ADB

Report and Recommendation of the President to the Board of Directors

Project Number: 46044-002
October 2013

Proposed Grants and Administration of Grant Independent State of Samoa: Renewable Energy Development and Power Sector Rehabilitation Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 5 September 2013)

Currency unit	–	tala (ST)
ST1.00	=	$0.42
$1.00	=	ST2.35

ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
CEFPF	–	Clean Energy Financing Partnership Facility
DRF	–	Disaster Response Facility
EIRR	–	economic internal rate of return
EPC	–	Electric Power Corporation
GDP	–	gross domestic product
GWh	–	gigawatt-hour
kWh	–	kilowatt-hour
MOF	–	Ministry of Finance
MW	–	megawatt
O&M	–	operation and maintenance
PMU	–	project management unit
PSEP	–	Power Sector Expansion Project
SHP	–	small hydropower plant

NOTE

In this report, "$" refers to US dollars, unless otherwise stated.

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PROJECT AT A GLANCE

1. Project Name: Renewable Energy Development and Power Sector Rehabilitation Project **2. Project Number:** 46044-002

3. Country: Samoa **4. Department/Division** Pacific Department/Transport, Energy and Natural Resources Division

5. Sector Classification:

Sectors	Primary	Subsectors
Energy	√	Renewable Energy

6. Thematic Classification:

Themes	Primary	Subthemes
Economic growth	√	Promoting macroeconomic stability
Environmental sustainability		Natural resources conservation

6a. Climate Change Impact

Adaptation	Medium
Mitigation	High

6b. Gender Mainstreaming

Gender equity theme (GEN)	
Effective gender mainstreaming (EGM)	
Some gender elements (SGE)	√
No gender elements (NGE)	

7. Targeting Classification:

General Intervention	Targeted Intervention		
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
√			

8. Location Impact:

National	Medium
Rural	Low
Urban	Medium

9. Project Risk Categorization: Low

10. Safeguards Categorization:

Environment	B
Involuntary resettlement	B
Indigenous peoples	C

11. ADB Financing:

Sovereign/Nonsovereign	Modality	Source	Amount ($ Million)
Sovereign	Project grant	Asian Development Fund	18.21
Total			18.21

12. Cofinancing:

Financier	Category	Amount ($ Million)	Administration Type
Multi-Donor Clean Energy Fund, under the Clean Energy Financing Partnership Facility, and administered by the Asian Development Bank	Official-Grant	1.00	Full
Total		1.00	

13. Counterpart Financing:

Source	Amount ($ Million)
Government	4.62
Total	4.62

14. Aid Effectiveness:

Parallel project implementation unit	Yes
Program-based approach	No

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) proposed grants and (ii) proposed administration of a grant to be provided by the Multi-Donor Clean Energy Fund[1], under the Clean Energy Financing Partnership Facility (CEFPF) and administered by the Asian Development Bank (ADB), both to the Independent State of Samoa for the Renewable Energy Development and Power Sector Rehabilitation Project.[2]

2. The proposed project will support 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. It will rehabilitate three small hydropower plants (SHPs) on Upolu and construct three new SHPs on Upolu and Savai'i. The project will also provide training to the Electric Power Corporation (EPC) on operation and maintenance (O&M) of the SHPs for up to two years after plant commissioning.[3] The project will result in greater energy security and sustainability for Samoa.

II. THE PROJECT

A. Rationale

3. Samoa is a Pacific island country divided into the two main islands of Upolu and Savai'i and two minor outer islands, with a total population of 188,000 people. About 70% of the population lives on Upolu, the main island and location of the capital, Apia. Around 95% of households have access to grid electricity, while the remaining 5% are connected to small diesel generators or solar systems in urban and rural areas. Samoa had a total installed grid-connected power capacity in 2012 of about 42 megawatts (MW), composed of 30 MW diesel generators, 11 MW hydropower plants, one MW biofuel power plant, and small distributed solar plants in the few kilowatt range. Samoa's electricity consumption is about 90 gigawatt-hours (GWh) per year.

4. Samoa is heavily reliant on imported fossil fuels. In 2012, total fuel imports amounted to about 95 million liters, or 10% of Samoa's total gross domestic product (GDP).[4] This heavy reliance is reflected in Samoa's electricity generation matrix, in which 60.0% is generated from diesel, 38.9% hydropower, 1.0% biofuel (coconut oil), and 0.1% solar. For EPC, Samoa's sole power utility, imported fuel is by far the single largest expense item, representing 74% of total generation costs and 51% of overall costs. The new and rehabilitated hydropower capacity to be provided by the project will save about 3.6 million liters of diesel per year.

