



Reconstruction with Resilience in the Energy Sector in the Bahamas (RRESB) Program

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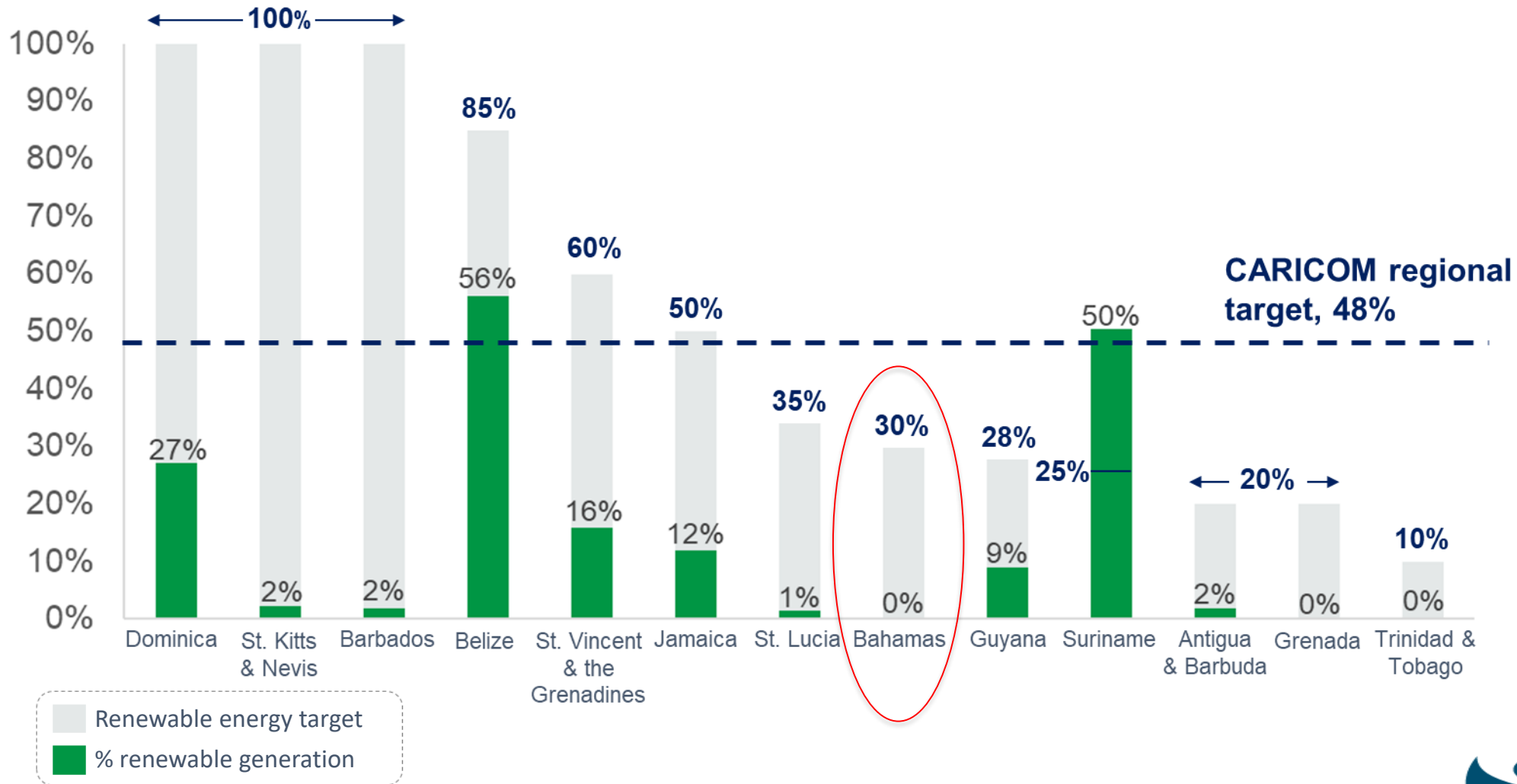
1. Brief overview of the PPP project
2. Expected results and impacts of the project(s)
3. Opportunities for future infrastructure PPP development
4. Q&A from breakout participants

Reconstruction with Resilience in the Energy Sector in the Bahamas (RRESB) Program

1. BRIEF OVERVIEW OF THE PPP PROJECT



Many countries in the Caribbean have not met ambitious renewable energy targets...



