

Project Administration Manual

Project Number: 43452
November 2016

Proposed Loan, Grants and Administration of Grants
for Additional Financing
Kingdom of Tonga: Outer Island Renewable Energy
Project

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the Government of Tonga (government) and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The government through the Ministry of Finance and National Planning (MFNP), and Tonga Power Limited (TPL) are wholly responsible for the execution of ADB financed projects, as agreed jointly between the recipient and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MFNP and TPL of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan and Grant Negotiations, the recipient and ADB shall agree to the PAM and ensure consistency with the loan agreement and grant agreements. Such agreement shall be reflected in the minutes of the loan and grant negotiations. In the event of any discrepancy or contradiction between the PAM and the government, the provisions of the Loan Agreement and the Grant Agreements shall prevail.

After ADB Board approval of the project's report and recommendation of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
AFS	–	Audited Financial Statements
AusAID	–	Australian Agency for International Development
AUS-DFAT	–	Australian Department of Foreign Affairs and Trade
CIF	–	Cost Insurance Freight
SDCFREEERA	–	Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas
DSM	–	Demand Side Management
EA	–	executing agency
ECOs	–	electricity cooperative societies
ED	–	Energy Department
EMP	–	Environmental Management Plan
EMCs	–	Electricity Management Committees
EU	–	European Union
FBS	–	fixed budget selection
FM	–	financial management
FMA	–	financial management assessment
GAAP	–	generally accepted accounting practices
GAP	–	gender action plan
GOT	–	Government of Tonga
IAs	–	implementing agencies
IEC	–	International Electro technical Commission
IEEE	–	Institute of Electrical and Electronics engineers
MEIDECC	–	Ministry of Energy, Information, Disaster Management, Climate Change and Communications
MFNP	–	Ministry of Finance and National Planning
MOU	–	Memorandum of Understanding
MPE	–	Ministry of Public Enterprises
O&M	–	operation and maintenance
PAM	–	project administration manual
PMC	–	Project Management Consultant
PMU	–	project management unit
PPTA	–	project preparation technical assistance
PSC	–	Project Steering Committee
PV	–	Photovoltaic
SHS	–	Solar Home System
SPS	–	Safeguards Policy Statement
TA	–	technical assistance
TERM	–	Tonga Energy Road Map
TERM-IU	–	Tonga Energy Road Map Implementation Unit
TPL	–	Tonga Power Limited

WEIGHTS AND MEASURES

kWh	–	kilowatt-hour
kWp	–	kilowatt- peak
MW	–	Megawatt
MWp	–	megawatt-peak

NOTES

In this report, "\$" refers to US dollars.

I. PROJECT DESCRIPTION

1. **Project Rationale.** The overall project including additional financing will construct and install solar power systems with a preliminary capacity of 1.32 megawatt-peak (MWp) on 9 outer islands in Tonga. This capacity will be provided as follows: (i) a total of 0.75 MWp on 'Eua and Ha'apai including a repair program on Vava'u; (ii) a total of 0.39 MWp on the four Ha'apai outer islands of 'Uiha, Nomuka, Ha'ano, and Ha'afeva; and (iii) 0.18 MWp of the solar home systems (SHS) on Niuafou'ou and Niuatoputapu. In addition, the project will update the existing electricity distribution network completely on 'Eua and by 50% on Vava'u. The ongoing project has hired project management consultants (PMC) to (i) draft the final designs of equipment, (ii) support the bidding process, (iii) conduct training on the operation and maintenance (O&M) of solar equipment, and (iv) provide efficient project implementation and management services for at least 5 years after the plants are commissioned.¹
2. **Impact and Outcome.** The impact of the ongoing project is reduced dependence on imported fossil fuel for power generation. The outcome of the project is (i) optimized use of on-grid and off-grid generation systems, and increased consumer access to electricity generated by solar power due to a reduction in cost. The aggregate impact and outcome of the overall project will be enhanced as a result of the additional financing by increasing reliability and efficiency of power on the supply side of TPL's outer islands.
3. The outputs of the overall project are as follows:
 - (i) **Solar power.** The project will construct and install solar power systems with a total capacity of 1.32 MWp on 9 outer islands of Tonga by:
 - a) **On-grid:** connecting solar photovoltaic generators to existing electricity distribution networks (0.2MWp on 'Eua, 0.55 MWp on Ha'apai, and repair program on Vava'u);
 - b) **Mini-grid:** connecting solar photovoltaic generators to existing community-owned and community-managed electrical mini-grids on four Ha'apai outer islands (100 kWp on 'Uiha, 70 kWp on Nomuka, 70 kWp on Ha'ano, and 150 kWp on Ha'afeva);
 - c) **Off-grid:** expanding existing SHS capacity in Niuafou'ou and Niuatoputapu by installing additional 0.18 MWp SHS; and
 - (ii) **Grid-Rehabilitation:** upgrading of existing power distribution networks completely on 'Eua and by 50% on Vava'u.
 - (iii) **Operation and maintenance knowledge transfer training:** a manual for solar electric equipment is finalized. Knowledge of solar electric and hybrid equipment is transferred during 5 years after commissioning of systems.
 - (iv) **Efficient and effective project implementation and management.** The project will provide consulting services through the appointment of the PMC. The team will comprise an electrical engineer to act as project manager, a solar technical expert to act as field engineer, a financial and procurement specialist, and a safeguards specialist. The team will conduct capacity building training for 5 years after the systems are commissioned.

¹ The Asian Development Bank (ADB) provided project preparatory technical assistance. ADB. 2012. *Technical Assistance to Tonga for Preparing the Outer Island Renewable Energy Development Project*. Manila (TA 7940-TON, \$500,000 approved on 2 December 2011, financed by the Japan Fund for Poverty Reduction).

II. IMPLEMENTATION PLANS

A. Project Readiness Activities (2nd Additional Financing)

2016 Indicative Activities	2016					2017		Responsibility
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
ADB Board approval					√			ADB
Loan and Grant signing						√		GOT and ADB
Government legal opinion provided						√		GOT and ADB
Loan and Grant effectiveness							√	GOT and ADB
Procurement of on-grid component	√							ADB, EA and IAs
Procurement of mini/off-grid component					√			ADB, EA and IAs
Procurement of grid-rehabilitation component		√						

ADB = Asian Development Bank, EA = executing agency, GOT = Government of Tonga, IAs = implementing agencies.

Source: Asian Development Bank estimates.

B. Overall Project Implementation Plan

	2014			2015				2016				2017				2018				2019			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Grant Effective Date	Original						AF1					AF2											
Bidding process																							
<u>Solar on-grid turnkey package</u>																							
Preparation of bidding documents and advertisement																							
Bid Evaluation and Contract Award																							
Install, test, and commission systems, including trial operation																							
<u>Solar mini/off-grid turnkey package</u>																							
Preparation of bidding documents and advertisement																							
Bid Evaluation and Contract Award																							
Install, test, and commission systems, including trial operation																							
<u>Electricity distribution network upgrade equipment trial</u>																							
Carry out tender process																							
Install, test, and commission systems, including trial operation																							
PMC: Procurement assistance and O&M programs																							
Contract of PMC																							
Design, implementation capacity-building program																							
Design and implementation O&M program																							

AF = Additional Financing, O&M = operations and maintenance, PMC = project management consultants, Q = quarter.
 Source: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project organizations	Management Roles and Responsibilities
Government of the Kingdom of Tonga (Recipient) through MFNP, the Executing Agency.	Receive and review withdrawal applications from the PMU, assisted by PMC and submit to ADB. Review financial reports, including the annual audit report and financial statements, from the PMC and submit to ADB.
PSC	<p>The PSC will have the following members; Chair: MFNP. Members: CEO, MEIDECC; Head, ED; CEO, MPE; CEO, TPL; and Head, TERM-IU. ADB, AUS-DFAT and EU will participate in the PSC meetings as observers.</p> <ul style="list-style-type: none"> • Oversee project implementation and progress. • Rectify issues hindering project progress. • Guide executing and implementing agencies.
Energy Department and Tonga Power Limited, the Implementing Agencies	<p>ED is the cross cutting energy sector coordination entity, as appointed by the Government. TPL is a power utility.</p> <ul style="list-style-type: none"> • Lead final technical designs, bidding processes, including preparation of bidding evaluation report and contract of bidder, assisted by PMC and supervised by ADB. • Lead social and environmental safeguards, and GAP through PMU, assisted by PMC and supervised by ADB. • Supervise construction conducted by the contractors assisted by PMC, and reviewed by ADB. • Conduct O&M, assisted by PMCs from year 1 to 5. From year 6-20 with own capacities. Lead decommissioning.
Project Management Consultant	Assist TPL / ED in preparing an overall implementation plan and annual budgets. overall interagency coordination; management of capacity development activities, safeguards, GAP, document preparation and plan implementation, financial management consolidation, annual audit report and financial statements, monitoring and evaluation of project outputs and results.
Project Management Unit	Composed of TPL / ED staff. Will lead project activities and prepare withdrawal applications. Assisted by PMCs.
Asian Development Bank	Support technical specification designs; tender documents, and procurement plan, including all project goods, works and services. Clear and approve bidding evaluation report and bidder contracting. With AUS-DFAT and EU: conduct regular grant review missions and coordination and advisory support

ADB = Asian Development Bank, AUS-DFAT = Australian Department of Foreign Affairs and Trade, ED = Energy Department, EU = European Union, GAP = gender action plan, MEIDECC = Ministry of Energy, Information, Disaster Management, Climate Change and Communications, MFNP = Ministry of Finance and National Planning, MPE= Ministry of Public Enterprises, PMU = project management unit; PMCs = project management consultants; PSC = project steering committee, TERM-IU = Tonga Energy Road Map-Implementation Unit, TPL = Tonga Power Limited.

Source: Asian Development Bank estimates.