5. Samoa is also vulnerable to natural disasters and the potential effects of climate change. Cyclone Evan made landfall in Upolu on 13 December 2012, seriously damaging the island's power generation and distribution systems. Following the government's request for support from development partners for a post-disaster needs assessment, ADB and other organizations fielded a joint mission in January 2013. The post-disaster needs assessment, completed in March 2013, included an inventory of damage to the power distribution grid and three hydropower plants. The Recovery Framework that emerged from the assessment was approved

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[1] Contributors: the governments of Australia, Norway, Spain and Sweden.

[2] The design and monitoring framework is in Appendix 1.

[3] ADB provided project preparatory technical assistance. ADB 2013. *Technical Assistance to Samoa for Preparing the Renewable Energy and Power Sector Rehabilitation Project.* Manila (TA 8308-SAM for $750,000 approved on 20 December 2012, financed by ADB's Technical Assistance Special Fund-other sources).

[4] About 67% was consumed by the transport sector; 21% was used for electricity generation; and the remaining 12% was consumed by the commercial, agriculture, forestry, and residential sectors.

by the cabinet of Samoa in March 2013, prioritizing rehabilitation of the hydropower plants and recognizing the need to increase resilience.

6. The power sector in Samoa is well governed and managed. Operating responsibilities for managing the sector are vested in EPC, a wholly government-owned corporation and the sole utility in the power sector, with the main objective of operating as a commercial business. The Electricity Act, 2010 provides the legal framework for regulating the electricity sector, including the establishment of the Office of the Electricity Regulator to set and monitor electricity tariffs. The reliance on imported fuel is reflected in EPC's high average electricity tariff, which as of June 2013 was $0.41 per kilowatt-hour (kWh) (ST0.9877/kWh). Under the regulations, EPC can pass on fuel costs directly to consumers and charge an inflation-indexed non-fuel tariff. The tariff therefore consists of a base energy rate, or non-fuel component, of $0.31/kWh; and a variable fuel surcharge component, currently $0.10/kWh. The non-fuel component covers operational costs, overhead expenses, and depreciation of equipment.

7. Financing for the project will be partially through ADB's Disaster Response Facility (DRF). During the 10th replenishment of the Asian Development Fund (ADF XI), ADB and ADF donors agreed to pilot test the DRF in the ADF XI period, 2013–2016.[5] The DRF policy provides that, in the event of a natural disaster, an ADF-only country can access up to 100% of its annual performance-based allocation from the DRF to respond to disasters. The government has sought ADB's assistance in rehabilitating the hydropower plants damaged by Evan, and requested access to ADB's DRF, which is justified given the severity of the cyclone that caused damage and loss equivalent to 28% of GDP. This project will be the first for which ADB is providing assistance from the DRF.

8. The proposed project will support the government's efforts to reduce Samoa's reliance on imported fossil fuels for power generation by providing a secure, sustainable, and clean source of electricity. The project will construct, install, and rehabilitate SHPs with an overall capacity of 5.50 MW on Upolu and Savai'i. The proposed project will enhance EPC's O&M programs through a capacity building and knowledge transfer program to last up to 2 years after SHP commissioning. Technical designs will ensure climate and disaster resilience.

9. ADB has solid experience in the power sector in Samoa. In 2007, with ADB's support, the government prepared the Power Sector Expansion Project (PSEP).[6] The PSEP is improving the quality, reliability, and cost-effectiveness of power supply by supporting EPC's investment plan to meet growing demand, improving the financial performance and operational efficiency of EPC, and establishing effective regulation of the power sector. The PSEP also developed feasibility studies for a number of SHPs, some of which are part of the proposed project.

10. The government's Strategy for the Development of Samoa, 2012–2016; its Energy Sector Plan, 2013–2016; and EPC's corporate plan, 2013–2015 all emphasize developing indigenous and renewable energy resources as a high development priority to reduce the economy's risk exposure to foreign exchange fluctuations and fuel price increases. The project is in line with ADB's country operations business plan, 2014–2016 for Samoa, which makes energy a priority area of support and sets a primary goal of reducing the country's dependence on imported fossil fuels by generating power from its own renewable energy sources.[7]

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[5] ADB. 2012. *Piloting a Disaster Response Facility*. Manila.
[6] ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Independent State of Samoa for the Power Sector Expansion Project*. Manila.
[7] ADB. 2013. *Country Operations Business Plan: Samoa, 2014–2016*. Manila.

