Fee Structure Addendum (Annex H) reasonable? If not, what changes should be made?

5 Preliminary Determination

This Preliminary Determination is issued by the Utilities Regulation and Competition Authority (URCA) to Saint George's Cay Power Company Limited (SGCPC or Licensee) in accordance with sections 49(1)(b)and 51 of the Electricity Act, 2024. This Preliminary Determination gives notice that URCA proposes to issue a Final Determination pursuant to section 49 of the Electricity Act.

WHEREAS by email dated 02 July 2025, SGCPC submitted to URCA its Renewable Energy Plan (REP) for approval in accordance with section 51 of the EA;

AND WHEREAS in accordance with section 51(5)(a) of the EA URCA has published on its website for public information purposes only a summary of the renewable energy plan proposed by SGCPC;

AND WHEREAS section 51(5)(b) EA provides that "URCA shall after publication of the plan, determine whether to approve the plan as consistent with the sector policy objectives and the national energy policy;"

AND WHEREAS it appears to URCA that the plan submitted by SGCPC may likely comply with the requirements under the EA in relation to the formulation of a REP; and

AND WHEREAS in exercising its powers under the EA, URCA is allowing persons with an interest in this matter including licensees, stakeholders and the general public in The Bahamas a reasonable opportunity to comment on the proposed REP and URCA's evaluation and consideration of the REP.

NOW THEREFORE having considered the foregoing maters, **URCA HEREBY DETERMINES THAT**:

1. SGCPC's REP dated 02 July 2025 is consistent with the sector policy objectives and the national energy policy;
2. SGCPC's REP dated 02 July 2025 be approved pursuant to section 51(2) EA;
3. URCA shall in accordance with section 49 EA, issue a Final Determination and may also issue an Order in this matter.

Dated the 15th day of August A.D., 2025

Jonathan Hudson

Director of Utilities and Energy

6 Draft Order

This Draft Order is enclosed by the Utilities Regulation and Competition Authority (URCA) pursuant to section 49 of the Electricity Act, 2023 (EA), and issued in conjunction with the Final Determination.

WHEREAS by Final Determination made on XX 2025, URCA determined that pursuant to section 51 of the EA approved the Renewable Energy Plan of Saint George's Power Company Limited (SGCPC) dated the 02 July 2025 as consistent with the energy sector policy and objectives and the national energy policy.

In accordance with the role, functions and powers of URCA under the EA, URCA **HEREBY ORDERES THAT:**

1. SGCPC's REP dated 02 July 2025 become effective as of the date of this Order below.

Dated the XX day of XX A.D., 2025

PENAL NOTICE: Failure to comply with this Final Determination and Order may result in URCA taking the appropriate regulatory action in accordance with the EA and Licence.

J. Carlton Smith

Chief Executive Officer

7 Next Steps

Following are the next steps.

1. Persons are invited to provide their input on Saint George's Power Company Limited (SGCPC) renewable energy plan (REP). Particularly to the questions raised in section 4.2 of this document. Details on how and when persons should respond by are contained in section 1.3 of this document.
2. SGCPC will hold a public hearing to explain their REP and receive feedback. The meeting will be held in Spanish Wells on Thursday, 23 October 2025. Persons may contact SGCPC at www.stgeorgescaypower.com for further details.
3. SGCPC will reply to URCA stating how it intends to address the concerns raised by the public as a result of the consultation.
4. URCA will consider the comments received as part of the consultation and will prepare a Final Determination and Order within sixty (30) days from the receipt of the same.

Annex A: SGCPC REP Executive Summary, 01 July 2025

ST GEORGE'S CAY POWER COMPANY (SGCPC)

RENEWABLE ENERGY PLAN – EXECUTIVE SUMMARY – 1 July 2025

1.0 Background

1.1 This Renewable Energy Plan (REP) is required for St George's Cay Power Company (SGCPC) under its License from the Utilities Regulation and Competition Authority (URCA) regulations and The Bahamas Electricity Act 2024. (EA 2024). The REP describes how SGCPC intends to safely and sustainably grow and support renewable energy implementation and displacement of diesel fuel to make electricity.

1.2 Until now, 100% of our electricity has been from diesel-fueled gensets with no other generating sources. SGCPC enjoys exceptional reliability due to its construction, maintenance, and operational standards and controls.

1.3 The EA 2024 requires that this generation be accomplished in a least-cost manner that does not increase the cost of electricity to Customers.

1.4 To meet the least-cost requirement, SGCPC will build and own solar-energy (photovoltaic, or "PV") generating assets. PV represents the lowest possible capital investment and the best rate reduction proposition for Customers. This will include ground and roof PV Systems.

1.5 The only other potentially suitable renewable-energy technology that is technologically commercially viable are wind turbines. However, there are no commercial-size turbines available that are appropriately certified, are marine hardened, and can be operated to withstand the local wind speeds.

1.6 SGCPC also will allow and encourage Customers to install PV Systems that they may own themselves. Those systems must comply with SGCPC requirements and industry standards and best practices and not compromise the safety of the SGCPC system or network. All these systems will require approval from Town Council (as with any local property modifications that affect the appearance, access, and safety of a property), a permit from Ministry of Works (the same as any electrical work on a premise), and an application and approval from SGCPC. Without these three steps, a privately owned PV System cannot be connected to the SGCPC grid. These are not new requirements. Permits and approvals are enacted by the public to protect the public's safety and interests in their communities.

1.7 Customer-owned solar energy is not favored economically because it may result in electricity costs increasing for grid electricity. That is because this practice results in less grid electricity sold by SGCPC and therefore the application of fixed costs to less sold energy – resulting in higher cost. There also is higher capital investment by the community per unit of energy (because of lack of economy of scale).

1.8 The allowable sizing of Customer-owned PV Systems is based on guidance and regulations approved and implemented by BPL on New Providence Island. The SGCPC grid is approximately 1/100 the size of New Providence, so the limitations on SGCPC system sizing are roughly 1/100 compared to New Providence. That means, as an example, a residential PV System on Spanish Wells that is 10 kW power capacity would have an equivalent effect as a 1,000 kW PV system on the BPL New Providence grid.

1.9 SGCPC will compensate the owners of PV Systems installed on their premises for energy exported to the SGCPC grid, because that energy helps our community meet its 2030 and future goals. The compensation rate will change over time, and it is based on the cost for SGCPC to generate electricity from SGCPC-owned PV Systems. That rate presently is approximately $0.05 per kWh as measured by the SGCPC meter. The backup for that calculation is provided in the REP. Until the REP is approved, there will be zero compensation for exported energy.

1.10 The REP anticipates the community will reach and exceed 30% by 2027 provided the REP is approved and the SGCPC projects move forward.

1.11 Adding batteries to the grid is essential to maintain grid stability as increased PV is added to the grid. Approaching or exceeding 50% power offset by PV (PV making half of the power at any moment during the day) is shown to cause problems with grid stability. Offsetting more than 10% to 15% of daily energy equates to close to 50% of the power during peak sun hours. The first PV farm being installed by SGCPC will offset approximately 15% of the annual energy, meaning more PV will require adding batteries.

1.12 SGCPC expects that the planned installation and operation of PV and ESS owned by SGCPC as described in the REP will allow SGCPC to reduce the cost of electricity for all Customers that are buying grid electricity.

1.13 There is a significant risk associated with privately owned PV Systems that SGCPC has observed around our community. One SGCPC's technicians received an electrical shock when working on the meter for a home with PV equipment that should have been de-energized under the operating circumstances. Safety of the public and our crews is the most important priority. It also is clear that many are not designed or built to withstand 180 mph hurricane winds. Without adequate oversight and authority, privately owned systems put SGCPC technicians, the grid, and their neighbors at risk due to uncontrolled energy export and potential for wind damage. Wind-blown PV panels ("modules") for instance can fly hundreds of feet and damage otherwise unharmed buildings or property.

2.0 Definitions and Key Terms

2.1 "PV" means photovoltaic, or the process of making electricity from the sun. The panels on the roof are also called PV "modules".

2.2 "PV System" means an assembled system of PV modules (the "array"), rapid shutdown components (if installed), an inverter (to turn the DC electricity from the PV module to AC electricity to use in the home), the racking system (whether on the roof or ground), and associated wiring. A PV System may or may not include an ESS.

2.3 "Point of Interconnection", "POI", means where the PV System is physically connected to the grid. This can be at the house main electrical panel or anywhere else on the Customer side of the SGCPC meter.

2.4 "Energy Storage System", "ESS", means a battery with the associated electrical and safety components necessary to safely store and dispatch energy as needed. The ESS includes an electronic device that is an inverter (turns DC to AC current) and a rectifier (turns AC to DC current). The ESS must be certified to the UL-9540 safety standard and all larger ESS include a fire-protection system. Battery fires are very dangerous and often cannot be extinguished until they burn completely.

2.5 "Power": Like the speedometer of a car. The rate of doing work. Power is measured in kilowatts (kW) or megawatts (MW). There is no factor of time in the measurement of power. A PV System size refers to the kW or MW of power capacity. Operating this system over time makes energy. Similar to a car going 30 miles an hour (like the "power") for 2 hours goes 60 miles (like the "energy").

2.6 "Energy": Like the odometer of a car. The capacity to do work. Energy is measured in kilowatts-hours (kWh) or megawatts-hours (MWh). Energy is the use of power over time.

2.7 "Yield" means the energy produced in a year by a certain power size of a PV System. While the Power of a PV System remains the same no matter where or how it is installed, the Energy it produces changes with the location and installation details. Yield depends on direction the PV modules are pointed (south, east, west) and their tilt angle, and various electrical factors. Usually, yield is in the range of 1400 to 1600, meaning a 10 kW PV System would produce 14,000 to 16,000 kWh a year.

2.8 "DC vs AC rating" means the power capacity for a PV System stated in kW-DC or kW-AC. The kW-DC is the total of the power of all the PV modules. The kW-AC is the AC output power of the PV Inverter. Usually, the engineer will design the PV Inverter smaller than the PV Modules, using a ratio in the range of 1.2 to 1.3 for roof systems or 1.3 to 1.4 for ground systems. The Yield also changes for systems stated in their AC rating; that typical yield is closer to 2,000 kWh per year per kW-AC of PV power capacity (compared to 1,400 to 1,600 stated above in Section 2.7).

2.9 "Off-Grid System" means a PV System that has no connection to the SGCPC grid.

2.10 "Levelized Cost of Energy" (LCOE) means the cost today and for the life of the PV System in $ per kWh of energy. It is calculated as the total cost of installation and operation for the 25–30-year life divided by the total energy produced over those years.

2.11 "Islanding" means the ability of a PV System to produce power when there is no grid voltage present at the system's POI. A PV System without an ESS is certified to be "anti-islanding" meaning it can never make power without being connected to an operating grid. A PV System with an ESS can make its own power without the grid, but it is essential for safety that this system NOT be connected to the grid and producing power and exporting energy to the grid when

the grid is not energized by the utility company (SGCPC) because that could easily electrocute a worker or someone responding to an emergency.

2.12 "Rapid Shutdown" means a safety component that turns off dangerous voltage within a PV array when the AC side of the inverter is turned off. Without rapid shutdown, it is likely that dangerous voltage as high as 600 V or 1000 V on a roof may be present, posing a safety risk to workers or emergency responders. Rapid shutdown is required by most electrical codes but not required in the Bahamas. It is considered a "best practice" for residential installations.

3.0 System Types and Sizing

3.1 There are two PV System types included and allowed by the REP. The difference is in the grid connection.

3.2 PV System (see Section 2) may or may not include an ESS and it is interconnected to the grid.

A. There is a significant safety challenge to SGCPC technicians and the public associated with PV Systems installed with ESS. If the system is installed exactly as designed by the engineer and intended by the manufacturer's instructions, then it is safe for norma operation. But if not, it is possible for the ESS to energize the grid when the grid is turned off. Because of this risk, these systems will require more thorough inspection by SGCPC to confirm the safety of the installation.

B. The size limitations for PV Systems are described in the Grid Interconnection Requirements (GIR). This document will be posted on the SGCPC website once approved by URCA. The limitations are based on the smaller of three measures:

(1) Maximum size of 30 kW.

(2) Size where Customer will use more electricity in a year than they produce ("net user" and not "net producer"). A net producer would be subject to different requirements under the EA 2024.

(3) a size deemed safe and reliable for the distribution and interconnection circuits.

3.3 An Off-Grid System has no grid connection. It is very similar to a PV System with ESS except there is no SGCPC meter or use of the grid. An off-grid system requires URCA approval. When an Off-Grid system's battery is depleted, the premises lose power. They cannot run a backup generator, because URCA allows a backup generator only during emergencies, such as if the SGCPC grid fails.

4.0 Connection Requirements, Application Process, and Fees

4.1 SGCPC encourages Customers to refer to the SGCPC Interconnection Requirements prior to paying deposits or signing contracts. Compliance is required and non-compliant systems will not be allowed to operate without the proper approvals.

4.2 The application process and forms will be posted on the SGCPC website, and any Customer can call the SGCPC business office any time to discuss their desired project or if they want SGCPC to consider their roof for a utility-owned system. The GIR describes the application and approval process.

4.3 The Customer shall employ a Bahamian-licensed electrician and follow published Codes and Standards. Grid-tied PV inverters shall be "anti-islanding" UL-1741 listed and IEEE-1547 certified. Other requirements are included in the GIR and Grid Interconnection Application (GIA).

4.4 Customer accepts the risk for installation, operation, performance. Customers shall have a liability insurance policy for the PV System as described in the GIR and GIA.

4.5 The fee structure is based on the time and effort required by SGCPC and its engineers to review documentation, inspect installations, and process approvals. The fees will be posted on an official Fee Structure Addendum on the SGCPC website.

Annex B: SGCPC Renewable Energy Plan, 02 July 2025

ST GEORGE'S CAY POWER COMPANY

RENEWABLE ENERGY PLAN (REP)

2 July 2025

Table of Contents

1.0 Definitions

1.1 Refer to the SGCPC Glossary and Definitions for further clarification of technical terminology.

2.0 Background

2.1 The Utilities Regulation and Competition Authority (URCA) is The Bahamas' independent regulatory authority with responsibility for and authority over all entities that generate, transmit, distribute, or supply electricity to, from, or within The Bahamas.

2.2 St George's Cay Power Company Limited (SGCPC) was formed in 1982 and has 150 local shareholders. URCA granted License APESL-18-0003 to SGCPC in 2018 to generate, distribute, and sell electricity in its service area, and as a licensee it is required to follow all applicable policies, legislation and regulations.