B. Key Persons Involved in Implementation

Executing Agency	Government of the Kingdom of Tonga through its Ministry of Finance and National Planning Officer's Name: Aholotu Palu Position: Acting Chief Executive Officer Telephone: +676 23066 Email address: apalu@finance.gov.to
Implementing Agency	Energy Department under Ministry of Energy Ministry of Energy, Information, Disaster Management, Climate Change and Communications Officer's Name: Mr. Tevita Tukunga Position: Director Telephone: +676 8880005 Email address: ttukunga@gmail.com
Implementing Agency	Tonga Power Limited Officer's Name: Mr. Robert Matthews Position: Chief Executive Officer Telephone: +676 7863202 Email address: rmatthews@tongapower.to
ADB	Transport, Energy and Natural Resources Division (PATE) Pacific Department Staff Name: Olly Norojono Position: Director Telephone No.: +63 2 632 4444 Email address: onorojono@adb.org
Mission Leader	Staff Name: Woo Yul Lee Position: Energy Specialist, PATE Telephone No.: +63 2 632 4444 Email address: wylee@adb.org

C. Project Organization Structure

4. The government will be the borrower and the grant beneficiary. The executing agency (EA) will be MFNP. Regarding the merger of the TERM Agency into the Energy Department (ED), all staff and resources of the Tonga Energy Road Map (TERM) Agency were absorbed by ED. The government proposed continuing the implementation of the mini/off-grid component by ED.² The on-grid part will be continually implemented by Tonga Power Limited (TPL). Both on-grid and mini/off-grid components will be implemented with assistance from PMC.

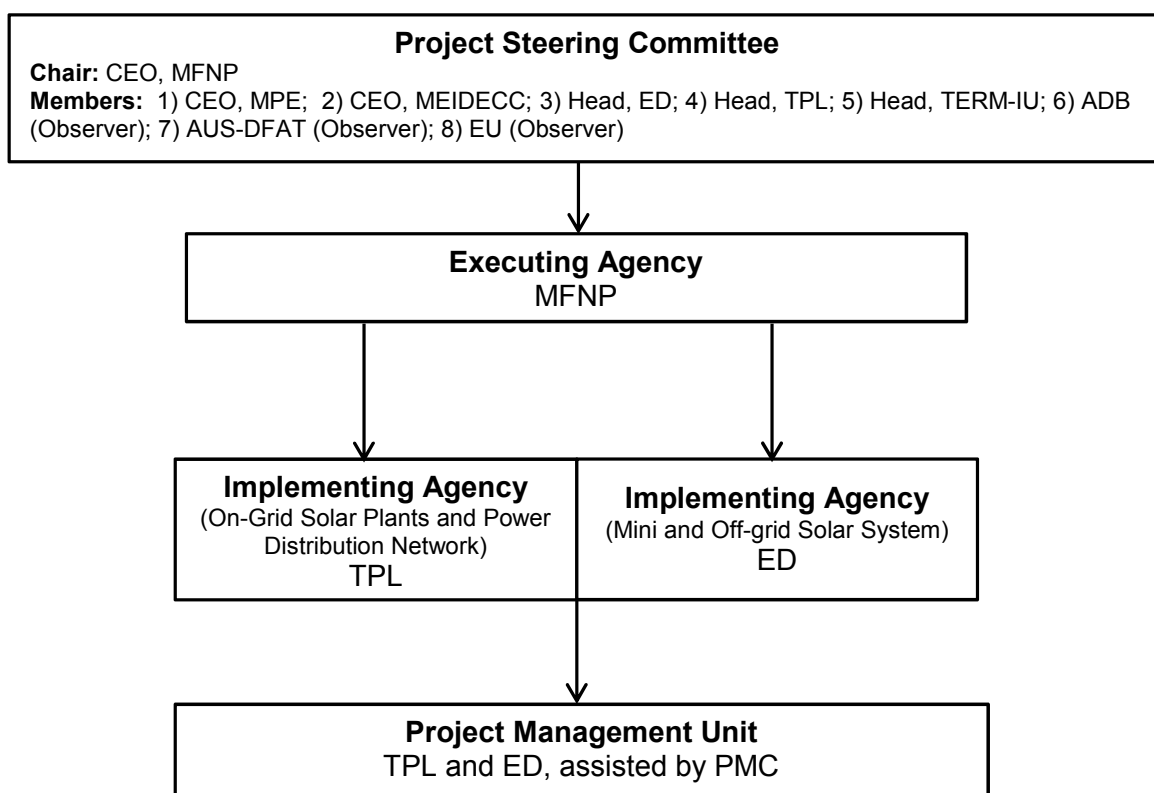
5. TPL has hands-on expertise important to the project due to its power engineering knowledge and includes the project management unit. Such project activities as the final technical design and bidding process for both on-grid and power distribution network component will be conducted by TPL, assisted and supervised by ADB. Social and environmental safeguards will be conducted by the project management unit (PMU), assisted by PMC and

² The minor change in implementation arrangement for the ongoing project was approved on 5 June 2015.

periodically reviewed by ADB. Contractors will undertake the construction, supervised by PMU, and periodically reviewed by ADB.

6. To ensure that the project effectively assists all stakeholders and beneficiaries, the PMC has been recruited. The PMC will help all parties understand O&M procedures for on-grid, mini- and off-grid solar power plants for 5 years after completion of the project. PMU will be assisted by the PMCs during detailed engineering. The project component will allow PMU to acquire key knowledge and further develop its own solar power O&M capacity. A project steering committee chaired by the MFNP and composed of the MEIDECC, EPU, Ministry of Public Enterprises, TPL, and ED will oversee the project, support sustainability, and ensure effective assistance to all project stakeholders and beneficiaries. ADB, AUS-DFAT, and EU will participate in the project steering committee meetings as observers. The indicative administrative structure of the project is described in Graph 1.

Graph 1: Project Organizational Structure



ADB = Asian Development Bank, AUS-DFAT = Australian Department of Foreign Affairs and Trade, EA = executing agency, ED = Energy Department, EU = European Union, MEIDECC = Ministry of Energy, Information, Disaster Management, Climate Change and Communications, MFNP = Ministry of Finance and National Planning, MPE= Ministry of Public Enterprises, PMU = project management unit; PMC = project management consultants, TERM-A = Tonga Energy Road Map-Implementation Agency, TERM-IU = Tonga Energy Road Map-Implementation Unit, TPL = Tonga Power Limited.

Source: Asian Development Bank estimates.

IV. COSTS AND FINANCING

7. As per the Electricity Amendment Act 2010 dated 24 September 2010, all plant and machinery required for setting up a power plant in Tonga is exempted from all kinds of taxes and duties. The exact verbatim is as follows: "All plant, machinery, mechanical appliances, iron and steel works, cement, concrete, engines, boilers, dynamos, motors, generator sets, conductor cable, transformers, poles, insulators, inverters, photovoltaic modules, metering equipment and all materials, apparatus and equipment (including related parts) of any kind whatsoever imported into the Kingdom by, or on behalf of, a concessionaire or a person carrying on an activity referred to in section 19(2)(c) {Extract of Section 19(2)(c) - "any generation, distribution or supply of electricity for the purpose of supplying electricity to a concessionaire"}, and in either case imported into the Kingdom for the purpose of generating, distributing or supplying electricity in the Kingdom, shall be free of all customs duties, excise duties and any other taxes imposed by any Act in relation to the importation of those goods."

8. The Outer Island Renewable Energy Project is estimated to cost \$18.83 million.³ It comprise (i) a loan of \$2.5 million and grants of \$5.94 million from ADB's Special Funds resources,⁴ (ii) a grant of AU\$4.50 million (\$4.50 million equivalent) from the Government of Australia, (iii) a grant of €3.00 million (\$3.57 million equivalent) from the European Union, and (iv) a grant of \$0.75 million from the Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas (SDCFREEERA), administered by ADB to help finance the project. The government will provide the equivalent of \$1.57 million as an in-kind contribution toward land-related and administrative costs through ED and TPL. The government will make the proceeds of the loan and the grants available to TPL under subsidiary grant agreements upon terms and conditions satisfactory to ADB. Detailed cost and financing tables are presented herein.

³ Finance will include all goods, works, associated services for erecting, commissioning, start-up, and trial period of the solar photovoltaic equipment of the project, and for the project management consultants. All sea, air, and land transportation (national and international), including cost insurance and freight to project site and warehouse.

⁴ 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 Tonga had a moderate risk of debt distress and was therefore eligible to receive 50:50% of its ADF allocation as grants and loans.

A. Project Financing Plan

9. The additional financing will be provided through a loan of SDR1.809 million (\$2.5 million equivalent) and a grant of \$2.5 million from ADB's Special Funds resources as well as an additional contribution from TPL of \$0.60 million. This will raise investments by about 42% from the \$13.23 million for the current project to \$18.83 million for the overall project. The revised investment plan is in Table 1.

Table 1: Revised Investment Plan
(\$ million)

Item	Current Amount ^a	Additional Financing ^b	Total
A. Base Cost^c			
1. Goods, works, and services (solar power capacity for nine outer islands and project management consultant)	6.17	-	6.17
2. Administrative costs, including land lease cost	0.30	-	0.30
3. Goods, works, and services (power distribution network)	5.97	4.94	10.91
Subtotal (A)	12.44	4.94	17.38
B. Contingencies^d	0.79	0.49	1.28
C. Financial Charges	-	0.17	0.17
Total (A+B+C)	13.23	5.60	18.83

^a Comprising (i) \$3.44 million grants from ADB's ADF; (ii) A\$4.50 million grant from the Government of Australia, administered by ADB; (iii) €3.00 million grant for the European Union; (iv) \$0.75 million grant from the Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas, and (iii) the government's contribution of \$0.97 million as an in-kind contribution.

^b ADB will provide a loan of \$2.50 million and a grant of \$2.50 million. Tonga Power Limited will provide \$0.60 million as an in-kind contribution.

^c In 2016 prices.

^d Calculated considering price contingency of 5% of base cost (excluding administrative expenses and international inflation), 5% of physical contingency, and a local inflation rate of 6.1% for local components. Any cost overrun or cash shortfall will be borne by the Government of Tonga.

Source: Asian Development Bank estimates.

10. The government has requested an additional (i) loan in various currencies equivalent to a special drawing rights (SDR), 1.809 million, (\$2.5 million equivalent); and (ii) grant not exceeding \$2.50 million equivalent, both from ADB's Special Funds resources to help finance the project.⁵ The ADF loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter (the interest during construction as applicable to be capitalized in the loan), and such other terms and conditions set forth in the draft financing and project agreements. The government will provide the loan proceeds to TPL as a grant and will make the proceeds of the loan and grant available to TPL under a subsidiary financing agreement upon terms and conditions satisfactory to ADB.⁶ The revised financing plan is in Table 2.

⁵ Finance will cover the cost of all works and associated services for upgrading the existing power distribution networks.

⁶ A new subsidiary grant agreement is expected to be made after approval of the proposed additional financing.