B. Impact and Outcome

11. The impact of the project will be increased energy security. The outcome will be that customers have access to a higher share of electricity generated by hydropower.

C. Outputs

12. The project will have four outputs.

(i) **Rehabilitation of hydropower plants in Upolu.** The project will rehabilitate and reconnect to the grid the three SHPs damaged by Evan, producing a total installed capacity of 4.69 MW—the 1.74 MW Fale ole Fee plant, the 1.05 MW Alaoa plant, and the 1.9 MW Samasoni plant.

(ii) **New hydropower plants in Upolu and Savai'i.** The project will build and connect to the existing grid the three new SHPs with a combined capacity of 0.81 MW—the 0.19 MW Faleaseela plant on Upolu, the 0.46 MW Tafitoala plant on Upolu, and the 0.16 MW Faleata plant on Savai'i.

(iii) **Operation and maintenance knowledge transfer program.** The project will provide capacity development to EPC through an O&M knowledge transfer program, provided by the consultancy component of the turnkey contractor. The project will include preparation of an O&M manual for SHPs and theoretical and on-the-job training on hydropower asset management, starting 3 months before SHP commissioning and continuing up to 2 years after SHP commissioning.

(iv) **Efficient project implementation.** EPC will be assisted by the project owner's engineers.

D. Investment and Financing Plans

13. The project is estimated to cost $23.83 million (Table 1).

Table 1: Project Investment Plan
($ million)

Item		Amount [a]
A.	**Base Cost** [b]	
	1. Rehabilitation of hydropower plants in Upolu	11.14
	2. New hydropower plants in Upolu and Savai'i	9.97
	3. Operation and maintenance knowledge transfer program	0.20
	4. Efficient project implementation	0.80
B.	**Contingencies** [c]	1.72
	Total (A+B)	**23.83**

[a] Includes taxes and duties of $3.62 million to be financed from government resources in the form of exemptions comprising (i) $0.36 million for up-front land lease costs, administration costs, office space, materials, counterpart time, telecommunications, and logistics; including exemption from income taxes (other than for citizens or nationals of Samoa) on salaries, consulting fees, and benefits; (ii) $3.23 million through exemption of taxes and duties; and (iii) $0.03 million allocated to contingencies. Taxes are based on (i) a 60% service component of base costs with 15% value added goods and services tax; and (ii) a 40% equipment-based component, with 8% of customs duty and 15% of value-added goods and services tax.

[b] In mid-2013 prices.

[c] Physical contingencies computed at 5.0%. Price contingencies computed at 2.2% on foreign exchange costs and 4.0% on local currency costs. Includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

Source: Asian Development Bank estimates.

14. The government has requested grants totaling $19.21 million to finance project goods, works, and services.[8] The grants will comprise (i) $10 million from ADB's Special Funds resources, (ii) $8.21 million from the DRF under ADB's Special Funds resources, and (iii) $1.0 million to be financed by the Multi-Donor Clean Energy Fund, under the CEFPF and administered by ADB. The government will provide a contribution equivalent to $4.62 million.[9] The government will make the proceeds of the grants available to EPC under a subsidiary grant agreement upon terms and conditions satisfactory to ADB. The financing plan is in Table 2.[10]

Table 2: Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank [a]		
ADF (grant)	10.00	41.97
Disaster Response Facility under ADF (grant)	8.21	34.45
Multi-Donor Clean Energy Fund (grant) [b]	1.00	4.19
Government of Samoa [c]	4.62	19.38
Total	**23.83**	**100.00**

ADF = Asian Development Fund, SHP = small hydropower plant.

[a] The ADF grants comprise $10 million from Samoa's performance-based allocation to finance the construction of new SHPs and SHP rehabilitation components, and $8.21 million from the Disaster Response Facility to finance the SHP rehabilitation component.

[b] Under the CEFPF and administered by the Asian Development Bank. The grant comprises $0.2 million to finance the consultancy component of the turnkey contractor (estimate of 7 person-months national and 5 person-months international consultancy services), and $0.8 million to finance the project owner's engineers (30 person-months international). Contingencies included.

[c] The government's contribution comprises $1.00 million to finance project works and services of the SHP rehabilitation component, and $3.62 million to finance taxes and duties.

