

Project Number: 49339-001

July 2017

Loan and Administration of Loan
Jarcon Pty Limited and Sun Pacific Energy Limited
Solar Power Development Project
(Samoa)

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Asian Development Bank

## **CURRENCY EQUIVALENTS**

(as of 9 June 2017)

Currency unit - tala (ST) ST1.00 = \$0.40 \$1.00 = ST2.53

#### **ABBREVIATIONS**

ADB Asian Development Bank **EPC Electric Power Corporation** FAST Faster Approach to Small Nonsovereign Transactions IPP independent power producer kWh kilowatt-hour MW megawatt NSO nonsovereign operations operation and maintenance O&M ordinary capital resources OCR PPA power purchase agreement SPEL Sun Pacific Energy Limited

#### NOTE

In this report, "\$" refers to United States dollars.

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## **PROJECT AT A GLANCE**

1.	Basic Data				Project Number: 4	19339-001
	Project Name	Solar Power Development	Department	PSOD/PSIF2		
	.,	·	/Division			
	Country	Samoa				
	Borrower	Sun Pacific Energy Limited Jarcon Pty Ltd.				
2.	Sector	Subsector(s)			ADB Financing (\$	million)
1	Energy	Renewable energy generation - so			• ( )	2.00
				Tot	al	2.00
3.	Strategic Agenda	Subcomponents	Climate Chang			
	Inclusive economic	Pillar 1: Economic	Mitigation (\$ m	nillion)		2.00
	growth (IEG)	opportunities, including jobs,		(tons per annum		1,644
		created and expanded	Climate Chang	ge impact on the	Project	Low
	Environmentally	Global and regional				
	sustainable growth	transboundary environmental				
	(ESG)	concerns				
		Natural resources conservation				
4.	Drivers of Change	Components	Gender Equity	and Mainstrea	mina	
	Partnerships (PAR)	Official cofinancing	No gender elements (NGE)		1	
	, ,	Private Sector	3	,		•
	Private sector	Conducive policy and				
	development (PSD)	institutional environment				
	,	Promotion of private sector				
		investment				
_	D			. •		
5.	Poverty and SDG Targeting		Location Impact			
	Geographic Targeting	No	Nation-wide			High
	Household Targeting	No				
	SDG Targeting	Yes				
	SDG Goals	SDG7	ļ			
6.	Nonsovereign Operation R	isk Rating				
	Obligor Name		Final Proje	ect Rating	Facility Risk Ratir	ng
	Sun Pacific Energy Limited					
	Jarcon Pty Ltd					
7.	Safeguard Categorization	Environment: B Involunta	ry Resettlemen	t: C Indigend	ous Peoples: C	
8.	Financing					
J.	Modality and Sources			Amoun	t (\$ million)	
	ADB			Amoun	2.00	
	Nonsovereign LIBOR Based Loan (Regular Loan): Ordinary capital resources  B-Loans  None  Official Cofinancing a  Canadian Climate Fund for the Private Sector in Asia			19	2.00	
				,5	0.00	
					0.00	
					1.00	
					1.00	
	Others b				4.00	
	Total				7.00	

 <sup>&</sup>lt;sup>a</sup> Concessional financing from external sources.
 <sup>b</sup> Derived by deducting ADB financing, B Loans and Official Cofinancing from Project Total Cost.

#### I. INTRODUCTION

1. This is an eligible transaction under the Faster Approach to Small Nonsovereign Transactions (FAST) framework. The transaction involves (i) a loan of up to \$2 million from the Asian Development Bank (ADB) ordinary capital resources (OCR); and (ii) the administration of a loan of up to \$1 million to be provided by the Canadian Climate Fund for the Private Sector in Asia under the Clean Energy Financing Partnership Facility to Jarcon Pty Limited and Sun Pacific Energy Limited (SPEL) for the Solar Power Development Project in Samoa.

