



BAHAMAS POWER AND LIGHT LIMITED'S SMALL-SCALE RENEWABLE GENERATION PLAN

STATEMENT OF RESULTS AND FINAL DETERMINATION

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1 Introduction

On 12 December 2016, the Utilities Regulation and Competition Authority (URCA) published a Preliminary Determination and Initial Decision (ES 04/2016¹) in respect of its Review and Proposed Revision to Bahamas Power and Light Limited's (BPL) Small-Scale Renewable Generation Plan (SSRG). This document constitutes URCA's Statement of Results and Final Determination to the Public Consultation. URCA, as the independent regulator for the Electricity Sector (ES) in The Bahamas, issues this Statement of Results and Final Determination pursuant to section 38(3)(a) of the Electricity Act, 2015 (EA).

The Electricity Act confers on URCA the power to implement the National Energy Policy (NEP) and the Electricity Sector Policy (ESP), and in that regard to enforce the provisions of the EA. This Statement of Results and Final Determination concludes URCA's consultative process on the Initial Decision (ES 04/2016) and Preliminary Determination (ES 04/2016) regarding the SSRG implementation.

Purpose of this Statement of Results and Final Determination.

In particular, this Statement of Result and Final Determination, URCA:

- (i) summarizes the written submissions received to the Public Consultation document (ES: 04/2016) on BPL's SSRG Plan;
- (ii) provides URCA's analysis of the submissions made by key stakeholders; and
- (iii) sets forth URCA's Final Determination.

1.1 Background to the Consultation

In 2013, the Government of The Bahamas published the Bahamas National Energy Policy 2013 – 2033 (NEP). A key objective of the NEP is the increasing inclusion of sustainable renewable energy sources into the generation mix in The Bahamas. In this regard, the NEP calls for residents and businesses to install suitable renewable power generation equipment, and to sell any excess electricity they generate to BPL. The EA mandates BPL to set up a process to buy small-scale generation from renewable sources at fair and uniform price. This is within the context of a larger, more comprehensive plan for the incorporation of Renewable Energy (RE) resources into the generation mix at a small-scale and large-scale, with the view of meeting the NEP's objective of 30% RE generation by 2033.

¹ <http://www.urcabahamas.bs/consultations.php?cmd=view&article=423>

In accordance with section 25(2) of the Electricity Act, 2015 (EA), on 28 April 2016 BPL submitted a Renewable Energy Plan (REP) to URCA for its consideration and approval. URCA's assessment concluded that the initial REP submission did not satisfy the aforementioned statutory requirements. However, in order to expedite access to renewable for residential and small commercial consumers, BPL was allowed to segment the Plan into two components, "small-scale" and "utility-scale" generation.

Following the submission of the REP by BPL, URCA has concentrated its efforts on the "small-scale" component of the Plan. As such, on 12 December 2016 URCA published for public consultation a preliminary determination on its review and proposed revisions to BPL's Small-Scale Renewable Generation Plan. In response to the consultation and ongoing discussions between URCA and BPL regarding the initial REP, BPL submitted a revised REP in February 2017 to URCA.

URCA completed its review of the February 2017 revised REP and issued its response in ES 02/2017 (dated 6 April 2017)² entitled "*URCA's Response to BPL's SSRG Submission.*" In this document URCA directed BPL to amend BPL's February 2017 revised REP to include URCA's comments relating to a review of the Policy Statement, and the feed-in tariffs for the SSRG programme.

Additionally, URCA directed BPL to confirm acceptance of URCA's revisions to:

- the Interconnection Requirements document;
- the SSRG Interconnection Agreement; and
- the Application Forms.

Further, upon BPL's acceptance of the amended documents, BPL is to commence implementation of the residential SSRG Programme by accepting applications from residential customers to generate electricity from grid-tied renewable sources. Also, BPL should confirm acceptance of URCA's amendments to the documents by no later than 30 April 2017. On 5 May 2017 BPL submitted its Final SSRG Plan. The revised submission includes:

- BPL's SSRG Plan submission;
- BPL's Level 1 SSRG Requirements for grid interconnection;
- BPL's SSRG Application Forms; and
- BPL's Level 1 SSRG Renewable energy interconnection agreement.

A summary of BPL's Final SSRG Plan is set out in Annex A below.

In view of the above and having regard to the objectives of the NEP, URCA considers that implementation of BPL's SSRG Plan is feasible, prior to URCA's approval of the utility-scale component of Renewable

² <http://www.urcabahamas.bs/download/010428300.pdf>

Energy Plan submitted by BPL. URCA was also of the view, having conducted an initial assessment of the Plan, that BPL's treatment of SSRG was more comprehensive and appropriate for regulatory consideration relative to its treatment of utility-scale generation, and that considerably more work is needed in respect of the latter. For these reasons, this Statement of Results and Final Determination focuses on BPL's SSRG Plan only.

URCA has given its permission to BPL to implement the initial parts of BPL's proposals (i.e., Phase 1 as described in Section 5.4 of URCA's Initial Decision and Preliminary Determination (ES 04/2016)³ forthwith, while consultation on the remainder of the Plan was on-going. This approach is in keeping with the objectives set out in the NEP for implementation of Residential Grid-tied, Renewable Generation. URCA considers that there are benefits, for stakeholders, to accelerate the treatment and approval of small-scale, grid-tied, renewable energy generation on BPL's system, so that:

- Residents and businesses within BPL's service areas that have already installed solar panels and storage equipment can have certainty regarding the legality of and, required inspections and required approvals for their existing activities, and clarity over the potential for future impacts on their investments.
- Suppliers of solar panels and storage equipment, as well as consumers considering installing panels and storage equipment on their properties, can take advantage of changes in the existing legal framework.
- All consumers in BPL's service areas have the opportunity to provide efficient small-scale renewable generation to the grid.

1.2 Responses received to the Consultation

The URCA issued consultation provided the means through which members of the public and interested parties could make written submissions on BPL's SSRG Plan.

URCA recognizes the importance of an open and transparent consultation process and is therefore satisfied that it has complied with its statutory duty under the EA by affording all persons having interest in the subject matter of the Preliminary Determination a reasonable opportunity to make submissions.

Initial responses to the consultation, and reply comments on initial responses, were received from the following companies:

- BPL;
- iQ Energy Company Limited; and
- Bahamas Energy & Solar Supplies.

³ <http://www.urbahamas.bs/consultations.php?cmd=view&article=423>

The full text of all written submissions received can be found at www.urbahamas.bs. URCA wishes to thank the above-named respondents for their participation in the consultation process.

In this document, URCA outlines its Final Determination in respect of BPL's SSRG Plan, taking into account the comments received during the consultation period.

In preparing this document, URCA has given utmost consideration to the substantive comments received from all stakeholders. URCA expressly states that failure to respond to any issue raised by respondents does not necessarily signify agreement in whole or in part with the comment, that it has not considered the comment or that it considers the comment unimportant or without merit.

