

Energy Snapshot American Samoa

This profile provides a snapshot of the energy landscape of American Samoa, the southernmost territory of the United States. American Samoa's residential electricity rates are approximately \$0.29 U.S. dollars (USD) per kilowatt-hour (kWh), more than twice the average U.S. residential rate of \$0.13 USD/kWh.¹ Like many islands, American Samoa is highly dependent on imported fossil fuels (more than 98% of the territory's island's electricity is generated using fuel oil), leaving it vulnerable to global oil price fluctuations that directly impact the cost of electricity.



American Samoa's Renewable Energy Goal:

- 100% of electricity for Manu'a Islands from renewable resources by 2016⁵

Population	54,517 ²
Total Area	199 sq. km
Gross Domestic Product (GDP)	\$575.3 million USD
Share of GDP Spent on Fuel and Imports	Electricity – 6.4% ³ Total –19.7% ⁴
GDP Per Capita	\$10,600 USD
Urban Population Share	87.3%

Government and Utility Overview

Government Authority	Ministry: Energy Office, American Samoa Government	
	Key Figure: Ali'i Tama Sotoa, Director, Energy Office	
Designated Institution for Renewable Energy	American Samoa Renewable Energy Committee	
Regulator	None	
Utility	Name: American Samoa Power Authority	State-owned

Electricity Sector Data

The American Samoa Power Authority (ASPA) is a government-owned and -operated corporation. With an installed generation capacity of 45 megawatts (MW), most of which is from the Tafuna and Satala plants on Tutuila, and a historic peak load of 23.41 MW, ASPA has a reserve margin of nearly 100%. In 2012, ASPA's total annual generation was 169 gigawatt-hours (GWh), of which 1.57% came from solar photovoltaic (PV) systems. ASPA uses an inverted block tariff

structure that starts at \$0.29 USD/kWh for residential; \$0.24 USD/kWh for commercial; and \$0.26 USD/kWh for industrial.

An earthquake and tsunami in September 2009 reduced generating capacity on Tutuila by half, which has been temporarily restored by generators burning ultra-low-sulfur diesel fuel.⁶ A permanent replacement for the Satala plant is scheduled for completion in 2016.

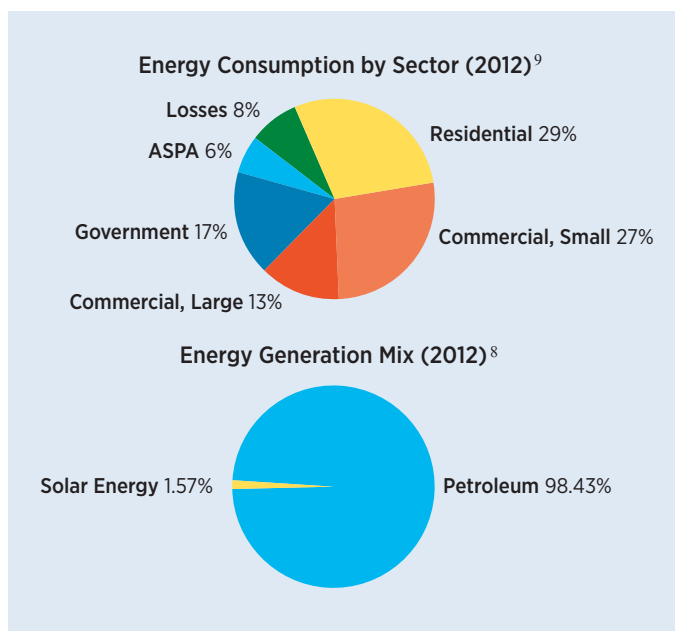
Electricity Sector Overview

Total Installed Capacity (2012) ⁷	45 MW	
Peak Demand (2010) ⁹	23.41 MW	
Total Generation (2012) ¹¹	169 GWh	
Renewable Share ⁸	1.57%	
Transmission & Distribution Losses (2010) ⁹	8%	
Electrification Rate ¹⁰	55.8%	
Average Electricity Tariffs (USD/kWh) ¹¹	Residential	\$0.29
	Commercial	\$0.24
	Industrial	\$0.26
	Public Authorities	\$0.28

The transmission and distribution network covers around 170 miles of 13.2-kilovolt (kV) distribution lines and 1,560 miles of low-voltage lines. There is a single 34.5-kV tie line between the Tafuna and Satala power plants. Transmission and distribution losses account for 8% of the generated electricity.

