

## REQUEST FOR EXPRESSIONS OF INTEREST CONSULTING SERVICES

Selection # as assigned by e-Tool: BH-T1064-P001

Selection Method: Full Competitive Selection

Country: The Bahamas

Sector: Energy Division (ENE)

Funding – TC #: ATN/OC-16967-BH

Project #: BH-T1064

TC name: Supporting Renewable Energy within the Implementation of the Electricity Act in The Bahamas

Description of Services: Technical support on renewable energy & energy planning for the Government of The Bahamas.

Link to TC document: <https://www.iadb.org/en/project/BH-T1064>

The Inter-American Development Bank (IDB) is executing the above-mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations ( <http://beo-procurement.iadb.org/home>) by **December 7, 2018 at 5:00 P.M.** (Washington D.C. Time).

The consulting services (“the Services”) include the development of an independent assessment of the overall costs (e.g. possible back up generation and/or energy storage needs, interconnection, grid modernization etc.) and overall benefits (e.g. air quality, emission reductions, electricity loss reduction, investment deferral, better integration of electric mobility etc.) to The Bahamas of increasing solar PV at the distributed generation level. The aim will be for this report to provide a more accurate overall economic and societal value of this indigenous RE source and therefore to provide the technical basis for an agreed offtake framework for these investments. The report will also help to inform as to the true costs and benefits of solar PV investments in The Bahamas, sensitizing energy stakeholders to the technical, economic, and financial aspects. The consulting firm will also designate a senior specialist – a point person - to provide technical support to the Prime Minister Deliver Unit (PMDU) and IDB, coordinate the delivery of the PMDU RE Roadmap as well as technical support to develop and implement key energy priorities that strengthen coordinated energy planning in The Bahamas. The estimated length of the contract is 26 months starting on March 2019.

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: [Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work](#) - GN-2765-1. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting Firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described below in the [draft summary](#) of the intended Terms of Reference for the assignment. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures,

description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to: Malaika Masson ([MALAIKAC@iadb.org](mailto:MALAIKAC@iadb.org)).

Inter-American Development Bank

Division: *Energy Division (ENE)*

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## **TERMS OF REFERENCE**

### **The Bahamas**

#### **INE/ENE**

### **Consultancy Services: TECHNICAL SUPPORT on RENEWABLE ENERGY & ENERGY Planning for the GOVERNMENT OF THE BAHAMAS**

#### **BH-T1064**

### **Supporting Renewable Energy within the Implementation of the Electricity Act in The Bahamas**

#### **1- Background and Justification**

The Bahamas, a small open archipelagic economy, has continued to experience low growth rates and rising debt levels since the global financial crisis. Fiscal deficits<sup>1</sup> and national debt levels are deteriorating, and foreign direct investments have declined.<sup>2</sup> Together with an old power generation infrastructure, The Bahamas suffers from a high fuel import bill (7% of GDP), high electricity prices<sup>3</sup> as well as a large and financially challenged utility – Bahamas Power and Light (BPL) - which experiences frequent power outages,<sup>4</sup> and elevated system losses. Volatile oil prices have contributed to making electricity tariffs among the highest in the Caribbean<sup>5</sup>.

Simultaneously, at the global level after years of steady cost decline for solar and wind technologies, renewable power is becoming an increasingly competitive way to meet new generation needs. The global weighted average levelized cost of electricity (LCOE) of utility-scale solar PV has fallen 73% since 2010, to USD 0.10/kWh for new projects commissioned in 2017.<sup>6</sup> However, The Bahamas ranks lowest in the region for renewable energy (RE) penetration in its generation mix despite possessing ample RE resources with Global Horizontal Irradiation (GHI) averaging over 2100kWh/m<sup>2</sup> and expected photovoltaic (PV) output of about 1700 kWh/KWp.<sup>7</sup> Accelerating the transition to a renewables-based energy system represents a unique opportunity for The Bahamas and other Caribbean countries to meet climate goals while fueling economic growth, creating new employment opportunities and enhancing human welfare.<sup>8</sup>