The publication of this document concludes URCA's publication consultation on BPL's SSRG.

1.3 Structure of the Remainder of the Document

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

- Section 2: URCA's responses to comments received on the Preliminary Determination;
- Section 3: sets out URCA's Final Determination on BPL's Small-Scale Renewable Generation (SSRG) Plan; and
- Section 4: Conclusions and Next Steps

2 URCA’s Responses to Comments Received on the Consultation

In this Section, URCA summarizes and responds to the substantive comments received on the consultation, as follows:

2.1 Naming the Plan

Question 1: Do you agree with the proposed naming conventions proposed by URCA?

Please provide reasons and explanations for your response.

BPL Proposal/Comments

While BPL expressed support for URCA’s preliminary position on naming the plan “Small-Scale Renewable Generation Plan”, BPL documents also used other terms that are related to small-scale grid-tied generation, but does not clearly define those terms (e.g., distributed generation and self-generation).

Bahamas Energy & Solar Supplies (BE&SS) Proposal/Comments

BE&SS posited that net energy metering (NEM) should be adopted and went on to note that there are two categories of small-scale Renewable Energy (RE) generation alternatives, namely:

- RE Self Supply
- RE Grid Supply

BE&SS commented that the self-supply option would allow small generator owners to provide power for their own use. As long as the generation equals consumption the power would be accounted for at retail rate, anything above consumption would be at avoided cost of generation rate, as proposed by BPL. In contrast, the Grid Supply option would enable the customer to produce energy for self- consumption as noted above, but sell surplus energy to BPL at a fixed rate that is different from the retail tariff. This option could be made available to customers who have larger roof space that could be utilized for power production.

iQ Energy Company Limited Proposal/Comments

iQ Energy agrees with URCA’s proposed naming. iQ Energy suggested that sub-sections be created to identify specific generation methods. This would enable a clear understanding of requirements for all technologies.

URCA’s Response to Comments Received

URCA is still of the view that the BPL Plan should be appropriately referred to as the ‘Small-Scale Renewable Generation Plan’. URCA takes note of iQ’s suggestion of creating sub-sections for specific generation method and considers that since the SSRG programme is embracing Small-Scale renewables it is not critical at the stage of the REP. Additionally, URCA notes BE&SS’ comments and emphasizes that the purpose of the Plan is to enable electricity consumers to install small-scale renewable generators which will primarily be used for own consumption, amongst other things. Consistent with the EA and the envisioned licensing categories, this activity fits into small-scale grid-tied generation.

While the proposed BPL documents used other terms that are related to small-scale grid-tied generation, URCA notes that BPL does not clearly define those terms (e.g., distributed generation and self-generation). URCA further notes that distributed generation is not mentioned in the EA. Moreover, URCA does not envisage using the term in the electricity sector licensing categories. Therefore, for clarity, URCA directs BPL to delete the term from its Final SSRG Plan. While self-generation in the EA also refers to small consumer-owned generators, for consistency URCA proposes the term small-scale generation.

2.2 Compensating Small-Scale Renewable Generators for Electricity Provided to BPL

Question 2: Please provide comments and views on the net metering approach proposed by BPL and endorsed by URCA. In particular:

- Do you agree with a Phase 1 net billing feed-in tariff equal to the fuel charge?**
- Do you agree with URCA’s proposal to set a net billing feed-in tariff for future phases based on the utility’s avoided cost of generation?**

Please provide reasons and explanations for your response.

BPL Proposal/Comments

Under the BPL SSRG Level 1 plan, it is proposed to have a feed-in tariff equal to the prevailing fuel charge for the billed month. BPL asserted that this approach ensures that non-SSRG customers are not disadvantaged by paying a higher cost for the energy provided to BPL by SSRG systems. BPL proposed that this tariff may be amended from time to time as determined by URCA. When this occurs the basis for the new rate will be provided.

BPL further proposed that for approved authorized customers, BPL will install a meter to register any surplus energy sent to the grid. BPL will credit the customer's account for this energy at the fuel charge rate that is in effect at the time of billing.

Bahamas Energy & Solar Supplies (BE&SS) Proposal/Comments

BE&SS opined that in the initial phase of RE implementation, incentives should be provided to accelerate the proliferation of solar and other RE systems. BE&SS further commented that in The Bahamas the only incentive to invest in a system with a significant upfront cost is offsetting one's own power bill. BE&SS went on to note that the proposed compensation regime lacks this element and thus no motivation for development. BE&SS believed that feed-in-tariffs are often used internationally to spur investments in solar where they pay a higher than retail rate.

BE&SS advised that there are advantages for distributed generation (DG) because power is consumed on site thus avoiding transmission and distribution losses. By contrast, large, centralized solar farms would still have the inherent issues of losses in the distribution network. In addition, large solar farms mostly benefit a few large investors and have low social impact in terms of employment creation and spreading the benefits to different layers of society. For the most part, small scale RE systems will be installed by businesses and homeowners who have to be even further motivated to invest in small generators.

BE&SS pointed to the intense discussions around the world about what constitutes utilities' avoided cost of generation and posited that for the Bahamian economy, the purchases of fossil fuels represent a significant expense, which should be calculated first. In addition, deferral of investments in base load fossil generation assets can be achieved by moving to new technologies with solar in combination with storage. This approach is successfully tested and operated in similar island environments, such as Hawaii and Puerto Rico where batteries firm up power fluctuations in solar power plants and provide stable power.

BE&SS argued that net metering is a minimum requirement to encourage solar developers to invest in systems. BE&SS expressed the view that BPL's proposal on net billing is not giving sufficient motivation

to invest in small scale generation systems. It should be considered in a more comprehensive fashion with regard to how the load profile of a typical household is constituted, BE&SS commented.

iQ Energy Company Limited Proposal/Comments

iQ Energy in their response to question 2 commented that they understood the approach of net billing proposed for Phase 1 of the SSRG program. iQ Energy explained that the company partially agreed and partially opposed URCA's position on the proposed tariff being equal to the fuel charge. iQ Energy is of the view that the fluctuation in the fuel charge creates volatility for residents and businesses seeking to invest in a Renewable Energy System (RES). iQ argued that changes in the tariff during payback period can change return on investment (ROI) for clients and diminish returns. iQ energy believed that clients should be allowed to lock in tariff at the rate at which clients initially signed for a fixed period (say 10 yrs – 15 yrs) and changes in fuel charge tariff should be adjusted after contractual period.

iQ Energy also suggested that it is important to understand the total avoided cost of BP&L in order to optimize the value of the tariff being offered. iQ Energy also argued that the financial goals of BP&L play a part in deciding the value of the tariff offered. iQ Energy recommended that multiple tariff schemes should be evaluated before making a final decision on tariff structure.

URCA's Response to Comments Received

There are two main options to compensate small-scale renewable generators for the electricity that they provide to the grid: **net metering** and **net billing**. URCA notes that BPL favours net billing, and proposed a charge equivalent to the prevailing Fuel Charge during the billing period when the electricity was supplied to the grid.