Table 2: Revised Financing Plan
(\$ million)

Source	Current ^a		Additional Financing		Total	
	Amount	Share of Total (%)	Amount	Share of Total (%)	Amount	Share of Total (%)
Asian Development Bank	3.44	26.0	5.00	89.3	8.44	44.8
ADF (Grant)	3.44	26.0	2.50	44.6	5.94	31.5
ADF(Loan)	-	-	2.50	44.6	2.50	13.3
Government of Australia ^b	4.50	34.0	-	-	4.50	23.9
European Union ^c	3.57	27.0	-	-	3.57	19.0
Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas	0.75	5.7	-	-	0.75	4.0
Government of Tonga ^d	0.97	7.3	0.60	10.7	1.57	8.3
Total	13.23	100.0	5.60	100.0	18.83	100.0

ADF = Asian Development Fund.

^a Refers to the original amount and any previous additional financing.

^b Administered by the Asian Development Bank (ADB). This amount includes ADB's administration fee, audit cost, and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the Government of Australia. Based on exchange rate on 23 May 2013.

^c Administered by ADB. This amount includes ADB's administration fee, audit cost, and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the European Union. Based on exchange rate on 7 January 2015.

^d Government in-kind contribution, \$0.30 million, will be in administration costs. Tonga Power Limited will provide \$1.27 million as its in-kind contribution for additional financing.

Source: Asian Development Bank estimates.

B. Detailed Cost Estimates by Expenditure Category

No.	Item	Million \$			% of Total Base Cost
		Foreign Currency	Local Currency	Total Cost	
	A. Investment Costs				
1	Civil Work Cost (Solar Power system) ⁷	5.38		5.38	28.6
2	Project Management Consultants ⁸ (operational phase for 5 years)	1.40	-	1.40	7.4
3	Civil Work Cost (Power Distribution Networks)	8.99		8.99	47.7
	Subtotal (A)	15.77	-	15.77	83.7
	B. Government Contribution				
4	Administrative ⁹ costs including upfront land lease costs	-	1.57	1.57	8.3
	Subtotal (B)	-	1.57	1.57	8.3
	C. Contingencies				
5	Unallocated ^{10 11}	1.32	-	1.32	7.0
	Subtotal (C)	1.32	-	1.32	7.0
6	D. Financing Changes				
	Interest During Construction	0.17		0.17	0.9
	Subtotal (D)	0.17		0.17	0.9
	Total Project Cost (A+B+C)	17.26	1.57	18.83	100.0

Source: Asian Development Bank estimates.

⁷ Including all goods, works, associated services for erecting, commissioning, start up, and trial period of the solar photovoltaic equipment scope of the project. Also all sea, air and land transportation (national and international): including cost insurance and freight (CIF) up to project site and/or project warehouse.

⁸ Including office equipment, control and monitoring system, and one (1) lot of special replacement parts.

⁹ The Electricity Amendment Act 2010 dated 24th September 2010 states that entire plant and machinery required for setting up a power plant is exempted from all kinds of taxes. Government in kind contribution will be in administration costs such as those for office space and materials, counterpart time, telecommunications and logistics; included exemption from income taxes (other than citizens or nationals of the recipient country) on salaries, consulting fees and benefits. In addition, the 1% fee of project capital cost under the Environmental Impact Assessment regulation 2010 will also be waived.

¹⁰ This amount includes ADB's administration fee, audit cost, and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the European Union and Government of Australia.

¹¹ The amount considers 5% of base cost excluding the administrative expenses, and international inflation 5% of (base cost + physical contingency) and local inflation of 6.1% for local component.

C. Allocation and Withdrawal of Grant Proceeds

C.1 Ongoing Project

a) Asian Development Bank Grant

Category			ADB-ADF Financing
No.	Item	Total amount allocated for ADB financing (Million \$)	Percentages for withdrawal from the Grant Account
1	Civil Work Cost (Solar Power Plants)**	1.66	30.63% of total expenditure claimed*
2	Project Management Consultants**	0.23	30.67% of total expenditure claimed*
3	Unallocated	0.11	-
	Total	2.00	

ADB = Asian Development Bank, ADF = Asian Development Fund.

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 5 of Schedule 2.

Source: Asian Development Bank.

b) COFINANCIER Grant* (Government of Australia through AusAID)

Category			Cofinancing
No.	Item	Total amount allocated for cofinancing (Million \$)	Percentages for withdrawal from the Grant Account
1	Civil Work Cost (Solar Power Plants)**	3.76	69.37% of total expenditure claimed*
2	Project Management Consultants**	0.52	69.33% of total expenditure claimed*
3	Unallocated***	0.22	-
	Total	4.50	

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 5 of Schedule 2.

*** Administered by the Asian Development Bank. This amount includes a provision of 5% of ADB's administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the Government of Australia.

Source: Asian Development Bank estimates.

C.2 Additional Financing I**c) Asian Development Bank Grant**

Category			ADB-ADF Financing
No.	Item	Total amount allocated for ADB financing (Million \$)	Percentages for withdrawal from the Grant Account
1	Civil Work Cost (Power Distribution Networks)**	1.33	28.64% of total expenditure claimed*
2	Unallocated	0.11	-
	Total	1.44	

ADB = Asian Development Bank, ADF = Asian Development Fund

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 5 of Schedule 2 of the Grant Agreement (Special Operation).

Source: Asian Development Bank.

d) COFINANCIER Grant* (European Union)

Category			Cofinancing
No.	Item	Total amount allocated for cofinancing (Million \$)	Percentages for withdrawal from the Grant Account
1	Civil Work Cost (Power Distribution Network)**	3.32	71.36%% of total expenditure claimed*
2	Unallocated***	0.25	-
	Total	3.57	

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 5 of Schedule of the Grant Agreement (Externally Financed) for the grant from the European Union.

*** Administered by the Asian Development Bank. This amount includes a provision of 7% of ADB's administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the European Union.

Source: Asian Development Bank estimates.

e) Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas

Category			Cofinancing
No.	Item	Total amount allocated for ADB financing (Million \$)	Percentages for withdrawal from the Grant Account
1	Project Management Consultants	0.65	100.00% of total expenditure claimed*
2	Unallocated	0.10	-
	Total	0.75	

ADB = Asian Development Bank, ADF = Asian Development Fund.

* Excluding taxes and duties imposed within the territory of the Recipient.

Source: Asian Development Bank.

C.3 Additional Financing II

f) Asian Development Bank Grant

Category			ADB -ADF Financing
No.	Item	Total amount allocated for ADB financing (Million \$)	Percentages for withdrawal from the Grant Account
1	Civil Work Cost (Power Distribution Networks)**	2.50	57.65% of total expenditure claimed*
Total		2.50	

ADB = Asian Development Bank, ADF = Asian Development Fund

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 6 of Schedule 3 of the Grant Agreement (Special Operation).

Source: Asian Development Bank.

a) Asian Development Bank Loan

Category			ADB -ADF Financing
No.	Item	Total amount allocated for ADB financing (Million \$)	Percentages for withdrawal from the Loan Account
1	Civil Work Cost (Power Distribution Networks)**	1.84	42.35% of total expenditure claimed*
2	Interest and Commitment Charge	0.17	100.00% of amounts due
3	Unallocated	0.49	-
Total		2.50	

ADB = Asian Development Bank, ADF = Asian Development Fund

* Excluding taxes and duties imposed within the territory of the Recipient.

** Subject to the condition for withdrawal described in paragraph 6 of Schedule 3 of the Grant Agreement (Special Operation).

Source: Asian Development Bank.

D. Detailed Cost Estimates by Financier

Item	Total Cost	ADB ADF Grant		Government of Australia Grant ¹²		ADB ADF Grant (Additional Financing I)		ADB ADF Grant (Additional Financing II)		ADB ADF Loan (Additional Financing II)		European Union ¹³		SDCFREEERA		Government of Tonga ¹⁴		
		Mill \$	Million \$	%	Million \$	%	Million \$	Million \$	%	%	Million \$	%	Million \$	%	Million \$	%	Million \$	%
A	Investment Costs¹⁵																	
1	Civil Work Cost (Solar Power Plant)	5.42	1.66	30.6%	3.76	69.4%		0.0%					0.0%		0.0%			
2	Project Management Consultants	1.40	0.23	16.4%	0.52	37.1%		0.0%				-	0.0%	0.65	46.4%			
3	Civil Work Cost (Power Distribution Networks) I	4.65		0.0%	-	0.0%	1.33	28.6%	-			3.32	71.4%	-	0.0%			
4	Civil Work Cost (Power Distribution Networks) II	4.34						2.50	57.6%	1.84	42.4%							
	Subtotal (A)	15.80	1.89	12.0%	4.28	27.1%	1.33	8.4%	2.50	15.8%	1.84	11.6%	3.32	21.0%	0.65	4.1%	-	0.0%
4	Administrative ¹⁶ costs including upfront land lease costs	1.57															1.57	100.0%
	Subtotal (B)	1.57															1.57	100.0%
C	Contingencies																	
5	Unallocated ¹⁷	1.28	0.11	8.6%	0.22	17.1%	0.11	8.6%		0.49	38.3%	0.25	19.5%	0.10	7.8%			
	Subtotal (C)	1.28	0.11	8.6%	0.22	17.1%	0.11	8.6%		0.49	38.3%	0.25	19.5%	0.10	7.8%			
D	Financing Changes																	
	Interest During Construction	0.17								0.17	100.0%							
	Subtotal (D)	0.17								0.17	100.0%							
	Total (A+B+C+D)	18.83	2.00	10.6%	4.50	23.9%	1.44	7.7%	2.50	13.3%	2.50	13.3%	3.57	19.0%	0.75	4.0%	1.57	8.3%

¹² Administered by the Asian Development Bank. This amount includes ADB's administration fee, audit cost, and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the Government of Australia.

¹³ Administered by ADB. This amount includes ADB's administration fee, audit cost, and bank charges to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant contribution by the European Union

¹⁴ In kind contribution towards land related and other administrative costs.

¹⁵ Including all goods, works, associated services for erecting, commissioning, start up, and trial period of the solar photovoltaic equipment scope of the project. Also all sea, air and land transportation (national and international): including cost insurance and freight (CIF) up to project site and/or project warehouse.

