

## European Solar and Energy Storage Solutions

# Antigua and Barbuda production of solar energy



## Overview

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This document presents Antigua and Barbuda's Energy Report Card (ERC) for 2021. The ERC provides an overview of the energy sector performance in Antigua and Barbuda's. The ERC also includes energy efficiency, technical assistance, workforce, training and capacity.

by the Government of Antigua and Barbuda, several renewable energy technologies have been analysed. The current power system of the country is widely dominated by conventional fossil fuel generation. Hence, multiple renewable energy options were explored. These include utility-scale solar photovoltaics (PV), distributed solar PV.

Targets Renewable Energy Energy Efficiency Transportation In Place Proposed Prepared by the National Renewable Energy Laboratory (NREL), a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy; NREL is operated by the Alliance for Sustainable Energy, LLC. Will Antigua and Barbuda have a 100% renewable power system?

The current power system of Antigua and Barbuda was used to calibrate the model in HOMER, and subsequently various scenarios were considered to provide the Government with the least-cost pathway for a 100% renewable energy power system by 2030. The study has considered the following five main scenarios:

Which energy source is most dominant in Antigua and Barbuda?

From the figure, it is also clear that the HOMER optimisation has estimated solar energy to be the more dominant source of electricity in Antigua and Barbuda to serve most of the load. The dominance of solar PV in meeting most of the total load in this scenario is clearer when observing the installed capacity by technology in Figure 21.

What is the share of solar PV & wind in Antigua & Barbuda?

In the previous scenario, a larger share of generation was coming from solar PV, while with the deployment of EVs we see a more even share between solar PV and wind. Almost 50% of the total load of Antigua and Barbuda is being met by the solar arrays, while around 46% is covered by the wind turbines.

How much energy does Antigua & Barbuda use per year?

Based on the information provided by the Government of Antigua and Barbuda, the average household consumes just over 3 000 kilowatt-hours per year (kWh/year) or 8.25 kWh/day. Based on this, it was estimated that a 3 kW solar PV system with battery storage would be added on the rooftop of each household.

Will Antigua and Barbuda increase its share of renewables?

The current power system is widely dominated by fossil fuel generation, and with the plans in place as of 2020, the renewable share would merely increase to 9%. To significantly increase its share of renewables, Antigua and Barbuda should follow the pathway of the optimal system scenario outlined in the Roadmap.

Does Antigua & Barbuda have a solar system?

It is important to note that there is no battery storage system currently deployed in Antigua and Barbuda, hence the solar systems can only generate electricity during the day when sunlight is available. This makes it indispensable for the heavy fuel oil generators to cover the entire load during

evening hours.

## Antigua and Barbuda production of solar energy



### Antigua and Barbuda Renewable Energy Roadmap

Five specific scenarios have been analysed, together with multiple renewable energy options including utility-scale solar photovoltaic (PV), distributed solar PV, utility-scale wind and green hydrogen. Meanwhile, electric vehicles (EVs) are ...

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-  **Efficient Higher Revenue**
  - Max. Efficiency 97.5%
  - Max. PV Input Voltage 1500V
  - 150% Peak Output Power
  - 2 MPP Trackers, 150% DC Input Overvoltage
  - Max. PV Input Current 15A, Compatible with High Power Modules
-  **Intelligent Simple O&M**
  - IP66 Protection Degree: support outdoor installation
  - Smart IV Curve Diagnosis Function: locate PV string faults accurately and automatically detect faults
  - DC, AC Surge SPD: prevent lightning damage
  - Battery Reverse Connection Protection
-  **Flexible Abundant Configuration**
  - Plug & Play, UPS Switching Under 10ms
  - Compatible with Lead-acid and Lithium Batteries
  - Max. 6-Quadrant Inverter Operation
  - AFCI Function (Optional): when an arc fault is detected the inverter immediately stops operation

### ENERGY PROFILE Antigua and Barbuda

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### Antigua and Barbuda

## Renewable Energy Roadmap

This renewable energy roadmap for Antigua and Barbuda has subsequently been developed by the International Renewable Energy Agency (IRENA) at the request of the Ministry of Health, Wellness and the Environment. (PV), distributed solar PV, utility-scale wind and green hydrogen. Meanwhile, electric vehicles (EVs) are considered for achieving



## Antigua & Barbuda

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## ANTIGUA AND BARBUDA

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## ENERGY PROFILE Antigua and Barbuda