URCA having reviewed the comments received from iQ Energy and BE&SS considered that both approaches have advantages and disadvantages.

URCA has outlined the arguments regarding the benefits and disadvantages of the Net Metering vs Net Billing approaches in sections 5.2.1 and 5.2.2 of the Initial Decision and Preliminary Determination, respectively.

While URCA appreciates the arguments posited by BE&SS and iQ on the need to incentivise Solar penetration and for tariff to be set to guarantee return to Solar generation respectively, URCA believes that as Solar Energy proliferate, the fixed costs of the power grid must be shared by all consumers connected to the grid. To this end and in order to avoid subsidisation by non-solar generating consumer, only those cost that are avoided by the solar generation should be fairly attributable to them. If this were not the case the fixed costs of the power grid would have to be shared over a smaller amount of electricity sold, resulting in higher average electricity prices to non-solar generating customers.

Therefore, if URCA were to accommodate BE&SS and iQ comments, it would result in a subsidy scheme or program to the solar generation. Essentially, a subsidy implemented by URCA in this document would be at the expense of BPL, which would be unfair and not consistent with URCA's regulatory remit. Should the Government of The Bahamas decide to subsidise solar it would need to do so in some other measure, or by way of amendments to the NEP.

URCA is in general agreement with BPL that a net billing arrangement would be preferable. URCA, however, recognises that the Fuel Charge, while a suitable starting point, does not actually comprise all of BPL's avoided cost of generation. Small-scale renewable generation may also create additional value, such as reducing transmission and distribution losses. Therefore, the Fuel Charge *undervalues* the electricity provided to the grid by small-scale generators. URCA also notes that some subsidy for renewable sources may be justified to meet the government's goals of increasing renewable generation.

While URCA is in favour of a more robust assessment of the value of small-scale generation, it notes that such an assessment will require a significant costing exercise. As an interim measure, URCA therefore is minded to allow BPL to implement the small-scale generation programme based on a net billing arrangement at the Fuel Charge. However, URCA proposes to commence, in due course, a review of BPL's avoided cost of generation, and once completed (including necessary consultation) URCA will determine the net billing tariff based on the outcome of that review.

2.3 Renewable Generation Limits

Question 3: Do you agree with the proposed limits for implementation in Phase 1, and should any adjustments be made to the limits for future phases?

Please provide reasons and explanations for your response.

BPL Proposal/Comments

BPL has proposed that for each island of The Bahamas, there be capacity limits for individual SSRG systems and for the total installed capacity of all SSRG systems. BPL commented that BPL or URCA may reject applications to install grid-tied SSRG systems that would exceed either limit or the capacity of the installed service. BPL proposed that interconnecting an SSRG system that exceeds the limits in the summary table should require written approval from BPL and URCA.

Island	Residential Maximum System Size	Commercial Maximum System Size	No system may exceed this size regardless of ACD
New Providence & Paradise Island	5kW + ACD	50kW + ACD	100kW
Abaco, Eleuthera and Exuma	3kW + ACD	25kW + ACD	50 kW
Long Island, Bimini, San Salvador, [North/Central/South] Andros, Inagua, Cat Island, Great Harbour Cay, Black Point and Staniel Cay (Exuma)	2kW + ACD	15kW+ACD	30kW
All other Family Islands	1kW + ACD	5kW+ACD	10kW

Bahamas Energy & Solar Supplies (BE&SS) Proposal/Comments

This respondent is of the view that System size limitations in this initial phase are mostly an intellectual exercise. BE&SS contemplates that only relatively affluent households can afford a solar installation given the complexities of roof structures, interconnection complications and production limitations (including due to lack of roof space).

iQ Energy Company Limited Proposal/Comments

This respondent disagrees with the proposed limits for implementation in Phase 1 and recommended adjustments for future phases. iQ Energy contemplates that the residential limit structure discriminates against residents with larger energy usage. For equality in ROI for residents, export limits can be based on a percentage of the average energy used. For example, GB Power's⁴ Renewable Energy Rider program allows persons to produce 1.5 times the average energy consumption of the client (**Average Energy Consumption/150 * 1.5**). This allows persons of all system sizes to export an amount relevant to the size of the system. This will keep returns fair and make projects bankable.

URCA's Response to Comments Received

URCA is of the view that the intent and philosophy of the SSRG programme is to create an environment which will provide the opportunity to Residential and Small Commercial electricity consumer who are desirous of generating electricity for their own use using Renewable Energy resources, to do so in a structured and cost-effective way through a grid-tie arrangement with BPL. This philosophy presupposes that the SSRG programme should not impose undue additional cost to those consumers who choose not to join the programme.

⁴ Grand Bahama Power Company

When considering customer Renewable Energy electric system, the first goal is to accurately estimate the electric usage and determine what size RE electric generation can be developed to meet some or all of the usage. The limits outlined in the section 5.3 of the Preliminary Determination (ES: 04/2016) are sized to meet all the customer usage with an incremental capacity addition above the Average Customer Demand (ACD).

Therefore, the system size limitations are not mostly an intellectual exercise as BE&SS posited. Additionally, the concept of having export limits and to guarantee fair returns to SSRG as posited by iQ Energy is not consistent with the overall philosophy of the programme. URCA is of the view that the concept posited by iQ's will add other dimensions of risk for the Grid operator from an Institutional, operational and financial perspective. URCA believes that the potential revenue loss of the SSRG programme should be balanced against the sizing of each system and also the limit of the SSRG programme. However, for subsequent phases URCA is of the view that a higher cap on the overall size of residential systems should be implemented if feasible. URCA however welcome and appreciates iQ Energy's recommendation that adjustment should be considered for future phases.

Table 4.3: Residential and Commercial System Limits

Island	Residential Maximum System Size	Commercial Maximum System Size	No system may exceed this size regardless of ACD
New Providence & Paradise Island	5kW + ACD	50kW + ACD	100kW
Abaco, Eleuthera and Exuma	3kW + ACD	25kW + ACD	50 kW
Long Island, Bimini, San Salvador [North/Central/South], Andros, Inagua, Cat Island, Great Harbour Cay, Black Point and Staniel Cay (Exuma)	2kW + ACD	15kW+ACD	30kW
All other Family Islands	1kW + ACD	5kW+ACD	10kW

2.4 Reducing the Phases to Three

Question 4: Do you agree with URCA's proposed phases for BPL's Small-Scale Renewable Generation programme? Please provide reasons and explanations for your response.

BPL Proposal/Comments

BPL in its revised plan has expressed full agreement with URCA's proposed phases for the SSRG Programme.

Bahamas Energy & Solar Supplies (BE&SS) Proposal/Comments

This respondent believes that the issue of the proposed phases has to be seen in the context of the progression in which the phases can be implemented. BE&SS contended that the financial framework needs to be successfully implemented before any other technical matters can be included, noting that if the financial parameters of the regime are unfeasible, implementation issues are irrelevant.

iQ Energy Company Limited Proposal/Comments

iQ Energy stated that the timeline for proposed phases are reasonable for BP&L to implement. iQ Energy would like to obtain any updated reports if they are available to the public.

