FINANCIAL ANALYSIS

A. Samoa Hydro Electricity Project

1. The project will construct, install, and rehabilitate small hydropower plants (SHPs) with an overall capacity of 5.50 megawatts (MW) in the Upolu and Savai'i islands in Samoa by (i) constructing and installing new SHPs totaling 0.65 MW connected to the existing electricity distribution network in Upolu (0.19 MW, Faleaseela plant; 0.46 MW, Tafitoala plant); (ii) constructing and installing the new 0.16 MW Faleata plant connected to the existing electricity distribution network in Savai'i; and (iii) rehabilitating damaged SHPs totaling 4.69 MW connected to the existing electricity distribution network in Upolu (1.74 MW, Fale ole Fee plant; 1.05 MW, Alaoa plant; and 1.9 MW, Samasoni plant).

2. The government has requested grants totaling $20.01 million to finance project goods, works, and services.[1] These comprise a $18.21 million grant from the Special Funds resources of the Asian Development Bank (ADB);[2] and grant cofinancing equivalent to $1.0 million to be provided by the Multi-Donor Fund under the Clean Energy Financing Partnership Facility, administered by ADB to finance the project. The government will provide $1 million for project financing and an equivalent of $3.62 million as in-kind contribution toward land-related and administrative costs, taxes, and duties. The government will make the proceeds of the grants available to EPC under a subsidiary grant agreement upon terms and conditions satisfactory to ADB.

B. Financial Appraisal of Electric Power Corporation

3. The Energy Unit of the Ministry of Finance (MOF) has overall responsibility for policy and strategic planning for the energy sector. Electric Power Corporation (EPC) has operating responsibilities for the energy sector. EPC is a wholly-owned government corporation established in 1972. It operates as a separate entity and is defined as a public trading body under the Public Bodies Act, 2001 with the principal objective of operating as a commercial business. The EPC Act, 1980 mandates EPC with the authority for generation, transmission, and distribution of electricity throughout Samoa.

4. EPC's principal business activity is to generate and supply electricity in Samoa. It is governed by a board of directors, the composition of which is specified in the EPC Act. The chairperson is the minister of works, transport and infrastructure; and the general manager is the deputy chairperson. The government is represented on the board of directors by the chief executive officers of the MOF; the Ministry of Works, Transport and Infrastructure; and the Ministry of Commerce, Industry and Labour. Nongovernment representation comprises representatives of law practitioners, the Chamber of Commerce, and domestic consumers. The general manager is the legal representative of EPC, and is responsible for the administration and management of corporate business.

---

[1] Finance will include all goods; works; associated services; for erecting, commissioning, start-up and trial period of the hydropower equipment for the project; consulting services under the PMCs; and sea, air, and land transportation (national and international), including cost, insurance, and freight to project site and warehouse.

[2] A country's eligibility for Asian Development Fund (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.

5. EPC is designated a public beneficial body under the Public Bodies and Accountability Act, 2001. As such, it is required to follow the requirements of the Public Finance Management Act, 2001. Table 1 shows the audited income statements of EPC for fiscal years (FY) 2009–2012.

Table 1: Audited Income Statements of Electric Power Corporation, FY2009– FY2012

(ST)

Particulars	**2009**	**2010**	**2011**	**2012**
Revenue (Electricity)	76,868,642	75,749,253	83,309,364	91,699,097
Cost of sales	(62,792,367)	(52,783,225)	(66,340,182)	(71,517,752)
Gross Profit	14,076,275	22,966,028	16,969,182	20,181,345
Selling and distribution expenses	(13,398,954)	(13,695,475)	(13,412,142)	(15,336,257)
Administrative and other expenses	(14,263,349)	(21,004,187)	(16,262,041)	(10,739,478)
Other income	14,113,138	15,067,839	13,583,217	9,669,187
Operating profit	527,110	3,334,205	878,216	3,774,797
Finance costs	(181,796)	(1,554,122)	(1,561,813)	(1,493,787)
Profit / (loss) before income tax	345,314	1,780,083	(683,597)	2,281,010
Income tax (expense) / credit				
Profit / (loss) from continuing operations	345,314	1,780,083	(683,597)	2,281,010
Total Comprehensive Income	**345,314**	**1,780,083**	**(683,597)**	**2,281,010**
Growth rates		(1.5%)	10.0%	10.1%
Operating ratio (Expenses+Depreciation+Interest+Tax)/ Revenue	99.6%	98.0%	100.7%	97.7%
Gross profit as percentage of revenues, (EBITDA / Revenue)	18.3%	30.3%	20.4%	22.0%
Operating Income as % of Revenues	0.6%	3.7%	0.9%	3.7%
Net income as percentage of revenues, (PAT / Revenue)	0.4%	2.0%	(0.7%)	2.3%

( ) = negative, EBITDA = earnings before interest, tax, depreciation, and amortization, PAT = profit after tax
Sources: Electric Power Corporation annual reports and project preparatory technical assistance estimates.