2.3 SGCPC serves Spanish Wells and Russell Island. SGCPC has approximately 1300 customers, consisting of residential homes, rental homes and apartments, businesses, docks, and private properties with no premises.

2.4 Growth of Customers and energy consumed has been in the range of 1% to 3% annually. The analysis of trends is hindered by the COVID pandemic. The pandemic affected the energy consumed, the growth of the Customer base, and other factors. Please refer to Table 1 and Figure 1 for details.

Table 1: SGCPC Energy and Customer Data & Future Estimates

	a	b	c	d	e	f	g
		Energy [MWh]					
	Year	Generated	Sold	Customers	Change from previous year		
1	2018	10,898	10,076	1,161			
2	2019	11,007	10,178	1,194	Total	Non-VAT	VAT-able
3	2020	11,116	10,281	1,204	NA	NA	NA
4	2021	12,046	11,154	1,214	8%	-17%	23%
5	2022	11,881	10,999	1,232	-1%	-33%	11%
6	2023	12,080	11,186	1,265	2%	68%	-14%
7	2024	12,155	11,256	1,294	1%	12%	-4%
8	2025	12,335	11,425	1,313			
9	2026	12,517	11,596	1,333			
10	2027	12,703	11,770	1,353			
11	2028	12,891	11,947	1,373			
12	2029	13,082	12,126	1,394			
13	2030	13,275	12,308	1,415			

NOTE: Data for 2025 through 2030 are estimates.

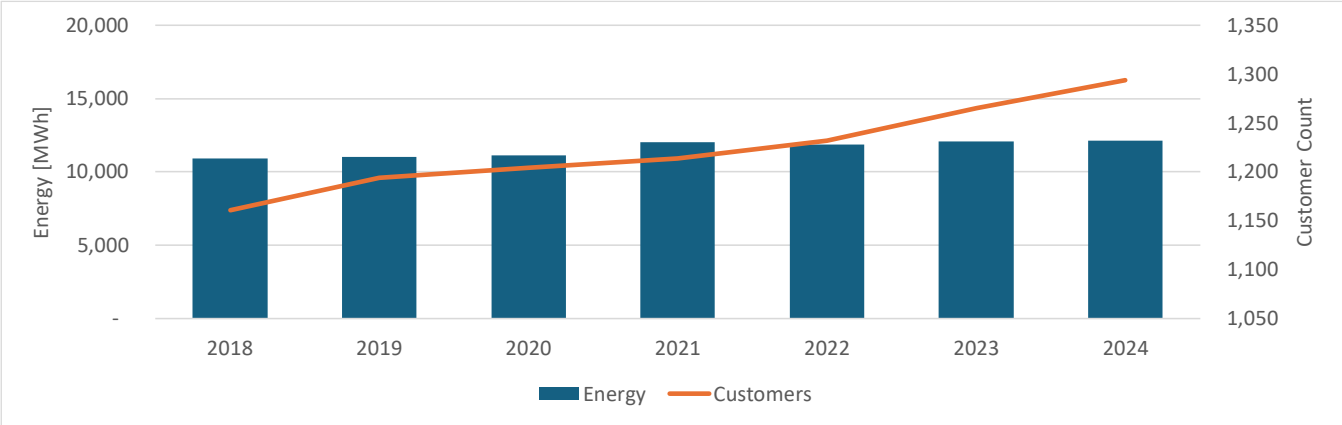


Figure 1: SGCPC Energy and Customer data

2.5 Year-over-year change in Non-VAT and VAT energy sold is noteworthy.

A. "Non-VAT" energy (column f) is where the monthly consumption by a Customer is less than $400, or approximately 1,000 kWh for the month. These Customers are exempt from paying VAT on their electricity purchases. This is intended to provide a community benefit to Customers that consume much less energy than typical premises.

B. Consumption of energy by Non-VAT Customers has increased significantly although inconsistently since 2020.

C. "VAT-able" Customers (column g) are those premises using more than $400 of electricity in any month. Consumption of energy by VAT-able Customers has dropped significantly in the last two years. Part or all of this may be the result of privately owned PV Systems.

D. SGCPC has only recently started installing bi-directional meters that record delivery and export of energy. This will make future analysis easier and clearer. Some of the bi-directional meters already installed as of this writing are indicating some Customers are exporting as much as 50% or more of their consumption. That indicates the PV System is significantly over-sized pursuant to proposed rulemaking and in comparison to BPL service areas. Refer to the SGCPC Grid Interconnection Requirements (GIR) on the SGCPC web site.

2.6 Until now, 100% of electricity has been from diesel-fueled gensets with no other generating sources. SGCPC is burning approximately 1,000,000 gallons of diesel a year and releasing 14,000 tons of CO2 into the atmosphere every year.

2.7 SGCPC enjoys exceptional reliability due to its construction, maintenance, and operational standards and controls. SGCPC typically averages less than one unplanned outage a year.

2.8 Outages in other geographical regions of the Bahamas are far more frequent averaging as high as one outage a week or sometimes as frequently as 1-2 times a day.

2.9 SGCPC customers expect that SGCPC will maintain our record for the best reliability in the Bahamas. This requires ongoing management and control of the electrical grid network.

2.10 Compared to New Providence, the SGCPC power grid is approximately 1/100 the size, with roughly 1% of the peak power capacity and annual energy production. As such, limits and sizing of renewable-energy capacities and total allowances are generally scaled to 1% of the relevant metrics applied on New Providence Island.

A. For example, a solar-energy system operating on Spanish Wells with a power capacity of 10 kW would be equivalent to a system on New Providence with a power capacity of 1,000 kW (1 MW) with respect to its impact to the grid and its electrical and financial stability.

2.11 All Licensees are required to follow the Electricity Act 2024. (EA 2024). EA 2024 mandates the following.

A. Encouragement of competition in the generation of renewable electricity.

B. Development of plans that favor and promote the use of renewable energy "in the absence of competing reliability or cost considerations."

2.12 Licensees therefore are obligated to incorporate renewable energy in their generation portfolio and allow others to install renewable-energy systems on their premises provided that those systems do not compromise the safety of the Licensee's personnel, the community, or reliability and safety of the grid.

2.13 This mandate and prudent business operating practices require Licensees to employ the least-cost options, or options that do not represent an additional financial burden on the Licensee.

2.14 Pursuant to EA 2024 Section 51(1) and 53(1), SGCPC will ongoing monitor its generating capacity and loads, determine the need for additional generating capacity and whether that should be accomplished using renewable sources.

A. Should SGCPC decide that there is a need for additional renewable-energy generating capacity, SGCPC will notify URCA and provide justification for its decisions.

B. Should SGCPC decide to solicit competitive bids for electricity from Independent Power Providers, SGCPC will follow the requirements of Section 53 of the EA 2024.

2.15 Until now, many SGCPC Customers have installed their own solar-energy systems. Using terminology in this REP and accompanying documents, these are believed to be all PV Systems, some with or without ESS. (Refer to "Glossary and Definitions" document.) Without installation information, SGCPC is presuming none of them are Off-Grid Systems.

A. Based on an aerial and ground survey, as of June 2025, there are 46 PV Systems installed on Spanish Wells and Russell Island. Based on typical PV module sizing, this is estimated to be 430 to 540 kW-DC power capacity. Table 2 line 20 for calendar year 2025 reflects this as a single number, 400 kW; this is converted from kW-DC to kW-AC as the AC basis is the standard for all utility calculations.

B. Using the scaling discussed above, this is generally equivalent to what would be an unauthorized 43 MW to 54 MW of PV installed on New Providence Island (please refer to section 2.10, above). That would be a massive, unlicensed PV powerplant on New Providence, occupying more than 100 acres of land. That is the magnitude of the challenge faced here by SGCPC and the community.

C. These installations produce roughly 5.5% to 7.5% of total SGCPC energy sales and fossil-fuel offset. From the energy perspective of meeting 2030 and future carbon goals alone, this is a good outcome.

D. However, none of these installations are properly permitted or approved to operate. None of these existing system owners requested approval from SGCPC. As far as SGCPC is aware, none of these systems were submitted to Town Council for review/approval or to Ministry of Works for a permit.

E. Evaluating some of them visually, SGCPC has reason to believe some of them are not installed to industry best practices or compliant with Code requirements. Many of them likely would be heavily damaged or destroyed by a hurricane of the magnitude required by Code. All of that flying debris would impact somewhere else – likely on a neighbor's property and hopefully not injuring others.

2.16 The power capacity of PV installed on any grid is typically limited to 50% of instantaneous demand if there is no ESS installed. Exceeding 50% PV penetration can cause grid instability and failures.

A. The estimated installed capacity of privately owned PV Systems is already exceeding 35% of the power demand on the grid (line 21 on Table 2).

B. Once SGCPC completes the Phase-1 PV Farm, the threat to grid stability will increase due to the higher PV Penetration fraction. This may require the automated curtailment of PV Systems or addition of ESS.

3.0 Energy Consumption and Expected Load Growth

3.1 The 2024 energy consumption for the SGCPC service area was approximately 12,000 MWh, or approximately 33 MWh a day average. Peak power demand is approximately 3.2 MW. These statistics correspond to less than 1% of the size of the New Providence service area.

3.2 Service-area consumption has been growing at 1% per year. This trend is expected to continue.

3.3 SGCPC in meeting its License conditions, Government policy, and URCA regulations, has decided to meet this demand at a minimum to the national target of 30% by 2030 using solar-energy systems.

3.4 In accordance with Section 53 of the EA this Renewable Generation can be met through a mix of larger MW-scale and smaller kW-scale installations. Please refer to this Plan and associated documentation for further details on justification pursuant to EA Section 53(2)(b). As noted elsewhere in this REP, larger installations of both PV and ESS will result in better economies of scale, lower capital investment by the community at large, and lower cost of energy.

3.5 SGCPC will also have to implement large-scale Energy Storage Systems (ESS) to support the growth of solar energy on the grid. The ESS is required to maintain grid stability with the addition of SGCPC-owned and Customer-owned solar assets.

3.6 SGCPC has an installed thermal capacity of 5 MW in existing diesel gensets. All assets are owned by SGCPC and there are no other providers under contract with SGCPC. Currently, SGCPC operates with low spinning reserves on the order of hundreds of kW of power capacity because of the consistent and predictable load profile. Given this balance of load and capacity, the Loss of Load Expectation (LOLE) is close to zero. This stability is evidenced by the outstanding reliability statistics for our Customers, although risk is added to this performance benefit due to unmanaged, unauthorized, and uncontrolled Customer-owned generating assets interconnected to the SGCPC grid.

4.0 Outlook

4.1 SGCPC expects Customers to continue to install privately owned PV Systems.

A. Going forward these will be restricted to the limitations posted in the GIR, and all installations no matter when installed will require approval from Town Council, permitting by the Ministry of Works, and inspection by and authorization to operate from SGCPC.

B. All installations will have a bi-directional meter installed to record separately the energy delivered and the energy exported back to the grid. SGCPC will pay Customers for the exported energy.

C. Ideally all Customers considering solar energy will carefully review the information on the SGCPC website and calculate their financial performance before investing. This is a major investment, and anyone buying a solar-energy system should scrutinize any proposal and shop just as carefully as if they were spending that sum on their home, like a kitchen remodel or new swimming pool.

4.2 SGCPS is mandated by EA-2024 and the terms of its License to maximize the amount of renewable generating sources used to supply electricity to its service area in alignment with national goals included in the Bahamas National Energy Policy.

4.3 SGCPC faces the same challenge as utility companies and communities around the world: provide reliable supply of power and energy, manage costs, remain financially sustainable, reduce use of fossil fuels to make electricity, reduce environmental risk and impacts.

4.4 SGCPC and all utility companies need to achieve these goals while adapting to technology that allows Customers to generate solar electricity themselves.

4.5 This Renewable Energy Plan (REP) and associated documents is the SGCPC plan for managing the grid and moving into the future as a Community. SGCPC will update this REP annually and submit the updated REP to URCA on an advisory basis.

4.6 Every three years, SGCPC shall submit to URCA for review as required in the EA 2024 Section 51.3. This submittal by SGCPC shall address sub-sections (a) through (g) of Section 51.3.

4.7 Every year, SGCPC will submit an annual report compliant with Section 51.3(f) describing progress regarding this REP plan.

5.0 Renewable Technology Options and Selection

5.1 Preamble. The Definitions section of EA 2024 defines "Renewable Electricity Resources" as resources that derive electricity from sources that are naturally replenished. This includes but is not limited to solar energy, wind, hydropower, geothermal, biomass, wave power, ocean thermal power and waste-to-energy technologies.

5.2 Of these technologies the most appropriate for an electricity utility of the size and character of SGCPC are solar ("PV") and wind.

5.3 Photovoltaic (PV)

A. PV is the only technology considered to be viable and practical at the scale needed by SGCPC and the community.

B. PV can be engineered and constructed to survive 180 mph winds with excellent corrosion resistance for a 30-year warranty service life.

C. There is no resource study required to deploy PV, since the solar resource is uniform across the Service Area and indeed the entire Bahamas.

D. There is no noise or other disturbance associated with a PV system.

5.4 Small wind turbines

A. SGCPC does not consider wind energy as a viable resource for our Service Area.

B. There are no large-scale turbines on the market that have sufficient wind rating for this locale.

C. Turbines would have to be the type that can be lowered, secured, and protected during a hurricane, typically smaller than 30 kW.

D. Lowering a turbine requires additional ground space for the turbine in its horizontal orientation.

E. Wind turbines do produce a sound pattern and shadow pattern that are undesirable to some people.

F. The wind resource is not continuous across the Service Area, and a wind-resource study would be required before deciding to deploy wind turbines. This would further delay use of wind turbines for meeting the 2030 goals.

5.5 Marine-based energy production

A. SGCPC considers these systems to not be commercially viable for the Bahamas. This includes tidal, wave, or thermal-energy conversion cycle systems.

B. SGCPC does not consider marine-based energy as a resource for our Service Area.

6.0 Structure and Analysis of the SGCPC Renewable Energy Plan (REP)

6.1 Preamble: SGCPC considers that there are several implementation pathways to achieve the 30% National Integration Target mandated by the National Energy Policy of the Bahamas. These include the following options. The pros and cons of each are discussed in the following paragraphs.