URCA's Response to Comments Received

URCA maintains the view that BPL should reduce the programme for interconnecting small generation from consumers to three phases, rather than the four or five phases set out in BPL's initial proposal: Three phases will allow for a more timely implementation of the SSRG

- **Phase 1-** This covers the period January to September, 2017 and is designed to allow BPL to test processes and operations for integrating small-scale renewables onto the grid, and to evaluate those processes and operations. URCA proposes that Phase 1 should combine Phases 1 and 2 of BPL's initial Plan, so it should last for 9 months. As previously discussed, in Phase 1, BPL would operationalise the 40 2kW solar PV systems funded by the Inter-American Development Bank (IADB) and would sign on residential small-scale customers using specifications on system requirements consistent with the levels proposed in the BPL plan.

Registration and migration of existing renewable self-generation installations to the new programme should commence within Phase 1, subject to BPL's developing an appropriate programme for registration and migration of those persons. At a minimum, installations that meet the same essential technical parameters as the new Phase 1 installations should be eligible for migration during Phase 1.

URCA is of the view that persons who have existing installations should comply with the registration and migration process formulated by BPL. Where such persons have systems which are technically able to migrate, they will be mandated to do so. Other installations which are not

technically able to be migrated into the new programme, will be required to ensure that their systems are isolated from the grid.

URCA's stresses that its proposed actions for Phase 1 do not go beyond actions proposed by BPL. Phase 1 has been completed by BPL in accordance with the preceding. Application forms for residential renewable energy systems are available on BPL's website and small commercial systems on URCA's website.

- **Phase 2** (In progress) - The Grid Requirements and Interconnection Agreement are available on BPL's website. During this phase BPL is required to offer a uniform Standard Contract and standard interconnection criteria to all customers, subject to individual and overall caps, and in accordance with parameters established by URCA. The largest cap is set for New Providence as outlined in Table 4.3 above, with smaller caps for the Family Islands based on size. The Standard Offer Contract should also be guaranteed for some period — 10 to 15 years. Allow anyone to subscribe to up to that cap (subject to limits on individual system sizes).

- **Phase 3** – This phase is expected to begin April 2019 and will set a higher overall cap if required and make any necessary revisions to the Standard Offer Contract and other interconnection requirements based on experience with Phase 2. URCA envisions that Phase 3 will be the final, on-going, phase of the programme, subject only to adjustments to the various caps or to documentation from time to time as circumstances require.

Ideally, there would be a single Standard Offer Contract that would apply to all consumers equally. URCA acknowledges that differences in infrastructure may render some areas better able to take on small-scale generation than others. So, some areas may be limited to a lower level of small-scale generation than the Standard Offer Contract generally gives. Even in this case, the default assumption would be what is offered in the Standard Offer Contract. Rather than identifying specific areas where small-scale generation is encouraged, small-scale generation should be encouraged in all areas where it is technically viable, with special caps on small-scale capacity only in areas with infrastructure limitations.

URCA is of the view that the term of the Standard Offer shall be adequate to afford the customer opportunity to recoup their investment in the asset and therefore ideally the term shall match the useful life of a solar photovoltaic (PV) panel in the case of solar PV installation, generally 15 years. URCA mandates BPL set contract duration of no less than ten (10) years for Phase 1 SSRG.

2.5 Requiring Insurance for Small-Scale Renewable Generation

Question 5: Do you agree with URCA’s proposed insurance requirements for owners of Small-Scale Renewable Generation systems? Please provide reasons and explanations for your response.

Question 6: Are there available insurance products which cover general liability available to owners of such systems, and if so, what costs are likely to be incurred? If possible, please provide information to support your response.

BPL Proposal/Comments

BPL proposed that the owner of a SSRG system 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; and
- \$500,000 for systems with capacity greater than 10kW, but less than or equal to 100kW.

An endorsement on a homeowner’s policy providing the required amount of coverage is acceptable to meet this insurance requirement. BPL has suggested that failure to maintain the insurance coverage will render the SSRG Interconnection Agreement invalid. BLP further commented that it does not accept responsibility for the failure of the customer to renew its insurance policy.

Bahamas Energy & Solar Supplies (BE&SS) Comments

BE&SS commented that insuring renewable generation assets have the same advantages as insuring other assets in a residential or commercial property. In addition, it noted that solar systems are highly exposed to the full force of storms and as such are highly vulnerable to damage. In the same context BE&SS cites the importance of engineering and installation of solar racking systems as crucial requirements to withstand storm force winds.

Other comments posited by BE&SS concerns the cost that will be added as a result of acquiring insurance and under the current rate proposed the additional expense will impact expected return on investment within a reasonable payback time.

iQ Energy Company Limited Comments

iQ Energy supported URCA’s proposed insurance requirements.

URCA's Response to Comments Received

URCA believes that owners of small-scale renewable energy generation systems shall be required to have General Liability Insurance. This is because small-scale generators could be held liable if the anti-islanding protections on their renewable energy systems fail to operate, harming BPL personnel or private citizens. This will also protect small-scale generators against equipment damage or loss. It is the responsibility of stakeholders should engage with the insurance industry to ensure that appropriate products are available which are not cost prohibitive.

2.6 Technical Aspects of the Small-Scale Renewable Generation

Question 7: Please provide any feedback on the proposed technical parameters for the Small Scale Renewable Generation Programme, once published. If possible, please provide information to support your response.

BPL Comments/Proposals

BPL has revised its proposed technical parameters for the SSRG Programme

Bahamas Energy & Solar Supplies (BE&SS) Comments

BE&SS expressed the view that the proposed technical parameters and interconnection conditions are too bureaucratic and inefficient. Bahamas Energy and Solar is also pointing to the absence of any reference to any code requirements and is recommending that the National Electric Code (NEC) be used for solar installation as the NEC is the code environment trained installers are familiar with.

Additionally, Bahamas Energy is commenting that the current proposed regime with two instances of approval, a lengthy process is foreseen that would incur unreasonable administrative costs to installers. Bahamas Energy is proposing to URCA to set up a competent online approval and inspection system that can consider relatively uncomplicated proposals quickly and effectively. BE&SS argued that The requirements to document submittal should also be streamlined to the specification sheets of solar and racking equipment, a single line diagram and a basic drawing of location. BE&SS posited that personnel with the appropriate technical insight in solar installations should be able to assess system design and performance with this level of documentation without the need for installation manuals. BE&SS added that in other jurisdictions the Authority Having Jurisdiction (AHJ) comprises of experts who have the experience of installing and commissioning solar equipment. BE&SS is suggesting that with NEC in force

URCA/BPL will also be able to qualify solar installers that have to demonstrate some kind of certification in the application of code requirements and a track record of safe installations.