6. Table 2 details EPC's audited balance for FY2009–FY2012 and projected balance for FY2013–FY2020.

Table 2: Audited Balance 2009–2012, and Projected Balance, FY2013– FY2020 of Electric Power Corporation

(ST)

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	ASSETS												
A	Current assets												
	Cash and cash equivalents	2.31	1.79	-	3.65	4.68	5.20	5.22	6.18	8.11	11.03	14.91	19.76
	Trade and other receivables	9.20	10.04	9.55	8.56	8.59	8.68	8.76	8.85	8.94	9.03	9.03	9.03
	Inventories	8.41	12.69	13.81	14.49	14.54	14.68	14.83	14.98	15.13	15.28	15.28	15.28
	Held-to-maturity financial assets	1.26	5.43	2.76	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
	Derivative Financial Instrument	-	-	-	-	-	-	-	-	-	-	-	-
	Total current assets	**21.18**	**29.96**	**26.12**	**28.24**	**29.35**	**30.10**	**30.35**	**31.55**	**33.72**	**36.88**	**40.76**	**45.61**
B	Non-Current assets												
	Intangible Assets	-	-	-	-	-	-	-	-	-	-	-	-
	Property, plant and equipment	183.31	184.37	228.18	310.14	310.14	320.38	345.28	364.34	368.76	368.76	368.76	368.76
	Deferred tax assets	0.18	0.20	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
	Total non-current assets	**183.50**	**184.57**	**228.40**	**310.36**	**310.36**	**320.60**	**345.50**	**364.56**	**368.98**	**368.98**	**368.98**	**368.98**
	TOTAL ASSETS	**204.68**	**214.53**	**254.52**	**338.60**	**339.71**	**350.71**	**375.85**	**396.11**	**402.70**	**405.86**	**409.74**	**414.59**
	LIABILITIES												
A	Current Liabilities												
	Bank Overdraft	-	-	0.53	-	-	-	-	-	-	-	-	-
	Trade and other payables	3.73	4.25	4.96	8.31	8.34	8.42	8.50	8.59	8.67	8.76	8.76	8.76
	Provision for dividend	-	-	-	-	-	-	-	-	-	-	-	-
	Deferred Income	-	0.67	0.76	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
	Borrowings	10.49	4.64	5.05	7.23	7.28	7.43	7.58	7.73	7.88	8.04	8.04	8.04
	Derivative Financial Instruments	-	-	-	-	-	-	-	-	-	-	-	-
	Total current liabilities	**14.22**	**9.56**	**11.30**	**16.33**	**16.41**	**16.64**	**16.87**	**17.11**	**17.35**	**17.59**	**17.59**	**17.59**
B	Non-Current Liabilities												
	Deferred Income	2.84	6.81	9.54	9.71	9.71	9.71	9.71	9.71	9.71	9.71	9.71	9.71
	Borrowings	26.71	37.53	68.37	131.29	131.29	139.61	159.83	175.32	178.91	178.91	178.91	178.91
	Total non-current liabilities	**29.55**	**44.34**	**77.91**	**140.99**	**140.99**	**149.32**	**169.54**	**185.03**	**188.62**	**188.62**	**188.62**	**188.62**
	TOTAL LIABILITIES	**43.77**	**53.90**	**89.21**	**157.33**	**157.40**	**165.96**	**186.42**	**202.14**	**205.97**	**206.21**	**206.21**	**206.21**
C	EQUITY												
	Contributed equity	97.30	98.47	103.83	117.51	117.51	119.44	124.11	127.68	128.51	128.51	128.51	128.51
	Asset revaluation reserve	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96	61.96
	Accumulated profit (losses)	1.65	0.20	(0.48)	1.80	2.83	3.35	3.37	4.33	6.26	9.18	13.06	17.91
	TOTAL EQUITY	**160.91**	**160.63**	**165.31**	**181.27**	**182.30**	**184.75**	**189.43**	**193.97**	**196.73**	**199.65**	**203.53**	**208.38**
	TOTAL LAIBILITIES AND EQUITY	**204.68**	**214.53**	**254.52**	**338.60**	**339.71**	**350.71**	**375.85**	**396.11**	**402.70**	**405.86**	**409.74**	**414.59**
		-	-	-	-	-	-	-	-	-	-	-	-
	Asset Turnover (revenue / assets)	0.38	0.35	0.33	0.27	0.27	0.26	0.25	0.24	0.24	0.24	0.24	0.23
	Quick Ratio	0.90	1.81	1.09	0.84	0.90	0.93	0.92	0.97	1.07	1.23	1.45	1.72
	Current Ratio	1.49	3.14	2.31	1.73	1.79	1.81	1.80	1.84	1.94	2.10	2.32	2.59
	Debt / (Total Capital)	19%	21%	31%	43%	43%	44%	47%	49%	49%	48%	48%	47%
	Debt Equity Ratio	0.23	0.26	0.44	0.76	0.76	0.80	0.88	0.94	0.95	0.94	0.92	0.90
	Rate of return on net fixed assets	0.17%	0.83%	-0.27%	0.67%	0.30%	0.15%	0.00%	0.24%	0.48%	0.72%	0.95%	1.17%

( ) = negative.

Source: Electric Power Corporation.