To begin to address these challenges and opportunities, the National Energy Policy 2013-2033 (NEP) in The Bahamas established in 2014 as a core objective the increasing inclusion of sustainable RE sources into the

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<sup>1</sup> Government deficits have averaged near 3 percent over the same period rising from 1.0 percent in 2006 to 2.6 percent by 2016/2017

<sup>2</sup> The FDI inflows represented on average 2.6 percent of GDP (2013-2017) below the previous average of 5 percent of GDP for the period (2008-2012).

<sup>3</sup> In 2012, due to high oil prices the electricity tariffs were US\$0.40/kWh for residential customers, and US\$0.44/kWh for hotel customers). In 2017, tariffs were lower (US\$0.27/kWh retail and US\$0.25/kWh residential) mainly due to the reduction in oil prices (more than 50% reduction) but are steadily increasing as oil prices rise affecting the resources allocated to household and firm electricity bills.

<sup>4</sup> The PROTEqIN Enterprise 2014 Survey found that Bahamian firms experience an average of 2.2 outages per month, just below Jamaica (2.5) but above Barbados (1.1), Suriname (0.7) and Trinidad and Tobago (0.5). The average duration, measured in hours of a typical outage was highest in Jamaica (1.30), Suriname (1.0), The Bahamas (0.9), Barbados (0.6) and Trinidad and Tobago (0.50).

<sup>5</sup> In 2012, due to high oil prices the electricity tariffs were US\$0.40/kWh for residential customers, and US\$0.44/kWh for hotel customers). In 2017, tariffs were lower (US\$0.27/kWh retail and US\$0.25/kWh residential) mainly due to the reduction in oil prices (more than 50% reduction) but are steadily increasing as oil prices rise affecting the resources allocated to household and firm electricity bills.

<sup>6</sup> IRENA (2018) "Renewable Power Generation Costs in 2017". Compare with the fossil fuel-fired power generation cost range for G20 countries in 2017 that was estimated to be between USD 0.05 and USD 0.17/kWh.

<sup>7</sup> [Global Solar Atlas](#)

<sup>8</sup> IRENA (2016) "Renewable Energy Benefits: Measuring the Economics". The report suggests that doubling the share of RE in the global energy mix increases global GDP in 2030 by up to 1.1%, equivalent of US\$1.3 trillion and given the distributed and labor-intensive nature of RE, direct and indirect employment in the RE sector could reach 24.4 million people in 2030.

generation mix to approximately 30% by 2033. The NEP acknowledges that renewables resources such as wind, solar, waste-to-energy and biomass are indigenous to The Bahamas and if developed adequately, can provide cleaner, and in the long term, affordable alternatives to fossil fuels. In 2015, the Electricity Act (EA) of 1956 was repealed to allow for RE utility-scale as well as self-generation. Section 25 of the Electricity Act provides that the public electricity supplier (BPL) should develop and submit for the Regulator's (URCA) approval, a time-bound Plan for the introduction of sustainable RE technologies into the electricity supply system and an annual report of the accomplishments made against the approved Plan.

In recent years, there have been enquiries by commercial entities which are seeking to pursue RE self-generation projects of capacity of 1MW or more,<sup>9</sup> selling excess energy to BPL for use in its system. In April 2016, BPL submitted its Renewable Energy Plan (REP) to URCA seeking to fulfil the requirements of section 25(2) of the EA. URCA considered that BPL's REP had merit with respect to segmenting the REP into two components- "Small-scale"<sup>10</sup> and "utility-scale" generation – however the initial plan which focused on the Small Scale Renewable Generation program did not fully meet the NEP nor the objectives of the EA as it did not facilitate Independent Power Producers (IPPs), lacking an outline of internal planning processes or provisions for additional energy to the grid by these third-party providers.