Further comments noted that the quality of the published interconnection document contains impractical technical requirements and it is unclear how the metering will be installed on solar systems.

iQ Energy Company Limited Comments

No comments received from iQ Energy Company Limited

URCA's Response to Comments Received

URCA has reviewed the revised Applications and Interconnection Requirements and considers that it is consistent with the changes set out in the preliminary determination document. The comments posited by BE&SS were assessed and considered in the implementation of the SSRG programme where feasible.

2.7 Application Process

Question 8: Do you agree with the proposed licensing processes for Small Scale Renewable Generation systems?

Please provide reasons in support of your response.

BPL Proposal/Comments

BPL agreed that in keeping with the EA, BPL has responsibility for the process for application for permits. BPL shall maintain a register of all installations approved, including the status of the implementation (i.e., whether the capacity has been installed or not, whether it is active or not, and the amount of energy that has been supplied to BPL by the installation monthly). BPL shall supply to URCA biannual reports on the number of permits granted, generating sources, locations, sizes and aggregate kilowatts of the installed generating resources. Persons whose proposed installations are not approved by BPL may write to URCA to appeal BPL's decision.

The application process for residential systems, together with all forms has been published by BPL on its website, prior to the commencement of Phase 1.

Bahamas Energy & Solar Supplies (BE&SS) Comments

BE&SS posited that the licensing process is discouragingly complicated and inefficient. If on the other hand installers would be licensed, the process would be simplified as inspectors could rely on the installers' competence.

iQ Energy Company Limited Comments

It was iQ Energy's position that the licensing process is reasonable for the start of the SSRG programme, and added that as businesses engage the SSRG system there will be an opportunity for constructive feedback.

URCA's Response to Comments Received

URCA welcome iQ's comment that the licensing process is reasonable for the start of the SSRG programme, and added that as businesses engage the SSRG system there will be an opportunity for constructive feedback.

As to the concern that the licensing process is discouragingly complicated and inefficient, URCA is mindful of the fact that the responsibilities for the full implementation of the SSRG programme are dispersed through different institutions with different legislation. However, as URCA monitors the programme in the implementation and operational stages URCA will assess all positive feedback and consider this issue in future recommendations to Government.

URCA believes that the licencing process as outlined in section 5.7 in the consultation document (ES: 04/2016) is reasonable for this stage of the SSRG programme, but is also cognisant of the need for ongoing review of the process to take account of experience and changing market dynamics.

2.8 Treatment of Existing Small-Scale Renewable Installations

Question 9: Do you agree with the proposed treatment of existing systems?

If possible, please provide reasons in support of your response.

BPL Proposal/Comments

BPL agreed that existing system owners who depend on the BPL grid for electricity supply for periods when they do not produce enough power to meet their own needs, shall either be required to migrate to the new programme, or to ensure that their systems are disconnected and isolated from the grid. All persons owning existing systems shall be required to comply with a registration and migration programme designed and implemented by BPL within timelines to be established by BPL and subject to URCA's approval.

Bahamas Energy & Solar Supplies (BE&SS) Comments

BE&SS commented that:

“All owners of currently operational solar generators enjoy full retail compensation from their systems and at the same time systems are sized in a way that those systems almost never export power to the grid. Enrolling these systems into the proposed rate structure would jeopardize the financial expectations of the owners of these systems and reduce the value of them significantly. This would create an additional frustration for the already fragile solar industry and further discourage investments. Technically speaking all these systems should have been built to NEC code, if the installers were trained properly. This underlines another argument for NEC implementation so the safety standards are established once and for all.”

iQ Energy Company Limited Comments

iQ Energy expressed its understanding of the complexities of grid management and agrees that all installations should be registered.

URCA’s Response to Comments Received

URCA welcomes iQ comment and endorses the position that all installations should be registered. URCA is not aware that *“All owners of currently operational solar generators enjoy full retail compensation from their systems and at the same time systems are sized in a way that those systems almost never export power to the grid”* as posited by BE&SS. URCA’s enquiries however, suggest that there are already a significant number of resident-owned and commercial-owned renewable (particularly solar PV) installations in The Bahamas. In the absence of a framework for supply of energy to the grid, these tend to be generators that use all the electricity they produce. Broadly, there are two types of existing small-scale generators:

- Some depend on the BPL grid for electricity supply for periods when they do not produce enough power to meet their own needs.
- Others are off-grid—they supply all their own electricity needs and are not connected to the grid.

URCA believes that the safety standard of which BE&SS posited on will be addressed when all existing systems are regularised under the new regulatory regime. This is necessary to ensure compliance with the technical requirements fairness between participants. Also, URCA anticipates that the new framework will incentivise greater participation in the SSRG.

3 URCA's Final Determination on SSRG Plan

In this Section, the Utilities Regulation and Competition Authority (URCA) outlines its Final Determination on BPL's Small-Scale Renewable Generation (SSRG) Plan. Overall, URCA considers that the revised Plan⁵ as presented by BPL sufficiently set out all relevant terms and conditions (including all forms) for participation in the SSRG Programme.

URCA is issuing this Final Determination in accordance with section xxx of the Electricity Act, 2015 (EA).

The Determination imposes obligations on BPL and SSRG participants and therefore this Determination is addressed to BPL in particular and the electricity consumers in general desirous of participating in BPL's SSRG programme.

"WHEREAS,

- I. Section 22 of the Electricity Act, 2015 (EA) specifies URCA's role as the sector regulator.
- II. Section 23 of the EA prescribes requirements for entry into the electricity sector. Subsection 3 states that:

"A licence under subsection (1) is not required where -

- a. A property owner utilises, for the purpose of supplying energy for residential use, renewable energy sources in accordance with the requirements of section 27; or*
- b. URCA approves in writing renewable energy self-generation projects advanced by the Government or a small-scale business or commercial enterprise in accordance with section 28."*

- III. Under the terms of section 25(2) of the EA, *"A public electricity supplier shall develop and submit in writing for URCA's approval –*

(a) subject to subsection (4), within six months of the coming into operation of this Act a time-bound plan for the introduction of sustainable renewable energy technologies into the electricity supply system; and

(b) an annual report on the accomplishment made against the approved plan."

- IV. Section 25(1) provides, amongst other things, for the formulation and submission by every public electricity supplier of a time-bound plan for the introduction of sustainable renewable energy technologies into the electricity supply system. Consistent with subsection 25(3)(e)

⁵ Summary of the revised Plan can be found in Annex A

the plan must include *“provisions for facilitating residential renewable energy generation to the grid and renewable energy self-generation projects.”*

V. Section 25(3) states:

“The plan referred to in subsection (2) shall be revised, updated and submitted to URCA for approval every three years after the date of its initial submission and shall include, as determined by URCA –

(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 generations.

(e) provision for facilitating residential renewable energy generation to the grid and renewable energy self-generation projects.”

VI. Subsection (5) states that URCA shall –

“

(a) publish for public information purposes only a summary of the proposed renewable energy plan proposed by BPL or any other public electricity supplier; and

(b) after publication of the plan, determine whether to approve the plan as consistent with sector policy objectives and the national energy policy.”