Clean Energy Policy Environment

American Samoa has historically had few policies specific to energy efficiency and renewable energy, resulting in slow development of the energy efficiency and renewable energy technologies market. Access to land, electricity rate structures, local technical capacity and knowledge, and building codes all contribute to this pace of market development.⁹

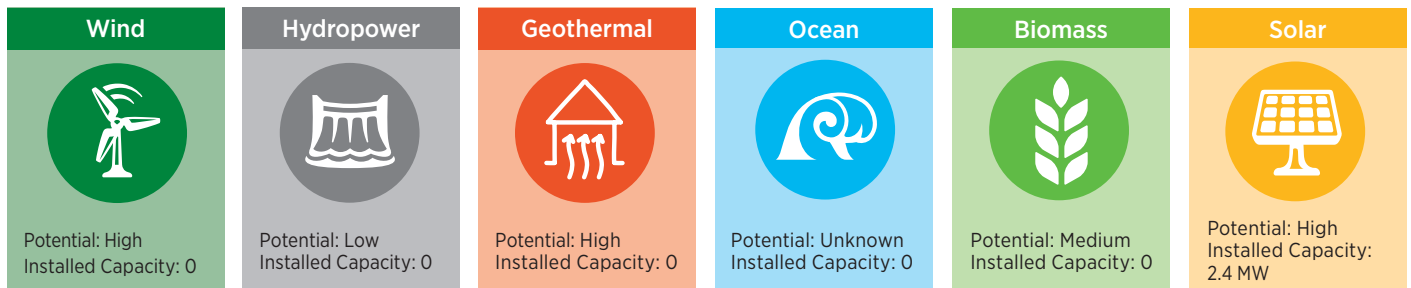


Existing Policy and Regulatory Framework

Renewable Energy	
Feed-in Tariff	
Net Metering/Billing ⁹	● In Place
Interconnection Standards ⁹	● In Place
Renewables Portfolio Standard/Quota	
Tax Credits	
Tax Reduction/Exemption	
Public Loans/Grants ⁹	■ In Development
Green Public Procurement	
Energy Efficiency	
Energy Efficiency Standards ⁹	■ In Development
Tax Credits	
Tax Reduction/Exemption	
Public Demonstration ⁹	■ In Development
Restrictions on Incandescent Bulbs	
Appliance Labeling Standards	
Targets	
Renewable Energy	
Energy Efficiency	

● In Place ■ In Development

Renewable Energy Status and Potential⁹



Working toward reducing existing barriers, the American Samoa Renewable Energy Committee was established in 2010 to bring sustainable renewable energy to the islands while reducing reliance on fossil fuels. Through Executive Order #004-2010, the committee developed energy strategies to explore wind, solar PV, and geothermal potential on Tutuila, and considered the feasibility of supplying the Manu'a Islands' grid completely with renewables.

In 2008, American Samoa adopted a net metering law for distributed generation up to 30 kW, allowing owners of small solar or wind facilities to receive credit for excess power sent to the grid. As of 2013, 22 customers had taken advantage of this policy to interconnect PV with the grid, including 10 government buildings, 10 commercial buildings, one school, and one residence, for a combined capacity of 577 kW.⁹ The American Samoa Government Territorial Energy Office implements the weatherization assistance program, which provides a series of assessments and energy efficiency measures for low income households along with rebates.¹²

Energy Efficiency and Renewable Energy Projects

American Samoa's largest renewable energy facility is a 1.75-MW ground-mounted PV grid-connected system that is expected to replace over 175,000 gallons of ASPA diesel fuel consumption. In addition, American Samoa possesses more

than 700-kW of roof-mounted PV on government and private buildings, and a large solar water heating system at Tutuila's LBJ Tropical Medical Center.⁶

ASPA has installed 11 anemometers around the islands to assess the potential of wind energy; however, no commercial-scale wind turbines are currently installed. Further, ASPA is generating additional electricity from waste heat emitted by diesel generators. ASPA is also conserving energy by reducing distribution line losses; one project from the Tafuna power station lowered distribution losses in the area by 69%.⁹

Opportunities for Clean Energy Transformation

There are many opportunities in American Samoa for the adoption of energy efficiency and renewable energy technologies, including focusing on energy efficiency awareness, conducting energy and water audits, improving aging infrastructure, and developing island building codes and equipment standards. In addition, American Samoa's proximity to the equator gives a strong solar resource that can be utilized through solar PV and solar thermal applications.⁹ The high availability of wind resources in the region makes it another attractive renewable option for generating electricity, and the technical, environmental, and social impacts of wind could be further explored.⁹ Finally, energy generation from municipal solid waste has been found to have high potential in American Samoa.⁶

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.



¹ http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_03.

² All information in this table is from the CIA World Factbook unless otherwise noted. <https://www.cia.gov/library/publications/the-world-factbook/geos/aa.html>.

³ http://www.aspower.com/ASPAWEB/PublicNotice/ASPA_FS12-06.31.2013.pdf.

⁴ <http://wits.worldbank.org/CountryProfile/Country/WLD/Year/2012/TradeFlow/Export/Partner/ASM/Product/all-groups>.

⁵ <http://www.nrel.gov/docs/fy13osti/59190.pdf>.

⁶ <http://www.eia.gov/state/analysis.cfm?sid=AQ>.

⁷ <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=2&pid=2&aid=7>.

⁸ <http://www.aspower.com/electric.html>.

⁹ <http://www.nrel.gov/docs/fy11osti/50905.pdf>.

¹⁰ <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>.

¹¹ <http://www.aspower.com/ASPAWEB/rates/Apr15.pdf>.

¹² <http://www.asggeo.com/index.php/programs>.