Source: Asian Development Bank estimates.

E. Implementation Arrangements

15. The government will be the grant beneficiary. The executing agency will be the Ministry of Finance (MOF). The implementing agency will be EPC. The existing project management unit (PMU) and project steering committee (PSC) established under the PSEP will be continued for the implementation of the project.[11]

[8] Financing will include all goods, works, associated services for design and engineering, supply and installation of equipment, construction works, commissioning and O&M knowledge transfer program; the project owner's engineers; and sea, air, and land transportation cost (national and international), including insurance and freight to project sites and warehouses.

[9] A country's eligibility for ADF grants under the revised grant framework is determined by its risk of debt distress. The latest debt sustainability analysis determined that Samoa had a high risk of debt distress and was therefore eligible to receive 100% of its ADF allocation as grants. The government will receive $1 million in insurance compensation for damages caused by Evan to the Samasoni, Alaoa, and Fale o Fee SHPs, which will be part of the government's contribution to the project. In the event the government receives any additional insurance compensation for damages caused by Evan to these SHPs and associated power system components and power distribution grid, the full amount of any such additional insurance compensation, over the ADF grant amount allocated to the rehabilitation component, shall be used to finance any additional scope of the rehabilitation component of the project, and to reduce the amount of DRF grant proceeds allocated to the rehabilitation component, as appropriate.

[10] Other development partners have signaled a strong interest in cofinancing the project. At the time of ADB grant negotiations with the government, the cofinancing was not yet approved by the respective governments and therefore was not included in this report as cofinancing under the project. Upon donor cofinancing being confirmed, the scope of the project may be enlarged to cover additional new SHPs, with processing made in accordance with ADB. 2010. *Additional Financing: Enhancing Development Effectiveness*. Manila.

[11] The committee will be chaired by the MOF and composed of representatives of EPC; the Ministry of Natural Resources and Environment; the Ministry of Commerce, Industry and Labour; the Office of the Attorney General; the Samoa Water Authority; and the Ministry of Women and Social Development. The committee will oversee project implementation, support sustainability, and ensure effective assistance to all project stakeholders and beneficiaries.

16. Procurement of goods, works, services and the consultancy component of the turnkey contractor will be conducted through a single turnkey contract.[12] The turnkey contract will include final design and engineering, supply and installation of equipment, construction works and commissioning, and an O&M knowledge transfer program for at least 2 years after plant commissioning. The rationale is to cover 1 year of normal guarantee time of equipment and one additional year of the hydrology cycle for conducting any needed system upgrades.

17. Efficient project implementation related to the turnkey contract will be provided by the project owner's engineers, and will include preparation of bidding documents; assistance during the bidding process; and supervision of the project design, supply, construction, and commissioning. EPC has requested ADB to help select the engineers, which will assist EPC during procurement of the turnkey contract. The engineers will have expertise on implementation and supervision of small hydropower projects and will be engaged using the fixed budget selection method, which is considered justified because of the project's technical complexity. Procurement of consultancy services will be undertaken in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). Goods and works will be procured in accordance with ADB's Procurement Guidelines (2013, as amended from time to time). Minor goods and services costing under the equivalent of $100,000 will be procured by the implementing agency through shopping procedures and direct payment. The government, through EPC, will own the SHPs.

18. The project will be implemented over 5 years, with completion estimated in December 2018. To expedite implementation, the government has requested, and ADB has approved, advance procurement action for goods, works, and consultancy services. Implementation arrangements are in Table 3 and described in detail in the project administration manual.[13]

Table 3: Implementation Arrangements

Aspects	**Arrangements**		
Implementation period	January 2014–December 2018		
Project completion date	31 December 2018		
Management (i) Oversight body	Project steering committee: MOF CEO (chair); MOF general manager (vice chair); CEOs of Ministry of Natural Resources and Environment; Ministry of Commerce, Industry and Labour; Ministry of Women and Social Development; Samoa Water Authority; and Attorney General (members)		
(ii) Executing agency	MOF		
(iii) Implementing agency	Electric Power Corporation		
(iv) Implementation unit	The project management unit established under the Power Sector Expansion Project will serve as project management unit for the project.		
Procurement	Turnkey	One contract composed of two lots	$19.11 million
	Shopping	Three contracts	$0.30 million
Consulting services (project owner's engineers)	Fixed budget selection	30 person-months (intermittent)	$0.80 million
Advance contracting	For goods, works, and consultancy services		
Disbursement	All grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, CEO = chief executive officer, MOF = Ministry of Finance.
Source: Asian Development Bank.

