

Energy Snapshot

San Andrés and Providencia

This profile provides a snapshot of the energy landscape of the Archipelago of San, Providencia, and Santa Catalina (unpopulated), also known as San Andrés and Providencia, which is equidistant between Costa Rica and Jamaica and 775 kilometers northwest of Colombia. The archipelago is part of Colombia, though Nicaragua has also laid claim to it. San Andrés and Providencia's utility rates are approximately \$0.41 per kilowatt-hour (kWh), above the Caribbean regional average of \$0.33/kWh. Like many island nations, San Andrés and Providencia is nearly 100% dependent on imported fossil fuels, leaving it vulnerable to global oil price fluctuations that directly impact the cost of electricity.

Population	75,000 (San Andrés) 5,000 (Providencia)
Total Area	57 square kilometers
Gross Domestic Product (GDP)	Unknown
Share of GDP Spent on Fuel and Imports	Electricity – Unknown Total – Unknown
GDP Per Capita	Unknown
Urban Population Share	Unknown



San Andrés and Providencia's Renewable Energy Goal:

None

Government and Utility Overview

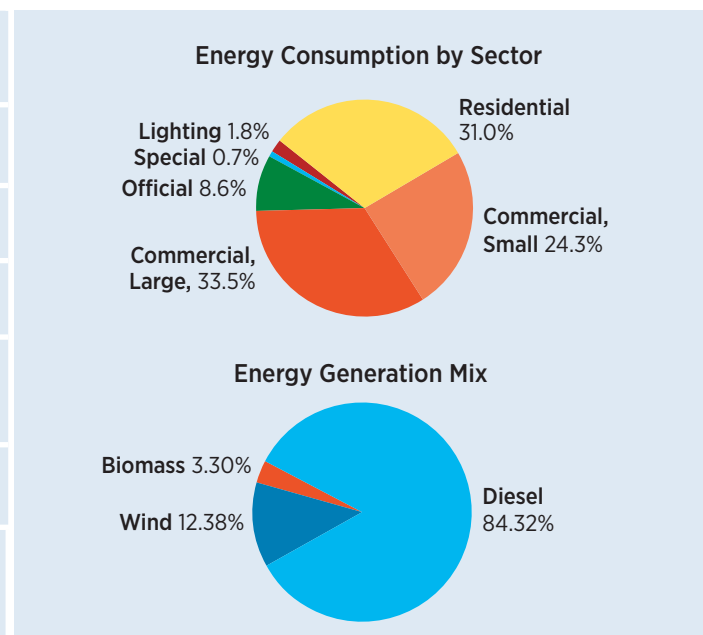
Government Authority	Ministry: Ministry of Mines and Energy	
	Key Figure: Tomás González Estrada	
Designated Institution for Renewable Energy	None	
Regulator	Commission of Energy and Gas Regulation	
Utilities	Name: Empresas de Energia del Archipiélago de San Andrés	Government-administered utility

Electricity Sector Data

The majority of the archipelago's electricity is generated from imported fuel oil and used to power two diesel electric power plants—a 48.5-megawatt (MW) plant located on San Andrés and a 2.6-MW plant located on Providencia. Renewable energy installations, including a 7.5-MW wind farm, supply 15.7% of the load.

Electricity Sector Overview

Total Installed Capacity	48.5 MW (San Andrés) 2.6 MW (Providencia)
Peak Demand	Unknown
Total Generation	187.5 gigawatt-hours
Renewable Share	15.7%
Transmission & Distribution Losses	Unknown
Electrification Rate	>99%
Average Electricity Tariffs (USD/kWh)	\$0.35–\$0.47 (depending on location and customer type)



Clean Energy Policy Environment

The San Andrés and Providencia energy sector is controlled by three entities. Colombia’s Ministry of Mines and Energy is responsible for policymaking, while Empresas de Energía del Archipiélago de San Andrés S.A. E.S.P (EEDAS) is the Colombian utility responsible for electricity generation and transmission. Comisión de Regulación de Energía y Gas (the Commission of Energy and Gas Regulation) is responsible for regulation. EEDAS implemented an advanced metering program in 2008 to reduce system losses, enhance demand response, and facilitate billing and awareness of outages.

