

## SECTOR OVERVIEW

### A. Sector Policies and Regulation

1. The Ministry of Finance, through its Energy Division, is responsible for defining Samoa's energy sector strategy. The current National Energy Policy was approved in 2007 with the following two goals, both to be accomplished by 2030: (i) increase the share of mass production from renewable sources to 20%, and (ii) increase the contribution of renewable energy to energy services and supply to 20%.<sup>1</sup> In 2012, the government also adopted the Energy Sector Plan, 2012–2016,<sup>2</sup> which provides a comprehensive strategy for the energy sector to deliver outcomes consistent with existing policies and the plan's vision of "improved quality of life for all." The plan stresses the link between development and the availability of efficient, reliable, safe, affordable, and sustainable electricity services.

2. The Electric Power Corporation (EPC) is a wholly owned government corporation responsible for the generation, transmission, distribution, and retail of electricity in Samoa. It was established with the EPC Act in 1980 and has operated as a corporatized entity since 2001.<sup>3</sup> In 2010, with the approval of the Electricity Act, the government reformed the electricity sector with the creation of the independent Office of the Regulator, which sets and vets power tariffs, and can issue licenses to power producers and suppliers other than EPC. The government aimed to encourage private sector investment in electricity production and promote the speedy development of renewable energy.

3. **Electricity tariff.** The electricity tariff is set to support private sector participation as well as EPC's financial management and transparency. The tariff has three components: an energy charge, a debt charge, and a user usage charge. The energy charge is calculated monthly based on total fuel costs and charges paid to independent power producers (IPPs) that supply renewable energy power to EPC. The debt charge consists of an additional ST0.10 per kilowatt-hour (kWh) that covers EPC debt service for the loans onlent by the government (section C). The usage charge is about ST0.26/kWh for residential customers and ST0.36 per kWh for non-residential customers.

### B. Electricity Supply and Demand

4. EPC remains the sole operator of the power transmission and distribution network. The power utility operates two grids: one on the main island of Upolu and the second one covering the smaller island of Savai'i. EPC services about 26,730 residential customers on Upolu and 7,238 residential customers on Savai'i, with 98% of the population having access to electricity. Of the energy generated, the Upolu grid consumes 89.8%, while the Savai'i grid consumes 10.2%.

5. **Generation and distribution.** Peak demand on Upolu is about 25 megawatts (MW), with a minimum demand of about 8 MW. Losses (both technical and nontechnical) are estimated at 10%. Peak demand on Savai'i is around 2.8 MW, with a minimum current demand of about 0.6 MW. The entirety of the Savai'i peak load is generated by the six diesel generators at Salelologa. Peak load occurs at night.

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<sup>1</sup> Ministry of Finance. 2007. *Samoa National Energy Policy, 2007*. Apia.

[http://www.mof.gov.ws/Portals/195/Legislation/Energy%20Policy/snep\\_2007\\_english.pdf](http://www.mof.gov.ws/Portals/195/Legislation/Energy%20Policy/snep_2007_english.pdf)

<sup>2</sup> Government of Samoa, Ministry of Finance. 2012. *Samoa Energy Sector Plan 2012–2016*. Apia.

<sup>3</sup> Government of Samoa. 2001. *Public Bodies (Performance and Accountability) Act*. Apia.

6. In Upolu, EPC owns and operates two diesel-fired generation stations in Fiaga and Tanugamanono. The Fiaga station has four new 5.8 MW diesel generators used for base load, and the Tanugamanono station has two operating 3.5 MW standby diesel generators. The generators, installed in early 2013, have upgraded the facility's fuel efficiency to 4.2 kWh per liter of diesel fuel—a 25% to 30% increase in fuel efficiency. This increased efficiency is estimated to have reduced fuel usage by 5.4 million liters per year in 2015 to 2016, which would have resulted in an estimated annual fuel saving of \$10 million.