C. Financial Analysis

7. The financial analysis of the project was carried out in accordance with ADB's *Financial Management and Analysis of Projects*.[3] All financial costs and benefits are expressed in mid-2013 prices. Cost streams used for calculating the financial internal rate of return (FIRR) are capital investment and operation and maintenance costs, at market prices. The analysis quantifies costs and benefits for the investment project as a whole. The project financial costs include (i) the initial costs of the hardware and electrical works needed for the installation and integration of the hydropower plant with EPC's electrical grid; (ii) annual and periodic operation and maintenance expenditures, including necessary parts replacement; and (iii) consulting services for design, tendering, training, and project supervision. The physical and price contingencies are included in the total costs.[4]

8. 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. The tariff will increase in line with inflation. Financial flows were discounted over time using the weighted average cost of capital (WACC), which was calculated based on the after-tax real interest rate. The WACC is 9.22%. Table 3 shows the WACC computation.

9. The yearly domestic inflation rate cited on the International Monetary Fund website has been projected to be 4.0% for 2013-2018.[5] The foreign inflation rate is the Manufactures Unit Value (MUV) Index. The MUV Index is used by both ADB and the World Bank as an inflation rate for foreign currency costs. The international inflation rate is expected to be 2.2%, according to the MUV Index.[6]

10. EPC is exempt from income tax by virtue of section 20 of the Electric Power Corporation Act, 1980. Cabinet directive FK (10) 33 dated 25 August 2010 allows EPC to calculate dividends based on an adjusted net profit basis. EPC only recognizes a dividend payable if the modified cash basis on which dividends are calculated show that a dividend is payable to the government. The modified cash basis method uses accruals for long-term balance sheet elements and the cash basis for short-term ones.

11. Since grant funds provided to the project also have an opportunity cost, therefore the proposed grant has been treated in a similar fashion to equity and the cost of grant be assumed to be the cost of equity. The cost of equity has been assumed to be 12%.[7]

12. The FIRR is the rate of return at which the present value of stream of incremental net flows in financial prices is zero. If the FIRR is equal to or greater than the financial opportunity cost of capital—WACC—a project is considered financially viable (Table 3).

---

[3] ADB. 2005. *Financial Management and Analysis of Projects*. Manila.
[4] Calculated as 5.0% physical contingency of the base cost; price contingency comprising a 4.0% local cost escalation factor and 2.2% international cost escalation factor.
[5] International Monetary Fund. http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx
[6] World Bank. 2012. *Manufactures Unit Value Index.* Washington, DC (September).
[7] ADB. 2005. *Financial Management and Analysis of Projects*. Section 3.5. Manila.

Table 3: Computation of Weighted Average Cost of Capital

Sr.	Particulars	Financing Component				
		ADF Grant	ADF–DRF Grant	Multi-Donor Fund under the CEFPF	Government	Total
A	Amount ($ million)	10.00	8.21	1.00	4.62	23.83
B	Weightage	41.98%	34.46%	4.20%	19.36%	100.0%
C	Nominal cost (equal to cost of equity for Government)	12.00%	12.00%	12.00%	12.00%	0.00
D	Tax rate					
E	Tax-adjusted nominal cost [C x (1-D)]	12.00%	12.00%	12.00%	12.00%	0.00
F	Inflation rate	2.20%	2.20%	2.20%	4.00%	0.00
G	Real cost [(1+ E) / (1+F) -1]	9.59%	9.59%	9.59%	7.69%	0.00
H	Weighted component of WACC [G x B]	4.03%	3.30%	0.40%	1.49%	9.22%

ADF = Asian Development Fund, CEFPF = Clean Energy Financing Partnership Facility, DRF = Disaster Response Facility, Gov't = Government, WACC = weighted average cost of capital.
Source: Project preparatory technical assistance estimates.

D. Financial Internal Rate of Return and Sensitivity Analysis

13. The FIRR is calculated at 15.00% (Table 4), which compares favorably with the estimated WACC of 9.22%, indicating the financial viability of the project. Sensitivity tests provided robust results for all scenarios, with the FIRR exceeding the WACC of 9.22%. The financial net present value (FNPV) is the sum resulting when the expected investment and operating costs of the project are deducted from the value of the expected revenues. Table 4 gives the results of the sensitivity analysis under various adverse scenarios.

Table 4: Sensitivity Analysis of Financial Internal Rate of Return and Net Present Value

Scenarios	Change	FNPV ($ million)	FIRR (%)
Base case ($ million)	No delay	23.77	15.00
Construction delay	1 year	19.90	14.09
Reduce hydro generation by 10%	(10%)	16.01	13.20
Reduce hydro generation by 15%	(15%)	12.14	12.27
Increase in replacement costs by 10%	10%	23.04	14.83
Drop in diesel prices by 10%	(10%)	16.01	13.20
Increase in diesel prices by 10%	10%	31.52	16.75
Reduce hydro generation by 15%; increase replacement costs by 10%		11.40	12.09

( ) = negative, FIRR = financial internal rate of return, FNPV = financial net present value.
Source: Project preparatory technical assistance estimates.