Energy Efficiency and Renewable Energy Projects

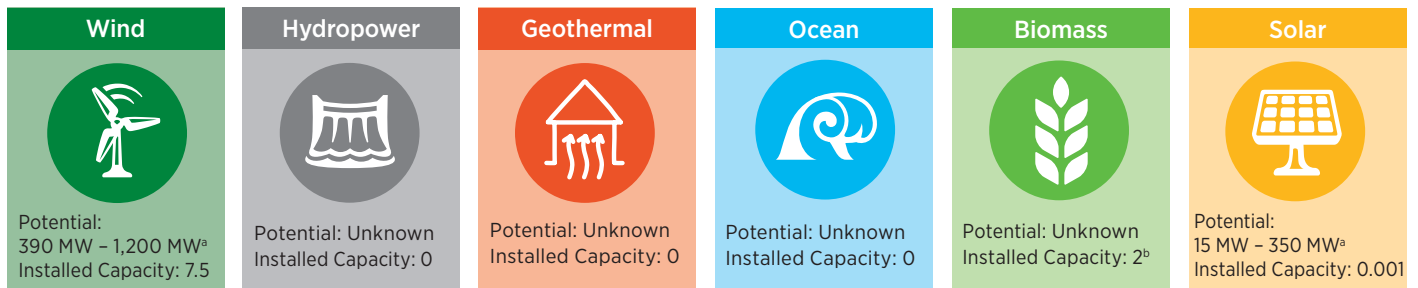
San Andrés and Providencia have a large wind resource with average wind speeds of 3 meters/per second (m/s) to 6 m/s and a moderately high solar resource. The archipelago’s population density poses development challenges for onshore systems. Ocean thermal energy conversion is considered technically viable for San Andrés and Providencia—once the technology has been commercialized, it could be sited on the western end of the island because of sufficient water depth and the lack of coral reefs.

Existing Policy and Regulatory Framework

Renewable Energy	
Feed-in Tariff	
Net Metering/Billing	
Interconnection Standards	
Renewables Portfolio Standard/Quota	
Tax Credits	
Tax Reduction/Exemption	
Public Loans/Grants	
Green Public Procurement	
Energy Efficiency	
Energy Efficiency Standards	
Tax Credits	
Tax Reduction/Exemption	
Public Demonstration	
Restrictions on Incandescent Bulbs	
Appliance Labeling Standards	
Targets	
Renewable Energy	
Energy Efficiency	

● In Place ■ In Development

Renewable Energy Status and Potential



^a Assumes that a large amount of the available land mass would be covered with wind turbines and solar panels.

^b WTE.

The Energy Efficiency Program for San Andrés and Providencia supports energy efficiency through programs in the residential, commercial, hotel, and public sectors funded by the Inter-American Development Bank. Residential efforts focus on upgrading refrigeration and ventilation equipment.

In 2012, a 7.5-MW wind project began operation. That same year, a 2-MW waste-to-energy (WTE) plant was completed at a cost of \$67.5 million U.S. dollars (USD), of which 75% (\$50.6 million USD) of annual energy costs are subsidized. A 1-kilowatt (kW) solar photovoltaic (PV) rooftop system was also installed.

Opportunities for Clean Energy Transformation

Several renewable energy and energy efficiency projects in San Andrés and Providencia have been proposed. Bids have been solicited for an additional 4 MW of wind, and a hybrid solar PV and diesel system with built-in storage. EEDAS proposed an electrical monitoring system for the islands to reduce energy consumption and record renewable energy potential data. EEDAS has also proposed an energy-efficient building retrofit with PV capacity and retrofits for the San Andrés and Providencia hospitals. The San Andrés hospital retrofit is estimated to save 35% on energy.

An evaluation of ocean thermal technologies for energy generation reveals a large ocean thermal gradient located near the coasts. Additional analysis is needed to determine whether a levelized cost of energy lower than current electricity costs can be achieved with a small ocean thermal system. Large solar and wind resources will also help transition San Andrés and Providencia away from imported fuels.

Sources

The information provided in this fact sheet was developed using the following sources.

A Renewable San Andrés by 2050:

http://adrien.dulac.pagesperso-orange.fr/content/San_Andres.pdf.

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BN Americas, Parque Eólico San Andrés: <http://www.bnamericas.com/project-profile/en-san-andres-wind-farm-san-andres>.

LRF Collegium 2013 Series, *Coastal City and Ocean Renewable Energy*: http://www.researchgate.net/profile/Maria_Cusano2/publication/261411407_Volume3_2013series/links/02e7e-5343b92224e2e00000.pdf.

Energy Transition Initiative

This energy snapshot was prepared to support the Energy Transition Initiative, which leverages the experiences of islands, states, and cities that have established a long-term vision for energy transformation and are successfully implementing energy efficiency and renewable energy projects to achieve established clean energy goals.

Through the initiative, the U.S. Department of Energy and its partners provide government entities and other stakeholders with a proven framework, objective guidance, and technical tools and resources for transitioning to a clean energy system/economy that relies on local resources to substantially reduce reliance on fossil fuels.



Comisión de Regulación de Energía y Gas:

<http://www.creg.gov.co/index.php/en/sectors-we-regulate/electric-power/structure-of-the-sector>.

Empresas de Energía del Archipiélago de San Andrés S.A. E.S.P:

<http://www.eedassa.com/>.

Embassy of Colombia, Washington, D.C.: Energy and Environment:

<http://www.colombiaemb.org/node/1330>.

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<http://www.metering.com/colombia-s-eedas-deploys-ami>.

Ministry of Mines and Energy: <http://www.minminas.gov.co/minminas/otroidioma.jsp>.

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World Bank Group, *Energy Efficiency Program for the San Andrés, Providencia, and Santa Catalina Archipelago Project Preparation Grant*: https://climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Project_Document.pdf.

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