VII. Section 27 specifies detailed parameters for the connection of residential renewable energy generation to the grid, as follows:

“

(1) An owner of property may apply to a public electricity supplier in writing for a permit to install or operate on the property and connect to the grid, for residential purposes only, a generating resource using renewable energy sources of such size and quality as may be prescribed in regulatory or other measures issued by URCA.

- (3) *Where a public electricity supplier grants a permit ..., the renewable energy generating resource shall-*
- (a) *be recorded in a register maintained by the public electricity supplier, in accordance with regulatory and other measure issued by URCA;*
- (b) *have interconnection to the grid in accordance with the terms and conditions of a grid interconnection agreement entered into between the public electricity supplier and the owner or operator of the generation resource.*
- (5) *The grid interconnection agreement shall provide for the purchase by the public electricity supplier, or credit to the property owner, of the value and amount of power generated to the grid”*

VIII. Section 28 defines the approval process for renewable energy self-generation projects advanced by small and commercial scale enterprises and Government agencies, notably:

- (1) *“URCA shall approve in writing the installation or operation of generating stations using prescribed renewable energy resources where—*
- (a) renewable energy self-generation projects are advanced by—*
- i. the Government, in any place in The Bahamas, in relation to the supply of energy to premises occupied by a ministry, department, statutory body, agency, local government council, or other entity of Government;*
- ii. a small-scale business or commercial enterprise within The Bahamas;*
- (b) such stations meet the requirements of, and are operated in accordance with regulatory or other measures issued by URCA; and*
- (c) such stations have no adverse impact on the reliability of the electricity supply system.”*
- (2) *“URCA shall maintain and publish, in accordance with section 43, a list of the names of the entities granted approval under this section together with the corresponding sizes and aggregate kilowatts of the installed generation stations.”*

IX. Pursuant to section 41 of the EA, URCA shall consult with the public on matters which, in the determination of URCA, are of public significance.

- X. Therefore, on 12 December 2016, URCA issued a Preliminary Determination and Initial Decision (ES 04/2016⁶) in respect of its **“Review and Proposed Revision to Bahamas Power and Light Limited’s (“BPL”) Small-Scale Renewable Generation Plan (SSRG).”**
- XI. On 5 May 2017, BPL submitted revised documents “Requirements for Grid Interconnection of Small-Scale Renewable Energy Generation Systems”⁷, consistent with the changes set out in ES 04/2016 for the commencement of Phase 1.
- XII. Having reviewed the BPL revised documents and submissions received to its public consultation from BPL and other interested parties URCA now considers it appropriate to make certain determinations regarding BPL’s SSRG Plan.

NOW URCA HEREBY DETERMINES as follows:

1. BPL Renewable Energy Plan shall be referred to as the ‘Small-Scale Renewable Generation (SSRG) Plan’.
2. BPL shall implement the SSRG programme energy exchange price based on a net billing arrangement at the prevailing Fuel Charge for the billed month.
3. Unless otherwise agreed by BPL and approved by URCA the capacity limits and total overall limits for Small-Scale Renewable Generation shall be implemented in the relevant Islands as follows:

⁶ <http://www.urcabahamas.bs/consultations.php?cmd=view&article=423>

⁷ This document is attached as an annexation to this determination

I. Capacity Limits for Residential and Commercial Systems

The limits set out in Table 1 below shall apply to residential and commercial systems:

Table 1 - Residential and Commercial System Size Limits

Island	Residential Maximum System Size	Commercial Maximum System Size	No system may exceed this size regardless of ACD
New Providence & Paradise Island	5kW + ACD ⁸	50kW + ACD	100kW
Abaco, Eleuthera and Exuma	3kW + ACD	25kW + ACD	50 Kw
Long Island, Bimini, San Salvador (i.e., North/Central/South), Andros, Inagua, Cat Island, Great Harbour Cay, Black Point and Staniel Cay (Exuma)	2kW + ACD	15kW+ACD	30kW
All other Family Islands	1kW + ACD	5kW+ACD	10kW

II. Overall Limits

The following overall limits for total Small-Scale Renewable Generation, shall be implemented in the relevant islands:

Table 2 - Overall Limits

Island	Overall limits for total Small-Scale Renewable Generation
New Providence and Paradise Island	Maximum of 10 MW
Abaco, Eleuthera and Exuma	Maximum of 500 kW
Long Island, Bimini, San Salvador (i.e., North/Central/South), Andros, Inagua, Cat Island, Great Harbour Cay, Black Point and Staniel Cay (Exuma)	Maximum of 250 kW
All other Family Islands	Maximum of 25 kW

⁸ Average Consumer Demand = 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)

5. The Customer-Generator shall obtain and maintain all required insurance coverage for the installation and operation of the SSRG system.
6. BPL's "Requirements for Grid Interconnection of Small-Scale Renewable Energy Generation Systems"⁹ is consistent with and meets URCA stipulations.
7. BPL shall be responsible for the process for application, approval and issuance of permits for Residential SSRG systems.
 - i. Customer applies to BPL using the appropriate forms (which are published on BPL's website prior to the commencement of Phase 1).
 - ii. BPL reviews and approves application if acceptable.
 - iii. Customer acquires system, and procures installation by a licensed electrical contractor.
 - iv. Licensed electrical contractor applies to the Ministry of Works for system inspection.
 - v. Ministry of Works inspects and approves installation, and issues inspection certificate, if system passes inspection.
 - vi. Customer provides inspection certificate to BPL.
 - vii. BPL visits system and does final inspection and function test, if necessary.
 - viii. Customer signs Interconnection agreement.
 - ix. BPL issues small-scale renewable generation system certificate, upon receipt of which the customer is authorised to activate and operate their system.
8. URCA, acting upon the advice and recommendation of BPL, shall be responsible for the process for application, approval and issuance of permits for Small Commercial SSRG systems. The Application Process shall be as follows:
 - i. Customer applies to URCA.
 - ii. URCA reviews application and provides URCA Commercial small-scale renewable generation system approval letter if approved.
 - iii. URCA provides notification of system approval to BPL.
 - iv. BPL reviews and approves application if acceptable.
 - v. Customer acquires system, and procures installation by a licensed electrical contractor.
 - vi. Licensed electrical contractor applies to the Ministry of Works for system inspection.
 - vii. Ministry of Works inspects and approves installation, and issues inspection certificate, if system passes inspection.
 - viii. Customer provides inspection certificate to BPL.
 - ix. BPL visits system and does final inspection and function test, if necessary.
 - x. Customer signs Interconnection agreement.

⁹ This document is one of the supporting Appendices to this Determination document

- xi. BPL issues small-scale renewable generation system certificate.
- xii. BPL advises customer they can now activate and operate their system.