#### II. THE PROJECT

## A. Project Identification and Description

## 1. Project History and Status

- 2. The proposed financing of up to \$3 million will expand an existing 2.2-megawatt (MW)<sup>1</sup> solar farm that has been in partial operation since April 2015.<sup>2</sup> The existing facility was completed in December 2015. The project sponsor has already invested about \$3.5 million for the construction of the existing solar farm. The total project cost is estimated at \$7 million.
- 3. SPEL, the independent power producer (IPP) sells power to the Electric Power Corporation (EPC), Samoa's state-owned power utility and the sole offtaker of the project. The power is sold under a 20-year power purchase agreement (PPA) that was signed in June 2015. An addendum to the PPA is expected to be signed in July 2017 to increase the offtaking output from 3.5 million kilowatt-hours (kWh) a year to 6.1 million kWh per year.<sup>3</sup>

## 2. Project Rationale

- 4. **Increased access to and affordability of solar power.** The proposed project will help the country lower its dependence on fossil fuels and increase affordability of solar power generation. Although endowed with abundant solar resources,<sup>4</sup> Samoa is heavily dependent on imported fuel. In 2012, 95 million liters of diesel were imported for power generation to meet the demand of a 98% electrification rate. Of the total nationwide installed capacity of approximately 42 MW, over 30 MW is diesel fueled.
- 5. Since 2010, the Government of Samoa has promoted private sector participation to increase renewable energy investment. There are currently three solar IPPs operating in the country, including SPEL. The other two IPPs are backed by larger international sponsors who are funding the projects entirely by equity, resulting in higher project costs driven by the expected equity returns. SPEL is currently the most affordable IPP. <sup>5</sup> Given that the IPP tariff is passed through to the consumers, an expansion of SPEL's existing operation will improve affordability.

<sup>&</sup>lt;sup>1</sup> The solar farm's capacity will be expanded to a total of 4 MW (alternating current).

<sup>&</sup>lt;sup>2</sup> The first stage (500 kilowatts) of the system started operation in April 2015. The system was developed modularly up to a capacity of 2.2 MW while generating revenues.

<sup>&</sup>lt;sup>3</sup> The addendum, inclusive of a new tariff, has been approved by the Office of the Regulator.

<sup>&</sup>lt;sup>4</sup> The International Renewable Energy Agency estimates that Samoa has a daily average insolation of over 5.0 kWh per square meter (with relatively small seasonal variation). This is a promising insolation for both utility scale and household solar power systems. International Renewable Energy Agency. 2013. *Renewable energy opportunities and challenges in the Pacific Islands region: Samoa*. Abu Dhabi.

<sup>&</sup>lt;sup>5</sup> Sector Overview (accessible from the list of linked documents in Appendix 2).

- 6. **Enhanced power system resilience.** Samoa's hydropower systems make a useful contribution to the country's power mix, but they are exposed to natural disasters and climatic variability. They are also old manual systems, controlled by a series of hand-turned valves, and thus are not easily integrated into the national grid. The country's 12 MW hydropower capacity has been adversely affected by past natural disasters such as the damage caused by Cyclone Evan in 2012. Hydropower generation is also exposed to seasonal volatility and drought. While up to 50% of Upolu's power can be generated by existing hydropower plants, hydropower generation only meets 19% of demand during the dry season. Solar power, on the other hand, is well suited for the dry season, when hydro resources are low and the weather is less cloudy. In addition, the solar system structural design has adopted international standards (e.g., the Australian standard AS 4040.3, which considers resistance to wind pressures for cyclone regions) that will help improve the overall resilience to extreme weather events of Samoa's power system.
- 7. **Access to long-term credit.** Accessing long-term credit in the Pacific island countries is difficult for local entrepreneurs. The lack of long-term credit is particularly harmful for the development of infrastructure that typically requires high up-front capital costs and revenues spread over a long period. The project is the first renewable energy project that is being developed as an IPP in Samoa that is seeking debt financing. Despite having funded over 50% of the project cost, the borrowers are experiencing difficulties in obtaining credit from local and regional banks. ADB assistance will contribute to ease access to credit and support private sector participation in the energy sector.

## 3. Borrowers and Sponsors

- 8. The recipients of the loan are two co-borrowers: Jarcon and SPEL. Jarcon is incorporated in New South Wales, Australia, while SPEL is a Samoan company. Both companies are family owned and have the same ownership structure. Integrity due diligence was conducted in accordance with ADB's Integrity Due Diligence Guidelines for Nonsovereign Operations. No significant or potentially significant integrity risks were identified.
- 9. SPEL is the owner of the Samoan solar farm. In 2016, the asset was valued at approximately ST7.0 million. The Upolu solar farm was entirely funded through equity in the form of a loan from Jarcon to SPEL used to purchase equipment and services for the construction of the existing facility.<sup>9</sup>
- 10. While Jarcon is not formally SPEL's parent company, given Jarcon's role as financier and common ownership structure, Jarcon acts as co-borrower with SPEL.