A. Large-scale PV on land owned or leased by SGCPC and constructed, installed, and operated by SGCPC.

B. Medium-scale PV on Customer premises constructed, installed, and operated by SGCPC.

C. Small-scale PV Systems or Off-Grid systems installed by individual Customers.

D. A combination of the above options.

6.2 In addition to offsetting 30% of diesel generation by 2030, the goals of this REP are to reduce energy costs to the community, improve grid reliability, reduce carbon emissions, reduce environmental risk, reduce air and noise pollution, provide frequency stability, and provide black-start capability.

6.3 Table 2 represents the SGCPC plan for PV and ESS deployment.

6.4 Initially, SGCPC intended to deploy as much PV as possible without the added investment of ESS. This limit is approximately 15% of annual energy production or 50% of instantaneous power demand. Given the growth of Customer-owned PV Systems that could export power to the grid, SGCPC has recognized that an ESS will be required as part of the Phase-1 PV Farm Further growth of PV will require additional ESS installations. This is posted on lines 19 and 20 of Table 2.

6.5 Phase-1 PV Farm

A. SGCPC has aggregated and purchased sufficient land adjacent to the Powerplant for the Phase-1 PV Farm.

B. This will offset approximately 13-15% of the annual energy consumption and about 1/3 of the demand power capacity.

C. The diesel powerplant will continue to run continuously with the Phase-1 PV Farm operating.

6.6 Phase 2 of the REP; SGCPC-owned Distributed Energy Resources (DER) on customer-owned premises.

A. Land is limited for generating resource siting, and land costs are high on Spanish Wells and Russell Island.

B. Because of this land shortfall, SGCPC intends to install and operate PV systems on the roofs of commercial (and possibly also residential) buildings.

C. SGCPC will pay an annual lease payment to the building owner.

D. SGCPC will pay all capital investment and operational expenses for the PV system(s) including liability insurance.

E. The lease rate will be based on the power capacity of the PV system and the expected financial performance of the installation. Financial performance will be evaluated on the ability to maintain or reduce SGCPC operating expenses and ultimately continue to be able to reduce customer rates.

6.7 Phase-3 PV Farm.

A. SGCPC has identified other suitable land for the expansion of the SGCPC-owned, ground-based PV array approach. This REP anticipates that the phase could have a Commercial Operations Date (COD) in 2027.

6.8 The annual energy consumption, fossil-fuel and expected PV energy production are depicted in Figure 2. This graph also includes the ESS power required as noted elsewhere herein.

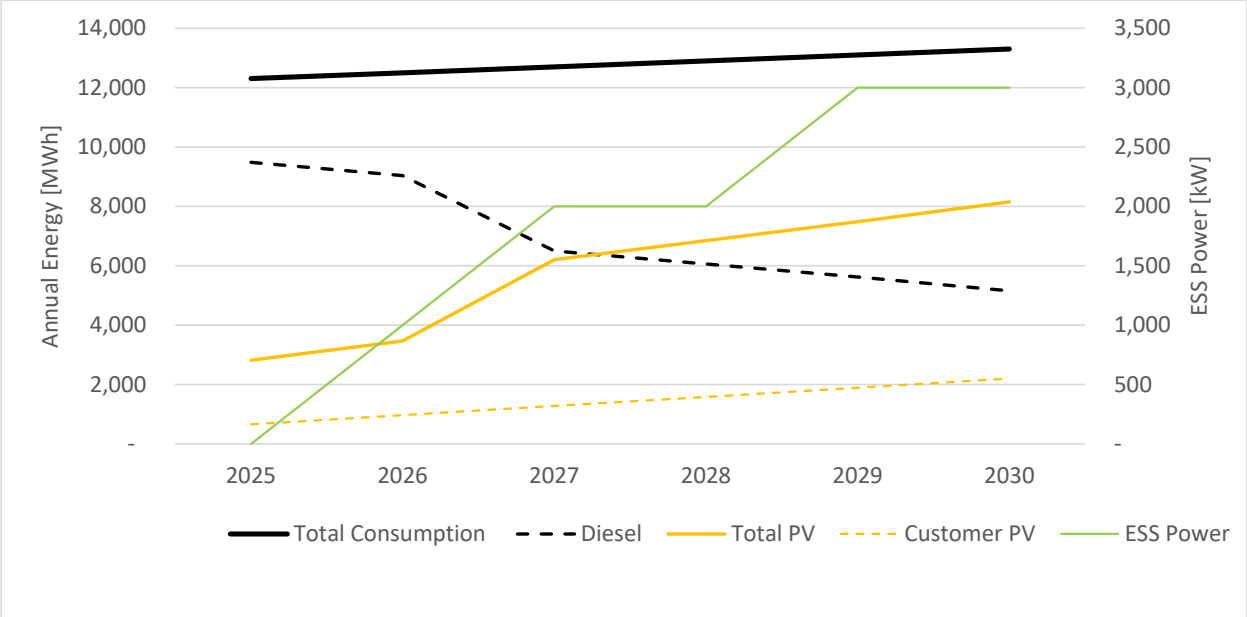


Figure 2: SGCPC Energy Consumption, Sources and ESS Deployment

6.9 The LCOE from diesel fuel alone is approximately $0.33/kWh ($330/MWh) in 2025 dollars. This is driven primarily by the cost of diesel fuel, and also includes motor oil, service, preventative maintenance, and repairs. Refer to Glossary and Definitions for explanation of LCOE.

6.10 Adding PV to the grid will lower the energy generating cost because the LCOE for PV alone is much lower than the LCOE for diesel-fueled electricity. For example, the net change in LCOE resulting from the Phase-1 solar farm will be approximately a 10% reduction.

6.11 Once the PV power production compared to demand approaches 50%, reports from similar small utilities indicate that grid instability may result.

6.12 Adding ESS to the SGCPC grid will Improve stability, enable adding more PV capacity. When reaching higher PV penetration fractions it would be possible to shut down the diesel powerplant for part of the day depending on load and weather conditions.

6.13 The LCOE is reduced as PV and ESS are added to the grid, until reaching a Lowest LCOE (LLCOE). This is based on the capital investment (CapEx) and operating expenses (OpEx) for the powerplant. Based on the cost of diesel fuel in 2025, the LLCOE is realized when PV is making about 90% of the energy. Figure 3 depicts a typical comparison of PV penetration scenarios of this nature. This is calculated using the HOMER Energy ® analytical platform.

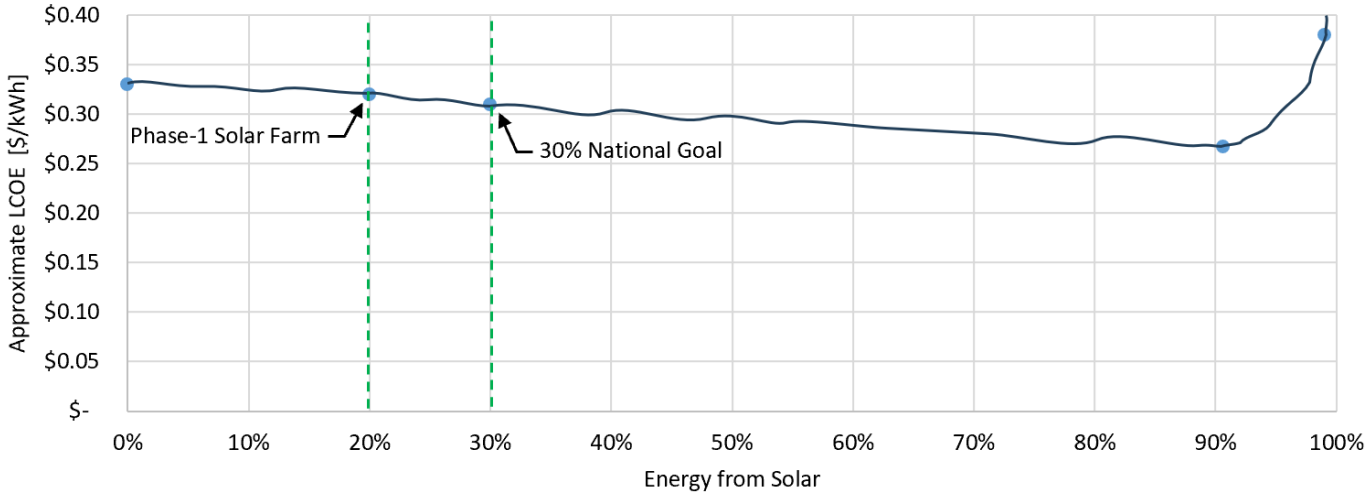


Figure 3: Approximate LCOE Scenario Comparison

6.14 The lowest-cost option for production of electricity is through SGCPC-owned PV and ESS (refer to Table 3). Because of this mandate in EA 2024, SGCPC favors electricity produced by SGCPC-owned solar-energy assets.

A. The Levelized Cost of Energy (LCOE) is defined in the Glossary and Definitions document. The inputs to the LCOE calculation are capital investment and the annual expense for operation and maintenance.

B. The larger the quantity of equipment being purchased (in any industry) the lower the cost. When SGCPC is buying materials at MW-scale pricing, the capital cost for equipment will be lower than the cost of equipment by homeowners at the residential scale. The cost of equipment typically may be as much as 50% less at the MW scale.

C. The cost of labor is similarly lower for MW-scale projects compared to residential-scale projects.

D. These equipment and labor effects result in a significantly lower capital investment for the MW-scale project.

E. The cost for operation and maintenance is similarly optimized for MW-scale projects compared to residential-scale projects.

F. The other factor in the LCOE calculation is energy production. The energy produced by MW-scale PV arrays will be optimized for direction and tilt (including consideration of wind forces) to produce the most electricity and highest yield and capacity factor compared to the residential projects that are limited to the direction and tilt of the building roof.

G. These two factors combined result in the LCOE for MW-scale projects that is significantly lower than residential-scale projects. Refer to Table 3.

6.15 There are options for combining PV and ESS to achieve different operational profiles and performance metrics. Below are three points of consideration for this REP.

6.16 Achieving the 30% National target (consumption adjusted for annual load growth) with minimum ESS for grid stability.

A. This will require approximately 1.8 to 2 MW-AC of PV capacity and a small ESS to maintain grid stability.

B. In this scenario, the diesel generators would still run continuously, or 8,760 hours a year.

C. This 30% configuration would reduce the LCOE by approximately 10% to 15% compared to diesel generation alone and based on the expected consumption growth.

6.17 Achieving the Lowest LCOE, or "LLCOE" (consumption adjusted for annual load growth), exceeding the 30% National target.

A. There is not enough land or roof area on Spanish Wells or Russell Island to support this option. This would be a practical goal only if the PV System was located on North Eleuthera with a submarine cable interconnection. This has been done elsewhere in the Bahamas between islands as far apart as several miles.

B. This will require approximately 7 to 8 MW-AC of PV capacity and 25 to 35 MWh of ESS energy storage.

C. The LLCOE for this optimal configuration is approximately 20% less than the cost of traditional diesel generation based on current diesel-fuel pricing.

D. This LLCOE system would displace approximately 90% of the diesel fuel with solar electricity and would enable turning off the diesel powerplant for approximately 80% of the year, reducing powerplant generator runtime from 8,760 hours to approximately 1,400 hours a year.

E. This would allow a reduction in the cost of grid electricity for all SGCPC Customers.

6.18 Ground-based PV Systems typically require 2.5 to 3 acres per MW-AC of power capacity. The land for the 2030 target options would be 5 to 6 acres. The land area required to build the LLCOE system referenced above would be approximately 20 acres.

6.19 SGCPC will install a fiber-optic network with a control platform for monitoring grid loads and PV production from SGCPC- and privately-owned PV Systems. This system will allow SGCPC to turn down or off various PV Systems as needed to maintain grid stability.

7.0 Perspective on Privately Owned Renewable Energy Systems

7.1 SGCPC supports the ownership of private PV Systems on Customer premises. Pursuant to Sections 54 and 55 of the EA 2024, Persons are allowed to install solar-energy systems on their own property. But it is essential that this be done in compliance with the building and electrical codes, that the Town Council approves the project (they need to approve anything as minor as a yard fence), the Ministry of Works issues a permit (required for all electrical projects), and SGCPC reviews, inspects, and approves the installation.

7.2 SGCPC recognizes there is a strong financial incentive for Customers to invest in their own renewable energy systems if they have the financial resources to do so. The LCOE from a privately owned PV System is approximately $0.12/kWh (refer to Table 3) compared to the utility's regular retail rate. Note, however, that the LCOE from a PV System with ESS is significantly higher than this amount because the ESS adds significant cost but does not itself produce any more energy.

7.3 Privately owned renewable-energy systems may result in the cost of grid electricity increasing for SGCPC Customers.

A. That is because privately owned solar-energy systems result in less energy produced and sold by SGCPC, and that forces SGCPC to spread the fixed expenses across less energy sold.

B. Additionally, Customer-owned PV Systems will cause SGCPC to buy ESS capacity sooner than would otherwise be required. That becomes another fixed expense to apply across all energy sold.

7.4 As of the date of this REP, there are 46 unpermitted PV installations in the Service Area.

A. SGCPC has no information regarding the code compliance of these installations or knowledge of whether they are installed pursuant to the manufacturer's installation requirements or industry standards and best practices. SGCPC is aware of one system that is installed incorrectly that resulted in

an electrical shock to SGCPC personnel when working on what should have been a de-energized meter installation. Luckily that technician was not permanently harmed.

B. A general survey of these systems leads to the conclusion that the installed capacity is somewhere between 360 kW-AC and 450 kW-AC.

C. It is unknown whether these installations are grid-tied or not. For safety reasons, SGCPC considers all these unpermitted PV Systems to be grid tied.

D. In accordance with EA 2024, Section 54(8) non-compliant systems may be disconnected from the grid. Once the REP is approved by URCA, SGCPC will institute a program to get all existing PV Systems processed for inspection.

7.5 SGCPC will recognize and accommodate two types of renewable-energy systems. These are (A) PV System; and (B) Off-Grid. These methods are further described in the current SGCPC Grid Interconnection Requirements (GIR). All equipment shall be UL listed for the intended purpose and installed pursuant to all manufacturer instructions. SGCPC will inspect all installations to ensure compliance and promote safety for SGCPC technicians and the general public. Refer to the GIR for further guidance and requirements.

A. PV System. Customers may buy and install a PV System and own and operate it themselves. A "PV System" may or may not include an ESS at the Customer's preference.

1. A Customer-owned PV System uses the SGCPC grid for power and energy when the PV System is not producing sufficient power and energy for the premise loads.

2. A PV System may be interconnected to the SGCPC grid and may export excess electricity to the grid for reimbursement by SGCPC at the prevailing tariff rate. The SGCPC grid in this case provides the voltage source that enables the PV System to operate. This is a critical "network service" provided by SGCPC to the Customer at no cost.