[12] Since the project is financed with ADB-administered cofinancing resources, universal procurement will apply (ADB. 2013. *Blanket Waiver of Member Country Procurement Eligibility Restrictions in Cases of Cofinancing for Operations Financed from Asian Development Fund Resources*. Manila).

[13] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

III. DUE DILIGENCE

A. Technical

19. The project has been assessed as technically viable, based on an extensive study of the load and energy demand records provided by EPC and field investigations. The equipment design options have been carefully analyzed based on best engineering practices. Constructed in line with quality standards specifically conceived for hard marine environments and conditions, the selected design calls for the project to provide complete preassembled middle-voltage switch gear and control equipment. The design of the SHPs will incorporate adequate climate-proofing measures to lessen the potential negative impacts of extreme weather events (e.g., cyclones) throughout the life cycle of the project. All equipment will be provided with remote control, monitoring, and protection systems standard in the SHP industry, saving O&M costs and requirements for technical personnel. The turnkey contractor will provide specialized O&M knowledge transfer to EPC staff to ensure sustainable operation.

20. The capacity of the project's new and rehabilitated SHPs will be smoothly synchronized and integrated into the existing electricity networks, since hydropower produces base load electricity without intermittence. This will contribute to a sustainable, stable, and reliable electricity system, allowing diesel generation to shut down at off-peak hours, and the existing diesel units to perform at their optimum fuel consumed to electricity generated ratio. The new and rehabilitated SHPs under the project will also complement future planned new solar photovoltaic, wind, and biomass power generating facilities, contributing to the utility's least-cost development.

B. Economic and Financial

21. All financial costs and benefits have been expressed in mid-2013 prices. The project financial analysis quantifies costs and benefits of the project for the implementing agency of the project and for the investment project as a whole. Project financial costs include (i) the initial costs of the hardware and electrical works needed for the installation and integration of the new and rehabilitated SHPs with the existing electrical grid; (ii) annual and periodic O&M expenditures, excluding those needed for replacement parts; and (iii) consulting services required for design, tendering, training, and project supervision. The financial costs exclude the price contingencies.

22. A financial appraisal of the project was undertaken using with- and without-project scenarios over a 25-year operational period, with the residual value at the end of this period assumed as zero. In the interest of a conservative analysis, no tariff increase was assumed. The project's financial internal rate of return is estimated to be 15.00%. This compares favorably with the estimated weighted average cost of capital at 9.23%, indicating that the project is financially viable. The sensitivity tests showed robust results for all scenarios, with the resulting financial internal rates of return exceeding the weighted average cost of capital of 9.23%. Sensitivity analyses were undertaken on the financial and economic results to examine the impacts of the following changes to key assumptions and project risks: (i) an implementation delay of 1 year, (ii) a 10% reduction in hydropower generation, (iii) a 15% reduction in hydropower generation, (iv) an increase in replacement costs of 10%, (v) a 10% drop in diesel prices, (vi) a 10% increase in diesel prices, and (vii) a combination of a 15% reduction in generation and a 10% increase in O&M costs. The project remains financially viable under each of these scenarios, with financial internal rates of return of 12.09%–15.00%.

23. Economic analysis was undertaken for the new and rehabilitated SHP project components by comparing the discounted costs and benefits under the with- and without-project scenarios over 2014–2041 in constant 2013 prices. The without-project case represents a continuation of the existing situation, and the with-project case represents the project investment scenario. The economic internal rate of return (EIRR) is estimated to be 31.08%. The EIRR compares favorably with the 12% economic opportunity cost of capital, indicating that the project is economically viable. Under the same scenarios considered in the sensitivity analysis, the EIRR remains robust at 25.69%–26.37%.

C. Governance

24. **Financial management.** To facilitate cash flow during project implementation, the executing agency will approve and submit to ADB withdrawal applications from the PMU, assisted by the project owner's engineers for direct payment procedure for most project goods, works, services, and the consultancy component of the turnkey contractor. Disbursements of grant funds under the project will be to procure goods, works, services, and related consultancy component of the turnkey contractor. A financial management assessment of EPC's internal controls and accounting and audit procedures was undertaken. EPC's financial management practices and procedures are considered to be generally adequate for both the implementation and operational phases of the project. The PMU established within EPC is responsible for project financial management and accounting. The PMU utilizes EPC's existing financial management and accounting systems in undertaking these functions. EPC's accounts and reporting structures are based on international financial reporting standards.