Essentially, market governance and regulatory related challenges continue to be among the hindrances to the implementation of several energy projects, especially with respect to RE and private sector participation. At present there is no comprehensive framework for distributed and utility-scale renewable energy that reflects local technical, legal and economic conditions. An offtake agreement standard will be needed for medium and utility-scale solar, laying out the conditions and obligations of the electricity off-taker, to provide investors with certainty regarding the return on their investment. Stakeholders need to understand the reference price ceilings that could be used for competitive tender processes for utility-scale solar. One of the issues at the heart of the challenge is the fact the value of solar PV on the distributed generation (DG) level is not fully understood by all energy stakeholders. This is in part leading to prolonged implementation of RE projects and stalled financial closure for others. A study of this nature will enable Government to participate and contribute to the policy and regulatory discussion on the RE Plan.

Recognizing this challenge, in May 2018 the Government of The Bahamas (GoBH) launched the Prime Minister's Delivery Unit (PMDU) with the objective of advancing reforms in key areas, serving as a facilitator, providing ongoing support and challenge to ministries and agencies to keep a constant focus on delivery. Energy Reform is one such area and the PMDU will have a central role in coordinating across public and private stakeholders to ensure challenges are identified and addressed in a timely and rigorous way. Working with stakeholders to define a road-map for reaching critical RE goals is key short-term objective and the PMDU is keen to strengthen its capacity do so as well as that of key energy stakeholders within Government on energy planning, standardization, certification and building public awareness. Having an independent analysis of the economic and societal value of solar PV at the DG level will not only enable stakeholders to have an appreciation of the wider benefits and costs to The Bahamas, but it will also help to cement collaboration between stakeholders and provide inputs to the definition of an offtake framework for utility-scale RE.

## **2- Objectives**

The general objective of the Technical Cooperation (TC) BH-T1064 is to support GoBH in adding RE to the generation mix by facilitating key information relevant to investment and interconnection agreements between key stakeholders. The specific objective of this TC is to provide the PMDU with (i) technical

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<sup>9</sup> Two such projects include the Nassau Airport Development Company solar plant, 5MW (RFP pending) and the National Stadium solar car park, 900kw (at design stage ). There has also been interest from other private sector entities in RE projects of various sizes

<sup>10</sup> See: "The Preliminary Determination and Draft Order Issued to Bahamas Power and Light Company Limited (BPL) in the Matter of Suspected Breach of License Conditions 9, and 17.2 and Sections 24 and 26 under the Electricity Act, 2015". According to URCA, the Small Scale component of BPL's REP submission has formed the basis for the Small-Scale Renewable Generation (SSRG) programme implemented by BPL in April 2017. The SSRG Plan allows residential and commercial customers generating between 0 to 100kW of RE for self-use to sell any surplus energy to BPL.

expertise related to energy planning and investments as part of the RE roadmap, (ii) an analysis of the value of solar PV at the distribution level that provides inputs to a small to medium-scale (up to 5MW of total installed<sup>11</sup>) offtake framework and (iii) support to stakeholder forums to improve awareness of roles and responsibilities of key stakeholders on RE implementation.

### **3- Scope of Services**

The consulting firm will develop an independent assessment of the overall costs (e.g. possible back up generation and/or energy storage needs, interconnection, grid modernization etc.) and overall benefits (e.g. air quality, emission reductions, electricity loss reduction, investment deferral, better integration of electric mobility etc.) to The Bahamas of increasing solar PV at the distributed generation level. The aim will be for this report to provide a more accurate overall economic and societal value of this indigenous RE source and therefore to provide the technical basis for an agreed offtake framework for these investments. The report will also help to inform as to the true costs and benefits of solar PV investments in The Bahamas, sensitizing energy stakeholders to the technical, economic, and financial aspects. As such, close collaboration and interaction with Utility, Regulator and government entities responsible for energy will be required.