CONTEXT

CHALLENGES FOR THE ELECTRICITY SECTOR IN THE BAHAMAS

MAIN CHALLENGES

- Most of the population in Abaco and East Grand Bahamas with no steady electricity supply after Dorian
- Country's economy in recession after COVID-19
- Dependent on expensive oil imports (3.3% of GDP in 2017)
- High Cost of Electricity
- Weak institutions and limited regulatory frameworks

OBJECTIVES

- (1) Reconstruction with resilience of electric power systems in Abaco and East Grand Bahamas
- (2) Supporting the resurgence of the Country's economy
- (3) Diversification of Energy Matrix ¹
- (4) Institutional Strengthening

STRATEGIES

- Rehabilitation of transmission and distribution power network.
- Installation of microgrids and solar PV systems
- Creation of employment based on renewable energy projects
- Promoting Renewable Energy (RE)
- Institutional and regulatory aspects aligned with the sustainable energy sector

FOCUS ON RESILIENT INFRASTRUCTURE TO SUPPORT THE REHABILITATION OF THE ELECTRIC POWER SYSTEM AND TRANSFORMATIVE INITIATIVES (RE)

1/ Alignment with the GoBH National Energy Policy commitment of 30% RE generation of electricity.

Source: Malaika Masson, IDB.

Program Description

Financing Structure of Program

- The IDB Board of Directors on the 29th of January 2020 approved:
 - A 170 MUS\$ Program to support a broad Renewable Energy Program over 8 – 10 years
 - Program is staggered in three Operations.
 - The **First Operation**, with a cost of **US\$80 million** and disbursement period of four years
- There are also technical cooperation grants worth US\$ 1.2 million for technical design studies support



Operation A (Approved)

- Component I – Immediate rehabilitation of resilient and renewable energy infrastructure in Abaco and Grand Bahama.
- Component II – Reliable and Renewable Electricity in New Providence and Family Islands to Support the Reconstruction Efforts.
- Component III – Strengthening Resilience in the Regulatory Framework and Skills for the Energy Reconstruction Effort

2020 – 2022
US\$ 80 million

Program Objectives

To support the Government of The Bahamas with the **rehabilitation of critical energy infrastructure and restoration of electricity service in targeted islands** heavily affected by hurricane Dorian, while **facilitating the integration of RE.**

The specific objectives of the first operation are to:

- i. support the **rehabilitation of the electricity T&D system** and installation of new and resilient **RE capacity in Abaco, EGB and NP**;
- ii. promote the adoption of **solar PV technologies in the FI**; and
- iii. contribute to the improvement of the **regulatory framework for RE** technologies and the mechanisms for its deployment.

Program's Results Matrix

2. EXPECTED RESULTS AND IMPACTS OF THE PROJECT(S)

Expected Results and Impacts

Reconstruction with Resilience in the Energy Sector of The Bahamas

- 3.375 customers connected in Abaco
- 330 customers connected in EGB

C1. Immediate Rehabilitation to Introduce More Resilient and RE Infrastructure in Abaco, GB & NP

O1.1 T&D Systems reconstructed or rehabilitated in Abaco

9 systems

O1.2 New RE power capacity (330kW) installed with microgrids in EGB

330kW

- 9.900 kW installed RE capacity

C2. Reliable and Renewable Electricity in NP and FI

O2.1 Resource assessments of RE potential across the FI

10 studies

O2.2 Solar PV and hybrid (storage) projects installed in the FI

6 projects

O2.3 Solar rooftop PV installed in buildings in NP

15 buildings

- REE established and operational
- SSRG regulation improvements approved by URCA
- 75% certified participants from PV installation training
- 20% women hired in technical positions in REE

C3. Set-up of the REE and Enabling Environment for RE

O3.1 Design of the legal framework for the implementation of the REE

1 design

O3.2 Study on potential improvements on the regulatory framework for implementation of solar PV hybrid systems

2 studies

O3.3 Trainings in installation and maintenance of solar PV to foster local participation in these services implemented

3 trainings

O3.4 Projects profiles prepared on potential RE projects that can have private sector participation from Bahamian individuals