## B. Development Impact, Outcome, and Outputs

11. **Impact.** The impact will be increased availability, affordability, safety, and environmental impacts of energy generation in line with the Government of Samoa's policy goal.<sup>10</sup>

In November 2015, ADB approved a sovereign grant to provide resources for EPC to rehabilitate and reconnect to the grid 4.69 MW of hydropower capacity. ADB. 2015. Report and Recommendation of the President to the Board of Directors: Proposed Additional Financing to the Independent State of Samoa for the Renewable Energy Development and Power Sector Rehabilitation Project. Manila.

<sup>&</sup>lt;sup>7</sup> ADB. 2015. Integrity Due Diligence Guidelines for Nonsovereign Operations. Manila.

<sup>&</sup>lt;sup>8</sup> Client Information (accessible from the list of linked documents in Appendix 2)

<sup>&</sup>lt;sup>9</sup> The loan is being repaid through the cash flows generated by the system. However, the loan from Jarcon would be subordinated to ADB's loan once the project is approved.

<sup>&</sup>lt;sup>10</sup> Government of Samoa, Ministry of Finance. 2012. Samoa Energy Sector Plan 2012–2016. Apia.

- 12. **Outcome.** The outcome will be an increased supply of clean, carbon-negative solar energy generated by an IPP. The project will generate an estimated 5.5 gigawatt-hours of solar power annually for 20 years. The estimated carbon emissions will be reduced by 1,644 tons of carbon dioxide equivalent per year.
- 13. **Output.** The project output will be the installation of up to 4 MW of solar power generation, owned and operated by an IPP. This will be a milestone achievement in the Pacific region, where private sector developers are hesitant to take country and regulatory risks, and struggle to access long-term credit when they do take these risks.

## C. Alignment with ADB Strategy and Operations

- 14. **Consistency with ADB strategy and country strategy.** The project supports infrastructure and environment, two of ADB's five core operational areas, and is consistent with ADB's Midterm Review of Strategy 2020<sup>11</sup> as well as ADB's Pacific Approach, which is used as Samoa's country partnership strategy. <sup>12</sup> As highlighted in ADB's country operations business plan for Samoa, 2017–2019, <sup>13</sup> ADB's past support was centered on the energy sector and has helped the country improve electricity services as well as strengthen the resilience of renewable energy power generation against disasters caused by natural hazards. The project is also aligned with Samoa's Energy Sector Plan, 2012–2016.
- 15. **Consistency with sector strategy and relevant ADB operations.** The project is consistent with ADB Energy Policy in promoting access to clean and affordable energy. The project builds on ADB's sovereign operations in the energy sector in Samoa through the Power Sector Expansion Project. And the more recent Renewable Energy Development and Power Sector Rehabilitation Project. Both projects are supporting (i) EPC's assets maintenance, rehabilitation, and expansion, as well as its performance, through the provision of a project management unit; and (ii) EPC's ability to increase renewable energy and provide battery energy storage systems. In addition, the Asia Pacific Project Preparation Facility recently approved an application to assist Samoa's Office of the Regulator in setting out a power tariff policy and strengthening the capacity of its electricity regulatory staff. The Asian Pacific Project Preparation Facility is also considering an application from EPC to provide assistance and prepare for the outsourcing of the operation and maintenance of generation, transmission, and distribution assets in Samoa.
- 16. The project also exemplifies the "One ADB" approach, as described in ADB's Midterm Review of Strategy 2020. 11 Past sovereign projects in Samoa have contributed to the development of an enabling environment for private sector participation through the development of the Office of the Regulator. ADB sovereign projects in Samoa have also supported EPC's grid and generation investments and institutional capacity, resulting in EPC's improved operations and

15 ADB. 2007. Report and Recommendation of the President to the Board of Directors: Proposed Loan, Asian Development Fund Grant, and Technical Assistance Grant to the Independent State of Samoa for the Power Sector Expansion Project. Manila.