Renewable energy supply in 2021 Antigua and Barbuda 99% 1% Oil Gas Nuclear Coal + others Renewables 100% Hydro/marine Wind Solar Bioenergy Geothermal Solar PV: Solar resource potential has been divided into seven classes, Energy self-sufficiency has been defined as total primary energy production divided by total

primary energy supply

## Solar Power , Solar Antigua , Antigua and Barbuda

A grid-tie solar system is designed to connect your solar panels directly to the utility grid, allowing you to use solar energy while still having access to traditional electricity. This is a cost effective system as it requires no batteries or big inverters but has the downside of ...



## The Transition to a Renewable Energy Electric Grid in the ...

Electricity generation in Antigua and Barbuda is nearly completely reliant on imported petroleum products. Diesel energy comprises 89% of the 87.45 MW of installed capacity for the nation [].The electricity production and distribution are operated by two companies: Antigua Power Company (APC) and Antigua Public Utilities Authorities (APUA) [].APC is the private ...

## Antigua and Barbuda pg1

Antigua and Barbuda receive high levels of solar irradiation (GHI) of 5.8 kWh/m<sup>2</sup>/day and specific yield 4.8 kWh/kWp/ day indicating a strong technical feasibility for solar in the country.<sup>5</sup> In 2021, 3.13% of the country's power demand was met through RE sources.<sup>6</sup>



## Antigua and Barbuda: Renewable Energy Roadmap

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100% renewable energy power system but without considering green hydrogen production. This scenario was selected to show that there is a possibility to achieve the ambitious target set by the Government of Antigua and Barbuda with just solar and wind energy.



## New Energy Antigua

**WARRANTY:** We only use high grade solar components and installation fittings, product warranties are factory extended and vary from 6 to 25 years. New Energy is SEI-certified and provides alternative energy solutions to Antigua & Barbuda ...



## PV Energy agrees to continue solar projects

As the very next step the PV Energy team will energise the 4 MWp sun2live solar energy plant at the Bethesda site in the Lavin gton area of Antigua. With a daily solar energy production of 16.800 kWh, the sun2live power plant will save 3.247,84 tons of CO2 emissions per year and therefore will be contributing to the goal of ensuring

## Energy Snapshot Antigua and Barbuda

Energy Snapshot Antigua and Barbuda This profile provides a snapshot of the energy landscape of Antigua and Barbuda, an independent nation in the Leeward Islands in the eastern Caribbean Sea. Antigua and Barbuda's

utility rates are approximately \$0.37 U.S. dollars (USD) per kilowatt-hour (kWh), which is above the Caribbean regional average of

- LIQUID/AIR COOLING
- INTELLIGENT INTEGRATION
- PROTECTION IP54/IP55
- BATTERY /6000 CYCLES



## Antigua and Barbuda: Energy Country Profile

Antigua and Barbuda: Many of us want an overview of how much energy our country consumes, where it comes from, and if we're making progress on decarbonizing our energy mix. This page provides the data for your chosen country across all of the key metrics on this topic.

## Government of Antigua and Barbuda joins the International Solar

The Government of Antigua and Barbuda has today (4 January 2022) joined the International Solar Alliance (ISA) by signing the International Solar Alliance Framework Agreement on 4th January 2022 in St. John's, Antigua. Hon'ble Prime Minister Mr. Gaston Browne signed the ISA Framework Agreement (FA) on behalf of the Government of Antigua ...



## UAE-Caribbean Renewable Energy Fund Unveils Resilient

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 ...

## Antigua and Barbuda pg1

The governments of the United Arab Emirates, Antigua and Barbuda, and New Zealand, as well as the Antigua Public Utilities Authority (APUA) and the Barbuda Council are providing financial support for the government's plans to build a hybrid power plant (comprising solar, battery storage, and diesel energy sources).<sup>12</sup>



## ANTIGUA AND BARBUDA

Antigua & Barbuda's National Energy Policy with special thanks to the National Energy Taskforce and to Ambassador Joan H. Underwood for her dedication and commitment to seeing this policy through to its end. May our work for a cleaner and greener Antigua and Barbuda be a success. Hon. W. Baldwin Spencer Prime Minister Tel: (268) 562-3860 ext. 286

## Antigua and Barbuda Renewable Energy Roadmap

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