¹⁶ Government's contribution of \$0.30 million including administration costs, such as those for office space and materials, counterpart time, telecommunications, and logistics; and exemption from all kind of taxes. TPL will provide \$1.27 million as its in-kind contribution for additional financing. Any cost overrun or cash shortfall will be borne by the government.

¹⁷ Considered as 5% of base cost excluding the administrative expenses, and international inflation 5% of (base cost + physical contingency) and local inflation of 6.1% for local component.

ADB = Asian Development Bank, ADF = Asian Development Fund, SDCFREEERA = Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas.

Source: Asian Development Bank.

E. Detailed Cost Estimates by Year

Item	Total Cost							
	Million \$	2015**	2016**	2017**	2018**	2019**	2020**	
A. Investment Costs ¹⁸								
1	Civil Work Cost (Solar Power Plant) ¹⁹	5.42		1.08	3.25	0.54	0.54	
2	Project Management Consultants	1.40	0.21	0.46	0.41	0.12	0.19	
3.	Civil Work Cost (Power Distribution Networks)	8.99	-	2.32	1.80	4.87		
	Subtotal (A)	15.80	0.21	3.86	5.46	5.53	0.73	-
B. Government Contribution								
3	Administrative costs including upfront land lease costs ²⁰	1.57	0.30	0.67		0.60		
	Subtotal (B)	1.57	0.30	0.67		0.60		
C. Contingencies								
4	Unallocated ²¹	1.28	0.26	0.26	0.26	0.26	0.26	
5.	Subtotal (C)	1.28	0.26	0.26	0.26	0.26	0.26	
D. Financial Charges								
	Interest During Construction	0.17			0.04	0.04	0.04	0.04
	Subtotal (D)	0.17			0.04	0.04	0.04	0.04
	Total Project Cost (A+B+C)	18.83	0.77	4.79	5.76	6.43	1.03	0.04
	% of Total Project Costs	100.00%	4.09%	25.43%	30.60%	34.17%	5.48%	0.23%

¹⁸ Administered by the Asian Development Bank. This amount includes a provision of 5% of ADB's administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the Government of Australia.

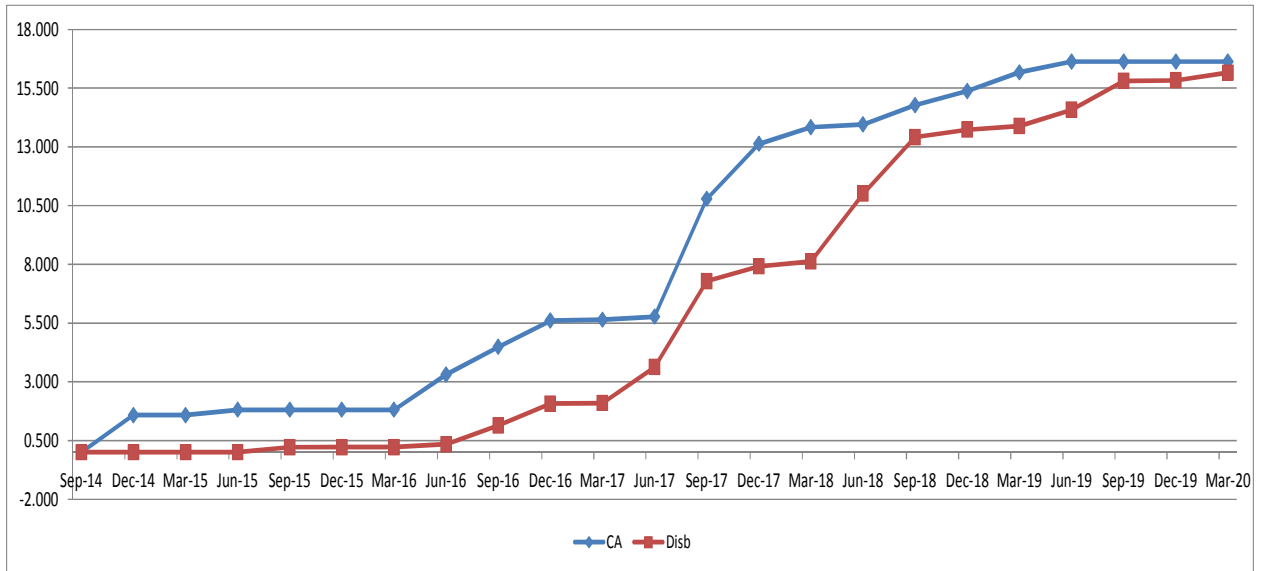
¹⁹ Including all goods, works, associated services for erecting, commissioning, start up, and trial period of the solar photovoltaic equipment scope of the project. Also all sea, air and land transportation (national and international): including cost insurance and freight (CIF) up to project site and/or project warehouse.

²⁰ The Electricity Amendment Act 2010 dated 24th September 2010 states that entire plant and machinery required for setting up a power plant is exempted from all kinds of taxes. Government in kind contribution will be in administration costs such as those for office space and materials, counterpart time, telecommunications and logistics; included exemption from income taxes (other than citizens or nationals of the recipient country) on salaries, consulting fees and benefits. In addition the 1% fee of project capital cost under the Environmental Impact Assessment regulation 2010 will also be waived.

²¹ Considered as 5% of base cost excluding the administrative expenses, and international inflation 5% of (base cost + physical contingency) and local inflation of 6.1% for local component.

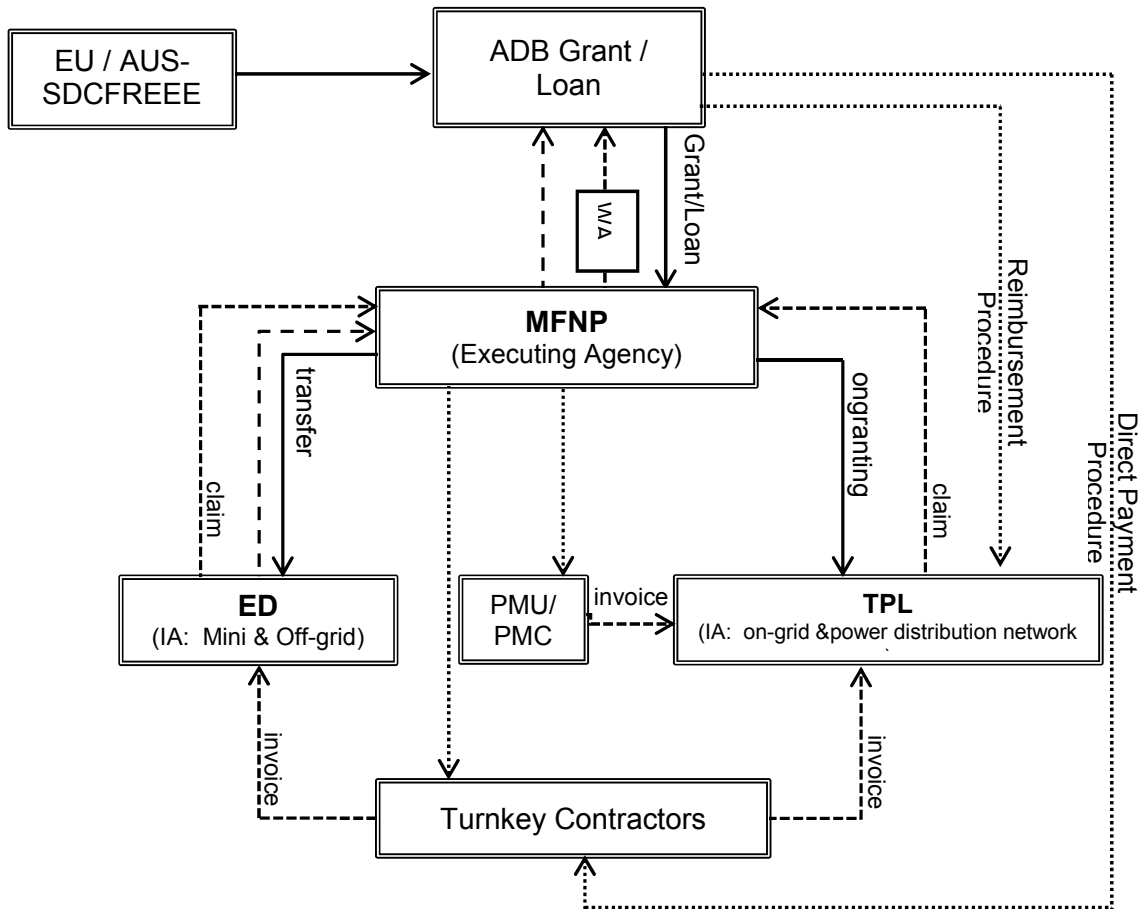
**Fiscal year ending 30th June (e.g. 2015 = Fiscal year ending 30 June 2015).
Source: Asian Development Bank.

F. Contract and Disbursement S-curve (Overall Project)



Fund Flow Diagram

→ Funds flow → Disbursement - - -> Repayment - - - -> Document Flow



ADB = Asian Development Bank, AUS-DFAT = Australian Department of Foreign Affairs and Trade, ED = Energy Department, EU = European Union, MFNP = Ministry of Finance and National Planning, PMU = project management unit; PMC = project management consultant, TPL = Tonga Power Limited.

^a Include the grant from the Danish Cooperation Fund for Technical Assistance.

Source: Asian Development Bank estimates.

11. The bills rose by ED and TPL in the outer islands of Ha'apai and EMCs in the Niua islands, will be endorsed by PMU assisted by PMC for direct payments.

12. The PMC appointed by ADB is structured as follows:

- (i) 1 electrical solar engineer (project manager);
- (ii) 1 power electric planning and field engineer (deputy project manager);
- (iii) 1 social safeguard specialist; and
- (v) 1 financial specialist

13. The financial specialist will maintain all requisite financial reports for remote outer islands of Ha'apai and the two Niua islands and shall coordinate with the project accountant of TPL for the financial reports in the islands of Vava'u, 'Eua and Ha'apai.

14. The PMC will communicate with ADB, MFNP and the Project Steering Committee. ADB will then release requisite funds to MFNP which in turn shall be released to TPL / ECO's in the outer islands of Ha'apai and the EMCs in the Niuas.