25. **Procurement capacity.** A procurement capacity assessment was completed, which indicates that Samoa's procurement regulations and procedures are comprehensive. Even though EPC has a functioning procurement unit, it would still benefit from the expertise of the turnkey contractor. ADB will review the project's procurement processes. The PMU is also responsible for the PSEP, which is still under implementation and thus has recent experience with ADB procurement policies.

26. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government, MOF, and EPC.

D. Poverty and Social

27. The project is classified as general intervention as it indirectly addresses poverty reduction. The proposed project will contribute to poverty reduction by reconnecting to the grid SHPs damaged during Evan, and by reducing the country's reliance on volatile and costly imported fossil fuels for power generation. The public and businesses will benefit as the project will allow EPC to provide high-quality services at lower costs. The generation of electricity from hydropower will help reducing in Samoa's dependence on imported fossil fuels for power generation.

28. The project is classified as some gender elements. It will not directly improve women's access to social, economic, and financial resources. The project will employ at least 15% of female workforce in the project area, including professional staff for local construction contracts for hydropower installations, which will offer equal pay for equal work. The resettlement plan includes women's participation in all project consultations, disclosure, detail measurement survey, inventory of loss survey, and compensation to both men and women in the household.

E. Safeguards

29. **Environment (category B).** Initial environmental examinations have been prepared for the new and rehabilitation SHP schemes in accordance with ADB's Safeguard Policy Statement (2009). The project has been classified as category B for environment following ADB's Safeguard Policy Statement. Initial environmental examinations (IEEs) have been prepared for the new and rehabilitation SHP schemes. Environmental flows have been determined and no significant impacts are expected on the existing fish and aquatic resources or riparian habitats as a result of the project provided that the specified minimum environmental flows are released into the rivers at all times. The main potential environmental impacts will be created by the weirs and run-of-river schemes, upgrading of the access roads, and installation of short sections of cables for grid connection. Impacts may include land clearing, earthworks, dust, noise, vegetation clearance, materials sourcing and transportation, waste disposal and discharges, and effects associated with upgrading of access roads.

30. Climate change adaptation and resilience measures will be incorporated in the design of the SHP structures, including suitable erosion protection to prevent scour around the intakes. The level of the powerhouse discharge outlet needs to be sufficiently high to prevent any flood-induced backflow that may result in flooding of the powerhouse and damage to electromechanical equipment.

31. **Involuntary resettlement (category B).** The project is not expected to involve physical displacement or relocation of people. The rehabilitation of existing SHPs will be undertaken in the existing land acquired in 1921 and 1929, and will not require additional land acquisition. Due diligence for existing facilities has been undertaken in accordance with the Safeguard Policy Statement, and its results, including measures for resolving historical concerns raised by local villagers in existing sites, are included in the resettlement plan. EPC, in coordination with relevant government agencies, will finalize and implement these measures during implementation. New SHPs are proposed to be developed in partnership with local communities, and a joint venture business model is under discussion at the cabinet. The land required for new SHPs is expected to be acquired through negotiation, with details to be finalized after the cabinet's decision on the business model. A draft resettlement plan has been developed based on available information, in anticipation of possible land acquisition in case the proposed joint venture business model does not materialize. The resettlement plan will be updated and finalized after the detailed design, including measures for further consultations and collection of detailed socioeconomic information. The resettlement plan has been endorsed by EPC and posted on the ADB website.

32. **Indigenous peoples (category C).** The majority of the population in the project area are Polynesian people of Samoa and not considered to be distinct from the mainstream society. The project is not expected to affect any distinct and vulnerable group of indigenous peoples as defined by the Safeguard Policy Statement, and does not require an indigenous peoples plan. The project outputs will be delivered in a culturally appropriate manner.

F. Risks and Mitigating Measures

33. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[14] The integrated benefits and impacts are expected to outweigh the costs.