5 Project Profiles

O3.5 Livelihood training in services supply chain and solutions within the solar industry for women implemented

1 training

O3.6 Prevention of sexual harassment and GBV trainings for all the contracting companies and PEU implemented

3 trainings

C4. Program Management & Administration



= target end of project value of output

IDB INVESTMENT LOAN US\$ 80 MILLION

RECONSTRUCTION WITH RESILIENCE IN THE ENERGY SECTOR IN THE BAHAMAS



Component 1. Immediate Rehabilitation of Resilient Infrastructure

- New critical infrastructure in the Transmission and Distribution Networks of Abaco.
- Distributed generation and Microgrids in East Grand Bahama.

US\$ 50.68 M



Component 2. Reliable and Renewable Electricity in New Providence and Family Island

- Solarization plan to include resilient PV installations in the Family Islands, aiming to improve serviceability, reliability, emergency preparedness and reduce costs.
- Solar PV Rooftop program in New Providence for decentralized public buildings.

US\$ 25.72 M



Component 3. Enabling the Environment for RE

- Establishment of a RE Entity for the development and ownership of the assets that will evolve to include private sector participation.
- RE legal and regulatory framework and resilient infrastructure.
- Develop an Ecosystem for Local Constructors.

US\$ 1.63 M



Administration and Other expenses

US\$ 1.98 M

TOTAL

US\$ 80 MILLION



COMPONENT 1. IMMEDIATE REHABILITATION TO INTRODUCE MORE RESILIENT AND RE INFRASTRUCTURE IN ABACO, GB & NP



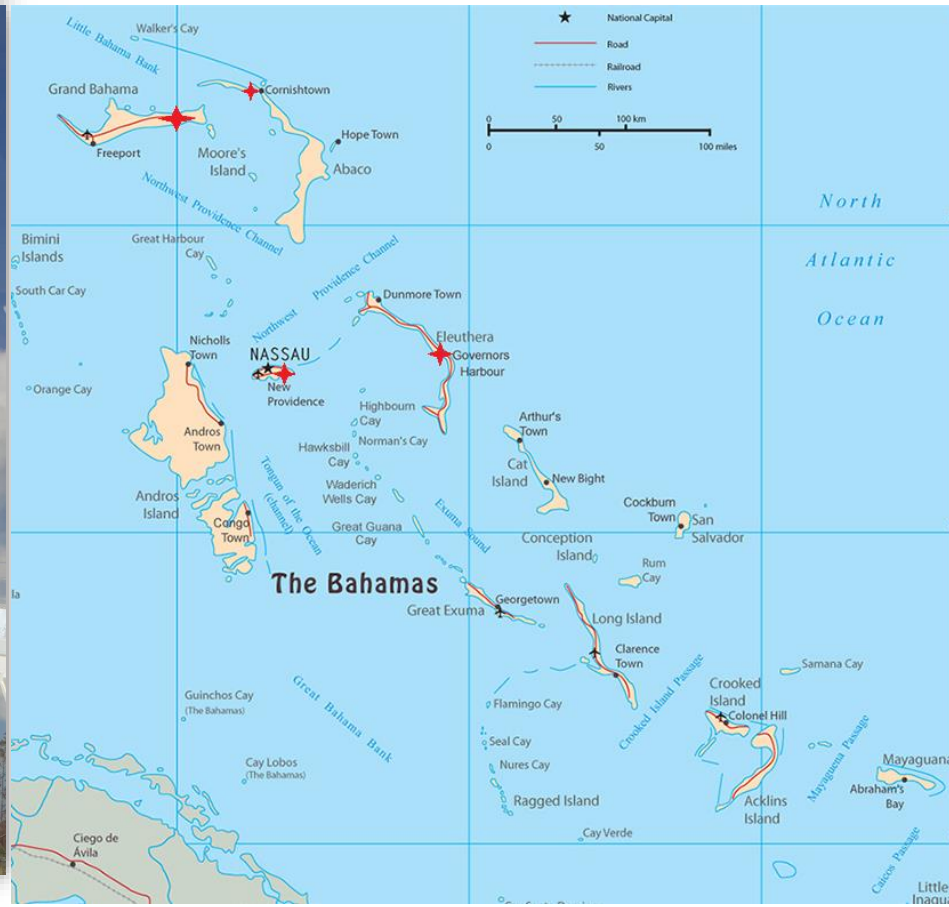
IDB INVESTMENT LOAN

RECONSTRUCTION WITH RESILIENCE IN THE ENERGY SECTOR IN THE BAHAMAS



Component 1. Immediate Rehabilitation of Resilient Infrastructure (US\$50.7 million)