The consulting firm will also designate a Senior Specialist – a point person - to provide technical support to the PMDU and IDB, coordinate the delivery of the PMDU RE Roadmap as well as technical support to develop and implement key energy priorities that strengthen coordinated energy planning in The Bahamas. This will include issues such as guidelines on EE and RE equipment standards; certification for RE and EE installers; improvements to the transportation sector to reduce the use of fossil fuels and rolling out public education and awareness campaigns on the value of RE in The Bahamas. The Senior Specialist will need to be the focal point but draw and interact with a technical team within the consulting firm.

Consultant should be prepared to recommend the appropriate style for the study.

### **4- Key Activities**

**4.1- Activity A-** Development of an Assessment on the Value of Solar PV to The Bahamas at the distributed generation level.

Under the supervision of the Team Leader or the designated Consultancy Manager, the consultancy assessment will include, but will not be limited to the following:

- 1- Overview of the current law and regulation for distributed RE integration.
- 2- Analysis of available solar resource potential and main areas for PV distributed projects opportunities.
- 3- Analysis of the overall costs of installing distributed PV generation including but not limited to:
  - a. PV equipment costs and installation
  - b. Requirement of facilities adaptation
  - c. Interconnection costs
  - d. Back up generation and/or energy storage needs
  - e. Grid modernization
  - f. Grid stability and congestion costs
  - g. System maintenance
- 4- Analysis of the overall benefits of installing distributed PV generation including but not limited to:
  - a. Electricity loss reduction
  - b. Air quality improvement and emission reductions
  - c. Investment deferral
  - d. Better integration of electric mobility
  - e. Fossil fuels savings
  - f. Social and local economic development (jobs and knowledge creation)
  - g. Grid stability and congestion benefits

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<sup>11</sup> This 5MW total solar PV power installed is set as a tentative limit for the purpose of this study considering that the facilities will be connected at distribution level. However, future policy should deep in the rationale for DG scope and total MW installed.

- 5- Development of cost-benefit analysis considering lifecycle PV generation costs and externalities (including grid stability costs), of up to 5MW in total.
- 6- Provision of analysis worksheets based upon nonproprietary tools that are commercially available.
- 7- Sensitivity analysis for the main variables and Montecarlo analysis.

The Consulting firm should coordinate and work in close collaboration with existing or parallel technical analyses undertaken by the Utility, Regulator, Attorney General, and government entities responsible for energy.

**4.2- Activity B-** Supervision of the Report on the Value of Solar PV to The Bahamas at the distributed generation level and support to the Prime Minister's Delivery Unit on energy priorities.

Under the supervision of the Team Leader, the designated Senior Specialist consultant activities will include, but will not be limited to the following:

- 1- Coordinate, supervise and advise on the execution of the distributed solar PV Cost-Benefits analysis.
- 2- Create a Technical Advisory Committee that will review the Report on the Value of Solar PV to The Bahamas at the distributed generation level.
- 3- Lead the feedback and suggestions for the Report on the Value of Solar PV to The Bahamas at the distributed generation level.
- 4- Review and understand current law and regulations on distributed generation.
- 5- Engage with relevant industry stakeholders to understand their views and concerns regarding distributed generation integration.
- 6- Engage with the Ministry of Environment and Housing, URCA, Ministry of Works, BPL, and others to help the alignment and coordination with the technical studies being or already executed by these entities.
- 7- Provide the legal and technical support to the PMDU to review and coordinate the energy reform key priorities that strengthen coordinated energy planning. This may include issues such as improvements to the transportation sector to reduce the use of fossil fuels; integrated energy planning as part of the Energy Road Map; governance of the energy sector; guidelines on EE and RE equipment standards; certification for RE and EE installers; access to commercial financing and grant funding for RE and EE initiatives and rolling out public education and awareness campaigns, between others.
- 8- Assist IDB and PMDU in maintaining an inter-institutional dialogue with the actors involved in the Energy Sector. The activities will include advisory support to key energy actors via the PMDU and IDB on energy planning and suitable actions to advance the renewable energy agenda in The Bahamas.
- 9- Engage with energy stakeholders to promote awareness of roles and responsibilities as defined in the EA and NEP on RE implementation.
- 10- Advise and recommend to key energy actors via the PMDU on the actions to be taken for implementing the EA and NEP.
- 11- Review and make comments for all the TORs, reports/products prepared by the individual consultants and/or consulting firms contracted under the energy planning area.
- 12- Prepare monthly progress reports for the IDB, PMDU, and other key energy actors as appropriate.
- 13- Lead the organization of workshops, seminars, conferences and other energy related events to strengthen coordination, collaboration and consensus among key energy stakeholders.
- 14- Support the IDB on the development of the mid-term review of the Technical Cooperation.