[14] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Reduction in diesel use by the power sector may be offset by increases in other sectors	Motivation of small industries and tourism sectors to use secure and affordable electricity instead of diesel generation; assumption that the growth of fossil fuel consumption in the transport sector will be stable in the future, due to the high migration overseas of Samoans.
Land ownership and environmental issues could delay implementation	Engagement of a turnkey contractor staffed with social and environmental safeguards specialists, which will coordinate closely with ADB and EPC on conducting all safeguards policies properly.
SHPs are customized equipment, which can cause long delivery times. Therefore, implementation could be delayed leading to cost overruns.	Inclusion of positive incentives in turnkey contract and bidding documents, such as bonuses for early commissioning; advance procurement for the SHP rehabilitation component; adequate contingencies, and price variation to be built into the bid documents before initiation of procurement actions.
Support, performance, and coordination at EPC could be inadequate	Adequate capacity building program provided by the consultancy component of the turnkey contractor, which will be conducted for at least 2 years after commissioning.

ADB = Asian Development Bank, EPC = Electric Power Corporation, SHP = small hydropower plants.
Source: Asian Development Bank estimates.

IV. ASSURANCES AND CONDITIONS

34. The government and MOF have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual and grant documents.

35. The government and MOF have agreed with ADB on certain covenants for the project, which are set forth in the grant agreements and project agreement.

36. As a condition to effectiveness of the grant from ADB's Special Funds resources, the CEFPF grant agreement will have been duly executed and delivered, and all conditions preceding its effectiveness (other than a condition requiring the effectiveness of the ADB grant) will have been fulfilled.

37. As a condition to disbursement of the grant proceeds, the subsidiary grant agreement between the government and EPC, in form and substance satisfactory to ADB, will have been duly executed and delivered on behalf of the government and EPC and will have become legally binding upon the government and EPC in accordance with its terms.

V. RECOMMENDATION

38. I am satisfied that the proposed grants would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

(i) the grant not exceeding $10,000,000 to the Independent State of Samoa from ADB's Special Funds resources for the Renewable Energy Development and Power Sector Rehabilitation Project, on terms and conditions that are substantially in accordance with those set forth in the draft grant and project agreements presented to the Board;

(ii) the grant not exceeding $8,210,000 to the Independent State of Samoa from ADB's Special Funds resources (Disaster Response Facility) for the Renewable

Energy Development and Power Sector Rehabilitation Project, on terms and conditions that are substantially in accordance with those set forth in the draft grant and project agreements presented to the Board; and

(iii) the administration by ADB of the grant not exceeding the equivalent of $1,000,000 to the Independent State of Samoa for the Renewable Energy Development and Power Sector Rehabilitation Project, to be provided by the Multi-Donor Clean Energy Fund under the Clean Energy Financing Partnership Facility and administered by ADB.

Takehiko Nakao
President

22 October 2013

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Increased energy security	**By 2025:** Annual diesel imports for power generation are reduced by at least 3.63 million liters yearly (baseline: 95 million liters of diesel for power generation imported in 2012)	Yearly government statistical report on fuel consumption Yearly customs statistics on national imports EPC annual report	**Assumptions** Stable macroeconomic conditions for Samoa Number of consumers is stagnated due to migration Stability in electricity demand World oil prices remain high and volatile **Risk** Reduction in diesel use by the power sector is offset by increases in other sectors
Outcome Customers will have access to a higher share of electricity generated by hydropower	**By end of 2014:** Electricity generation from damaged hydropower plants is back to pre-cyclone levels (baseline: 11.99 GWh per year) **By end of 2019:** Additional 3.79 GWh of hydropower electricity is supplied to customers every year, avoiding at least 8,904 tons of carbon dioxide per year (baseline: 36.70 GWh in 2011 and 161,000 tons of carbon dioxide in 2008)	EPC annual report	**Assumptions** Government continues to prioritize power sector investments and adheres to Strategic Development Plan for Samoa, 2012–2016 targets Diesel generators continue to supply base load power **Risks** Possible shortage of technically qualified staff at EPC could adversely affect the project implementation schedule. Land ownership and environmental issues delay implementation.
Outputs 1. EPC rehabilitates and reconnects to the grid 4.69 MW of hydropower capacity	**By end-2014:** SHPs on Upolu damaged by Cyclone Evan are rehabilitated and reconnected to the grid SHPs include (i) 1.74 MW Fale ole Fee plant, (ii) 1.05 MW Alaoa plant, (iii) 1.90 MW Samasoni plant	Project progress reports EPC annual report	**Assumption** EPC has sufficient capacity to implement and maintain the project.