3. Should a Customer apply to install an ESS, it is particularly urgent that all equipment shall be UL listed "for the intended purpose" and installed pursuant to all manufacturer instructions. There have been instances where SGCPC technicians have been electrically shocked by incorrectly installed renewable energy systems including ESS on Customer premises. SGCPC will inspect all installations to ensure compliance and safety for SGCPC technicians and the general public. Refer to the Grid Interconnection Requirements (GIR) for current requirements and guidance.

4. SGCPC will promptly disconnect and lock out any Customer equipment should any systems be found to be non-compliant with the GIR, not installed pursuant to manufacturer's instructions, not UL listed for intended purpose, or otherwise deemed unsafe by SGCPC.

B. Off-Grid. Customers may buy and install a PV System with ESS, and own and operate it themselves completely independently from the grid. This installation shall be physically isolated from the grid with no SGCPC meter or interconnection.

1. An Off-Grid installation should be engineered to support 100% of the energy consumption requirements of the premise, and the premise cannot use the SGCPC grid for power or energy when their ESS is depleted. Pursuant to EA 2024, a backup genset shall not be used for power generation beyond "emergency purposes" unless the installation has authorization from URCA to do so. Backup gensets operating during cloudy weather or other conditions because of inadequacy or dysfunction of the Off-Grid system is reportable to URCA for enforcement action.

7.6 Pursuant to EA 2024 Section 55, SGCPC will support the installation of solar-energy systems to supply energy for Government entities and for small-scale business or commercial enterprises, provided those systems comply with the SGCPC Interconnection Requirements.

7.7 By authorization to operate from SGCPC and their installation, Customers that own Renewable Energy Systems acknowledge and accept full responsibility for their installed system. Owners that want to remain

connected to the SGCPC grid shall maintain in effect a liability insurance policy with limits as posted in the Interconnection Requirements to manage the risk associated with potential losses, as is typical and ordinary utility policy.

7.8 Customers are forbidden to supply electricity to any equipment or electrical loads that are not on the premises where the system is installed. Supply connections shall not extend across or beyond parcel boundaries.

7.9 PV SYSTEMS. These systems are subject to the capacities and total allowable grid limitations of Customer-owned systems are as prescribed in the SGCPC Grid Interconnection Requirements.

A. The allowable capacities are based on four (4) criteria.

1. Maximum connected power capacity.
2. Power capacity based on annual energy consumption to ensure Net Consumer status (and not Net Producer status).
3. Power capacity based on average power demand to ensure distribution circuit safety and integrity.
4. Maximum allowable PV capacity for the entire grid for grid stability without SGCPC incurring additional investment requirements for more utility owned ESS.

7.10 Owners of PV Systems as defined in the Grid Interconnection Requirements, will be required to adhere to the Fee Addendum for the initial, non-recurring, and the annually recurring costs. These fees include items such as installation of the SGCPC-owned, bi-directional meter, interconnection and ampacity studies (if needed), installation of monitoring and control network subsystems, related safety components, and periodic inspections. These costs are defined in the Fee Addendum.

7.11 SGCPC will require all PV Systems to be interconnected to the SGCPC monitoring and control network when it is implemented. NOTE: This does not apply to Off-Grid installations since those installations are not interconnected to the grid.

A. To maintain grid stability and safety, SGCPC may turn off Customer-owned PV Systems at any time based on grid demand and production. This would be done for as short a time as possible, and the system would be turned back on automatically as dictated by load and production.

7.12 Should a Customer with an approved PV System produce more electricity than they are using on their premises, SGCPC will compensate Customers for energy exported to the SGCPC grid.

A. The rate SGCPC will pay for energy exported by a Customer to the SGCPC grid is a flat-rate, Feed-in-Tariff, and is presently $0.05 per kWh. That reflects the Levelized Cost of Energy (LCOE) for solar electricity produced by SGCPC (Refer to Table 3). This rate may change periodically and will be posted on the SGCPC website.

B. The energy exported to the grid by Customer will be tabulated monthly and reflected on the SGCPC invoice.

C. There is no carry-forward or carry-back considerations. That means if a Customer produces more than they consume there is no credit to carry forward to next month or apply retroactively to last month.

D. Customers that export energy to the grid will not be compensated for energy value that is in excess of their monthly energy (kWh) consumption. This is subject to a monthly true-up; meaning a Customer with grid-tied PV that is exporting energy to the grid will only be reimbursed for the kWh up to the amount of their grid usage during any month. This should never happen, however, if the system sizing limitations are followed.

E. Since Grid-connected PV systems are intermittent and not dispatchable, they cannot be relied upon to reduce distribution losses or provide benefit for load control or demand response. This, combined with

no control over production or performance, makes grid-tied PV unreliable with regard to generation assets or pricing structure.

F. The Customer-owned PV capacity shown on lines 19 and 20 of Table 2 represents the known and expected future growth of Customer-owned PV Systems. Some of these may be PV Systems or Off-Grid that are not grid tied (again noting SGCPC has no visibility in these installations). However, given the ESS has a service life and is costly to replace, the perspective for preservation of stability and safety is that these PV Systems with ESS may be reconfigured later into PV Systems without ESS. This capacity is used in the calculations in Table 2.

G. Should a Customer with a PV System not want to export power to the grid, the PV System should be sized during the engineering process to not produce more power than is demanded on the premises.

7.13 OFF-GRID PV & ESS. These installations do not have SGCPC-driven limitations on PV or ESS sizing. That is because these installations cannot be interconnected to the grid and do not affect the grid.

A. Approval is required for all renewable energy installations. For grid-tied PV systems, Customers shall apply to SGCPC for approval. For Off-Grid systems, persons shall apply to URCA for approval. EA 2024, Section 54(8) vests the responsibility and authority in SGCPC to turn off or disconnect any Customer system if SGCPC determines that installation may endanger the safety of persons or adversely impact the safety or stability of the grid; that applies to Off-Grid installations also.

7.14 In addition to SGCPC documents, Customers are required to comply with the Canadian Electrical Code (version as specified by Ministry of Works) and the ASCE 7-22 standard for wind forces on PV arrays (including the PV modules, racking system, attachments, foundations, and integrity of the structure).

7.15 SGCPC has great concern about the quality assurance and quality control of Customer-owned PV assets. Poorly engineered or installed private PV & ESS represent possible hazards and problems for the Community and the SGCPC grid.

A. Privately owned systems are more prone to be designed without proper regard and engineering oversight related to hurricane wind forces and effects. These pose a danger to neighbors during hurricanes resulting from failure of improperly engineered or installed racking and attachment systems and PV modules that are not designed for the possible wind forces in the region.

B. Improper installation or unlisted power electronics also can result in injury or death to SGCPC technicians that might be servicing or repairing grid components.

C. Poorly engineered private systems may damage the SGCPC generating plant and other customers' electronics resulting from signal distortion, uncontrolled variability, and exceeding power capacity stability limits.

D. SGCPC has already observed many PV systems installed on roofs and on the ground in our service area that are not in compliance with wind codes, standards, and best practices that represent a high likelihood of failure during a strong hurricane.

E. To protect the public welfare and minimize the chance that privately owned systems will result in injury to persons or damage to private property during a high-wind event, SGCPC will require that Ministry of Works assess the structural stability and compliance with ASCE 7-22 as part of the permitting process and before grid interconnection.

8.0 Procedure for Customer-Owned PV Systems

8.1 Customers wishing to build their own renewable-energy systems are encouraged to thoroughly assess the SGCPC website in advance of signing contracts or paying deposits. The relevant documents include the following.

A. Grid Interconnection Application (GIA) and GIA Terms and Conditions.

B. Grid Interconnection Requirements (GIR).

C. Fee Structure Addendum.

8.2 Customers are welcome to contact SGCPC in advance to discuss and explore the feasibility of their plans. SGCPC recommends that Customers also gain some education on solar energy prior to paying deposits or signing contracts for the installation of any renewable energy electricity generation system. Failure to conduct adequate due diligence is solely the onus of the buyer of the project.

8.3 Refer to the GIR for the approval process. Customer-owned PV Systems may operate in parallel with the grid once fully authorized and approved.

8.4 SGCPC shall timely review and process all applications for Customer-owned PV Systems pursuant to EA 2024 Section 54 and 55. Approval from Town Council and a permit from the Ministry of Works is required prior to SGCPC inspection.

8.5 Customers seeking this approval should refer to the URCA and Ministry of Works websites for documentation. The SGCPC Grid Interconnection Application (GIA) and Grid Interconnection Requirements (GIR) are made available on the SGCPC website.

8.6 Installing electrician.

A. Installation by a licensed three-phase electrician is required. A copy of the electrician's license shall be included in the application package.

8.7 Customer application requires agreement to allow SGCPC to conduct, and commitment by Customer pay for, annual safety inspection of wiring and compliance with manufacturer's criteria and UL listing performance measures.

8.8 Customer accepts the risk for installation, operation, performance.

8.9 Customers must have a liability insurance policy as described in the SGCPC Interconnection Requirements.

9.0 Procedure for Off-Grid Systems

9.1 Owners should refer to the SGCPC Grid Interconnection Requirements (GIR), EA 2024, and URCA documentation prior to paying deposits or signing contracts. Off-Grid systems require URCA approval in addition to other approvals detailed in the GIR. Compliance is required and non-compliant systems will not be allowed to operate without the proper approvals as required by the GIR.

9.2 Approval steps.

A. Please refer to the URCA and Ministry of Works websites for their specific documentation. Required SGCPC forms and information will be available on the SGCPC website.

B. This is a clear and straightforward process to ensure safety for grid technicians.

9.3 Installing electrician.

A. Installation by a licensed three-phase electrician is required. A copy of the electrician's license shall be included in the application package.

9.4 Customer application requires agreement to allow SGCPC to conduct, and commitment by Customer to pay for, annual safety inspection of wiring and compliance with manufacturer's criteria and UL listing performance measures.

9.5 Customer accepts the risk for installation, operation, performance.

9.6 Customers must have a liability insurance policy as defined in the Grid Interconnection Requirements.

10.0 Documentation requirements for All Renewable Energy Systems

10.1 These same requirements apply whether the system is owned by a Customer or SGCPC directly. Except SGCPC-owned systems will always be certified and sealed by an Engineer licensed in the Bahamas.

10.2 It is highly recommended, but not required, that drawings be sealed by a licensed Engineer.

10.3 Drawings shall include a site plan showing location and connection(s) among all components.

10.4 Data sheets for PV modules, PV inverters, racking systems, and other major equipment. Home-made racking systems will require an engineer-sealed analysis of the structure to ensure it is designed to withstand 180 mph hurricane winds. For ground arrays that includes the foundations. For roof arrays, that includes the roof attachments. This is to protect the homeowner and also their neighbors.

10.5 Racking plan showing all roof attachments and waterproof flashings for roof-mounted arrays, or foundation designs for ground-mounted arrays.

10.6 Single-line electrical diagram showing all components and electrical interconnection including grid isolation devices.

A. All systems shall have a separate, lockable, lever-operated disconnect safety switch that SGCPC can access and lock out if necessary for safety purposes.

10.7 Wind analysis for module frames, racking, roof attachment (for roof-mounted PV) or foundations (for ground-mounted PV) showing compliance with the ASCE 7–22 standard, 180 mph wind speed, and the applicable Wind Exposure Category. Pursuant to URCA, this analysis shall be submitted to the Ministry of Works.

10.8 Certificate of Insurance documenting a $100,000 liability insurance policy for the PV System.

10.9 Copy of the installing three-phase electrician's license or the electrician's number as required on the ICA.

11.0 System Capacity and Fee Structure for Customer-Owned Systems

11.1 Customers wishing to build their own renewable-energy systems are encouraged to thoroughly assess the URCA website and SGCPC website in advance of signing contracts or paying deposits. The URCA website is www.URCABahamas.bs, and the SGCPC website is StGeorgesCayPower.com.

11.2 PV System capacity (those systems intending to interconnect to the SGCPC grid) shall be limited as described in the SGCPC Interconnection Requirements.

11.3 Additional fees apply to Customers for customer-owned Renewable-Energy systems. Refer to the current SGCPC Fee Addendum posted to the SGCP website for fees and other related details.

A. Customers applying for approval of renewable-energy systems will be required to pay additional fees on both a one-time, non-recurring basis and on a recurring annual basis.

1. The one-time, non-recurring fees are to pay for installation of a new, bi-directional meter, review of application documents, inspections, and administrative processing.

2. The annual recurring fees are to pay for annual inspections to ensure ongoing grid safety and compliance with the terms of interconnection.

B. The various fees do not result in any added distributions or profits to SGCPC or its shareholders. Customers should refer to the Renewable-Energy Fee Structure Addendum for more details. Please note that fees are subject to change.

12.0 Disposition of Unpermitted Customer-Owned Systems

12.1 The safety of SGCPC personnel and the general public and the stability of the SGCPC grid may be adversely impacted by Customer owned systems. As of the date of publication of this Plan, none of these installations have been inspected or approved by URCA, SGCPC, Ministry of Works, or Town Council.

12.2 Upon URCA approval of this first Plan, the Customers and Owners of any privately owned renewable energy or energy storage system shall submit the appropriate permit and approval documents to SGCPC and/or URCA. The required documents are listed in the GIR and the SGCPC and URCA websites. SGCPC will arrange a schedule to process these applications within 60 days of submission by the Customer or Owner. SGCPC will then follow the published procedure for Customer or Owner submitted applications.

12.3 SGCPC will periodically survey the service area to identify unpermitted or unauthorized PV installations. SGCPC will issue a request to the property owner in writing to allow an inspection of the installation.

12.4 Unauthorized or unpermitted installations will result in a written warning by SGCPC and may be followed by the premises being disconnection from the grid by SGCPC until (1) authorization is secured as described herein; or (2) Customer authorizes SGCPC to positively and securely lock out the renewable-energy system to preclude it from operating in parallel with the grid, the cost to do so borne by the Customer.

12.5 Unauthorized or unpermitted installations that remain unauthorized after warning shall be subject to enforcement action by SGCPC and/or URCA.