The consultant will be based in the Office of the PMDU and should coordinate and work in close collaboration with the Unit.

#### **5- Expected Outcome and Deliverables**

The output of Activity A will be the delivery of a report with the results of the Cost-Benefit analysis for distributed solar PV. The report should expand on the topics listed in section 4. Updatable (Non-proprietary software or Microsoft Excel Spreadsheet) worksheet (with manual instructions) to be used by the key stakeholders (BPL, MOE&H and URCA) so as to make it possible to continually update it as the prevailing

environment changes should be delivered.

For Activity B, the consultant will prepare reports every three months with the activities performed and results achieved and will organize dissemination events that will conclude with the event execution.

A workshop for key stakeholder representatives (BPL, MOE&H, URCA, MOW) on the results and deliverables of the consultancy inclusive of training on the use and updating of the various worksheets developed should be executed.

## **6- Project Schedule, Milestones and Reporting Requirements**

### **6.1 Activity A**

*Inception Report:* The report will include a detailed work plan, methodology, schedule of activities and timeframe for the presentation of deliverables considered. (10 calendar days from the contract signature)

*First Draft Cost-Benefit analysis report:* The report should include the results of all the activities performed during the consultancy and should address all the activities in the objectives of the TORs. The report should clearly explain assumptions made, and perspective, source and methodology used for the development of the analysis with preliminary models (90 calendar days from Inception Report approval)

*Second Draft Cost-Benefit analysis report:* The report should include the results of all the activities performed during the consultancy and should address all the activities in the objectives of the TORs with updated/refined models. (30 calendar days from inception report approval)

*Final Cost-Benefit analysis report:* The report should include the results of all the activities performed during the consultancy and should address all the activities in the objectives of the TORs. This report will follow a validation with IDB. (30 calendar days from the submission of IDB Second Draft comments).

*Findings dissemination:* Education and training workshop for GOB key stakeholders on process, findings, conclusions, recommendations and handover of the worksheets.

The report should be written in English. The consultant company should submit all documents in editable format and provide the spreadsheets used. Every report must be submitted to the Bank in one electronic file. Report should include cover, main document, and all annexes. (Zip files won't be accepted as final reports).

### **6.2 Activity B**

*Inception Report:* The report will include a detailed work plan, methodology, schedule of activities and timeframe for the presentation of deliverables considered. (10 calendar days from the contract signature)

*Workplan Progress Reports:* The reports will be delivered every three months and will include the advances established in section 4 (special consideration should be given to points 7, 9 and 10 of clause 4.2)

*Dissemination event executed:* Dissemination event successfully executed

The report should be written in English. The consultant company and Senior Specialist should submit all documents in editable format and provide the spreadsheets used. Every report must be submitted to the Bank in one electronic file. Report should include cover, main document, and all annexes. (Zip files won't be accepted as final reports).

The Senior Specialist will be based in the Office of the PMDU, full time workload and providing the consultancy services for a 24 months period.

#### **7- Acceptance Criteria**

The IDB will submit a written notice after the reports and models are submitted and presented by the consultant and all the observations have been corrected.