9. All persons owning existing systems shall be required to comply with a registration and migration programme designed and implemented by BPL within timelines to be established by BPL and subject to URCA's approval as set out below:

i) Existing system owners, who depend on the BPL grid for electricity supply for periods when they do not produce enough power to meet their own needs, shall either be required to migrate to the new programme, or to ensure that their systems are disconnected and isolated from the grid. All persons owning existing systems shall be required to comply with a registration and migration programme designed and implemented by BPL within timelines to be established by BPL and subject to URCA's approval. The programme details shall be published by URCA and BPL by no later than 1 March 2018, and shall at a minimum provide the following details:

- Application forms to be used by existing system owners;
- Applications shall be made to BPL and/or URCA for migration – Residential system owners shall be required to apply to BPL, while commercial owners shall be required to apply to URCA;
- Timelines within which applications shall be made, and within which they shall be considered;
- Parameters for approval of existing systems – at a minimum these shall be consistent with the technical parameters established for Phase 1, although efforts shall be made to accommodate any technically feasible systems;
- The process for inspections and assessments by BPL and/or URCA of existing systems;
- Timelines within which any technical changes will need to be made to migrate existing systems to the new programme or to isolate systems from the grid where migration is not possible for technical reasons; and,
- Specifications and parameters for the isolation of systems from the grid, where integration is not possible for technical reasons.

- ii) Failure to comply with any of the aforementioned requirements shall result in the system being determined as non-compliant, and may subject the owner to penalties levied by URCA under the EA.
- iii) Persons who opted not to Grid-Tie shall be permitted to continue operating their systems, subject to complying with the registration process established by URCA.
- iv) Such non-grid tie system shall have the Ministry of Works inspection under the Building Code requirements for an occupancy certificate.

Failure by interested parties to comply with this Final Determination will result in enforcement action by URCA under section 63 of the EA.

Stephen Bereaux

Chief Executive Officer

August 2017

4 Conclusion and Next Steps

The document represents URCA's assessment of the responses received and Final Determination on BPL's SSRG Plan. A summary of BPL submission along with the attendant Appendices are attached in Annex A as follows;

1. BPL SSRG Plan submission
2. BPL Level 1 SSRG Requirements for grid interconnection
3. BPL SSRG Application Forms
4. BPL Level 1 SSRG Renewable energy interconnection agreement

Phase 1 of the revised plan, has being approved, is to being implemented immediately by BPL. Interested persons should note that Phase 1 is being implemented as a test bed, to ensure that all assumptions and approaches set out in Phase 1 are achievable and appropriate for the ES in The Bahamas.

This Final Determination will now guide BPL's implementation of the remaining Phases of the SSRG programme (**URCA advises that no changes have been made which require persons who participate in earlier Phases to make any substantive modification to their existing system, save where such is necessary to ensure safety of the grid or the system**).

Annex A: Summary of BPL's SSRG Plan

1. Summary of BPL's Small-Scale Renewable Energy Plan

In this Annex, URCA summarises BPL's **Official** submission for connecting small-scale renewables to the grid in accordance with section 25, and subsection 5 (a) and (b) of the EA.

In order to support the renewable energy goals of BPL as well as the national goals, BPL has developed two renewable energy programs. These programs focused on different areas of the renewable area space one being customer centric and the other utility centric. The two programs are;

- I. The residential and small commercial Small Scale Renewable Generation (SSRG) Program
- II. Utility scale renewable installation program

The BPL **Official** submission serves to layout the Renewable Electricity Plan with respect to the first of these two programs. BPL noted that some components of the plan are contingent on the availability of funding as identified in the BPL Business Plan and as such timelines may adjust if these resources are delayed.

The Plan provides a framework for residential and commercial consumers to generate electricity for their own use, and to sell excess generation to BPL. The renewable energy technologies included in the Plan are wind turbines and solar photovoltaic power sources. The Plan contemplates two categories of renewable energy installations:

- **Level 1:** This programme allows residential and small-scale commercial installations to sell excess electricity to the grid. These installations may use, once approved, PV or wind turbine installations to generate electricity for self-consumption. Excess energy would be allowed to be fed into the grid in accordance with the established conditions and guidelines.
- **Level 2:** This programme allows systems at commercial establishments that are larger than the Level 1 small commercial allowance to sell excess electricity to BPL. The Plan does not set out the details of the Level 2 programme. The details would be determined after BPL gains experience implementing Level 1.

BPL proposed System Limits

The Plan contains the following limits for integration of Small-Scale Renewable Generation in BPL's system:

Specific to New Providence

- Small-Scale Renewable Generation systems shall not supply greater than 5 kilowatts (kW) to the grid. This means that the system installed must not exceed the customer's average demand by more than 5kW.
- Commercial Small-Scale Renewable Generation systems shall not supply greater than BPL's estimate of the customer's average peak demand or 50 kW, whichever is the lesser, to the grid unless otherwise approved by BPL. This means that the system installed must not exceed twice the customer's average demand, or 100kW, whichever is the greater.
- Up to a total of 10,000 kW of installed Small-Scale Renewable Generation capacity on New Providence.

With respect to Abaco, Eleuthera and Exuma:

- Residential Small-Scale Renewable Generation systems shall not supply greater than 3 kilowatts (kW) to the grid. This means that the system installed must not exceed the customer's average demand by more than 3kW.
- Commercial Small-Scale Renewable Generation systems shall not supply greater than BPL's estimate of the customer's average peak demand or 25 kW, whichever is the lesser, to the grid unless otherwise approved by BPL. This would mean that the system installed must not exceed twice the customer's average demand, or 50kW, whichever is the greater.
- Up to 500 kW of installed Small-Scale Renewable Generation capacity on each of Abaco, Eleuthera and Exuma.

In the case of Long Island, Bimini, San Salvador, North, Central and South Andros, Inagua, Cat Island, Great Harbour Cay, Black Point and Staniel Cay (Exuma):

- Small-Scale Renewable Generation systems shall not supply greater than 2 kilowatts (kW) to the grid. This means that the system installed must not exceed the customer's average demand by more than 2kW.
- Commercial Small-Scale Renewable Generation systems shall not supply greater than BPL's estimate of the customer's average peak demand or 15 kW, whichever is the lesser, to the grid unless otherwise approved by BPL.
- Maximum of 250 kW of installed Small-Scale Renewable Generation capacity per island.

All other Family Islands:

- i) Small-Scale Renewable Generation systems shall not supply greater than 1 kilowatt (kW) to the grid. This means that the system installed must not exceed the customer's average demand by more than 1kW.
- ii) Commercial Small-Scale Renewable Generation systems shall not supply greater than BPL's estimate of the customer's average peak demand or 5 kW, whichever is the lesser, to the grid unless otherwise approved by BPL.
- iii) Maximum of 25 kW of installed Small-Scale Renewable Generation capacity per island.

Implementation of BPL's Small-Scale Renewable Generation Plan

BPL's will implement the Plan in three phases:

Phase 1 (January 2017 – Sep 2017): BPL, in cooperation with the Ministry of the Environment and the Inter-American Development Bank (IADB) would devise and conduct a PV pilot project for the funded implementation of solar generation facilities at test properties. The goal of the project is to test the processes and procedures which BPL has developed for Level 1, using systems installed as part of this programme.