TABLE 2

SGCPC Grid Growth, PV, and ESS Estimates

	GRID PARAMETERS	2025	2026	2027	2028	2029	2030
1	Annual sales [MWh]	12,300	12,500	12,700	12,900	13,100	13,300
2	Average daily generation [kWh]	36,300	36,900	37,500	38,100	38,700	39,200
3	Demand peak [kW] (see Note line 32)	3,200	3,300	3,300	3,400	3,400	3,500
4	Demand, Noon, Min [kW]	1,200	1,200	1,300	1,300	1,300	1,300
5	Demand, Noon, Max [kW]	2,900	3,000	3,000	3,100	3,100	3,200
6	**SOLAR ENERGY CAPACITY**						
7	**Phase-1 PV Farm**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
8	Power Capacity, incl. degradation [kW-AC]	1,040	1,030	1,020	1,010	1,000	1,000
9	Annual Energy [kWh]	2,163,000	2,142,000	2,122,000	2,101,000	2,080,000	2,080,000
10	**Phase-2 Roof PV Systems**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
11	Annual Installed Capacity [kW-AC]	-	200	200	200	200	200
12	Cumulative Power Capacity [kW-AC]	-	200	400	600	800	1,000
13	Annual Energy [kWh]	-	364,000	728,000	1,092,000	1,456,000	1,820,000
14	**Phase-3 Ground PV Systems**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
15	Annual Installed Capacity [kW-AC]	-	-	1,000	-	-	-
16	Cumulative Capacity, incl degradation [kW-AC]	-	-	1,000	995	990	985
17	Annual Energy [kWh]	-	-	2,080,000	2,070,000	2,059,000	2,049,000
18	**Customer-Owned PV Systems**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
19	Annual Installed Capacity [kW-AC] (see Note line 33	-	200	200	200	200	200
20	Cumulative Capacity, incl degradation [kW-AC]	400	600	800	1,000	1,200	1,400
21	Fraction of Min Noon Demand from Customer PV	33%	50%	62%	77%	92%	108%
22	Annual Energy [kWh]	620,000	930,000	1,240,000	1,550,000	1,860,000	2,170,000
23	Total Operating PV Capacity [kW-AC]	1,440	1,830	3,220	3,605	3,990	4,385
24	Total PV Electricity to the Grid [kWh]	2,783,000	3,436,000	6,170,000	6,813,000	7,455,000	8,119,000
25	**PV Energy Offset (incl Customer Owned)**	23%	27%	49%	53%	57%	61%
	PHASE-1A ESS DEPLOYMENT	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
26	PV as %-age of MIN noon demand, before ESS	120%	153%	248%	277%	307%	337%
27	PV as %-age of MAX noon demand before ESS	50%	61%	107%	116%	129%	137%
28	Minimum ESS Deployment, Annual [kW]	-	1,000	1,000	-	1,000	-
29	ESS Deployment, Cumulative [kW]	-	1,000	2,000	2,000	3,000	3,000
30	PV as %-age of MIN noon demand, after ESS	120%	69%	94%	123%	76%	107%
31	PV as %-age of MAX noon demand, after ESS	50%	28%	41%	52%	32%	43%

32 The daily power peak typically occurs between 5 pm and 7 pm. By that time, PV Systems are no longer producing electricity.

33 Line 20 power capacity is stated in kW-AC. Elsewhere in this REP this is referred to in kW-DC.

34 The power and capacity of PV and ESS that Customers may install is unknown but is assumed to be 200 kW per year.

35 ESS capacities are estimates and To Be Determined (TBD).

TABLE 3

LCOE CALCULATIONS FOR SYSTEM OPTIONS

		Calculation or Notes	Option 1	Option 2	Option 3
a	System capacity [kW-AC]		1,000	60	10
b	Unit cost installed [$/kW-AC]		$ 2,980	$ 3,600	$ 5,000
c	Total capital investment	a x b	$ 2,980,000	$ 216,000	$ 50,000
d	Yield [kWh/kWAC]		2,240	2,130	2,000
e	Energy, Yr-1	a x d	2,240,000	127,800	20,000
f	Total lifecycle energy [kWh]		64,200,000	3,663,000	573,000
g	Annual OpEx, Yr-1	q, r, s, t	$ 343,000	$ 25,000	$ 1,400
h	NPV of annual OpEx		$ 2,574,000	$ 192,000	$ 19,000
j	Owner equity		$ 605,000	$ 43,000	$ 50,000
k	Total discounted lifecycle cos	h + j	$ 3,179,000	$ 235,000	$ 70,000
m	LCOE [$/kWh]	k / f	$ 0.05	$ 0.06	$ 0.12

NOTES

n Option 1 is MW-scale PV owned by SGCPC and financed at prevailing conditions

o Option 2 is kW-scale PV owned by SGCPC and financed at prevailing conditions

p Option 3 is kW-scale PV purchased by SGCPC Customers at small scale

q Lifecycle is 30 years

r Annual PV degradation is 0.05%

s OpEx is insurance plus expected maintenanceplus debt service

t Insurance at $1 per $100 insured value

u Maintenance at $5 per kW for MW projects and $8 per kW for kW projects

v Debt service is prevailing load terms and conditions

w Cost escalation 3% per annum

x Discount rate 8% for LCOE calculation

Annex C: Application for Electricity Service Account Rev 2024-08-08

Rev 2024-08-08

ST GEORGES CAY POWER COMPANY (SGCPC)

APPLICATION FOR ELECTRICITY SERVICE ACCOUNT

REQUIREMENTS TO OPEN AN ELECTRICITY ACCOUNT

1. All applicants must complete the following forms available on our website.
    a. SGCPC Contract for Supply.
    b. Customer Information Form.
    c. Credit Card Authorization Form.
2. All applicants must provide two forms of government issued photo identifications One of these must by your National Insurance Card the second must be one of the following.
    a. Passport
    b. Driver's License
    c. Voter's Card
3. Non-Bahamian Applicants must also provide a valid permanent residence permit or work permit Security Deposits.
4. The Security Deposit for new accounts is based on the projected or historical consumption at the location.
5. The invoice for the security deposit is issued by Customer Service or the Local Office and is payable by Debit Card, Credit Card, Cheque or Cash (Payments in cash are limited by compliance with the relevant statute and may be capped at B$10,000 or US$5,000 only).

ADDITIONAL REQUIREMENTS FOR A NEW ELECTRIC SERVICE TO YOUR PROPERTY

Proof of Property Ownership or Right of Land Use is required, either through:

____ Conveyance Documents for Owner Occupied Properties.

_____ Relevant Deed, Probated Will and Death Certificate, or Letter of Administration/Certificate as to Grant of Probate evidencing legal interest in property.

Applicant must submit an approved Electrical Specification Document, either for New Construction or Service Upgrade/Modification to Existing Service. The document must be prepared by a licensed Electrical Contractor and approved by the Ministry of Works.

Upon completion of the project, Customer shall provide to SGCPC the relevant Approval Documentation from the Ministry of Works to verify that the wiring is safe for installation of electricity.

_____ Electrical Permit Form (Specification of Proposed New/Upgrade Electrical Installation) – This must be submitted to the Ministry of Works by your licensed electrician. The Ministry of Works will review, stamp and approve the document and send it to SGCPC.

_____ Original Electrical Installation Approval Certificate – Stamped and Signed by the Ministry of Works

_____ Occupancy Certificate – For New Construction; Stamped and Signed by the Ministry of Works

If the property is a part of a subdivision or development, the Developer of that subdivision is required to install the electrical infrastructure to which you the Customer would connect. If you are developing for yourself or are seeking power to your own property inside an approved development where infrastructure does not exist, you must indicate how SGCPC will access your property. This shall be done by providing:

_____ Survey/Plot Plan Stamped and Approved by the Relevant Government Agency (e.g. Physical Planning) – To show access to the nearest public right of way/thoroughfare.

_____ The installation of all boundary pins from the main thoroughfare to the property to receive supply may also be required for overhead infrastructure.

_____ The establishment of the road reservation may be required for underground infrastructure If infrastructure is required to be installed and you are developing for yourself as above, you will be required to pay the relevant Capital Contributions. This is for new services or upgrade requests.

- Customers requiring the installation of Capital Infrastructure by SGCPC to service their properties will be required to pay costs associated with establishing the service.
- Capital Contributions shall be paid in full before the commencement of works by SGCPC.
    - Customers are encouraged to make application as soon as possible so that they may be apprised of the Capital Contribution amounts so that this cost may be factored into the cost of construction and paid to allow the availability of power as close to the completion of the project as possible.
- The Capital Contribution does not include the required Security Deposit for the establishing of an electricity account.
    - After submitting a request for supply, and after satisfying any Capital Contribution, our teams will schedule the installation of needed infrastructure for the provision of supply.
- All equipment installed under the Capital Contribution up to the meter location, remains the property of St Georges Cay Power Company (SGCPC) unless otherwise agreed and will be serviced and maintained by SGCPC.
- Capital Contribution payments for service requests will be invoiced by SGCPC and should be paid directly to a SGCPC cashiering service center, or by wire transfer to SGCPC (wiring instructions are provided separately). The SGCPC Invoice Reference number must be included in the wire transfer information
    - Please note that employees are not permitted to receive payments for service outside of the above for any reason.
- Upon completion of the capital contribution works (i.e. the installation of infrastructure), the customer must visit our offices or submit a request by email to customerservice@SGCPCco.com to make an application for the supply of electricity. At this time, the security deposit will be calculated and invoiced

Annex D: Grid Interconnection Application (GIA) Rev 2025-04-02

ST GEORGE'S CAY POWER COMPANY – GRID INTERCONNECTION APPLICATION (GIA)

Please fill out Sections 1, 2, and 3 completely. Please submit two printed copies of this GIA to the SGCPC office.

1. Customer Information Existing Premise ☐ New Construction ☐

Name _____ PO Box _____

Street Address _____

Account # _____ Meter Number _____

Telephone: Work _____ Mobile _____ Home _____

Email Address (required) _____

Account Type Residential ☐ Commercial ☐

Note: Refer to the most current "Fee Structure Addendum" for fees associated with this Application.

2. System Installer Information

	Solar Energy Contractor	or	Electrical Contractor
Company Name	_____		_____
Contact Person	_____		_____
PO Box	_____		_____
Telephone (Work)	_____		_____
Telephone (Mobile)	_____		_____
Email Address	_____		_____
Three-Phase License Number	_____		_____

3. Facility Information

Inverter nameplate rating _____ kW Number of inverters _____ Total AC capacity _____ kW-AC

System Type: PV System ☐ Off-Grid ☐

(Refer to SGCPC Interconnection Requirements for System Type descriptions)

PV System includes ESS: No ☐ Yes ☐ Capacity _____ kWh

Other onsite generation: Backup generator: No ☐ Yes ☐ Power _____ kW

The following must be attached to this GIA pursuant to the SGCPC REP and Bahamas 2024 Electricity Act (EA-2024).

- Site plan showing PV array, inverter, ESS (if applicable), visible-break AC disconnect switch, and SGCPC meter.
- Single-line electrical diagram (including all above components).
- Data sheets for PV modules, PV inverters, and ESS (if applicable).
- Racking plan showing ground foundations, or roof attachments and waterproof flashings (roof arrays).
- Proof of required liability insurance (refer to Grid Interconnection Requirements).
- Proof that the non-refundable application fee has been paid.

Signing this GIA attests that your system engineer will complete the wind analysis compliant with the ASCE 7–22 standard and 180 mph wind speed for module frames, racking, roof attachment (roof) or foundations (ground).

Failure to submit all these documents will result in the GIA being rejected.

Customer Signature _____ Date _____

SGCPC Use Only

Date

Name

Annual Energy _____ kWh

Average Demand _____ kW

Max Allow. Capacity _____ kW-AC

Status ____ Complete ____ Approved

Actions

Annex E: Terms & Conditions for Customer-Owned Solar Energy SSRG and RESG Operated Under a Grid-Interconnection Agreement (GIA), Rev 2025-0701

Rev 2025-07-01

ST GEORGES CAY POWER COMPANY (SGCPC)

TERMS & CONDITIONS FOR CUSTOMER-OWNED SOLAR ENERGY SSRG or RESG

OPERATED UNDER A GRID-INTERCONNECTION AGREEMENT (GIA)

The Customer agrees to comply always as follows related to the operation of their PV System or PV Microgrid (the "system").

1. Operate and maintain (or engage services of qualified technician and/or engineer as may be required to operate and/or maintain) the system in accordance with all applicable Governmental standards and requirements and the instructions of the manufacturers of the equipment used to construct the various components of the system.
2. Comply with SGCPC requirements relating to the operation of the system which may be in effect from time to time.
3. Promptly notify SGCPC of any malfunction or breakdown of any component of the system that could constitute a foreseeable safety hazard, or which could reasonably be expected to cause disturbance or damage to the SGCPC Grid.
4. Not operate or allow the system to be operated so as to generate electricity at a rate greater than 110% of the system Nameplate Gross Power Rating as noted on the GIA.
5. Not add to or modify or allow any addition or modification to the system without the prior written consent of SGCPC.
6. Not alter, modify, tamper, or allow any alteration, modification or tampering with the system connection to the SGCPC Grid without SGCPC prior written consent. This includes the SGCPC-owned meter, service disconnect, AC disconnect or interconnection, and any Customer-owned Transfer Switch.
7. Not relocate or interconnect or allow any relocation or interconnection of the system to the SGCPC Grid at any location other than the Service Address without SGCPC prior written consent.
8. Not convey or distribute electricity or allow same across premise boundaries or property lines; specifically that the electricity produced by the system shall be consumed on the Customer premise by Customer loads on the Customer's property; unless it is a PV System and is exporting energy to the SGCPC Grid through the SGCPC bi-directional meter.
9. Allow access to all system components by SGCPC technicians at any time when it is deemed necessary for safety or otherwise for inspection or testing during normal business hours.
10. Make all payments required under the approved program plans, including advance payment for recurring inspections.

Signature below indicates acceptance of Terms and Conditions

Signature _____

Name _____

Address _____

Date _____

Annex F: Customer Grid Interconnection Requirements (GIR) for Renewable Generation PV Systems and Off-Grid Renewable Energy Systems, Rev 2025-07-01

ST GEORGES CAY POWER COMPANY (SGCPC)

CUSTOMER GRID INTERCONNECTION REQUIREMENTS (GIR) FOR RENEWABLE ENERGY GENERATION

PV SYSTEMS and OFF-GRID RENEWABLE ENERGY SYSTEMS

1. PURPOSE and AUTHORITY

This document describes the general provisions and technical requirements for connecting solar-energy systems (and other renewable-energy generating equipment) to SGCPC's power system. Most of these will be solar energy, or "photovoltaic", referred also as "PV systems", although these requirements of the Bahamas Electricity Act 2024 (also referred to as "EA2024" or "Electricity Act") also apply to wind and other non-fossil-fuel sources.