#### **8- Supervision and Reporting**

The coordination of this consultancy will be supervised by Malaika Masson (ENE/CJA): [malaiyac@iadb.org](mailto:malaiyac@iadb.org), Senior Regional Energy Specialist.

#### **9- Schedule of Payments**

Payments for the consulting services will be specified in the Contract, using the concept of lump sum, and will be made based on the above deliverables once received or approved to the satisfaction of IDB as follows:

##### **Activity A**

- 10% at contract signature and approval of the Inception Report with work plan;
- 10% upon approval of First Draft Cost-Benefit analysis Report;
- 11% upon approval of Final Cost-Benefit analysis Report.

##### **Activity B**

- 9% upon approval of First Report;
- 12% upon approval of two consecutive Quarterly Report (8 quarterly reports in total, 4 payments);
- 12% upon successfully execution of two Dissemination Events.

#### **10- Qualifications**

*Academic Degree / Level & Years of Professional Work Experience:* All members of the team or consortium of firms should have a post graduate level degree (Masters or Ph.D.) with a minimum of 10 years of experience in the field and at least 5 years of internationally recognized professional experience in economy and regulations of energy markets, energy laws, accounting and finances, power systems planning, renewable and waste energy systems integration and energy efficiency programs.

*Languages:* Proficiency in English of each team member is a prerequisite.

*Areas of Expertise:* Relevant consulting services advising national governments on the energy sectors, energy policies and regulation, and assessing Cost-Benefit analysis of RE technologies.

A track record of success in technical and commercial feasibility assessment of renewable energy technologies and policy support for the introduction of RE into the energy matrix, having successfully completed similar studies in nature and complexity.

Familiarity with IDB documents and procedures is desirable. A core team of at least five (5) members is here suggested:

1. Project Team Leader: The team leader or principal of the consortium should have extensive experience in economy and regulation of energy markets, power expansion planning, RE as well as in environmental, social and economic considerations in countries similar to The Bahamas. The team leader should have experience in leading Cost-Benefit analysis of RE technologies.
2. Senior Specialist: The Senior Specialist should have extensive experience in economy and regulation of energy markets, power expansion planning, RE as well as in environmental, social and economic considerations in countries similar to The Bahamas. The Senior Specialist will need to have the capacity of overseeing the entire energy sector in The Bahamas with special focus in EE, RE and contribute to support for the implementation of the Electricity Act.
3. Regulatory Affairs Expert: Regulatory Affairs Expert with experience in energy markets regulation and



law. This expert must have experience analyzing government regulation, institutional frameworks, legislation, policies (social and economic) and taxes, in relation to electricity utilities and energy. This specialist needs to have a strong background in energy markets regulation and Power Purchase Agreements (PPA) with Independent Power Producers (IPPs).

4. Economist and financial expert: This expert should have experience in developing financial and economic impact evaluation for RE projects.
5. RE and Solar PV specialist: This specialist should have technical knowledge of the RE technologies and support the execution of the study on the Value of Solar PV to The Bahamas at the distributed generation level as well as to the Senior Specialist on the PMDU energy priorities.

Skills: Excellent interpersonal and communication skills (both oral and written)

The institution may propose the best team combination to achieve the overall goal. To be considered for the assignment, proposed team members should submit their respective CVs.

### **11- Characteristics of the Consultancy**

Consultancy category and modality: Consulting Firm, Lump Sum

Contract duration: twenty-six (26) months

Place of Work:

- Activity A: Mainly from consultant offices. Should include meetings with Utility, Regulator, Attorney General, government entities responsible for energy and other stakeholders in The Bahamas. Not all the consultants need to be present in The Bahamas all times.
- Activity B: The work will be done in The Bahamas and the Senior Specialist will be based in the Office of the PMDU.

### **12- Payment and Conditions**

Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

### **13- Consanguinity**

Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractual, will not be eligible to provide services for the Bank.

### **14- Diversity**

The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.