Under this pilot project, the IADB funded the acquisition of approximately 40 grid-tied PV systems, which were given to members of the public through a random drawing. The consumers, once selected, had to contribute towards the cost of the installation of the system; the Ministry of the Environment had the systems installed. The intention of the grid-tied systems is to serve as the test bench for the programme. BPL's priority at the outset will be to work with these systems to test them and validate all the processes and procedures developed to support the programme.

BPL proposes that its electricity sold under the proposed Small-Scale Renewable Generation Plan will be 'net billed'. That is participating consumers would sell excess generation to BPL at the prevailing Fuel Charge, pursuant to the terms of an interconnection agreement between each enrolled customer and BPL.

BPL will identify internal resources required to administer the SSRG program and implement the attendant processes and procedures. Required internal resources include but are not limited to engineers, customer service representatives, metering, billing and accounting. Where possible, BPL will centralize functions to promote clear definition of roles and accountability and to avoid duplication of effort between New Providence (NP) and Family Island (FI) departments. Electronic processes will be put in place to improve internal communication, record keeping and to keep participants informed.

BPL's plan makes provision for customer installations to be inspected and tested, internally (i.e., behind the meter) by the electrical inspection section of the Ministry of Works, and for pre-activation functional testing to be conducted by representatives of BPL.

BPL will assist in the development of training programmes, where needed, of key personnel. These programmes will include building and electrical code awareness and enforcement, and will emphasize safety compliance and expand communication processes within and between departments to ensure that inspections are performed efficiently and consistently.

BPL is responsible for appropriate marketing and communications to both consumers and installers, emphasizing the process, procedures, guidelines, electrical codes and safety standards of the programme. Forms required for enrolment in the programme are available electronically and will provide clear, concise instructions to navigate the programme as well as BPL contact information and frequently asked questions.

Phase 2 (six months): This phase seeks to add more small-scale generation from renewables to the grid by implementing appropriate changes based on learning from Phase 1. BPL's goal for Phase 2 is to evaluate the electric system (following implementation of Phase 1) and develop comprehensive interconnection criteria for an expanded programme. The approach taken during Phase 2 will be as follows:

General

As part of this Phase, BPL proposes to develop comprehensive Interconnection Standards and a Standard Interconnection Agreement to accommodate larger (Level 2) renewable systems. BPL's intent is for interconnections to be standardized for all installations across its system and to be able to accommodate projects beyond those contemplated in the Level 1 programme. BPL will separately prepare programme rider or power purchase agreement templates for future use. Those templates will specify unique provisions such as aggregate capacity limits, individual project size limits, and net billing credit structure. This methodology would allow all installed generation to be governed by the same underlying interconnection requirements, but afford BPL the flexibility to offer varying net billing or power purchase structures. BPL considers that a standard interconnection process and agreements should apply to interconnection for New Providence and all Family Islands.

Due to scalability, economics, and available solar irradiance, it is anticipated that solar PV will be the most common renewable source of small-scale generation in The Bahamas. BPL notes in its plan that there is not an extensive network of experienced installers in The Bahamas. BPL expresses its concern that technically competent, ethical and customer focused installers would be an important component of BPL's commitment to renewable energy. To that end, BPL has proposed that all installations carried out must be signed off on by a suitably (single or three phase) licensed Bahamian electrical contractor. Installer qualifications or certification should be required to verify that installers understand, at

minimum, electrical safety requirements, electricity and power basics, components of solar installations, customer requirements, familiarity with the BPL plan or other programme requirements, and understanding of BPL interconnection procedures. BPL may coordinate with a local third-party resource such as Bahamas Technical and Vocational Institute (“BTVI”) which would ultimately design course content and issue certificates.

New Providence

During Phase 2, BPL proposes to perform an engineering evaluation of its system in New Providence to refine technical thresholds that must be met for generation interconnection. This would include but is not limited to circuit loading, voltage, and frequency criteria.

BPL proposes to minimise independent system study costs by determining optimal regions to interconnect renewables based on system capacity and condition, load centers, land availability, zoning, and other necessary considerations. To the extent possible, BPL will use this information to designate “renewable energy zones” which will be characterised by identified individual and aggregate generation capacity thresholds that can be supported.

Family Islands

BPL proposes to monitor the progress of renewable generation installations on key Family Islands, and ensure that projects meet interconnection criteria and BPL technical specifications. BPL will also coordinate with the Carbon War Room¹⁰ to refine system studies that address unique conditions of each island, considering changes in generation location and resource type. As renewable generation projects advance, BPL will identify areas of islands that may benefit from additional renewable energy projects and designate “renewable energy zones”.

Phase 3 (6 months): Using the programme results and system studies during Phases 1 and 2, BPL proposes to focus during Phase 3 on the following:

- Development of renewable energy targets.
- Exploring the technical feasibility of various renewable resources combined with engineering data from system studies.
- Identification of system limitations, land constraints, or other factors that prevent economic expansion in specific areas.
- Determining achievable capacity thresholds in “renewable energy zones”.
- Evaluation of the long-term benefit of renewables compared to BPL generation forecasts.

¹⁰ The Carbon War Room is a US registered non-profit organization, which promotes the reduction of carbon emissions, and works to advance the low-carbon economy.

- Evaluation of customer appetite for renewable investment.

BPL's considerations will be guided by the NEP target of 30% renewables in the energy mix by 2033, and other Bahamas Government policy positions.

During Phase 3, BPL proposes to continue to design and implement customer renewable programmes aimed at meeting renewable energy targets, etc.)

BPL Proposed Feed-in Tariff

Under the BPL Level 1 plan, BPL proposes a net billing arrangement with a feed-in tariff equal to the prevailing Fuel Charge for the billed month. BPL argues that this approach is appropriate to ensure that consumers without small generating facilities are not disadvantaged by paying a higher cost for the electricity provided by small-scale generators, compared to the cost of electricity generated by BPL.

BPL will install a meter to register any surplus electricity sent to the grid. BPL will credit the customer's account for this electricity at the Fuel Charge rate in effect for the month that the electricity is reflected on the customer's bill.

Grid Interconnection Requirements

For small grid-tied systems, interconnection requirements is defined by BPL in an interconnection requirements document.

Interconnection Agreement

BPL proposes that each approved Level 1 customer will be required to execute an interconnection agreement that defines the relationship between BPL and the customer with respect to the system, be it grid-tied or off-grid.

2. BPL Level 1 SSRG Requirements for grid interconnection

<http://www.bahamaselectricity.com/ssrg.html>

- Grid Requirements

3. BPL SSRG Application Forms

<http://www.bahamaselectricity.com/ssrg.html>

- Application

4. BPL Level 1 SSRG Renewable energy interconnection agreement

<http://www.bahamaselectricity.com/ssrg.html>

- Interconnection