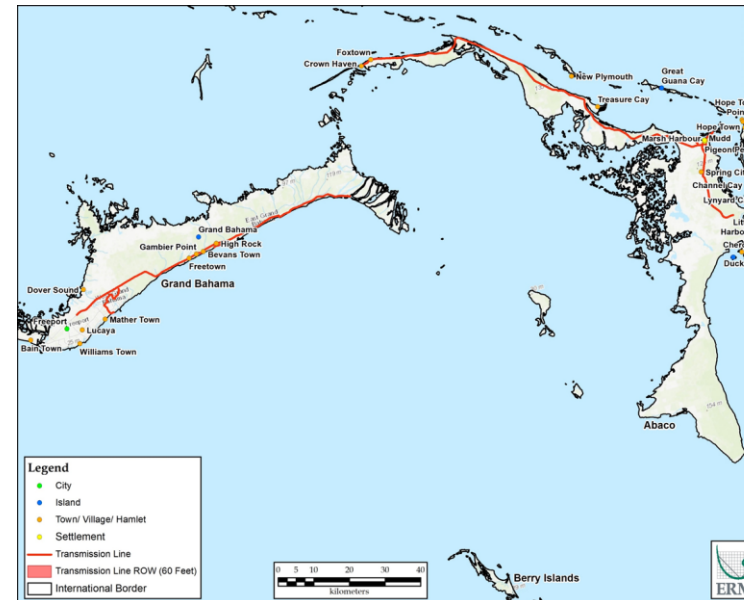
- Focuses on restoration of electricity services and rehabilitation of physical infra-structure damaged by Hurricane Dorian.
- Incorporate concept of resilience regarding future extreme weather events, population density, and sustainability of technical solution.
- Type of projects: transmission and distribution lines, substations and transformers, etc.



