CTCN Technical Assistance

Request Submission Form

Please fill in the form in the grey spaces, by following the instructions in italic.

Requesting country:	The Bahamas

Request title:	Technical Assistance to Conduct a Country Wide Grid Stability Study

Contact information:

{Please fill in the table below with the requested information. The request proponent is the organization that the request originates from, if different from the National Designated Entity (NDE).}

	National Designated Entity	**Request Applicant**
Contact person:	Dr. Rhianna Neely	Dr. Rhianna Neely
Position:	Environment Officer	Environment Officer
Organization:	Ministry of the Environment and Housing	Ministry of the Environment and Housing
Phone:	1-242-3226005	1-242-3226005
Fax:	1-242-3262650	1-242-3262650
Email:	rneelybest@gmail.com	rneelybest@gmail.com
Postal address:	N-275	N-275

Technology Needs Assessment (TNA):

{Select one of the three boxes below:}

☐ *The requesting country has conducted a TNA in …. (please insert date of TNA completion)*

☐ *The requesting country is currently conducting a TNA*

x☐ *The requesting country has never conducted a TNA*

{If the requesting country has completed a TNA, please indicate what climate technology priority this request directly relates to. Please indicate reference in TNA/TAP/Project Ideas.}

CTCN Request Incubator Programme:

{Please indicate if this request was developed with support from the Request Incubator Programme:}

☐ *Yes*

x☐ *No*

Geographical focus:

{Select below the most relevant geographical level for this request:}

☐ *Community-based*

☐ *Sub-national*

x☐ *National*

☐ *Multi-country*

{If the request is related to the sub-national or multi-country level, please indicate here the areas concerned (provinces, states, countries, regions, etc.)}

Theme:

{Select below the most relevant theme(s) for this request:}

☐ *Adaptation to climate change*

☐ *Mitigation to climate change*

x☐ *Combination of adaptation and mitigation to climate change*

Sectors:

energy, industry, transport, education, infrastructure/human settlement, tourism, businesses, institutional design and mandates, cross-sectorial}

Problem statement *(up to one page):*

The vulnerability of The Bahamas to the impacts of climate change is well known given its geographical vulnerabilities (limited land mass, low-relief and dispersion of islands, i.e., environmental vulnerabilities (high temperatures, storm surges, sea level rise, flooding, tropical cyclones and non-tropical processes), the concentration of socioeconomic activities and critical infrastructure in narrow coastal zones, its heavy dependence on tourism as a revenue source, and the limited human and institutional capacity.

The impacts of climate change are already being felt throughout the country. Passage of two major hurricanes within a year (October, 2015 to October, 2016) through The Bahamian archipelago, both with severe destruction, has grossly inhibited the ability of the Government and consumers to cope with the associated costs. Responding to Climate Change has increased the County's national debt and created high cost of living.

The Bahamas is considered as a country with a small economy and a large gross domestic product (GDP), with a heavy dependence on imports. Fossil fuels account for about 23% of the annual national expenditure on imports. The country's primary energy producer is Bahamas Power and Light (BPL) which has 29 generation plants (28 diesel, 1 natural gas) spread across the country with a total installed capacity of 438 MW.

Rising utility costs, an introduction of a value-added tax (VAT) on most consumer durables and the necessity for heat abatement control considering the extremely hot temperatures are driving

factors for energy efficiency.

In its INDC submitted to the UNFCCC, The Bahamas committed to achieve a minimum of 30% renewables in the energy mix by 2030 and will allow for a 10% Residential Energy Self Generation Programme but has challenges in increasing the penetration of renewable energy (RE) systems. The addition of significant amounts of renewable energy will require upgrades to the electric grid, and a reliable electricity network with adequate distribution capacity is vital, with an adequate network infrastructure and grid stability.

Grid resilience is increasingly important as climate change increases the frequency and intensity of severe weather.