15. The PMU established under MEIDECC is expected to be structured as follows:

- (i) 1 PMU manager;
- (ii) 2 project managers; one from ED and one from TPL
- (iii) 1 legal expert;
- (iv) 1 financial specialist or project accountant;
- (v) 1 procurement expert; and
- (vi) 1 safeguard expert

16. The Project Steering Committee will act as an oversight body and monitor the physical and financial progress of the project and will be comprised of the following members:

- (i) Chair, Representative from MFNP
- (ii) CEO, MEIDECC
- (iii) CEO, MPE
- (iv) Head, ED
- (v) CEO, TPL
- (vi) Head, TERM-IU
- (vii) Representatives: ADB, AUS-DFAT and EU (observers)

V. FINANCIAL MANAGEMENT

17. A financial management assessment (FMA) was carried out in TPL according to ADB's *Financial Management and Analysis of Projects (The Guidelines)* (2005).²² The FMA consisted of (i) administering the FMA Questionnaire to TPL, (ii) assessing FM Internal Control and Risk; (iii) evaluating IA's (TPL's) FM personnel, accounting policies and procedures, internal and external audit, and information systems for financial reporting and monitoring.

18. In the remote outer islands of Ha'apai namely, Nomuka, 'Uiha, Ha'afeva and Ha'ano, the electricity generation and distribution is looked after by the local Electricity Cooperative Societies (ECOs). The four ECOs have been able to operate and maintain the electricity system without additional financial support from the government or other donors. Some have built up a cash reserve (such as Nomuka). However, Ha'afeva and Ha'ano have been struggling financially until recently. The mechanism for enforcing cost recovery has been via prepayment meters, monthly contributions and the community willingness to pay a monthly fee for electricity services. O&M responsibilities are clearly defined within the ECOs constitution. Lack of locally skilled maintenance staff has created timely maintenance difficulties for the ECOs.

19. In Niuatoputapu, current electricity generation is done independently at household level and there is no grid available for local distribution of electricity; whereas in Niuafou'ou, the households have 167 sets of solar home systems supplied under the New Zealand Aid Programme in 2006, where the EMCs are responsible for the O&M and replacement of parts.

20. Since the project shall be supervised by PMCs appointed by ADB for tenure commencing from start of implementation date till end of 5 years of commercial operation, it can

²² It was conducted when the original project was processed.

be expected that through training programs, building local capacity can be achieved, and the ECOs as well as the EMCs shall be self-sustainable thereafter.

A. Financial Management Assessment

21. Tonga has made solid progress in improving public financial management since achieving internal self-governance in 1984, particularly in government financial accounting and reporting. Public finance legislative frameworks are judged to be reasonably sound.

22. The present financial management of TPL was reviewed using ADB's financial management assessment (FMA) questionnaire and interviews. The responses by TPL to the questionnaire revealed that TPL has defined policies and procedures in place for accounting, budgeting, and auditing activities. As per FMA questionnaire, TPL maintains records of fixed assets with yearly physical inspections, including for inventory. TPL also has adequate internal controls, including internal audit and risk committee. The existing organization structure of the Finance and Accounts Department in charge of financial management is adequate, although staff shortage is observed for the proposed project.

23. PMU, with assistance from PMC, will carry out all project implementation activities and will be responsible for the project implementation. PMU, with assistance from PMC, will submit a quarterly progress report to facilitate the monitoring of the physical progress of the project.

B. Summary of Financial Management Assessment of Tonga Power Limited

24. Key findings of the financial management assessment undertaken for the TPL are as described in Table 1:

Table 1: Summary of Financial Management Assessment of TPL

Particulars	Conclusion
A. Funds Flow Arrangement	Funds flow arrangements are reliable, predictable and secure. TPL has enough capability to smoothly work under the proposed investment program.
B. Staffing	TPL delegates will compose the project management unit (PMU) to conduct all project relevant activities. PMC will assist the PMU at all times. TPL have financial staff to manage projects according to ADB financial management procedures.
C. Accounting Policies and Procedures	The TPL's accounting policy is based on the International Financial Reporting Standards (IFRS)
D. Internal and External Audits	There is an internal audit and risk committee within the TPL. As per the recommendation of the audit and risk committee, the Board outsources internal audit to different auditing firms depending on scope and expertise. The TPL was audited by PWC, an independent external auditor, on an annual basis for the last 3 years. In the following years, KPMG shall be the external auditor for TPL.
E. Reporting and Monitoring	Financial statements are prepared for the entity in accordance with IFRS, Company Act, 1995 and Public Enterprises Act, 2002.
F. Information systems	At TPL, the financial management system is computerized, which suits well with the project requirements and procedures.

25. Actions required to be taken by ED and TPL are as follows:

- (i) ED and TPL specialists as well as financial staff must undergo training on ADB financial management and disbursement procedures to further strengthen capacity;
- (ii) ED and TPL should maintain separate accounts for each of the projects in the outer islands under the investment program and have such accounts audited

annually, in accordance with appropriate auditing standards consistently applied by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB.

C. Financial Management Internal Control and Risk Assessment

26. The results of the internal control and risk assessment are summarized in Table 2. Financial management risks shall need to be considered and updated throughout the life of the investment program. Risk mitigation measures shall also be updated accordingly.

Table 2: Financial Management Internal Control and Risk

Risk Description	Risk Assessment	Mitigation Measures or Management Plan
The project could face a capital cost overrun.	Low	Adequate physical and price contingencies have been provided in the cost estimates. Price variation conditions will also be built into the bid document and advance procurement initiated.
Slow transfer of grant proceeds (from the government / Finance Ministry) to the entity and to the end-recipients	Low	The project accountant (consultant) has been recruited under the universal project management unit, who will assist the executing agency prepare withdrawal applications, monitor use of project funds, and prepare project financial statements under ADB projects currently being implemented in the country.
Foreign Exchange Risk	High	ADB maintains 15% of the grant proceeds remain unallocated as reserve for foreign exchange risks. The grant agreements clearly indicate who shoulders the foreign exchange risk.
Staffing: TPL's staff including financial staff's capacity are weak	Medium	ADB will provide capacity building training and on-site support. The financial management capacity of the PMU will be strengthened through the services of a project accountant consultant.
Overall	Medium	

ADB = Asian Development Bank, TPL = Tonga Power Limited.
Source: Asian Development Bank estimates.

D. Disbursement

27. The loan and grant proceeds including ADB administered the Government of Australia, the European Union, and the Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Area will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time), and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available at: http://wpqr4.adb.org/disbursement_elearning. Project staffs are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

28. To facilitate cash flow during project implementation, MFNP, the executing agency, will approve withdrawal applications coming from the PMU, assisted by PMC, and submit them to ADB for direct payment and/or reimbursement for all goods, works and consultancy services of the project. Disbursements of loan and grant funds under the project will be to procure goods, works, and related services.

29. Before submission of the first withdrawal application, the executing agency should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the executing agency, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is in accordance with the Loan Disbursement Handbook. Individual payments below this amount should be paid by the EA/IA and subsequently claimed to ADB through reimbursement, unless otherwise accepted by ADB.

30. All disbursements under government financing will be carried out in accordance with regulations of the government and ADB.

E. Accounting

31. The TPL/PMU, in coordination with MFNP and assisted by the PMC, will maintain separate project accounts and records by funding source for all expenditures incurred on the project. Project accounts will follow international accounting principles and practices, in line with the NZ-originated Generally Accepted Accounting Practices (GAAP) accounting standard, and adhere to sound financial management requirements during the implementation of the proposed project. The TPL/PMU will maintain separate project records and accounts adequate to identify the: (i) goods and services financed from loan and grant proceeds; (ii) financing resources received; (iii) expenditures incurred on the components of each project component; and (iv) counterpart and co-financer funds received and expended.

F. Auditing

32. The TPL/PMU, in coordination with MFNP and assisted by the PMC, will cause the detailed consolidated project documentation to be audited in accordance with International Standards on Auditing and in accordance with the government's audit regulations by an auditor acceptable to ADB.

33. The audited accounts, certified copies of such audited project accounts and the report of the auditors relating thereto (including the auditors' separate opinions on the use of the loan and grant proceeds and compliance with the financial covenants of the financing agreements and the grant agreement), will be submitted by the PMU assisted by the PMC in English language to ADB in any event not later than 6 months after the end of each related fiscal year (year ending June 30).

34. The MFNP, ED, TPL, and PMU assisted by PMC will provide ADB all information concerning project auditing as requested, in accordance with ADB's policies and procedures. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

35. The Government, MFNP, ED, and TPL have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.²³ ADB reserves the right to require a change in the auditor (in a

²³ ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as processing of new reimbursement, and issuance of new commitment letters will not be processed.

manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

36. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011). After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Procurement of Goods, Works and Consulting Services

37. For all procurement processes, the government has requested ADB to assist in procuring all project goods, works and services, and to recruit related project management consultants. The procurement capacity assessment of TPL indicates that Tonga's procurement regulations and procedures are comprehensive and TPL has a functioning procurement unit, however with limited experience and qualifications to procure solar equipment. Procurement of goods, works and related services under the project will be processed through ED/TPL (in conjunction to their respective off-grid and on-grid scopes), oversight and approved by ADB and will be carried out in accordance with ADB's *Procurement Guidelines* (2015, as amended from time to time). For this purpose, TPL and ED, with the assistance from PMC, supervised by ADB, will prepare technical specifications and bidding documents of the solar power plants according to ADB's own format, and prepare bidding evaluation forms. For the ongoing project, ED/TPL, with the assistance from PMC, will conduct the bidding process for their respective scopes, both supervised by ADB. For the additional financing component, TPL will solely lead the procurement activities. TPL has recruited the PMC through a firm using fixed budget selection (FBS) due to the complexity of the technological endeavor in accordance with ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time). Advance contracting will be undertaken in conformity with ADB's Procurement Guidelines. Minor goods and services, up to \$100,000 equivalent, will be procured by the implementing agency using shopping procedures, and using direct payment method.

38. An estimated 30 person-months of international to be allocated as part of the PMC are required to (i) facilitate project management and implementation; and (ii) provide an O&M program to strengthen the operational capacity of TPL, ED, ECU, ECOs, EMCs and other beneficiaries, and provide knowledge transfer. Consultants will be engaged using FBS (considered justified due to technical complexity of the solar generation equipment units). A summary is presented below:

International Specialists	Person-months
Solar electric power engineer	12

- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as processing of new reimbursement and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

(Project Manager)	
Power electric planning and field engineer (Deputy Project Manager)	14
Social Specialist (Community and Gender)	2
Financial specialist	2
Total	30

Source: Asian Development Bank estimates.