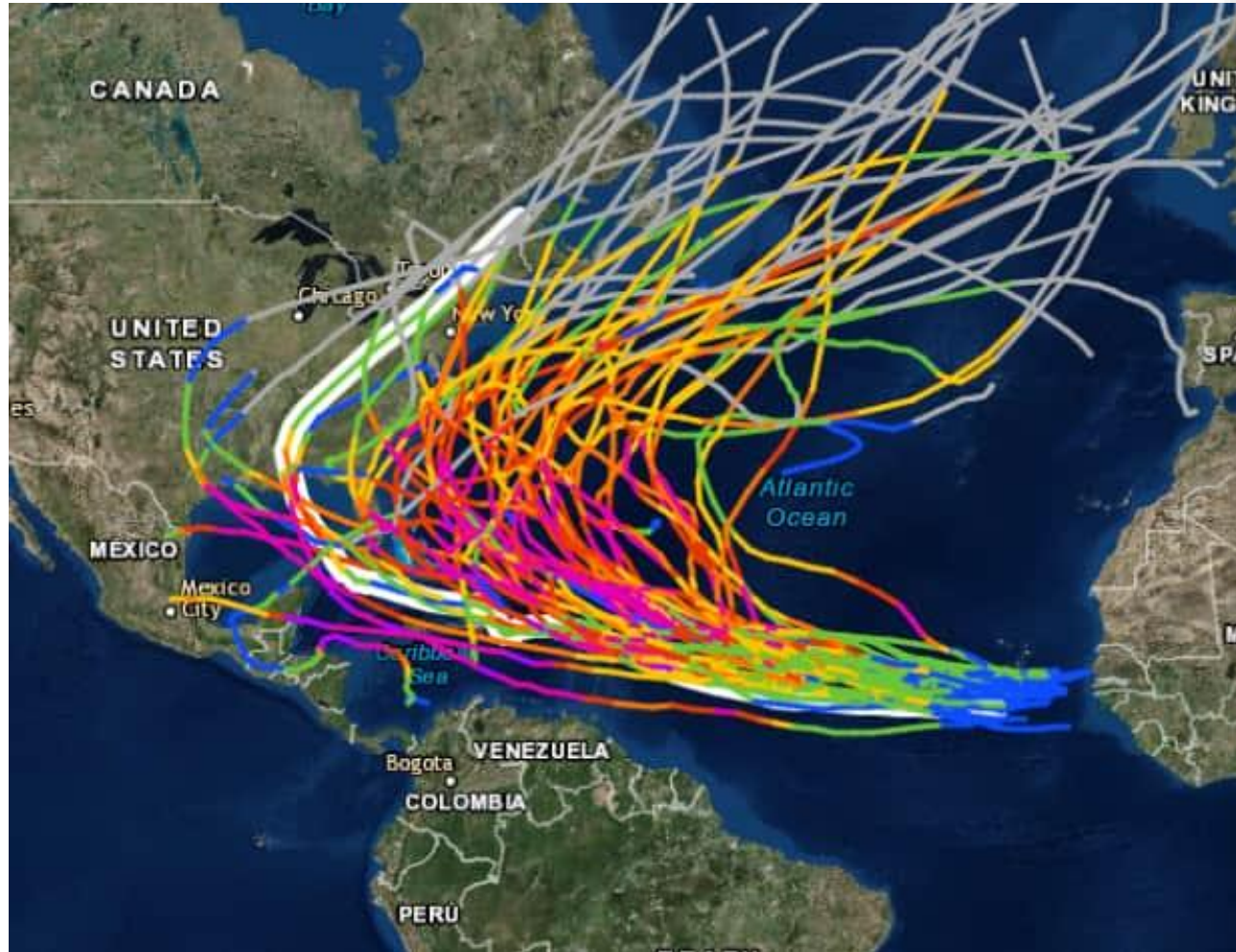
Component 1: Rehabilitation

US\$ 50.7 million

- Focuses on restoration of electricity services and rehabilitation of physical infra-structure damaged by Hurricane Dorian
- Incorporate concept of resilience regarding future extreme weather events, population density, and sustainability of technical solution



Component 1 – Rehabilitation of Power in Abaco reinforces the importance of resilience



Source: NOAA – 150 history of Hurricane Category 4 and 5 in East Atlantic
<https://spacecoastdaily.com/2019/08/noaa-historical-hurricane-tracks-explore-more-than-150-years-of-historical-hurricane-landfalls/>



Component 1: Rehabilitation of Power Network in EGB

- **Microgrids to be considered** in locations along the main highway travelling East (Freetown, High Rock, Pelican Point, Rocky Creek, Mc Leans Town).
- The system solution shall combine:
 - Renewable Solar PV
 - Battery Energy Storage
 - Diesel Generation
 - Microgrid Controls
- **Resilience of the microgrids** will also consider:
 - Water flood level
 - Proximity to communities
 - Convenience for monitoring and maintenance
- Implementation of microgrids to be done on a **modular approach** to gradually increase as population returns



COMPONENT 2. RELIABLE AND RENEWABLE ELECTRICITY IN NP AND FI

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RECONSTRUCTION WITH RESILIENCE IN THE ENERGY SECTOR IN THE BAHAMAS



Component 2. Reliable and Renewable Electricity in New Providence and Family Island (US\$25.7 million)

- Family Island Solarization Plan - Solar, microgrids, grid interconnection support
- Solar rooftop program in New Providence – PV in public buildings:



Solar minigrid with battery storage in Suriname.

- The Bahamas needs a structural change-of-course to achieve its Nationally Determined Contributions (NDCs) associated with the Paris Agreement that has a target of meeting 30% of its electricity needs with renewable resources by 2030 (<1% in 2020!).