These requirements ensure:

1. The safety of SGCPC technicians, agents, customers, and the public.
2. The safety and compatibility of the renewable-energy system.
3. High standards of power reliability and quality for all customers.

This document sets out the:

- Capacity limits for PV systems (Section 2).
- Application and interconnection process for all systems (Section 3).
- General conditions for connecting a system to the Grid (Section 4).
- Technical interconnection requirements (Section 5).
- Glossary (Appendix A).

SGCPC is licensed by The Bahamas Utilities Regulation and Competition Authority (URCA) as an Authorized Public Electricity Supplier Licensee (APESL) in accordance with the 2024 Electricity Act. SGCPC has the authority and responsibility to manage the supply of electricity to all customers in the service area that are connected to the SGCPC grid and ensure customers comply with regulations developed by URCA.

All Customer-owned systems require SGCPC approval and a permit from URCA.

For definitions and further technical information, please refer to the SGCPC Glossary and Definitions document available on the SGCPC website.

2. CAPACITY LIMITS

The allowable self-generation capacity for a Customer-owned, PV System is based on several factors.

- The maximum allowable power generation capacity for the entire grid.
- The maximum allowable power generation capacity that will ensure that Customers are not producing more energy than they are consuming.
- The integrity of the grid is maintained by limiting the potential for exceeding distribution circuit limitations.

The calculations are equivalent to those approved by URCA for Bahamas Power and Light on Family Islands with equivalent power demand peaks.

This grid-tied PV program is available on a 'first-come, first-served' basis up to a maximum total based on the capacity of PV and ESS installed and operated by SGCPC. of 250 kW-AC (350 kW-DC) of total, combined, grid-tied power capacity. No grid-tied customer-generation facilities will be allowed or approved above this limit until further notice.

The allowable installed capacity for any premise will be the smaller of the following three criteria. Refer to Table 1 for summary.

A. **Maximum Cap**: 30 kW-DC

B. **Net-Consumer**: "Installed Power Capacity" = "Annual Energy Consumption" divided by the "Yield";

where:

Installed Power Capacity is the total nameplate power capacity of the PV modules shown on the submitted plans and confirmed during the installation process, denoted as kW-DC;

Annual Energy Consumption is the total recorded energy consumption recorded by the premise meter for the previous year, denoted as kWh;

Yield is as defined in the Glossary and Definitions, and specified as 2,000 kWh/kW-AC.

For example, if a Customer consumed 10,000 kWh in the previous year, the allowed power capacity for a grid-tied PV System would be 10,000 kWh / 2000 kWh/kW = 5 kW-AC.

The calculation is intended to ensure that no Customer exceeds their annual expected energy consumption through self-generation.

C. **Distribution Circuit Integrity**:

C.1 Residential customers may install PV Systems with power capacity less than or equal to:

2 kW-AC + Average Customer Demand

"Average Customer Demand" (ACD) is the customer's total consumption in kilowatt hours (kWh) during the preceding 12 months, divided by 8,760 (the number of hours in a year). The calculation for ACD will be rounded up to the nearest whole number.

For example, a customer with ACD of 1.3 kW would be allowed to install a system with a maximum size of 4kW. This is based on:

1.3 kW ACD is rounded up to 2 kW, and 2 kW + 2 kW = 4 kW-AC.

C.2 Commercial customers may install PV Systems with power capacity less than or equal to:

15 kW + Average Customer Demand

Table 1: PV System Limits

Parameter	Residential	Commercial Customer
A. Maximum Power	30 kW-AC	
B. Net Consumer	Annual Energy Consumption / 2000 kWh/kW-AC	
C. Distribution Circuit Integrity	2 kW-AC + ACD	15 kW-AC + ACD

Capacity limits do not apply to Off-Grid installations because these installation configurations will never have their PV or ESS interconnected to the grid.

3. APPLICATION AND INTERCONNECTION PROCESS FOR ALL SYSTEMS

This section describes the application and interconnection processes for all customers. ALL customers must submit the SGCPC Grid Interconnection Agreement (GIA) and secure the required written approvals BEFORE installing any PV system.

SGCPC recommends requesting a preliminary conference and opinion BEFORE signing a contract and buying your PV equipment. This approach will help ensure compliance with regulations and not committing your investment until you have confidence in its viability.

Off-Grid Systems require URCA written approval in addition to submission to SGCPC. On-Grid PV Systems, with or without ESS, require SGCPC written approval and do not require URCA approval.

All SGCPC forms are available on the SGCPC website. URCA forms are available on the URCA website.

SGCPC supports the installation of Customer-owned systems. SGCPC is not obligated to approve or allow the connection to the Grid of any installation that is non-compliant, unsafe, or unfit for purpose.

Customers should refer to the SGCPC GIA for a listing of the submittal requirements.

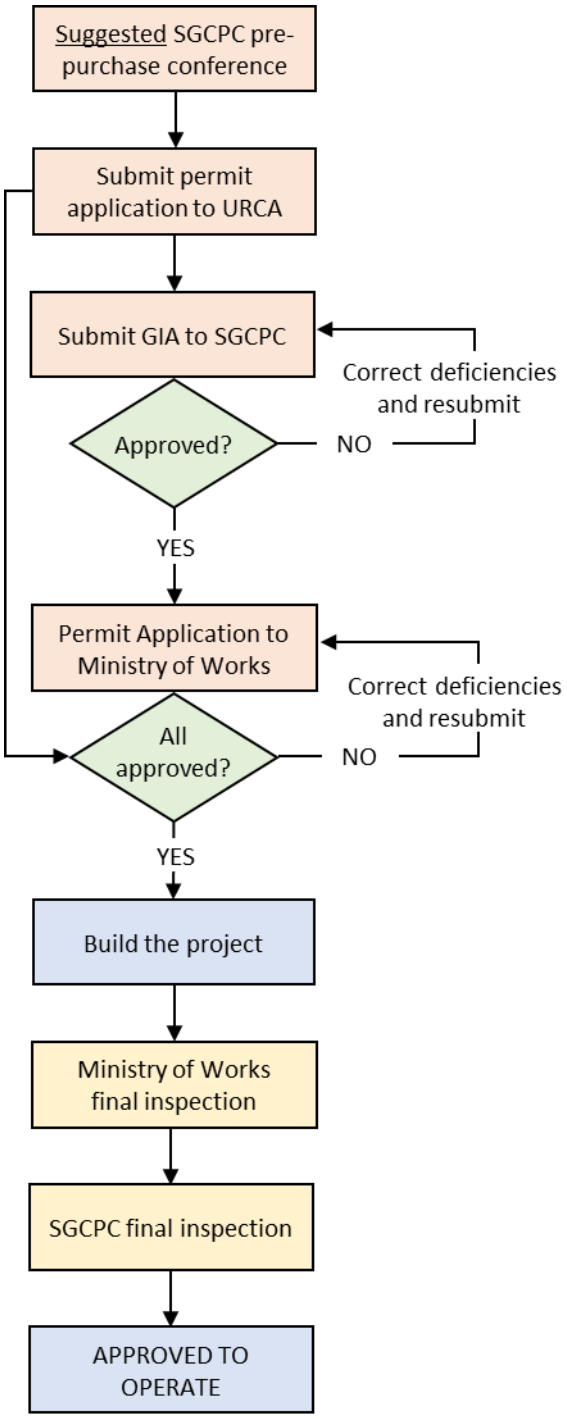
SGCPC will review the application and provide its response, either approving or denying the application, within 21 days of receipt of a completed application.

After receiving written approval from SGCPC to install the specified system, the Customer must apply to the Ministry of Works for the required permits. In the application to the Ministry of Works, the customer must include a copy of the approved GIA from SGCPC. Ministry of Works may also require approval from the Town Council.

The system shall be installed according to the technical specifications in the SGCPC Interconnection Requirements.

Once the installation is complete and Customer receives approved final inspection from Ministry of Works, Customer shall notify SGCPC and request final inspection to operate the system. Within 21 calendar days after written notice from the Customer, SGCPC will perform inspection and functionality tests to ensure the safe operation of the system.

SGCPC will carry out inspections and tests in accordance with Section 5 of this document and will advise the applicant in writing whether the system qualifies for interconnection to the Grid. SGCPC may, if deemed necessary, apply additional labelling and markers to identify the site as an approved system.



If SGCPC does not carry out these tests within 45 calendar days of receiving the approvals from the Ministry of Works, the system is considered approved, and the customer may interconnect the system to the Grid. SGCPC maintains the right to perform additional inspection and functionality testing for interconnected systems at any time, after providing the Customer-generator with at least 48 hours' notice.

Should SGCPC find during the inspection that the system is not compliant with the requirements of this GIR document or the approved application, SGCPC WILL reject the request to connect to the Grid and WILL disconnect and lock out an interconnected system.

To gain compliance and approval to operate, the Customer may take corrective action to ensure the system complies with the requirements. SGCPC will perform a second inspection and functionality test to ensure the safety of the system no later than 30 calendar days after the Customer requests a second inspection.

Customers with operating installations that are not permitted or approved must also follow this process to secure an approved GIA before continuing to operate that installation.

4. FEES FOR INTERCONNECTION

Non-recurring fees apply only once and are payable before the system is reviewed and inspected by SGCPC. Payment of applicable fees is required before operation will be approved by SGCPC.

Recurring fees are due periodically and will be billed by SGCPC in the same manner as electricity usage. Refer to the Renewable-Energy Fee Structure Addendum for specific details. Failure to pay applicable recurring fees will result in disconnection and lock out of the system or the premise by SGCPC.

5. GENERAL CONDITIONS

This section includes the conditions that apply to all Customers before SGCPC will approve any installation.

5.1 Customers Must Be in Good Standing

Persons seeking to acquire and connect systems to the Grid must be SGCPC customers in good standing.

For rented properties, the applicant must obtain and provide to SGCPC written approval from the property owner authorizing the installation and fully indemnifying SGCPC with respect to damages from the installation, maintenance, operation, or removal of the installation.

5.2 Types of Grid-tied Systems Allowed

Unless otherwise approved by SGCPC, to be eligible to connect and operate in parallel with the Grid, grid-tied systems must be photovoltaic (PV) and/or wind electricity generators and meet the technical requirements in Section 5 of this document.

5.3 Unauthorized Connections

For the purposes of public and utility personal safety and according to URCA regulations and the Electricity Act, SGCPC reserves the right to disconnect any customer who connects or has connected a system to the Grid without written authorization from SGCPC.

Should SGCPC decide to disconnect a system from the Grid, it shall notify URCA within two (2) days of doing so, giving reasons for the disconnection. A customer whose system has been disconnected pursuant to this power may have the matter reviewed by URCA by making a written request to URCA.

5.4 Code Compliance

The system must be located exclusively within the customer’s owned or rented property and observe all building codes and property line setbacks.

5.5 System Architecture

SGCPC allows two configurations for non-SGCPC-owned solar-energy systems.

(A) PV System (with or without an ESS). Represented by Figures 1 and 2, below.

(B) Off-Grid. Represented by Figure 3, below.

SGCPC Customers may install either PV System configuration on their premises. The Off-Grid configuration still

requires all documentation and submittals and approvals, but the owner of the Off-Grid system does not need to be an SGCPC customer. The Off-Grid system requires URCA written approval before SGCPC will approve the operation of that system.

Customers that are planning their own onsite solar-energy system can evaluate these options to determine which one is the best solution for their needs and goals. SGCPC will not allow other configurations.

Customers are encouraged to consult with SGCPC before signing contracts for purchase and installation of a renewable energy system.

SGCPC encourages Customers to deploy their own solar-energy systems in striving for our national renewable energy goals. It is important to note that Customer-owned systems make more costly electricity than other options for our Community, and these systems may result in the cost of electricity to go up for all other Customers in the Community that do not have their own solar-energy system.

Customers can switch from one architecture to another as their needs may change over time. In that case, a new application shall be submitted to SGCPC and the applicable approval process and fees will be required before that change is approved. SGCPC will inspect all installations at least once a year to ensure the installation is still compliant with the approved GIA.

5.4.1. PV System (No ESS): The building/property is connected to the grid and the system in parallel at the same time. That is, energy can flow through the SGCPC Meter in either direction and the PV System and Grid can both be connected to the Main AC Panel at the same time and power those loads at the same time. Additionally, the PV System may be isolated from the Grid using an ATS or MTS and supply electricity to the Main AC Panel loads in parallel with a backup genset. Refer to Figure 1.

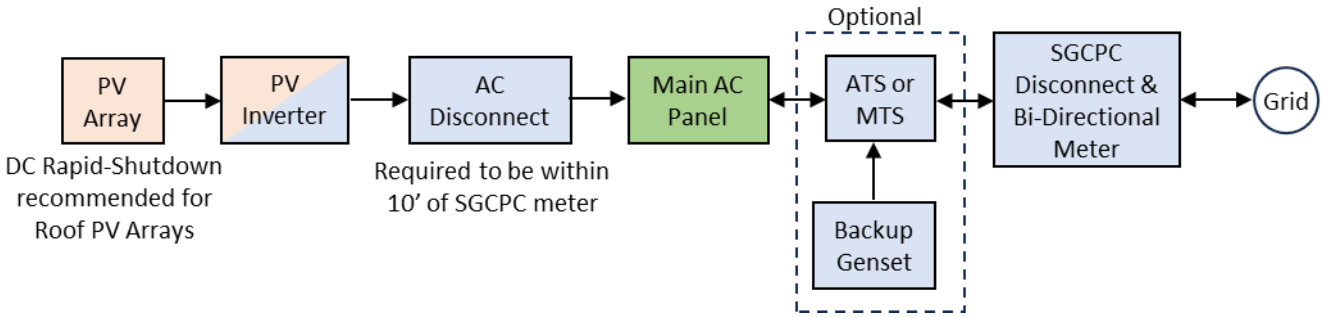


Figure 1: Diagram of Grid-Tied PV System Without ESS Interconnection and Metering Configuration

5.4.2. PV System (With ESS): A PV System with ESS requires a means to isolate the voltage-source equipment (ESS or backup genset) from the Grid in the event the conditional parameters of the grid exceed those listed in Table 2, below. This may be accomplished using the (a) internal circuitry of the power electronics (if the equipment is UL listed for this purpose), or (b) using an external ATS/MTS. Refer to Figure 2.