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
2. EPC builds and connects to the grid 0.81 MW of hydropower capacity	**By end-2019:** Construct and install new SHPs: (i) a total of 0.65 MW is connected to the existing electricity distribution network in Upolu (0.19 MW Faleaseela plant and 0.46 MW Tafitoala plant); (ii) the 0.16 MW Faleata plant is connected to the existing electricity distribution network in Savai'i Women make up at least 5% of the workforce for local construction contracts for hydropower installations in the project area	Project progress reports EPC annual report	**Risks** Delays in the delivery of SHPs by the manufacturer could result in implementation delays. Possible shortage of technically qualified staff in EPC could adversely affect the project implementation schedule.
3. O&M knowledge transfer program completed	**By end-2014:** Turnkey contractor finalizes O&M manual for hydropower electromechanical, hydro-mechanical, and electric equipment Turnkey contractor conducts theoretical and on-the-job training on O&M procedures for at least 10 EPC staff	Project progress reports EPC annual report Training attendance sheets	**Assumption** EPC staff are receptive to receiving formal and on-the-job training. **Risk** EPC staff leaves the company after completing the knowledge transfer program.
4. Project implemented efficiently	**By end-2013:** The project owner's engineers will consist of one electromechanical specialist to act as project manager, one hydropower-civil specialist, one geological specialist, one procurement specialist, and one financial (power) specialist. **By end-2018:** The project owner's engineers' guarantee that the project is implemented on schedule, and the annual disbursement target is met	Project progress reports	**Assumption** Adequate coordination between EPC and the project owner's engineers **Risk** Support, performance, and coordination at EPC are weak and inadequate

Activities with Milestones	Inputs
1. EPC rehabilitates and reconnects to the grid 4.69 MW of hydropower capacity 1.1 Carry out tender process for turnkey contract for rehabilitation of 4.69 MW in Upolu: evaluate and report on bids and award contract (June 2014) 1.2 Prepare technical designs of electromechanical, hydro-mechanical, and civil works (by September 2014) 1.3 Supply equipment and carry out civil works (by November 2014) 1.4 Install, test, and commission systems, including trial operation of equipment (by December 2014) **2. EPC builds and connects to the grid 0.81 MW of hydropower capacity** 2.1 Carry out tender process for turnkey contract for construction and install of new 0.81 MW SHPs on Upolu and Savai'i: evaluate and report on bids and award contract (by Q3 2014) 2.2 Prepare technical designs of electromechanical, hydro-mechanical, and civil works (by December 2014) 2.3 Supply equipment and carry out civil works (Q2 2015–Q2 2016) 2.4 Install, test, and commission systems, including trial operation of equipment (Q3 2016) **3. O&M knowledge transfer program complete** 3.1 Turnkey contractor develops and implements capacity strengthening program for staff of EPC (every year until 2018) 3.2 Turnkey contractor designs O&M program and prepares O&M manual for EPC (by September 2014) 3.3 Turnkey contractor conducts O&M training for hydropower electromechanical equipment starting 3 months before SHP commissioning and continuing up to 2 years after commissioning (Q4 2014–Q4 2018) 3.4 Turnkey contractor evaluates training programs and prepares report (once a year until 2018) **4. Project implemented efficiently** 4.1 Select the project owner's engineers (January 2014) 4.2 Assist in the preparation of bidding documents for turnkey contracts for rehabilitated and new constructed SHPs (March–May 2014) 4.3 Assist in the bidding process and bid evaluation of turnkey contracts (June–Sept 2014) 4.4 Supervise project design, supply, construction, and commissioning; monitor safeguards compliance (up to December 2018)	Asian Development Bank (Asian Development Fund): $18.21 million Multi-Donor Clean Energy Fund under the Clean Energy Financing Partnership Facility and administered by ADB: $1.00 million Government of Samoa: $4.62 million

ADB = Asian Development Bank, EPC = Electric Power Corporation, GWh = gigawatt-hour, MW = megawatt, O&M = operation and maintenance, Q = quarter, SHP = small hydropower plant.
Sources: Asian Development Bank.

LIST OF LINKED DOCUMENTS
http://www.adb.org/Documents/RRPs/?id=46044-002-2

1. Grant Agreement: Special Operations
2. Grant Agreement: Externally Financed
3. Project Agreement
4. Sector Assessment (Summary): Energy
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Financial Analysis
9. Economic Analysis
10. Country Economic Indicators
11. Summary Poverty Reduction and Social Strategy
12. Initial Environmental Examination
13. Resettlement Plan
14. Risk Assessment and Risk Management Plan