B. Advance Contracting

39. All advance contracting will be undertaken in conformity with ADB's Procurement Guidelines and Guidelines on the Use of Consultants. The issuance of invitations to bid under advance contracting will be subject to ADB approval.

C. Procurement Plan

Basic Data

Project Name: Outer Island Renewable Energy Project

Country: Kingdom of Tonga

Executing Agency: Ministry of Finance and National Planning

Loan/Grant Amount: \$17.26 million

Loan/Grant Number: 0347/0348/0444/0445/0446

Date of First Procurement Plan:

Date of this Procurement Plan: October 2016

Source: Asian Development Bank estimates

1. Process Thresholds, Review and 12-Month Procurement Plan

40. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
Procurement of Goods and Works		
International Competitive Bidding for Works	Prior	
International Competitive Bidding for Goods	Prior	
National Competitive Bidding for Works	Prior	
National Competitive Bidding for Goods	Prior	
Direct Contracting for Goods	Prior	
Force Account for Works	Prior	
Shopping for Works	Prior	
Shopping for Goods	Prior	
Recruitment of Project Management Consultants		
Fixed Budget Selection (firm)	Prior	

Source: Asian Development Bank estimates.

2. Goods and Works Contracts Estimated to Cost More Than \$1 Million

41. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

No.	Description	Value (\$ million)	Procurement /Recruitment Method	Prequalification of Bidders (Y/N)	Anticipated Advertising Date	Comment
1	Ground-mounted solar PV plants for 2 outer islands (0.75 MWp)	2.55	ICB (Turnkey)	N	Q2-2015	Contracted

2	Mini and off-grid solar system for 6 outer islands (0.57 MWp)	2.83	ICB (Turnkey)	N	Q3-2015	-
Subtotal of ADB Funded		5.38				

ICB: International Competitive Bidding.
Asian Development estimates

3. Consulting Services Contracts Estimated to Cost More Than \$100,000

42. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$ million)	Recruitment Method	Advertisement Date (quarter/year)	International or National Assignment	Comments
PMC	\$1.05 ^a	FBS	Q3 2013	International	Recruited and In-Service
PMU Manager	\$0.35	FBS	Q1 2016	International	Recruited and In-Service

FBS = fixed budget selection, PMC = project management consultants.

^aThe contract value is \$0.75 million as of May 2014. The remaining \$0.30 million is expected to be used to support the additional scope of the project including the power distribution network upgrade to be co-financed by the Danish Cooperation Fund.

Asian Development Bank estimates.

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

43. The following table groups smaller-value goods, works and consulting services contracts.

#	Package No.	Description	Value of Contracts cumulative (\$ million)	Number of Contracts	Procurement Method	Advertisement Date (Quarter/year)	Comments
General							
1	SHO-TPL-Gen-01	Solar Equipment	0.100	1	Shopping	Q4 2016	-
2	SHO-TPL-Gen-02	Mini-grid Inspection	0.100	1	Shopping	Q1 2016	Contracted
3	SHO-ED-SHS-01	Batteries and associated equipment	0.200	1	Shopping	Q4 2016	-
	Sub-Total (General)	0.400					
'Eua (Additional Financing I)							
3	NCB-TPL-Eua-01	LV Poles /HV Poles/ Vava'u HV Poles (inc. ship)	1.030	1	NCB (3 lots)	Q4 2015	3 Lots - Contracted
4	DC-TPL-Eua-01	LVABC Conductor (inc. ship)	0.373	1	Direct Contracting	Q4 2015	Contracted
5	DC-TPL-Eua-02	LVABC associated materials (inc. ship)	0.445	1	Direct Contracting	Q4 2015	Contracted

#	Package No.	Description	Value of Contracts cumulative (\$ million)	Number of Contracts	Procurement Method	Advertisement Date (Quarter/year)	Comments
6	DC-TPL-Eua-03	Transformer Boxes & Structures (inc. ship)	0.194	1	Direct Contracting	Q4 2015	Contracted
7	SHO-TPL-Eua-01	Boundary & Comms Cable Surveys	0.083	1	Shopping	Q4 2015	Contracted
8	DC-TPL-Eua-04	Pole Foundation Materials (inc. ship)	0.032	1	Direct Contracting	Q4 2015	Domestic civil materials supplier
9	SHO-TPL-Eua/ Vav-02	Machinery Hire for Poles (inc. ship)	0.079	1	Shopping	Q1 2016	Contracted
10	SHO-TPL-Eua-03	PPE and Tools	0.043	1	Shopping	Q4 2015	-
11	SHO-TPL-Eua-04	Shipping (general)	0.039	1	Shopping	Q1 2016	Contracted
12	DC-TPL-Eua-05	HV Crossarm Assemblies (inc. ship)	0.057	1	Direct Contracting	Q1 2016	Contracted
13	DC-TPL-Eua-06	Step-Up Transformer at Power Station (inc. ship)	0.070	1	Direct Contracting	Q1 2016	Contracted
14	FA-TPL-Eua-01	Force Account	0.310	1	Force Account	-	TPL - Contracted
15	SHO-TPL-Eua-04	Fly Conductor (inc. ship)	0.200	1	Shopping	Q4 2016	-
Sub-Total ('Eua)			2.954				
Vava'u (Additional Financing I)							
16	DC-TPL-Vav-01	HVABC Conductor (inc. ship)	0.538	1	Direct Contracting	Q4 2016	Contracted
17	DC-TPL-Vav-02	Transformer Boxes & Structures (inc. ship)	0.795	1	Direct Contracting	Q1 2017	Contracted
18	SHO-TPL-Vav-01	Boundary & Comms Cable Surveys	0.021	1	Shopping	Q4 2016	-
19	DC-TPL-Vav-03	Pole Foundation Materials (inc. ship)	0.009	1	Direct Contracting	Q1 2017	Domestic civil materials supplier
20	SHO-TPL-Vav-03	Shipping (general)	0.031	1	Shopping	Q2 2017	Contracted
21	DC-TPL-Vav-04	HV Crossarm Assemblies (inc. ship)	0.081	1	Direct Contracting	Q3 2017	Contracted

#	Package No.	Description	Value of Contracts cumulative (\$ million)	Number of Contracts	Procurement Method	Advertisement Date (Quarter/year)	Comments
22	DC-TPL-Vav-05	Step-Up Transformer at Power Station (inc. ship)	0.070	1	Direct Contracting	Q4 2017	Contracted
23	FA-TPL-Vav-01	Force Account	0.310	1	Force Account	-	TPL-Contracted
Sub-Total(Vava'u-AF I)			1.855				
'Eua (Additional Financing II)							
24	DC-TPL-Eua-07	Service Lines (inc. ship)	0.420	1	Direct Contracting	Q4 2016	Transnet NZ Limited (existing contract with TPL) ²⁴
25	SHO-TPL-Eua-05	Trenching works for underground service lines	0.070	1	Shopping	Q4 2016	3 quotes from local market
Sub-Total('Eua-AF II)			0.490				
26	NCB-TPL-Vav-01	HV and LV Poles (inc. ship)	0.800	1	NCB	Q4 2016	-
27	ICB-TPL-Vav-06	Service Materials, LVABC Conductor, LVABC associated Materials, PPE and Tools, HV Conductor, HV Crossarm assemblies (inclu shipping)	2.300	1	ICB	Q4 2016	-
28	SHO-TPL-Vav-04	Boundary & Comms Cable Surveys	0.050	1	Shopping	Q1 2017	-
29	SHO-TPL-Vav-05	Pole Foundation Materials (inc. ship)	0.050	1	Shopping	Q1 2017	-
30	SHO-TPL-Vav-06	Machinery Hire for Poles (inc. ship)	0.070	1	Shopping	Q4 2016	-
31	SHO-TPL-Vav-07	Trenching works for underground service lines	0.130	1	Shopping	Q2 2017	-

²⁴ Trasnet NZ Limited is the existing contractor for packages 4-6, 12-13, 15-16 and 20-21.

#	Package No.	Description	Value of Contracts cumulative (\$ million)	Number of Contracts	Procurement Method	Advertisement Date (Quarter/year)	Comments
32	FA-TPL-Vav-02	Force Account	0.440	1	Force Account	-	TPL for both 'Eua and Vava'u
Sub-Total Vava'u-AF II)			3.840				

Asian Development Bank estimates.

D. Consultants' Terms of Reference

44. **Expertise of the firm.** Will demonstrate substantial experience and track record of (i) developing and conducting simulation of island distribution grids and hybrid power systems (PV-diesel); (ii) development of concepts for battery storage; and (iii) implementing solar photovoltaic power systems off and grid connected, including associated power electronics, low and middle voltage switchgear.

45. **Solar electric power engineer/project team leader** (international, 12 person-months over 60 months, intermittent). The consultant will demonstrate substantial experience developing solar power projects (on/off-grid-connected) within context of remote areas, solar and electric power electric engineering with the design, specification and implementation of middle and low voltage systems, control, protection and monitoring. Knowledge of international technical standards (IEC, UL, IEEE, NEMA) is preferred. The consultant should have demonstrated skills in training relatively skilled persons in the proper installation of rural grid equipment and wiring. The activities to be undertaken will include but not limited to the following:

- (i) Create a technical- financial project handbook, which will be used as a technical guideline during project implementation.
- (ii) Prepare technical schedules (lots; list of parts and pieces) and undertake whole project implementation up to turn-key, according to ADB guidelines.
- (iii) Prepare and assess complete logistic chain, from ex-works shipment to on-site delivery for all goods and services to be procured and installed under the project.
- (iv) Prepare the acceptance process when the shipment arrives, ensuring compliance with specifications and quantities.
- (v) Administrate, manage, and supervise implementation of goods and services until trial test of the complete scope of the project.
- (vi) During installation, work closely with contractors and authorized personnel of the utility.
- (vii) Design and draft project manual, training materials and program for O&M in line with the scope of the project. The training should include theory and practical sections, electrical design, protection, monitoring, control, testing, measuring and working safety and electrical hazards.
- (viii) Deliver capacity building and O&M programs for a period of at least five years as defined in the design and monitoring framework of this project.