<sup>&</sup>lt;sup>11</sup> ADB. 2014. Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific. Manila.

<sup>&</sup>lt;sup>12</sup> ADB. 2016. *ADB's Pacific Approach*, 2016–2020. Manila.

<sup>&</sup>lt;sup>13</sup> ADB. 2016. Country Operations Business Plan: Samoa, 2017–2019. Manila.

<sup>&</sup>lt;sup>14</sup> ADB. 2009. Energy Policy. Manila.

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.

financial management. This has laid the foundation for ADB private sector assistance that will help the private sector finance an IPP in Samoa.

# D. Project Cost and Financing Plan

17. The project is estimated to cost \$7 million.

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## E. Implementation Arrangements

18. Table 3 summarizes the implementation arrangements. 17

**Table 3: Summary of Implementation Arrangements** 

Table 3. Summary of implementation Arrangements				
Aspects	Arrangements			
Regulatory framework	The Government of Samoa has been heavily invested in the power sector since 2007, with a \$100 million project cofinanced by the Asian Development Bank, the Japan International Cooperation Agency, and the Government of Australia. The Office of the Regulator was established in 2006 to regulate telecommunication, and was also appointed the regulator of the power sector in 2010. The Office of the Regulator has the power to license utilities and approve tariffs, including the one applied by the Electric Power Corporation.			
Management	SPEL was created with the sole purpose of owning the Samoan independent power producer with the same structure as the Australian sister company (and co-borrower for the project), Jarcon Pty Limited.			
Implementation period	The existing solar farm started partial operation in April 2015. SPEL has continued to expand the facility, which had a capacity of 2.2 MW in December 2016. The construction of the expansion is scheduled to start in July 2017 and will be completed in 6 months.			
Construction arrangements	The construction of the plant is entirely managed by SPEL. The construction is modular. The latest progress report from the clients shows that the plant will reach 2.5 MW capacity at the end of July 2017. Orders of solar panels and inverters to reach the expected 4 MW capacity are scheduled to reach Samoa by the end of July 2017.			
Operations arrangements	SPEL oversees operation and maintenance of the system. Mr. Harrison visits Samoa regularly (at least once per quarter), and employs a certified electrician in Samoa for daily operations and supervision. Some members of the neighboring community are employed to provide system security and wash the panels regularly.			
Performance monitoring	Key performance indicators, including output and outcome indicators, will be reported by SPEL every 6 months.			

MW = megawatt, SPEL = Sun Pacific Energy Limited.

Source: Asian Development Bank.

## F. Projected Financial and Economic Performance

## 19. CONFIDENTIAL INFORMATION DELETED

<sup>17</sup> Details of Implementation Arrangements (accessible from the list of linked documents in Appendix 2).

## III. THE ADB ASSISTANCE

#### A. The Assistance

- 20. ADB's proposed assistance will consist of: (i) a direct loan not exceeding \$2 million; and (ii) a concessional loan funded by the Canadian Climate Fund for the Private Sector in Asia under ADB's Clean Energy Financing Partnership Facility, to be administered by ADB, not exceeding \$1 million.
- 21. In 2015, the Canadian Climate Fund for the Private Sector in Asia also provided small-scale project preparatory technical assistance of \$225,000 to cover technical and legal due diligence costs of the project.<sup>18</sup>

## B. Value Added by ADB Assistance

22. The project is ADB's first private sector investment in support of an IPP for renewable energy in the Pacific region. The Government of Samoa has been at the forefront of promoting private sector participation for renewable energy generation. While there are currently three solar IPPs operating in Samoa (inclusive of the one that the project is supporting), affordability of renewable energy remains an issue due to funding and structural issues of the other IPPs (para. 5). This imposes a larger cost on Samoan consumers who, while committed to greener power generation, also cope with low income and limited employment opportunities. ADB's long-term loan blended with concessional funding is improving the affordability of renewable power generation for all.

#### C. Risks

- 23. CONFIDENTIAL INFORMATION DELETED
- 24. CONFIDENTIAL INFORMATION DELETED
- 25. **Natural disaster risk.** Samoa is vulnerable to natural disasters, particularly tropical cyclones which may result in extreme rain events and flash flooding. This risk is addressed through selection of climate-appropriate PV modules and inverters and incorporation of various design elements. However, there is limited historical rainfall and wind data from cyclone events to fully assess this risk.

