



Proposal: Rebuilding The Bahamas and select Caribbean Countries (US Virgin Islands and The British Virgin Islands) Through Sustainable and Resilient Power and Transportation Systems

Objective: Support the immediate recovery of The Bahamas islands by focusing on standing up and hardening energy systems to power critical facilities—while continuing to support countries impacted by past hurricanes with distributed, resilient renewable energy.

Phase 1: Rapid Project Identification: Immediately identify top-priority projects: We must address the urgent need to restore immediate electricity supply to lifeline infrastructure (hospitals/health centers, water supply, etc.), but in a way that supports future goals like clean energy, improved resilience, energy affordability and ratepayer equity, and reduced carbon emissions. The following activities are designed to ensure we meet both immediate and long-term objectives for the islands:

- *Rapid diagnostic:* Obtain available information on the current state of the power supply, including the population's immediate need for power through emergency generation and rebuilt distribution.
- *Prioritize needs and determine options:* Prioritize immediate needs and determine the best available options for restoring power to critical structures and lifeline infrastructure.
- *Link government and utility with opportunity:* Identify optimal emergency solutions and link government authorities with technology providers.
- *Stakeholder visioning:* Creating a clean energy future begins by aligning stakeholders on a shared vision of what they want their society to look like. Defining an inclusive and unified vision that all stakeholders buy into will avoid pitfalls down the road.

Phase 2: Resilient Development: Too often, temporary solutions become permanent in the absence of a long-term plan. Once we have restored emergency energy supply, it will be critical to move as quickly as possible to prepare other projects identified by the above process in order to minimize the time that critical systems are reliant on temporary emergency power supply, and move forward along a clear path to the most economically, socially, and environmentally sound energy future for impacted island nations. This involves the following activities:

- *Feasibility study:* In order to ensure a project is financially viable, a detailed financial and economic model is required (usually done by a third party) to quantify the project's internal rate of return, total revenue, tax implications, and net present value to attract financing and investment.
- *Site preparation:* After the financially viable projects and possible sites are identified, the prime sites would then be prepared for development and commercialization. These activities include:
 - Boundary and topographic surveys: Legally defining the site boundaries and ascertaining the site slope and other natural characteristics. This survey is critical for informing the civil site plan, storm water-management controls, insurance, and permitting requirements.
 - Environmental and social impact assessment: Examining all potential impacts to the environment and the community from the proposed project through a targeted analysis, with a focus on the needs and opportunities related to grid resilience and sustainable, local power generation.
 - Geotechnical and hydrological studies: Field and laboratory studies of the site soils and substrates to determine the foundation requirements, structural requirements, and flooding probability with mitigation recommendations for category 5 hurricane installation preparation.

- Civil engineering/structural engineering/site planning: On-site engineering for the full site, including renewable energy structures, access roads, storm water management, setbacks for sensitive receptors, and electrical infrastructure locations.
- Electrical engineering: Stamped professional-engineer drawings for resilient (typically underground) distribution lines, elevated transformers, and corrosion-protected conductors and switch gear associated with the new generation sources and grid upgrades.

Phase 3: Project Financing and Construction: Once resilient renewable microgrid projects have been developed and are considered investment-ready, targeted islands will need support in mobilizing concessionary, grant, and blended financing as well as leveraging innovative financing models and private-sector capital. This will translate financially viable projects into steel in the ground—while laying the foundations for a stable clean energy market. The targeted islands will also need support in supervising construction to ensure safety and building standards are met. This support would include:

- *Financial structuring*: Determine how to best structure a financial investment to bring the most value to a community/island. Financing of infrastructure and renewable energy projects can be structured in a variety of ways to support the investment. Depending on island- and project-specific factors, financial structures could adopt any of several different options: a power purchase agreement (PPA); build, own, operate, transfer (BOOT) structure; a public–private partnership (PPP); a typical capital improvement loan; and innovative financing options such as crowd funding.
- *Contract negotiation support*: Whether the project needs a PPA, an engineering procurement and construction (EPC) contract, or a general design-build contract, the affected islands will require expertise and dedicated legal support to ensure fair and acceptable contract terms and conditions.
- *Construction supervision*: To ensure that resiliency best practices and safety standards are implemented, these projects will require third-party oversight, inspection, and acceptance.
- *Commissioning*: As with construction oversight, project commissioning must be coordinated with the local island utility, the contractor, and a third-party engineer to ensure that all systems are installed to standard and performing within optimal parameters before full energization, system acceptance, and project closeout.

The short-term and medium-to-long-term efforts in phases 1, 2, and 3 are mutually reinforcing. The rapid diagnostic and the linking of the right opportunities with prioritized lifeline infrastructure ensure power restoration will be done properly, whereas the integrated resource planning work identifies the optimal climate-resilient projects to pursue in the medium to long term. Project de-risking ensures high-quality and attractive investment-ready projects. Meanwhile, project financing and construction oversight support ensures the rapid deployment and quality of these projects—enabling beneficiaries to see their myriad benefits, including lower costs and increased reliability and resiliency. That, in turn, reinforces the value of the integrated plan. Moving forward with phases 1 and 2 in tandem yields faster and lower-cost projects, making it possible to accelerate the rebuilding of islands impacted by Dorian, as well as those still recovering from Hurricanes Irma and Maria and their transition to a stronger, cleaner, more sustainable future.

Funding

- The Bahamas: \$1.3M (phases 1-3)
- US Virgin Islands: \$300,000 (phases 2-3)
- The British Virgin Islands: \$400,000 (phases 2-3)
- Total investment: \$2M

Contact: For more information or to partner with us in this call to action to Rebuild The Bahamas and select Caribbean countries for a Resilient and Renewable Future, please contact Justin Locke.

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