46. **Solar electric power planning and field engineer** (international, 14 person-months over 60 months, intermittent). The consultant will demonstrate substantial experience developing power projects (on/off-grid-connected), within context of remote areas and have the following qualifications: experience in power electric or mechanical engineering with the design, specification and implementation of middle and low voltage systems in the international context and knowledge of international technical standards related with rural distribution networks. Skills must include the detailed analysis of rural networks (simulation tools) for power distribution and

the preparation of tenders for purchasing of the necessary works and goods, training and supervision of relatively unskilled persons. The activities to be undertaken will include but not limited to the following:

- (i) Manage interconnection of solar power into the grid, grid stability factors, including control, protection and monitoring, and design of grids and switchgear.
- (ii) Oversee the installation of equipment according to contracted lots.
- (iii) Assist in the acceptance of materials as they are received, ensuring that they are the correct materials and show no shipping damage.
- (iv) Act as interface between the supply and installation process to ensure that all aspects of the installation are well coordinated.
- (v) Perform operational acceptance tests of the systems and work with the installing contractor to solve problems as they arise.
- (vi) Deliver capacity building and O&M programs for a period of at least five years as defined in the design and monitoring framework of this project.

47. **Social Specialist (gender and community development)** (international, 2 person-months over 12 months, intermittent). The consultant will have substantial and demonstrated experience working in developing-country environments, with a degree in social science and relevant experience ideally in projects funded by the international development community. The activities to be undertaken will include but not limited to the following:

- (i) Review existing ADB documentation relating to the project and other documents. Through desk study and site visits, identify gender, social, land acquisition and resettlement issues identified during PPTA, and update relevant data and reports. Conduct necessary consultations and meetings with affected persons (APs) and stakeholders. Prepare detailed implementation activities and related training, by targeting women participation in the project activities.
- (ii) Finalize identified training activities and ensure accomplishment of gender targets for project communities.
- (iii) Prepare a training plan, design training modules with clearly defined target knowledge, skills, and attitude (KSA) from training, carry out training activities of target men and women trainees.
- (iv) Facilitate disclosure of relevant information to APs and local stakeholders on entitlement, grievance redress mechanism.
- (v) Assist the government in addressing effectively any grievances of persons affected by the project.
- (vi) Recommend necessary inputs, if needed, to other project implementation documents (e.g. bidding documents) on resettlement aspects.

48. **Financial Specialist** (international, 2 person-months over 24 months, intermittent). The consultant will have substantial and demonstrated experience working in procurement and contract administration of infrastructure projects. The activities to be undertaken will include but not limited to the following:

- (i) Assess complete logistic chain, from ex-works shipment to on-site delivery for all goods and services to be procured and installed under the project.
- (ii) Assist TPL preparing techno-financial reporting and evaluation during project implementation and operation.
- (iii) With TPL, manage schedule of procurement process, approvals, facilitate communications and processes between ADB, government and beneficiaries.

VII. SAFEGUARDS

A. Environment

49. The overall project, including the additional financing project, is classified as category B for environment following ADB's Safeguard Policy Statement 2009 (SPS). The main potential impacts identified include (i) limited impacts on flora and fauna during construction, (ii) limited visual impact. Adequate mitigation measures have been incorporated into the environmental management plan, which will form part of the solar PV plants. A climate change adaptation risk evaluation was conducted and considered in infrastructure design. The PMU will lead the environmental supervision.

B. Involuntary Resettlement and Indigenous Peoples

50. Both original and additional financing projects have been classified as category C for involuntary resettlement and category C for indigenous peoples following ADB's SPS. The project does not involve physical displacement of people or structures, nor impact on indigenous peoples. The project will be implemented in a culturally appropriate and participatory manner.

VIII. GENDER AND SOCIAL DIMENSIONS

51. The overall project's GAP will be implemented and lead by the PMU which will include PMC's social specialist with relevant gender-related experience. The specialist will be responsible for incorporating the gender mainstreaming measures into project planning and implementation. The PMU will report the progress of GAP activities in its quarterly progress reports on overall project activities to ADB and the government.

GENDER ACTION PLAN

Components and Outputs	Performance Targets and Activities	Responsibility	Timeline	Updates
Output 1. Construction and installation of 1.32 MWp solar capacity in 9 outer islands of Tonga				
<p>This will include: Solar power. The project will construct and install solar power systems with a total capacity of 1.32 MWp on 9 outer islands of Tonga by (i) connecting solar photovoltaic generators to existing electricity distribution networks (0.2MWp on 'Eua and 0.55 MWp on Ha'apai) including a repair, documentation, training and improvement program for Vava'u; (ii) connecting solar photovoltaic generators to existing community-owned and community-managed electrical minigrids on four Ha'apai outer islands (100 kWp on 'Uiha, 70 kWp on Nomuka, 70 kWp on Ha'ano, and 150 kWp on Ha'afeva); (iii) connecting 0.183 MWp of solar home system capacity in Niuafu'ou and Niuatoputapu; (iv) At least 65 households are female headed ('Eua, Ha'apai and Vava'u: 50 households and Ha'apai outer islands and Niua: 15 households). (Baseline: 350 households were TPL customers in 2011 and about 50 households not electrified) and (v) Hired women with a 30% target within local construction contracts for solar power installations.</p>	<p>During design and implementation, all community consultations will have a target of at least 50% female participation.</p> <p>Contractors, whenever culturally appropriate, will be encouraged to provide work for unskilled and semi-skilled labor for local people (30% women).</p> <p>Requirement for hiring of women (30% target) will be included in the local construction contracts for solar power installations.</p> <p>Provide necessary institutional support for female labor-based workers such as separate sanitation facilities. Contractors appointed for construction will be informed of the required facilities before bidding.</p> <p>Ensure equal pay for equal work between male and female workers.</p> <p>Incorporate income generation development (fisheries) into project design (availability of freezing facilities for fish catch to allow for start-up commercial activities), including at least 50% participation by women as business managers.</p>	<p>Implementing Agency (TPL and MEIDECC)</p> <p>Principal contractor</p> <p>Principal contractor</p> <p>Principal contractor</p> <p>Principal contractor</p> <p>Implementing Agency</p>	<p>Phase 1 (on-grid rehabilitation) - Q2 2015; Phase 2 - Q1 2016</p> <p>Phase 1 ongoing and Phase 2 (mini-grid/off-grid) - Q4 2017</p> <p>Phase 1 ongoing and Phase 2 - Q4 2017</p> <p>Phase 1 done and Phase 2 during implementation.</p> <p>During construction</p> <p>Q4 2017</p>	<p>Consultation done for Phase 1 and 2</p> <p>Phase 1 engaged 3 males and 3 females.</p> <p>Predominantly men given the nature of work involved. Female staff hired for office work and will be given priority for jobs they would apply and qualify. Phase 1 engaged 6 males onsite and 1 female in the office.</p> <p>Separate restroom not possible due to very few number of women workers but women-friendly condition ensured such as reliable water supply and proper lock and lighting.</p> <p>Ongoing</p> <p>Awareness raising on business opportunities from increased electricity supply done for Phase 1 (Q2 2015); and Phase 3 (Q1 2016) with 50% women participation.</p>
Output 2. Operation and Maintenance (O&M) Program				

<p>(i) Finalized program manual for solar electric equipment.</p> <p>(ii) Knowledge of solar electric and hybrid equipment transferred during a period of 5 years after commissioning.</p>	<p>Conduct at least three yearly training on project planning and asset management maintenance (one for each of 3 project regions) for MEIDECC, TPL staff and the community electric societies with a minimum of 50% female participants</p>	Executing Agency	Phase 2 – Q2 2019. Phase 1 and 3 with TPL not required due to their existing capacity.	Trainings for MEIDECC and community from principal contractor. STR to come once a year to make sure that O&M is happening and train new staff if necessary. O&M Training provision built into the contracts of principal contractors and STR contract.
	<p>Conduct at least three yearly workshops with a minimum of 50% female participants for MEIDECC and TPL staff on procurement, anticorruption and safeguards.</p>	Executing Agency (with support from ADB)	Ongoing	Procurement training (July 2016 and August 2016); Safeguards training (August 2016)
	<p>Conduct at least 1 consumers' training on power budget management with a minimum of 50% female participation for each nine outer islands prior to project implementation.</p>	Implementing Agency	Roll-out training prior to commissioning.	Awareness building done with 50% women participation: Phase 1 - Q2 2015; Phase 2 - Q1 2016 and Phase 3 - Q1 2016.
	<p>Conduct at least 9 workshops with a minimum of 50% female participation on demand side management for community electric societies' customers.</p>	Implementing Agency	Roll-out workshop prior to commissioning	Awareness building done with 50% women participation Phase 1 - Q2 2015; Phase 2 - Q1 2016; and Phase 3 - Q1 2016.
	<p>Enhance community electric societies' management capacities through facilitation of inclusion of women in EMCs (50% female).</p>	Implementing Agency	Q1 2016	Awareness building done with 50% women participation Phase 1 - Q2 2015; Phase 2- Q1 2016; and Phase 3 - Q1 2016
	<p>Conduct at least 1 training on each of nine project sites on business incubation and management including identification of solar power-related business opportunities (minimum 50% female).</p>	Implementing Agency	Roll-out training prior to commissioning	
Output 3. Efficient and Effective Project Management				
Appointed Project Management Consultant (PMC) team, consisting of 1	Include a gender and safeguards specialist in the project team who will	Implementing Agency	Project Manager undertaking the role with assistance	Satisfactory GAP implementation ongoing with the current set-up