## 26. CONFIDENTIAL INFORMATION DELETED

27. **Completion risk**. The project is already operational and completion risk for the expansion is low given the conventional design structure and the sponsor's technical expertise. However, the construction process, including procurement and staff engagement, is managed informally. This risk is mitigated to some extent by the technical advisor's validation that the existing facility is well-designed and engineered relative to other projects in the region and that the contractors and subcontractors have the required skills.

## 28. CONFIDENTIAL INFORMATION DELETED

<sup>18</sup> ADB. 2015. Technical Assistance to the Independent State of Samoa for the Development of Solar Power Independent Power Producer. Manila.

- 29. CONFIDENTIAL INFORMATION DELETED
- 30. CONFIDENTIAL INFORMATION DELETED

#### IV. POLICY COMPLIANCE

## A. Safeguards and Social Dimensions

- 31. In compliance with ADB's Safeguard Policy Statement (2009), the project is classified as category B for environment, category C for involuntary resettlement, and category C for indigenous peoples. An environmental and social audit has been conducted for the existing facility, and an initial environmental examination report has been prepared for the 1.8 MW expansion of the solar power station in compliance with ADB's Safeguard Policy Statement. The environmental construction impacts are not significant and are mostly directly related to the construction process, such as elevation of noise level, generation of dust and wastewater, and health and safety risks. These are, however, localized and short-term impacts, as construction is scheduled to be completed within 6 months. Additionally, these impacts can be mitigated through the adoption of good engineering practices. Notable operational impacts include potential water competition during the dry season since the existing operations source cleaning water from the community. Rainwater tanks will be installed to avoid this potential issue. Potential environmental and social impacts of the project have been identified, and effective measures to avoid, minimize, mitigate, and compensate for the adverse impacts are incorporated in the safeguard reports and plans. The institutional capacity and commitment of SPEL to manage the project's social and environmental impacts are deemed adequate. SPEL will submit annual environmental and social monitoring reports to ADB.
- 32. The project will be an expansion of an existing solar farm and will not entail economic or physical displacement. The project site was previously unused land in a secure complex within the boundary of Faleolo International Airport. No communities have resided in the project area since its acquisition in 1942 to build the airport. The expansion of the solar farm will be contained within the subleased area, and no additional land will be acquired.
- 33. The project is categorized as having no gender element. Measures to benefit women or facilitate their participation in the project are limited due to the size of the operation and the short construction time frame. The companies however, observe a no discrimination policy and is open to providing opportunities to a limited number of women during project operation. SPEL will comply with national labor laws and, pursuant to ADB's Social Protection Strategy (2001), will take measures to comply with the internationally recognized core labor standards. <sup>19</sup> The borrowers will report regularly to ADB on (i) its (and its contractors') compliance with such laws, and (ii) the measures taken to assure compliance if needed. Information disclosure and consultation with affected people will be conducted in accordance with ADB requirements.<sup>20</sup>

## B. Anticorruption Policy

34. Jarcon and SPEL were advised of ADB's policy of implementing best international practice relating to combating corruption, money laundering, and the financing of terrorism. ADB will

<sup>20</sup> Summary Poverty Reduction and Social Strategy; Safeguards and Social Dimensions Summary (accessible from the list of linked documents in Appendix 2).

<sup>&</sup>lt;sup>19</sup> ADB. 2003. Social Protection. Manila (adopted in 2001).

ensure that the investment documentation includes appropriate provisions prohibiting corruption, money laundering, and the financing of terrorism, and remedies for ADB in the event of noncompliance.