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Past and ongoing efforts *(up to half a page):*

{Please describe here past and on-going processes, projects and initiatives implemented in the country to tackle the difficulties and gaps explained above. Explain why CTCN technical assistance is needed to complement these efforts, and how the assistance can link or build on this previous work.}

1. A Feasibility of a Hybrid Solar and Wind Power System for an Island Community in The Bahamas study concluded that renewable energy in The Bahamas holds promise as an alternative for electricity production, however, the country is heavily reliant on fossil fuels for electricity. The study examined the benefits of solar and wind energy on a community scale on the island of New Providence in The Bahamas. The current system is grid connected and assumes a net billing policy because of the lack of a net metering policy and incentives in The Bahamas.

2. Project of Identification and Implementation of Bahamas' Nationally Determined Contributions – Retrofitting of the Anatol Rodgers High School

The aim of the project is to increase The Bahamas INDC ambition through the five-year cycle by identifying and clarifying effective pathways to reach its goal.
Further, the objectives are:

- To explore opportunities for action with impacts beyond the INDC target date,
- To optimize use of resources by encouraging the effective use of domestic and international resources; and
- To lower transaction costs through comprehensive approaches to mitigation.

3. On the basis that funding becomes available and the national grid is sufficiently able to withstand the change, plans are being developed to replace some 17MW of fossil fuel generated power with that of renewable energy across the Family Islands in The Bahamas. These projects are all inline with the national priorities and will have positive lasting effects well passed the implementation dates.

Assistance requested *(up to one page):*

{Please describe here the scope and nature of the technical assistance requested from the CTCN and how this could help address the problem stated above and add value vis-à-vis the past and on-going efforts. Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.}

The main purpose of this technical assistance requested from the CTCN is to enhance our capacity to transition to renewable energy and energy efficiency.
The expected results of this request are to:

1- Provide the Country with better understanding of the levels of renewable energy (RE) integration without affecting the power quality
2- Develop capacity in the Country to conduct grid stability assessment
3. Develop a comprehensive methodology for the grid stability assessment
4. Provide technological options for grid stability and RE integration.
5. Design a customized solution of country wide grid stability for The Bahamas.

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Expected benefits *(up to half a page):*

The CTCN interventions will provide much needed assistance in the implementation of the projects that are soon to be initiated. This information will add to the quality of project decisions and outputs. This interaction with the CTCN will also build the capacity of the Division to design and implement future of projects and programs. This will also have impact on the preparation of the Country's INDC for the UNFCCC 2015 agreement.

{Please outline here the medium and long-term impacts that will result from the CTCN technical assistance, including how the assistance will contribute to mitigate and/or adapt to climate change.}

The expected benefits are:

1. Energy security
2. Improved system reliability and power quality
3. Energy sustainability and efficiency
4. Renewable energy portfolio

Energy security and climate change mitigation are allies. RE alternatives could improve the country's energy security by diversifying its power generation choices and help offset the trade deficit caused by the reliance on fossil fuel imports.

The medium-term impact is an increase in the supply side by accommodating a high penetration of renewable energy (mainly solar PV) that will reduce greenhouse gas emissions, enabling The Bahamas to meet its Nationally Determined Contribution of a minimum reduction of 30% by 2030.

The long-term impact is a self-sustainable microgrid during tropical cyclones.

Post-technical assistance plans *(up to half a page):*
As a beneficiary country, the capacity will remain within The Bahamas. The country's technological training and capacity will be improved both at the level of academia and of the national/local governments and private sector. Processes to incorporate the technology and general results will be included in the main aspects of the mitigation approach. It is anticipated that the data will be used as a baseline for infrastructure construction and tourism management. The MOTEH which is responsible for relations with National and International Organizations on Environmental matters, International Convention, Treaties, Protocols and for the reporting and other function to the United Nations Framework Convention on Climate Change will house the database. Lessons learnt will be communicated to wider relevant government agencies and may be incorporated into legislation

Key stakeholders:

Stakeholder	Role to support the implementation of the assistance
Ministry of the Environment and Housing, Ministry of Works and Utilities, and other relevant Government Agencies.	Identify suitable and qualified candidates to participate in the country wide grid stability study training
Ministry of Transport, Ministry of Education, Ministry of Tourism	Assist with the implementation of the technical assistance and will benefit by capacity building
Private Sector (Generally small businesses)	Benefit from Capacity building as well as the technical information on Adaptation and Mitigation options available to them.
General Public (capacity building section)	General Capacity building and knowledge;

Alignment with national priorities *(up to half a page):*
{Please demonstrate here that the technical assistance requested is consistent with documented national priorities (examples of relevant national priorities include: national development plans, poverty reduction plans, technology needs assessments (TNAs), LEDS, NAMAs, TAPs, NAPs, sectorial strategies and plans, etc.). For each document mentioned, please indicate where the priorities specifically relevant to this request can be found (chapter, page number, etc.).

The National Energy Policy (2013) outlines what the government intends to achieve by 2033 to ensure that our energy sector is at a standard which meets the current and future needs of this country. The policy document serves as proof of the government's commitment to addressing the issues confronting us related to the generation and transportation of energy, conservation and renewable energy use, along with sustainable development.

Two of the goals of this policy are electricity reliability, affordability and diversification and efficient use of energy sources.

With respect to electricity reliability, the policy intends to strengthen the grid stability to

reduce the number and duration of operational disturbances and strengthen the energy infrastructure to enable faster recovery from disruptions to the energy supply.

Development of the request *(up to half a page):*

{Please explain here how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles, and describe any consultations or other meetings that took place to develop and select this request, etc.)}

1- A meeting was arranged with the National Climate Change Committee (NCCC) to introduce members to the CTCN and the assistance that can be provided, and to list priorities.
2- Agreed to Technical Assistance Requests from the NCCC
3- The Technical Assistance Requests were discussed with the NDE and the main priority endorsed.
4- The Request was approved by the Minister of the Environment and Housing, the National Climate Change Focal Point

Expected timeframe:

{Please propose here a duration period for the assistance requested.}

6. – 9 months beginning in 2017.

Background documents:

{Please list here relevant documents that will help the CTCN understand the context of the request and national priorities. For each document, provide weblinks if available, to attach to the submission form while submitting the request. Please note that all documents listed/provided should be mentioned in this request in the relevant question(s), and that their linkages with the request should be clearly indicated.}

Documents

1. Feasibility Study of a Hybrid Solar and Wind Power System for an Island Community in The Bahamas
   www.ijrer.org/ijrer/index.php/ijrer/article/download/4006/pdf
2. A FEASIBILITY STUDY OF OFFSHORE WIND FARMS IN THE BAHAMAS
   www.esru.strath.ac.uk/Documents/MSc_2015/Cassar.pdf·
3. Caribbean Sustainable Energy Roadmap (C-SERMS), Phase 1 Summary and Recommendations for Policymakers
   www.worldwatch.org/system/files/nPhase 1 C-SERMS Summary for policy makers
4. ISLANDS: LIGHTHOUSES FOR RENEWABLE ENERGY DEPLOYMENT

www.irena.org/EventDocs/Day1-Session2-SIDSLHI-GREIN.pdf

5. The Bahamas National Energy Policy
   www.bahamas.gov.bs/.../energypolicy.pdf?MOD=AJPERES
6. Bahamas INDC

Monitoring and impact of the assistance:

{Read carefully and tick the boxes below.}

X☐ By signing this request, I affirm that processes are in place in the country to monitor and evaluate the assistance provided by the CTCN. I understand that these processes will be explicitly identified in the Response Plan in collaboration with the CTC, and that they will be used in the country to monitor the implementation of the CTCN assistance.

X☐ I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:	
NDE name:	Rhianna M. Neely-Murphy
Date:	03/21/17
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

Need help? The CTCN team is available to answer questions and guide you through the process of submitting a request. The CTCN team welcomes suggestions to improve this form.

>>> Contact the CTCN team at ctcn@unep.org