Solar PV system Barbados airport

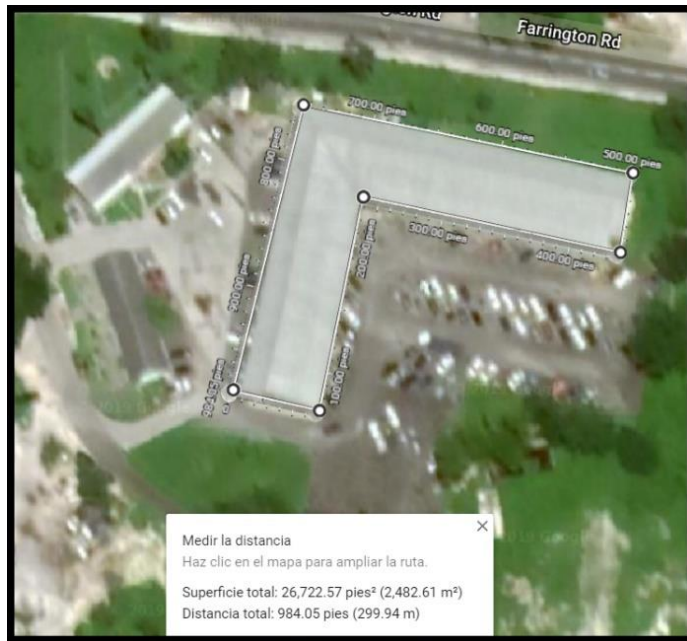


Self-supply PV systems in Guyana

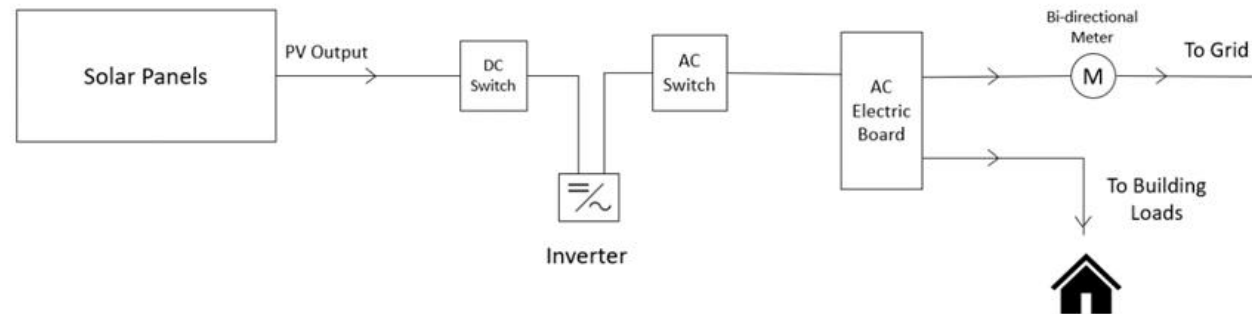
Component 2 Solar Rooftop Program in NP

Installation of rooftop solar systems amounting to a total of 1,500 KW in public buildings such as Libraries, Schools, and Public Office buildings. A least 15 assuming maximum 100 kW per building.

The objective is to reduce the electricity bill and therefore help reduce oil dependence by generating it on site following the rule pursuant to the SSRG strategy set forth by the Government of The Bahamas.