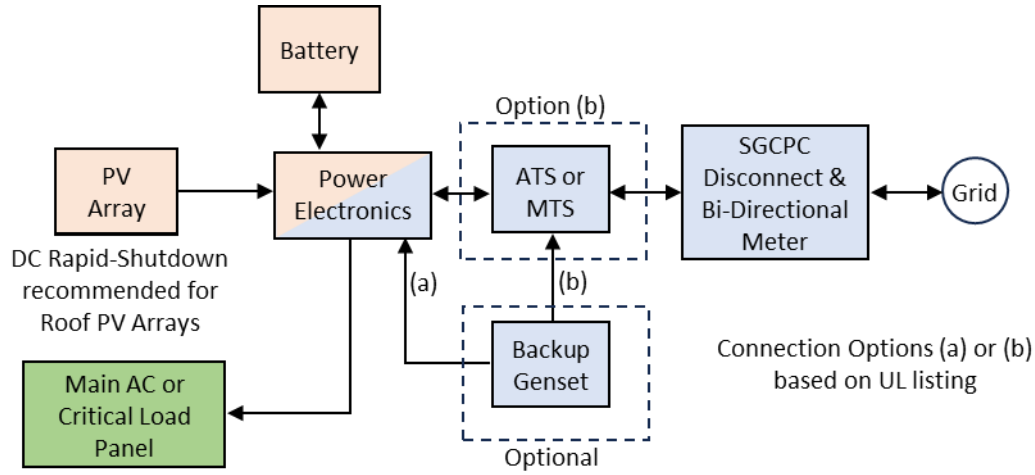


Figure 2: Diagram of PV System with ESS Interconnection and Metering Configuration

5.4.3. Off-Grid: The building/property is disconnected from the Grid. There are no utility service conductors or cables connected to the building or its electrical loads. Refer to Figure 3.

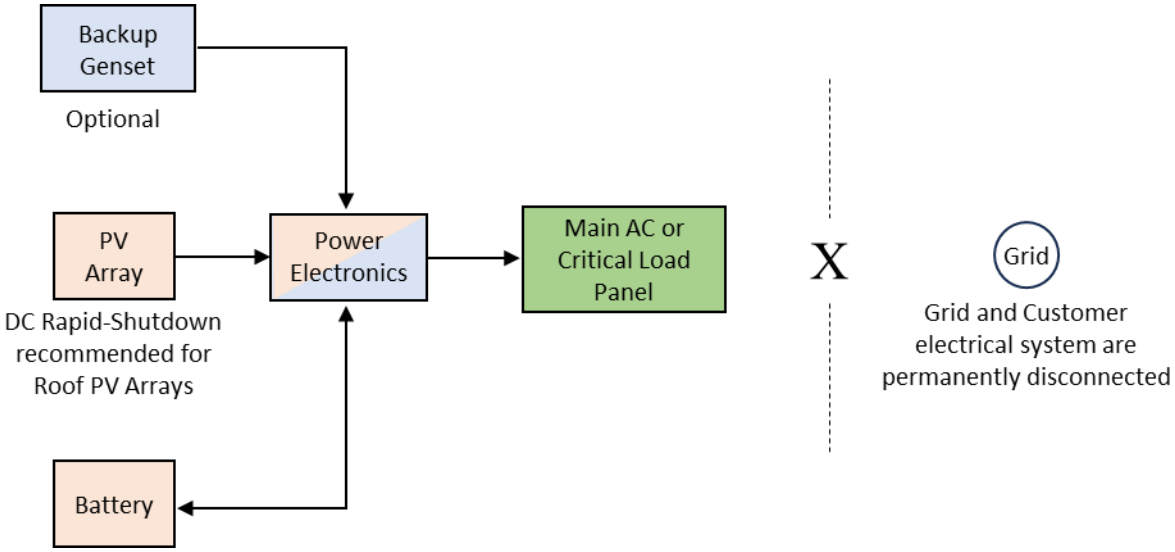


Figure 3: Diagram of Off-Grid PV and ESS Interconnection and Metering Configuration

5.6 Metering

Upon final inspection of a Grid-Tied system and permission to operate is granted by SGCPC, SGCPC will furnish and install a new customer meter at the premises at the Customer's expense. The existing meters do not record energy exported to the Grid. The new bi-directional meter will ensure consumed and exported energy is accurately recorded.

5.7 Labelling

Buildings and structures with a grid-tied PV system must, where practicable, have the disconnecting means grouped (in accordance with SGCPC's Grid Code). Where such an arrangement is not practicable, there must be a permanent plaque posted on or near each disconnecting means, indicating the location of all other service boxes supplying power to the building.

Grid-tied systems that include battery plants or other energy storage systems shall be labelled in a conspicuous, legible, and permanent manner with a suitable warning sign at the location of the service disconnecting means of the premises.

Labeling shall comply with the National Electrical Code (NEC) 2020 Article 690. A graphic summary of labeling requirements is posted on the SGCPC website.

5.8 Insurance

The owner of a PV system or PV Microgrid that is configured as Grid-Tied or Transfer Switch must maintain general liability insurance in amounts not less than:

- $50,000 for systems with capacity less than or equal to 5kW
- $100,000 for systems with capacity greater than 5kW, but less than or equal to 10kW
- $250,000 for systems with capacity greater than 10kW.

An endorsement of a homeowner's policy providing the required amount of coverage is acceptable to meet this insurance requirement. Failure to maintain the insurance coverage will render the Grid Interconnection Agreement invalid. SGCPC does not accept responsibility for the failure of the customer to renew its insurance policy.

Proof of insurance must be provided prior to SGCPC approving the GIA. This coverage is to provide, at a minimum, protection in the event of electrical or mechanical failure or malfunction of the installation that causes loss, damage injury or death to persons or property. SGCPC may from time to time require the homeowner to verify the existence of valid insurance coverage.

5.9 Indemnification

The owner of a grid-tied system must indemnify SGCPC, its agents, and third parties for losses and damages resulting from the operation of the system, except when the loss or damage occurs due to the negligent actions of SGCPC, its agents, or third parties. SGCPC and its agents will indemnify the customer for all loss to third parties resulting from the operation of the Grid except where SGCPC and its agents have used reasonable care in the exercise of their functions or when the loss occurs due to the negligent actions of the customer. Submission of the GIA implies acceptance of this Indemnification requirement.

5.10 Future Modifications and Expansion

The customer must obtain written approval from SGCPC and the Ministry of Works Electrical Inspection Department, prior to modifying, expanding, or altering the approved system. The customer must present an approved Electrical Inspection Certificate to SGCPC, and must obtain written approval from SGCPC, before interconnecting the modified system to the Grid. The customer may be required to execute a new Grid Interconnection Agreement, if applicable.

5.11 Customer-Owned Equipment Protection

The protection of the facility loads and generation equipment owned by the customer and ensuring compliance with all standards, codes and requirements of local authorities is solely the responsibility of the customer.

6. TECHNICAL INTERCONNECTION REQUIREMENTS

This section provides the technical requirements for SGCPC approval of installations of PV Systems or Off-Grid Systems. and lists typical conditions and response to abnormal conditions that the system is required to meet.

6.1 Equipment Certification

Equipment shall be placarded by the manufacturer indicating compliance with the following standards and listings. Documentation provided with the GIA shall include data sheets indicating these listings.

UL-1547 – Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

UL 1741 – Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

UL 9540 – Energy Storage Systems and Equipment

UL 9540A – Standard for Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

(IEC 62933-5-1 and 2 is an accepted alternative for UL-9540)

UL 1998 – Software in Programmable Components

UL 1973 – ANSI/CAN/UL Batteries for Use in Stationary and Motive Auxiliary Power Applications

UL 62109 – Safety of Power Converters for Use in Photovoltaic Power Systems

(IEC 62109 is an accepted alternative for UL-62109)

UL 1703 – Flat-Plate Photovoltaic Modules and Panels

Electrical wiring shall conform with national standards, as set by the Ministry responsible for Building Regulation under Buildings Regulations (Chapter 200).

All components, inclusive of but not limited to inverters, AC panels, charge controllers and batteries, must be accompanied by the manufacturers' specifications sheets, installation/operation manuals, and other details relevant to the inverters function. These documents must be available at the time of application, initial installation inspection, and all subsequent inspections/reviews. Voltage, current and power limits, and operating points are key parameter sets must also be available for review. The year version of each standard or listing shall be 2018 or later year-version that is closest to the year of installation.

All small wind turbine systems must meet UL 6142 requirements as well as any applicable local code requirements.

6.2 Normal Voltage and Frequency

The maximum DC voltage shall not exceed 600 VDC for residential installations and 1000 VDC for commercial installations.

The grid AC voltage at the Point of Common Coupling (POCC) will vary depending on the customer, and the AC Output Circuit voltage shall be set to match that specification. Should the grid voltage deviate, the PV Inverter shall respond as described in Table 2.

The PV Inverter shall operate only in grid-following mode as a current source at a 60Hz frequency. Should the grid frequency deviate, the PV Inverter shall respond as described in

Table 2.

6.3 Inverter Response to Abnormal Voltages and Frequencies

A PV System without ESS shall detect and promptly cease to energize the inverter AC Output Circuit(s) when any of the following criteria are exceeded. For three-phase systems, the disconnect shall be proven by certification to successfully disconnect when only one or two phases is out of tolerance, and not necessarily all three phases.

Table 2: Technical Requirements

Voltage Condition (% of Nominal Voltage)	Maximum Time to Disconnect
V <50%	0.16 sec – (10 cycles)
50% < V < 88%	2secs – (120 cycles)
110% < V < 120%	1 sec – (60 cycles)
V > 120%	0.16 sec – (10 cycles)
Frequency	**Maximum Time to Disconnect**
F < 59.4 Hz	0.16 sec – (10 cycles)
F > 60.6 Hz	0.16 sec – (10 cycles)

6.4 AC Disconnect

All systems connected to the SGCPC grid shall include a visible and lockable AC disconnect that will visibly and physically isolate all generating components (PV and/or ESS) from the grid. The AC Disconnect shall be in an accessible location at or near SGCPC's meter and required signage and notices are posted.

6.5 Electrical Islanding

Customer-owned PV Systems may operate in an islanded condition that does not export power or energy to the grid when he grid is in an abnormal condition as noted in Table 2. In these instances, the onsite system may supply premise electrical loads as follows. (a) A **PV System without ESS** may be physically disconnected from the grid using an Automatic Transfer Switch (ATS) or Manual Transfer Switch (MTS) and thence operate interconnected to an onsite backup genset supplying electricity to premise loads. (b) A **PV System with ESS** may isolate from the grid using its internal UL-listed circuitry or an ATS or MTS and supply electricity to premise loads.

All grid-tied systems shall detect abnormal conditions as noted in Table 2, above, and cease to export power to the Grid within a maximum of two seconds after the excursion of a phase or the service outside voltage or frequency standards, or complete loss of one or any number or combination of phases of the service.

In no case or instance shall a backup genset or ESS export power to the grid when the parameters in Table 2 are exceeded. Customer-owned systems found to be operating outside these requirements will be immediately disconnected and locked out from the SGCPC grid because of the safety risks.

6.6 Communications and Control

Inverters shall comply with IEEE-1547 (year-version 2018 or more current). This includes the ability to allow SGCPC to control the output of the inverter. Installations where SGCPC cannot connect and control the inverter will require a remotely actuated on-off switch owned and controlled remotely by SGCPC to limit excess energy that may be exported to the grid. This capability will be used to periodically limit solar-energy generation and export that could cause stability problems for the SGCPC diesel genset powerplant.

6.7 Rapid Shutdown

It is important to note that PV arrays installed on the roof of residential dwellings represent a potential electrical and fire safety hazard to occupants, residents, and emergency responders. Installation of rapid-shutdown devices for residential installations has been the industry’s best practice since 2018. While the version year of the Canadian Electrical Code accepted by The Bahamas is silent on emergency rapid shutdown capability for residential PV arrays, SGCPC strongly recommends owners of roof-mounted PV arrays install rapid-shutdown devices for their own safety and the safety of neighbors and emergency responders. Until required by our electrical code, this is a best-practice recommendation and not a requirement.

6.8 Voltage Flicker

Voltage flicker is an increase or decrease in voltage over a short period of time and is normally associated with

fluctuating loads or motor starting. A flicker problem is site-specific and depends on the characteristics of the changes in load. A flicker is considered objectionable when it either causes a modulation of lighting levels sufficient to be irritating to humans or it causes equipment to malfunction. The PV System shall not cause objectionable flicker for other customers on the Grid.

6.9 DC Injection

The system shall not inject a DC current greater than 0.5% of the unit's rated output current at the Point of Delivery after a period of 6 cycles following connection to the Grid.

6.10 Harmonic Distortion

Systems are to employ pure-sinewave inverters and are expected to comply with IEEE Standard 519 current distortion limits regarding harmonic current injection into the Grid. The harmonic current injection arising from the system shall not exceed the values listed in Table 3 – (excluding any harmonic currents associated with harmonic voltage distortion present on the Grid without the system connected).

Table 3: Distortion Limitations

Total Harmonic Distortion Limit (of rated current)		5.0%
Maximum Distortion		
Harmonic Numbers	Even Harmonics	Odd Harmonics
h < 11	1.0%	4.0%
10 < h < 17	0.5%	2.0%
18 < h < 23	0.4%	1.5%
24 < h < 35	0.2%	0.6%
h > 35	0.1%	0.3%

Additionally, the THD shall comply with URCA Mandate, as listed in Table 4.

Table 4: URCA THD Mandate

Level	Bus Voltage at POCC	Individual Harmonic, h ≤ 50	Total Harmonic Distortion, THD
A	V ≤1.0 kV	5.0%	8.0%

Annex G: Glossary & Definitions, Rev 2025-05-11

ST GEORGES CAY POWER COMPANY (SGCPC)

GLOSSARY & DEFINITIONS

Automatic Transfer Switch (ATS): A mechanical switch that is actuated automatically to connect one of two different sources of electricity to the electrical loads of the premise. Refer also to Manual Transfer Switch.

Bi-Directional Converter (BDC): A device that can convert direct-current (DC) electricity to alternating-current (AC) electricity or AC to DC. Typically, a BDC is part of an ESS. Refer also to “DC”, “AC”, “Rectifier”, and “Inverter”.

Capacity Factor: A conversion between the power capacity of a renewable-energy system (DC or AC) and its energy production on an hourly basis, expressed as a percentage of an equivalent continuous power output. Capacity Factor is more commonly used by utility companies and is calculated as the AC Yield divided by 8,760 hours in a year. For example, a PV system that produces 2,000 kWh per year per kW of AC power capacity would have a 23% Capacity Factor (2,000 / 8,760 = 23%). The Capacity Factor depends on various factors such as the geographic location, azimuth and tilt angle of the array, and electrical design characteristics. Most of the Bahamas experiences a Capacity Factor of 21% to 22% depending on the above-mentioned factors. Refer also to “Yield”.