#### C. Investment Limitations

- 35. Based on nonsovereign operations (NSO) portfolio data as of 31 March 2017, the proposed transaction will breach Samoa's country exposure limit. The NSO country limit of 10% of gross domestic product, net of sovereign exposure, has been fully exhausted by concessional sovereign loans outstanding. As of the first quarter of 2017, total sovereign exposure was \$99.4 million, \$20.8 million above the \$78.6 million that signifies 10% of 2016 gross domestic product. This country limit was set prior to the transfer of Asian Development Fund lending operations to OCR, effective 1 January 2017. \$20.8 million above the \$78.6 million that signifies 10% of 2016 gross domestic product. This country limit was set prior to the transfer of Asian Development Fund lending operations to OCR, effective 1 January 2017. \$20.8 million that signifies 10% of 2016 gross domestic product. This country limit was set prior to the transfer of Asian Development Fund lending operations to OCR, effective 1 January 2017. \$20.8 million that signifies 10% of 2016 gross domestic product. This country limit was fully consumed at this point, essentially providing no way for ADB to participate in NSO interventions in Samoa without a waiver. A waiver from ADB's Board of Directors will be sought in respect of this breach of the country exposure limit. The Investment Committee supports this waiver.
- 36. The transaction remains within single borrower, group, and subsector limits.

#### D. Assurances

37. Consistent with the Agreement Establishing the Asian Development Bank (the Charter),<sup>23</sup> ADB will proceed with the assistance upon establishing that the Government of Samoa has no objection to the assistance to Jarcon and SPEL. ADB will enter into suitable finance documentation, in form and substance satisfactory to ADB.

#### V. THE PRESIDENT'S DECISION

38. The President, acting under the authority delegated by the Board, has approved (i) a direct loan of up to \$2,000,000 from the Asian Development Bank (ADB) ordinary capital resources, and (ii) the administration of a loan of up to \$1,000,000 to be provided by the Canadian Climate Fund for the Private Sector in Asia under the Clean Energy Financing Partnership Facility to Jarcon Pty Limited and Sun Pacific Energy Limited for the Solar Power Development Project in Samoa, and hereby reports this action to the Board.

21 July 2017

<sup>21</sup> Current exposure excludes potential impact of the following: (i) potential drawdown of undisbursed effective loan of \$1.1 million, and (ii) repayments.

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<sup>&</sup>lt;sup>22</sup> ADB. 2014. Review of the Asian Development Bank's Exposure Limits on Nonsovereign Operations. Chair's Summary of Meeting of the Board of Directors. Manila.

<sup>&</sup>lt;sup>23</sup> ADB. 1966. Agreement Establishing the Asian Development Bank. Manila.

## **DESIGN AND MONITORING FRAMEWORK**

## Impact of the Project is Aligned with

Availability, affordability, safety, and environmental impacts of energy generation increased (Samoa Energy Sector Plan, 2012–2016)<sup>a</sup>

	Performance Indicators	Data Sources and	
Results Chain	with Targets and Baselines	Reporting Mechanisms	Risks
Outcome Supply of clean, carbon-negative solar energy generated by an independent power producer increased	a. 5.5 gigawatt-hours per annum of solar power generated by the project per annum for the next 10 years b. Carbon emissions reduced by 1,644 tons of carbon dioxide equivalent per annum (2016 baseline: Not applicable)	a–b. Statistics and information disclosure by EPC and Ministry of Finance report	Change in law makes solar IPP unviable  Natural disasters impair the IPP system.
Output Up to 4 MW of solar power generation installed	a. Solar system with a capacity of up to 4 MW is commissioned by the end of 2017  b. Up to 20 construction jobs and 5 permanent jobs for operation and maintenance of the project are created (disaggregated by gender)	a. EPC and Ministry of Finance report b. SPEL periodic monitoring reports	EPC delays the award of the systems.  Construction is delayed.

## **Key Activities with Milestones**

Output. Up to 4 MW of solar power generation installed

1. Complete construction work of the Upolu solar farm by Q1 2018.

#### Inputs:

ADB: \$2,000,000 (loan)

Canadian Climate Fund for the Private Sector in Asia under ADB's Clean Energy Financing Partnership Facility: \$1,000,000 (loan)

Jarcon Pty Limited and Sun Pacific Energy Limited: \$4,000,000 (equity)

ADB = Asian Development Bank, EPC = Electric Power Corporation, FAST = Faster Approach to Nonsovereign Transactions, MW = megawatt, Q = quarter.

<sup>&</sup>lt;sup>a</sup> Government of Samoa, Ministry of Finance. 2012. *Samoa Energy Sector Plan 2012–2016*. Apia. Source: Asian Development Bank.

## **LIST OF LINKED DOCUMENTS**

# CONFIDENTIAL INFORMATION DELETED