

# Antigua and barbuda flow batteries

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The UAE-Caribbean Renewable Energy Fund (UAE-CREF) proudly announces the operationalization of a hurricane-resistant power project in Antigua and Barbuda, developed by Masdar. Designed to withstand even the fiercest winds, the climate-resistant plant is a response to the devastation caused by Hurricane Irma in 2017, ensuring a reliable and sustainable supply of electrical power for Barbuda.

The hybrid solar, batteries, and backup diesel project, known as the Green Barbuda project, has been inaugurated on the island of Barbuda. The ceremony was attended by Hon. Gaston Browne, Prime Minister of Antigua and Barbuda, H.E. Hazza Ahmed Al Kaabi, the UAE Ambassador to the Republic of Cuba, and Ambassador Brian Challenger, the Ministry of Energy of Antigua and Barbuda, along with a delegation from local and state entities.

Masdar, implementing the project under UAE-CREF, has created a groundbreaking facility capable of withstanding winds of up to 265 km per hour. In the aftermath of Hurricane Irma, which caused the evacuation of Barbuda's entire population, this climate-resistant plant stands as a testament to resilience and sustainable development.

Othman Al Ali, CEO of Emirates Water and Electricity Company (EWEC), stated, "It is a landmark achievement for the UAE-CREF to have driven an energy transformation in Antigua and Barbuda at such a scale. The project took into consideration the country's high dependence on fossil fuel imports for energy needs despite having the potential to exploit its solar, wind, and geothermal power."

Fully financed by the Abu Dhabi Fund for Development (ADFD), the \$50 million UAE-CREF aims to reduce energy costs, increase energy access, and enhance climate resilience in 16 Caribbean countries. The Green Barbuda project aligns with Antigua and Barbuda's goal to meet 86 percent of its electricity sources from renewable energy by 2030.

The bespoke project combines a hybrid solar photovoltaic (PV) plant with 720 kWp of solar PV panels connected to an 863 kWh battery, capable of meeting the island's current daytime energy demand. By reducing annual diesel fuel consumption by 406,000 liters and cutting carbon dioxide emissions by over 1 million kg, the project contributes significantly to environmental sustainability.

Mohamed Jameel Al Ramahi, CEO of Masdar, expressed pride in delivering clean energy to Antigua and Barbuda and highlighted the project's role in ensuring a resilient energy supply for economic growth and community benefits.

The UAE-CREF initiative, deploying renewable energy projects in the Caribbean, has already seen success in the Bahamas, Barbados, and Saint Vincent and the Grenadines. As a global leader in renewable energy,

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Masdar continues to contribute to sustainable development and green initiatives, aiming for 100GW of capacity by 2030.

The Green Barbuda project stands as a symbol of collaboration and commitment, showcasing the UAE's dedication to providing foreign aid, promoting global peace, and fostering sustainable energy solutions worldwide.

The roadmap study consisted of analysing the deployment of renewable energy options for Antigua and Barbuda in the following two sectors/applications: 1.Electricity generation 2.Road transportThe following sections describe the details of both applications including the various options considered for each sector to achieve the 100% renewable energy target.

Road transport For the transport sector of Antigua and Barbuda, the analysis was also done using HOMER Pro by adding the electric vehicle load as a deferrable load (that is, an electrical load that requires a certain amount of energy within a given time period). The EV load was added to the power sector analysis and was performed together.

SCENARIOS The roadmap analysis performed for Antigua and Barbuda's power system evaluated several scenarios based on the information provided by the Ministry of Health, Wellness and the Environment. In order to simulate the scenarios in HOMER Pro, the model had to first be calibrated. The calibration was done by simulating the current power system of Antigua and Barbuda.

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