



Antigua and barbuda industrial microgrids

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Ensuring transparency, accountability, and strategic guidance to drive our mission of sustainable transformation.

A global advisory network offering high-quality technical assistance for designing, implementing, and updating NDCs, LTS, and transparency systems

Advancing climate-resilient growth and the adoption and implementation of LEDS across the Asia-Pacific region.

Facilitating information exchange across countries, empowering local champions, and building capacity for effective LEDS implementation across Africa.

A collaborative network fostering coordination, capacity-building, and information exchange among stakeholders to promote, design, and implement LEDS across the region.

The U.S. Department of Energy's National Renewable Energy Laboratory is providing technical assistance to the Government of A& B (GoAB), under the Global Climate Action Partnership, and their partners. This technical assistance is in support of the objectives of the GoAB, with the sponsorship of the Department of State in partnership with the U.S. Department of Energy, in two general areas:

For the energy transition envisioned in A& B's nationally determined contribution (NDC), grid-interactive renewable energy generation and storage forms an important part of the country's pathway to a climate-resilient, low-emission economy. This report is provided to support the A& B's Department of Environment with international codes, standards, and best practices for the design, construction, operation, and maintenance of distributed energy resources that could be implemented by the Antigua and Barbuda Bureau of Standards, the Antigua Public Utilities Authority (APUA), the Antigua and Barbuda Ministry of Energy, and other agencies.

This document lists (non-exhaustive) standards and guidelines that can be referred to for manufacturing of the equipment, integration, and procurement during the implementation of a project. This document also considers not only DERs but also associated critical components and related standards and technical specifications. These listed standards and technical specifications can be adopted to prepare documents such as requests for proposals.

This document also discusses how these DERs can be reliably and safely integrated and implemented as a microgrid to achieve the maximum benefits with coordinated control in the terms of resiliency,

decarbonization and economics. Different conceptual design steps are highlighted at a very high level which can be considered for most of the typical microgrid use cases. Important electrical modeling and studies required for microgrid design and implementation are also briefly described in the document. Best practices applied by similar islands for microgrid implementation are also presented.

In order to ensure the overall safe and reliable operation of an island electrical system with integration of renewable- based resources, interconnection requirements need to be introduced and regulated by the utilities. Therefore, the critical factors to be considered to prepare the interconnection requirements are provided in this document.

The microgrid project involves a number of different stakeholders, which makes such projects complex and different from the other typical projects for electrical systems. It is very important to understand the roles and responsibilities of stakeholders for the success of the project. At the same time, the qualifications of the key resources involved in the microgrid project need to be identified. This document provides examples of roles and responsibilities of stakeholders to develop a project along with the qualifications of the project resources.

Finally, this document provides critical information associated with maintenance and warranty for the DERs and microgrid systems. How these can be specified and other related considerations are highlighted in the document.

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