7. EPC also operates five hydropower plants at Alaoa, Samasoni, Fale o le Fee, Lalomauga, and Taelefaga, for a combined installed capacity of 12 MW. The Taelefaga hydropower station has a pair of 2 MW hydroturbines with a total installed capacity of 4 MW that generate about 22 million kWh units per year. This station is located on the coast of Fagaloa Bay and uses water flow from the Afulilo Dam, which has a capacity of 5 million cubic meters and is filled with water from streams and rainfall. The other stations, however, are run-of-river stations that utilize the natural flow of the rivers and small head ponds. Given the limited water storage capacity, the amount of electricity generated from hydropower year to year is heavily dependent on rainfall levels.<sup>4</sup> In addition, the Alaoa, Samasoni, and Fale o le Fee hydropower plants have not been operational since they were damaged during Cyclone Evan in 2012. These three hydropower stations are being rehabilitated under the renewable energy project of the Asian Development Bank (ADB) and are expected to resume operations in September 2017.

8. **Independent power producers.** EPC estimates that approximately 18% of its total power generation is provided by renewable energy IPPs. The utility is implementing energy storage solutions to ensure grid stability in the face of the increasing supply of intermittent renewable energy. The battery energy storage system is funded by savings from the Power Sector Expansion Project.<sup>5</sup>

9. There are currently three IPPs, including Sun Pacific Energy Limited, selling solar power to EPC for a total of approximately 10 MW capacity at two different sites. The first of the other two IPPs is Solar for Samoa, a First Solar investee company that owns two 2 MW systems: one located at the Faleolo International Airport and the other one at Apia's racecourse. First Solar claims an investment of \$16 million for the two systems. Solar for Samoa's tariff is ST0.77 and has not been approved by the Office of the Regulator.<sup>6</sup> The second of the other two IPPs is GreenPower Samoa, which is backed by a Chinese investor and owns two 2 MW systems also located at the airport and racecourse. The total investment for the two systems is unknown, but the tariff is ST0.64 for the first 5 years and ST0.59 thereafter. The tariff is yet to be approved by the Office of the Regulator and is exclusive of value-added tax on goods and services.

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<sup>4</sup> There are two distinct seasons in Samoa—a wet season from November to April and a dry season from May to October. About 75% of total annual rainfall occurs during the wet season. The hydropower stations generated 38.5% of the electricity produced in 2012.

<sup>5</sup> ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Loan, Asian Development Fund Grant, and Technical Assistance Grant Independent State of Samoa: Power Sector Expansion Project*. Manila.

<sup>6</sup> The IPP is currently in a dispute with the government and EPC over the inclusion of the value-added tax for goods and services in the agreed tariff.

Source: [http://www.samoobserver.ws/en/13\\_03\\_2017/local/17878/Solar-power-dispute-negotiated.htm](http://www.samoobserver.ws/en/13_03_2017/local/17878/Solar-power-dispute-negotiated.htm)

### C. ADB Sector Experience and Assistance Program

10. ADB has extensive experience in supporting the energy sector in Samoa. In 2007, ADB supported the Power Sector Expansion Project (footnote 5), which formed part of the government's power sector development plan to improve the capacity of the sector to meet growing electricity demand and improve quality, reliability, and cost-effectiveness of power supply by (i) supporting EPC's investment plan to meet growing demand; (ii) improving the operational efficiency of EPC; (iii) improving the financial performance of EPC; (iv) establishing effective regulation of the power sector; (v) developing a demand-side management strategy to promote energy efficiency and conservation; and (vi) developing clean energy resources through the establishment of a clean energy fund, a clean development mechanism sub-fund, and a designated national authority.

11. The Power Sector Expansion Project has improved governance in the electricity sector and has modernized the electric infrastructure of Samoa. EPC had a poor financial track record, but its sustainability has been enhanced over time thanks to the introduction of a two-tranche tariff (base charge plus fuel surcharge) and a prepayment metering system. The Power Sector Expansion Project received cofinancing from the Government of Australia and the Japan International Cooperation Agency.

12. More recently, ADB has supported Samoa's renewable energy sector through grants for rehabilitating the existing hydro potential and building new hydropower sites through the Renewable Energy Development and Power Sector Rehabilitation Project, approved in 2013.<sup>7</sup> The project supports the government's policy to increase power generation from renewable sources, rehabilitate damage to the power sector caused by a major cyclone, and increase the power sector's resilience to future natural disasters. The project is expected to rehabilitate three small hydropower plants on Upolu and construct three new small hydropower plants on Upolu and Savai'i. The project is cofinanced by the Government of New Zealand and the European Union.

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<sup>7</sup> ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Grants and Administration of Grant to the Independent State of Samoa for the Renewable Energy Development and Power Sector Rehabilitation Project*. Manila.