DC-AC Derate Factor: The Derate Factor is the ratio of the DC power output rating of the PV Modules added together divided by the AC power output rating of the Inverter. This ratio typically ranges from 1.2 to 1.4, meaning the DC power of the PV Modules is 1.2 to 1.4 times the AC power of the PV Inverter. For example, the PV Modules may have a total DC power rating of 10 kW-DC and the inverter AC power output may be rated at 8 kW, making the DC-AC Derate Factor = 10 kW-DC / 8 kW-AC = 1.25 Derate. This is an engineering parameter based on design conditions. The reference to power on a DC or AC basis is used in the calculation of the Yield, Capacity Factor, and the allowed power capacities in the Grid Interconnection Requirements.

Energy: The capacity to do work. For general understanding, it is equivalent to the odometer of a car and is measured in kilowatts-hours (kWh) or megawatts-hours (MWh). Energy is the use of power over time. Refer also to “Power”.

Energy Storage System (ESS): An ESS is a device or assembly capable of converting electrical energy to some other form of energy suitable for storage, typically using batteries such as lithium-ion technology for that storage. The ESS also includes the power electronics necessary to convert AC to DC current (a rectifier) and DC to AC current (an inverter). Any ESS used in the SGCPC Service Area shall be UL-9540 listed, UL-9540a tested, compliant with NFPA-855, and installed in compliance with the Canadian Electrical Code (CEC).

Feed-In Tariff (FiT): The defined financial compensation the electrical utility (in this case SGCPC) will pay the Customer-owner of a grid-tied PV System for the electrical energy the system exports to the utility grid as recorded by the bi-directional meter. This rate is published in the tariff schedule for SGCPC.

Flicker: Flicker (voltage) is an unsteady visual sensation associated with changing lighting luminance caused by sudden and repetitive increases or decreases in voltage over a short period of time. It is normally associated with fluctuating loads or motor starting.

Genset: Engine-alternator set, also commonly called a “generator” or “backup generator”. A Customer or person with a backup genset installed on their premises in the Service Area shall not use the genset except during emergency conditions.

Grid: A network for the transmission of electricity throughout a region or service area, where the electricity is an AC voltage source produced by engine-alternator sets (generators or gensets). Typically, a service-area grid is produced and maintained by a utility company.

Grid Interconnection Application (GIA): The legal document authorizing the interconnection of a privately owned generating system to the SGCPC grid.

Grid-Tied PV System: A Grid-Tied PV System, consisting of PV Modules (or “solar panels”), PV Inverters, the racking system and module attachments, roof flashing (for roof arrays), and the associated electrical components for safety,

interconnection, and monitoring. A grid-tied PV System may include an ESS, or it may operate without an ESS. Refer also to Grid-Tied PV System with ESS or Grid-Tied PV System without ESS.

Grid-Tied PV System with ESS: The combination of PV Modules and PV Inverter plus an ESS and control system. This system is "grid tied" in that there is a physical connection to the SGCPC grid. This system can make electricity "islanded" from the grid. The PV Inverters require a reference voltage which may be provided by the grid, ESS, or backup genset. A primary requirement is for the physical separation of the system from the utility grid in the event of an abnormal grid condition or a grid power outage. This can be achieved by using an automatic transfer switch (ATS). SGCPC has the right and responsibility to disconnect a PV System from the grid where the resource fails to comply with the Grid Interconnection Requirements. Refer also to Grid-Tied PV System without ESS.

Grid-Tied PV System without ESS: This system cannot make electricity without being connected to the grid or a backup genset. The PV Inverters require a reference voltage which may be provided by the grid or backup genset. The backup genset may only operate in the event of a failure of the SGCPC grid. A primary requirement for a PV System without ESS that also has a backup genset is for the physical separation of the system from the utility grid during an abnormal grid condition or power outage when the backup genset is running. This can be achieved using an automatic transfer switch (ATS). SGCPC has the right and responsibility to disconnect a PV System from the grid where the resource fails to comply with the Grid Interconnection Requirements. Refer also to Grid-Tied PV System with ESS.

Grounding: An electrical connection to the earth or a body that extends from an earth connection for the purposes of safety and voltage reference.

Harmonics: Distortions in the voltage or current waveforms that are caused by the overlapping of the fundamental waveform with other waveforms of frequency multiples of the fundamental waveform. Harmonics generally are undesired phenomena that cause heat to build up in circuits and conductors and noise that can interrupt other electrical devices. Refer also to "Total Harmonic Distortion".

Inverter: A device that converts direct-current (DC) electricity to alternating-current (AC) electricity. Inverters shall comply with relevant portions of the most current year-versions of IEEE-1547 and UL-1741SB based on the year of the system installation. The applicable year-version shall be 2018 unless a system owner can prove through written documentation that the system was installed prior to 2018. This definition shall be known to apply to later year-versions of IEE-1547 and UL-1741SB as those standards are updated. Refer also to "Rectifier" and "Bi-Directional Converter".

Inverter Anti-Islanding: An electrical standard that requires PV Inverters to not function as an "island", meaning the system cannot produce its own voltage waveform without the presence of another voltage source. This is a critically important safety requirement to ensure that an Inverter will not export power to a distribution interconnection that is not otherwise energized by SGCPC. A PV Inverter is required to be "anti-islanding" meaning that when it is connected to the grid it will stop exporting power within two seconds of the grid voltage itself being turned off. Without anti-islanding requirements, a technician working on the grid or powerplant when the SGCPC generators are turned off could be electrocuted by the voltage and power exported by a grid-connected PV Inverter. Refer also to "Inverter Islanding".

Inverter Islanding: An operating condition where an energy-generating system can produce its own voltage waveform. This is commonly associated with backup generators and some PV Inverters that operate and create voltage and power separately and without the utility grid. These devices are also called, "voltage sources" as they can generate an operating voltage waveform on a circuit and could energize a utility grid when the utility generating equipment is not operating. This can result in a dangerous scenario that puts utility technicians and equipment at risk, and islanding is universally not allowed when connected to a utility grid. Industry safety standards (IEEE-1547 and UL-1741SB) require that PV Inverters stop exporting power when they sense a grid failure (lack of grid voltage waveform). Refer also to "Inverter Anti-Islanding".

Kilowatt (kW): A measure of electrical power. Refer also to "Energy" and "Power".

Kilowatt-hour (kWh): A measure of electrical energy. Refer also to "Energy" and "Power".

Levelized Cost of Energy (LCOE): A fixed cost for electric energy, represented as $ per kWh ($/kWh). It is calculated as the total cost of ownership divided by total life-cycle energy production. The cost of ownership includes the first capital cost of generation and storage assets (such as PV and ESS) plus the annual operating cost for each year of the service life (maintenance, repairs, insurance) with each years' expenses discounted to year zero using the applicable Discount Rate.

Manual Transfer Switch (MTS): A mechanical switch that is actuated manually to connect one of two different sources of electricity to the electrical loads of the premise. Refer also to “Automatic Transfer Switch”.

Off-Grid System: An installation that has no connection to the SGCPC grid. The Off-Grid system operates independently and should be engineered such that the ESS provides as much energy as may be required during any operating conditions and at all times. An onsite backup genset shall not be used for anything other than emergency conditions. The Owner cannot use the SGCPC grid to power premise loads. Refer also to PV System, PV Microgrid, and the SGCPC Grid Interconnection Requirements.

Photovoltaic (PV) means the physical process of converting sunlight to electricity.

Photovoltaic (PV) Inverter: This is an electronic device that converts DC power to AC power. It is a current source and not a voltage source, meaning it cannot make its own sine-wave voltage output. It must be connected to another device that makes the voltage output, such as the grid, a genset, or an Energy Storage System, ESS.

Photovoltaic (PV) Module: Also called a “solar panel”, this is an integrated assembly of PV wafers, or “cells” connected electrically to deliver a specified range of DC voltage and DC amperage at a rated power. The cells are sandwiched between one or two sheet(s) of tempered glass in an engineered frame. Multiple PV Modules are connected in a series to each other like batteries in a flashlight and then connected to an Inverter.

Photovoltaic (PV) System: A defined system architecture that consists of PV modules and grid-interactive inverters to convert the energy from the sun to electrical energy. A PV system may also be coupled with an Energy Storage System (ESS) and / or Electrical Generator. PV Systems may be grid-tied or off-grid. Refer also to Off-Grid, PV Microgrid, and the SGCPC Grid Interconnection Requirements.

Power: The rate of doing work. For general understanding, it is equivalent to the speedometer of a car and is measured in kilowatts (kW) or megawatts (MW). There is no factor of time in the measurement of power. Refer also to “Energy”.

Point of Common Coupling (POCC): The point where the output of a PV System is physically connected to the electrical conductors of the SGCPC’s distribution system. Also referred to as the Point of Interconnection (POI).

Rectifier: A device that converts alternating-current (AC) electricity to direct-current (DC) electricity. Refer also to “Inverter” and “Bi-Directional Converter”.

Total Harmonic Distortion (THD): This is a summation of all harmonics representing the amount of distortion of a voltage or current electrical waveform. Refer also to “Harmonics”.

Voltage protection (over/under): Use of relays or other devices to protect lines or equipment by causing circuits to open based on the degree by which the measured voltage varies from a set value.

Voltage (current) Waveform: The variation of voltage (current) over one cycle indicated by the pattern which results when the instantaneous value of voltage (current) is plotted with respect to time over a cycle. Ideally, AC waveforms are represented by sinusoids and DC waveforms are constant over time.

Yield: A general conversion between the generating power capacity of a renewable-energy system and its energy production on a yearly basis. For example, a PV system with a DC power rating of 10 kW-DC would produce roughly 15,000 kWh per year. The Yield is 15,000 kWh/year divided by the 10 kW-DC power rating = 1,500 kWh/kW-DC/year. The yield depends on various factors such as the geographic location, azimuth and tilt angle of the array, and electrical design characteristics. Most of the Bahamas experiences a Yield of 1,500 to 1,650 kWh/kW/year depending on the above-mentioned factors. On an AC basis, this Yield range is approximately 1,900 to 2,100 kWh/kW-AC. Refer also to “Capacity Factor” and “DC-AC Derate”.

Annex H: St Georges Cay Power Company (SGCPC) Renewable-Energy Fee Structure Addendum, Rev 2025-07-12

ST GEORGES CAY POWER COMPANY (SGCPC)
RENEWABLE-ENERGY FEE STRUCTURE ADDENDUM

This Fee Structure schedule is current and applicable on the date noted above and subject to change without notice. Please contact the SGCPC office for further details or clarification. Fees are summarized in Table 1, below.

NON-RECURRING, ONE-TIME APPLICATION FEES

Proof of payment of the one-time, non-recurring fees outlined herein will be required before SGCPC authorizes the operation of the PV System or Off-Grid system. This does not include Town Council, Ministry of Works, or URCA fees.

Systems that are without approval contravening these Regulations will be assessed these fees upon discovery and proper application. Payment will be required before SGCPC proceeds with the assessment and processing of the application to operate in a legal status.

SGCPC will charge a one-time, non-recurring "Application Fee" for all systems. This fee is necessary for review of documents, assessment by SGCPC line technicians, application processing, and installation of the SGCPC-owned, bi-directional meter.
Should the Customer-owned project pass the initial Review and post-construction Assessment, there are no further one-time fees. Should the project fail the Review and/or Assessment, the same line-item fee(s) shall apply to each time that step has to be repeated. An application package that is incomplete or unclear will be rejected as a failed Review step.

SCHEDULE A: One-Time, Non-Recurring Fees.

1	Installation of SGCPC-owned bi-directional meter {a}	$ 0 for equipment and $ 235 for labor
2	Review of documents, PV System without ESS, or	$ 395 for technical consulting and internal review, or
3	Review of documents, PV System with ESS or Off-Grid	$ 790 for technical consulting and internal review
4	Assessment, PV System without ESS, or	$ 363 for field services, or
5	Assessment, PV System with ESS or Off-Grid	$ 665 for field services
6	Administrative processing	$ 25 for accounting and document processing

Total Schedule A for Non-Recurring Fees **$ 1,018** (PV System) **$ 1,480** (PV System with ESS -or- Off-Grid)

Notes:
{a} Line 1 fees are for PV System only and are not required for an Off-Grid system. The meter remains the property of SGCPC. Customer pays a monthly fee for meter use and grid services.

SGCPC encourages Customers to consult with SGCPC before signing a contract for installation and before starting the design process. That initial consultation may save repeat fees later, but this is optional at Customer's discretion. That initial consultation is at no charge provided it requires less than one hour to complete.

Notes (continued):

In the future as the renewable fraction grows in the service area, due to the small size of our grid, SGCPC will install a network monitoring system to track and control the PV Systems installed on the grid. This is necessary to maintain stability and reliability. This does not apply to Off-Grid systems. PV System customers will be assessed an additional one-time, non-recurring charge for connection to the network. That cost is not determined at this time but SCGPC commits that it will not exceed $2,000 per PV System for connection to the network at the time the network is implemented.

Customers that may refuse to pay this fee will have their PV System turned off and locked out by SGCPC. At that time, the Customer may elect to convert to an Off-Grid system and follow that process in its entirety.

RECURRING MONTHLY & ANNUAL FEES

All system owners will be assessed an additional recurring annual fee. This is required for annual visual assessment and for the SGCPC technician to conduct annual safety and UL-1741 islanding / anti-islanding testing.

SCHEDULE B: Annual Recurring Fees.

1	Assessment, PV System without ESS, or	**$ 165**	Field labor and administrative processing, or
2	Assessment, PV System with ESS or Off-Grid	**$ 235**	Field labor and administrative processing
3	Meter and network services charge	**$ 120**	Billed annually in advance

Table 1: SGCPC Fee Summary

	Amount			Frequency	
Agency	PV System	PV with ESS	Off-Grid	One-Time	Recurring
Application {a}	$ 1,018	$ 1,480	$ 1,480	X	
Re-Application	$ 420	$ 815	$ 815	X	
Re-Assessment	$ 388	$ 690	$ 690	X	
Network {b}	NTE $,2,000			X	
Annual	$ 285	$ 355	$ 235		X

Notes:

{a} The difference between PV System and Off-Grid is the installation cost for the bi-directional meter for PV Systems.

{b} The fee for the communications and control network interconnection is still to be determined. This may be required in 2026 or beyond.