Department of Environmental Health

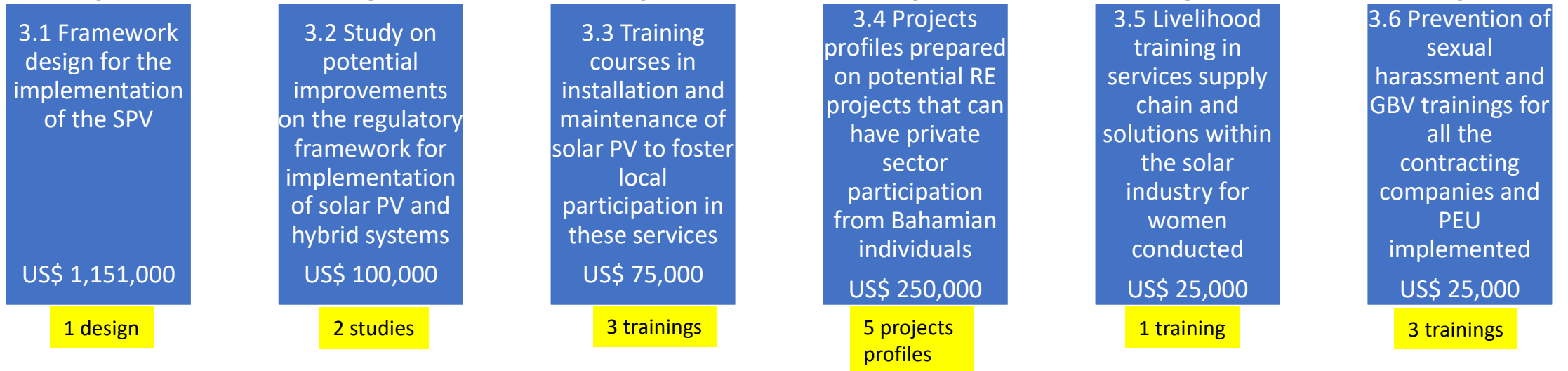


COMPONENT 3. SET-UP OF THE REE AND ENABLING ENVIRONMENT FOR RE

C3. Set-up of the REE and Enabling Environment for RE

- REE established and operational
- SSRG regulation improvements approved by URCA
- 75% certified participants from PV installation training
- 20% women hired in technical positions in REE

C3. Set-up of the REE and Enabling Environment for RE
US\$ 1,626,000



Component 3 – Set-up of the RE Entity and Enabling Environment for Renewable Energy (1.6 Million USD)

- **Establishment of the Renewable Energy Entity**
 - In subsequent operations within the CCLIP, the REE can evolve as financing opportunity from other donors and private sector. The final aim is for the REE to undergo an IPO to incorporate Bahamian small-scale shareholders and create local participation and retention in this new energy subsector.
- **Renewable Energy legal and regulatory framework and resilient infrastructure**
 - Development and evolution of a modern regulatory framework alongside a streamlined process for the promotion of RE in the Bahamas.
- **Local support contractors support and Communications**
 - Establishment of steady supply of local services in the RE sector that fosters Bahamian participation
 - Integration with the IDB project in execution: “Skills for Current and Future Jobs in the Bahamas” which is increasing employability and quality of employment by improving access to quality jobs in the Bahamas, especially for youths
- **Strengthen capacity of the Project Executing Unit (PEU)**

EU-CIF GRANT ADDITIONALITY (€8.2 MILLION)

SOLARIZATION PLANS AND LOCAL ECOSYSTEM

Family Island Solarization Plan

- Inclusion of Abaco Island in the Plan
- 4 MW PV Microgrid to supply Marsh Harbour Hospital

Local Ecosystem of Contractors

- Duplicate the amount of trainings for certification and skills development in installation and supply change
- Targeted to Women & Vulnerable Communities

Small Scale Renewable Generation Rooftop Program

- 2.5 MW of additional distributed generation from RE to be installed in public buildings
- Different Sizes (Collective Solar, Residential, Commercial)

Administration

- Administration or, other contingent expenses
- Administrative Fee

Microgrids, Energy Storage, PV Systems:

€6.37 M

US\$ 7.49 M Eq

Trainings:

€0.31 M

US\$ 0.36 M Eq

Grants for cover costs for consumers installations:

€1.14 M

US\$ 1.34 M Eq

Grants for cover costs for consumers installations:

€0.38 M

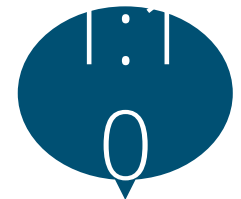
US\$ 0.44 M Eq

€81 M



TOTAL

€8.20 M US\$ 9.64 M Eq



RATIO CONTRIBUTION EU-CIF



Specific opportunities for private sector involvement, highlighting priority sectors

3. OPPORTUNITIES FOR FUTURE INFRASTRUCTURE PPP DEVELOPMENT IN THE BAHAMAS



Opportunities for future infrastructure PPP development

- Opportunities for future infrastructure PPP development in the Bahamas and *specific opportunities for private sector involvement*, highlighting priority sectors
- Family Islands: Project to develop, finance, build, own and operate a solar photovoltaic (solar PV) and energy storage plant or a hybrid power plant on North & Central Andros, North Eleuthera, South Eleuthera and Inagua.
- Microgrids: RE hybrid systems, Solar PV, BESS, back up gen set
- LNG Terminal, \$300,000,000.00
- New Power Plant BPL \$150,000,000.00
- RE systems in (4) four family islands: \$80,000,000.00
- Total of approximately \$530, 000,000.00, which does not include the \$80,000,000.00 investment of the RRESB Program.



End of presentation

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