<p>electrical solar engineer to act as project manager, 1 power electric planning and field engineer to act as deputy project manager, 1 financial/procurement specialist, and 1 social safeguards specialist. Capacity building program conducted over a period of at least five years after commissioning. Content of the program: (i) Project planning and asset management maintenance (one for each group of islands) for ED, TPL staff and the community electric societies with minimum 50% female participants (At least three yearly training); (ii) Procurement, anticorruption, safeguards, and O&M of solar-diesel hybrid energy systems (one for each group of islands, at least three yearly training) with a minimum of 50% female participants for ED and TPL staff; (iii) Asset management concepts, theories and practical project applications (At least one staff for each island trained yearly); (iv) Asset management program for TPL and community electric societies with a minimum of 10% female participants; (v) Efficient management & utilization of solar power services TPL customers (At least one staff for each island trained yearly); (vi) Consumers' training on power budget management with a minimum of 50% female participants for each nine outer islands and (vii) DSM with a minimum of 50% female participants for TPL and community electric societies' customers.</p>	<p>manage implementation of gender action plans, organize awareness activities and maintenance training for unemployed youth in project community (at least 50% members are women).</p> <p>Provide gender awareness training to all PMC/project staff.</p> <p>Establish all project performance indicators disaggregated by gender, collect them regularly, and include them in the baseline, progress, monitoring, and evaluation reports.</p> <p>Develop a project performance system that includes indicators measuring implementation and progress of the gender action plan.</p> <p>Enhance capacity by MEIDECC and TPL management to include gender perspective into its operations through gender awareness training and institutional development assistance e.g. annual/monthly planning and reporting for all management personnel and interested staff.</p> <p>Include at least one female member to the project team in-charge of community consultation, information and training activities.</p> <p>Conduct project briefing of traditional women and men leaders (9 outer islands) on the project including gender targets and their rationale.</p>	<p>Implementing Agency</p> <p>Implementing Agency</p> <p>Implementing Agency</p> <p>Implementing Agency</p> <p>Executive Agency and Implementing Agency</p> <p>Implementing Agency</p> <p>Implementing Agency</p>	<p>from Gender Focal Points from TPL and MEIDECC</p> <p>Q1 2016</p> <p>Q1 2015</p> <p>Q1 2016</p> <p>Ongoing</p> <p>Q2 2015</p> <p>Phase 1- Q2 2015; Phase 2 -Q1 2016 and; Phase 3 - Q1 2016</p>	<p>Done attended by TPL and MEIDECC and PMC</p> <p>Reporting done on quarterly basis</p> <p>GAP implementation ongoing with project/performance quarterly being monitored</p> <p>Gender awareness training for TPL and MEIDECC done Q1 2016</p> <p>Gender Focal Points identified from the Implementing Agency</p> <p>Done</p>
<p>Output 4. Improvement of Energy Efficiency by</p>				

Upgrading the Existing Distribution Network				
Upgrading power distribution network entirely on 'Eua and up to 50% on Vava'u	During design and implementation, all community consultations will have a target of at least 50% female participation.	Implementing Agency	Q1 2016	Done
	Contractors, where culturally appropriate, will be encouraged to provide work for unskilled and semi-skilled labor for local people (30% women).	Principal Contractor	Ongoing	8 females and 8 males engaged
	Requirement for hiring of women (30% target) will be included in the local construction contracts for network rehabilitation.	Principal Contractor	Ongoing	2 males as surveyors and 0 female. Predominantly men were employed given the nature of work. Office work will give priority to women.
	Provide necessary institutional support for female labor-based workers such as separate sanitation facilities. Contractors appointed for construction will be informed of the required facilities before bidding.	Principal Contractor	Ongoing	Separate restroom is not possible due to very few number of women workers but women-friendly condition ensured such as reliable water supply and proper lock and lighting.
	Ensure equal pay for equal work between male and female workers.	Principal Contractor	During construction	Ongoing
Implementation Arrangements: The activities proposed under the additional financing will not require changes in the existing GAP for the overall project. The project management consultant (PMC) will continue to implement the GAP with gender focal points from TPL and MEIDECC. Gender mainstreaming as per the proposed activities and targets will be ensured during project implementation. The current reporting on progress of GAP activities will remain in quarterly project progress report for submission to ADB and the government.				

MWp = megawatt peak, kWp = kilowatt peak, ED = Energy Department, EMCs = electricity management committees, GAP = gender action plan, TPL = Tonga Power Limited, MEIDECC= Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications.

Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

DESIGN AND MONITORING FRAMEWORK

<p>Impact the Project is Aligned with:</p> <p>Current project Reduction of Tonga's dependence on imported fossil fuel for power generation.</p> <p>Overall project Unchanged</p>			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome			
<p>Current project On-grid and off-grid generation systems are optimized and provide increased consumer access to electricity generated by solar power at a reduced cost.</p>	<p>Current project By 2020: At least 2,103 MWp of solar electricity supplied to customers: 1,314 MWh on 'Eua and Ha'apai Va'vau, and 789 MWh on Ha'apai outer islands and Niua—</p> <p>About 2,010 tons of annual carbon dioxide emissions are avoided: 'Eua and Ha'apai – 1,380 tons; Ha'apai outer islands and Niua—630 tons. (Baseline: None)</p>	<p>TPL annual report</p> <p>TPL annual report</p>	<p>The site selection process is politicized.</p> <p>Environmental issues delay implementation.</p>
<p>Overall project Unchanged</p>	<p>Overall project An additional about 380 MWh of electricity supplied to customers annually by reducing the technical losses, avoiding at least 300 tons of additional carbon dioxide emissions per annum.</p>		
<p>Outputs</p> <p>Output 1</p> <p>Current project The project will construct and install solar power systems with a total capacity of 1.32 MWp on nine outer islands of Tonga, and the existing grid network on the islands of Vava'u and 'Eua rehabilitated by</p>	<p>1a.</p> <p>Current project By the end of 2017: (i) Solar photovoltaic generators are connected to existing electricity distribution networks (0.2 MWp on Eua, repair program on Vava'u and 0.55 MWp on Ha'apai).</p> <p>(ii) Solar photovoltaic generators are connected to existing community-owned and community-managed electrical mini-grids on four</p>	<p>1a.</p> <p>Project progress reports</p> <p>TPL annual report</p> <p>ADB's project completion report</p>	<p>The price of raw materials and power plant components increases unexpectedly.</p> <p>Government approval processes for procurement are slow.</p> <p>The procurement process is weak.</p>

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
TPL.	<p>Ha'apai outer islands (100 kWp on 'Uiha, 70 kWp on Nomuka, 70 kWp on Ha'ano, and 150 kWp on Ha'afeva).</p> <p>(iii) Installation of 23 kWp SHS capacity in Niuafo'ou and 160 kWp SHS in Niuatoputapu.</p> <p>(iv) Rehabilitation 80% and 20% of existing grid networks on 'Eua and Vava'u.</p> <p>At least 65 households headed by women in Ha'apai outer islands (50 households) and Niuas (15 households) will benefit from the project. (Baseline: 350 existing households) Women make up a targeted 30% of workforce for local construction contracts for solar power installations.</p>		<p>The project management unit is not established in a timely manner and has rapid staff turnover.</p> <p>Counterpart staff lack of interest in O&M training.</p> <p>Counterpart staff and communities lack interest in training program.</p> <p>Counterpart support, performance, and coordination are weak and inadequate.</p>
<p>Overall project In addition to the current project output 1, the rehabilitated grid network portions on Vava'u and 'Eua expanded</p>	<p>Overall project By the end of 2019: Output 1: Construct and Install 1.32 MWp solar system on nine outer islands and the rehabilitation of 100% of the existing grid system on 'Eua and 50% on Vava'u</p>		
<p>Output 2</p> <p>Current project O&M knowledge transferred through training</p> <p>Overall project Unchanged</p>	<p>2a.</p> <p>Current project: By the end of 2019: (i) Manual for solar electric equipment is finalized</p> <p>(ii) Knowledge of solar electric and hybrid equipment is transferred during 5 years after commissioning of systems</p> <p>Overall project Unchanged</p>	<p>2a.</p> <p>Project progress reports, TPL annual report, training attendance sheets, and ADB's project completion report</p> <p>Annual asset maintenance plan</p>	
<p>Output 3</p> <p>Current project Project implemented and</p>	<p>3a.</p> <p>Current project By the end of 2019: (i) Consultancy services</p>	<p>3a.</p> <p>Project progress reports, TPL annual report, semi-annual</p>	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
managed efficiently	<p>provided through the appointment of the PMC team, comprising one electrical solar engineer to act as project manager, one power electric planning and field engineer to act as deputy project manager, one financial and procurement specialist, and one social safeguards specialist</p> <p>(ii) Continuous capacity building program conducted for each group of islands for 5 years after systems commissioned</p> <p>Training includes</p> <p>(i) project planning and asset management and maintenance for staff of Energy Department and TPL and existing community electric societies (with an expected minimum 50% female participants);</p> <p>(ii) procurement, anticorruption, safeguards, and O&M training for solar–diesel hybrid energy systems (expected minimum of 50% female participants);</p> <p>(iii) asset management concepts, theories, and practical project applications for staff of TPL and electric societies;</p> <p>(iv) asset management program for staff of TPL and electric societies (expected minimum of 10% female participants);</p> <p>(v) efficient use by management of solar power services for customers of TPL and electric societies;</p> <p>(vi) consumer training on power budget management for each of nine outer islands (expected minimum of 50% female participants); and</p> <p>(vii) demand-side management for customers</p>	safeguards monitoring reports, training attendance sheets, and ADB’s project completion report	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	of TPL and electric societies (expected minimum of 50% female participants).		
Overall project Unchanged	Overall project Unchanged		

Key Activities with Milestones**1. Install and commission 1.32 MWp solar power capacity in the project areas.**

- 1.1 Carry out tender process for turnkey contract (package 1) for 0.75 MWp on-grid solar photovoltaic plants (Jan–May 2015) (complete)
- 1.2 Carry out tender process for turnkey contract (package 2) for 0.57 MWp mini off-grid solar photovoltaic system (Sep 2016–Jan 2017) (changed)
- 1.3 Evaluate and report on bids, and award contracts: package 1 (Jun–Dec 2015) (complete)
- 1.4 Evaluate and report on bids, and award contracts package 2 (Jan–May 2017) (changed)
- 1.5 Install, test, and commission systems, including trial operation of on-grid solar photovoltaic plants (Apr–Dec 2016) (changed)
- 1.6 Install, test, and commission systems, including trial operation of mini and off-grid solar photovoltaic system (Jun 2017–Jun 2018) (changed)
- 1.7. Carry out tender process for rehabilitation of power distribution network on 'Eua and Vava'u: (Jan 2016–Dec 2017) (changed)
- 1.8 Install, test, and trial operation of the rehabilitated power network (Jan 2016–Dec 2019) (changed)

2. Conduct O&M training.

- 2.1 Design O&M program
- 2.2 Conduct O&M training for solar electric and hybrid equipment for 5 years after commissioning (Q1 2017–Q4 2019) (changed)

3. Provide efficient project implementation and management.

- 3.1 Recruit and field PMC team (Q1 2014) (complete)
- 3.2 Prepare detailed project implementation schedule, technical designs, safeguards, and gender action plan components (Q3 2014–Q2 2017) (changed)
- 3.3 Develop and implement capacity-strengthening program for staff of Energy Department, TPL, community electricity societies, and TPL customers (every year until 2019).
- 3.4 Evaluate training programs and report (once a year until 2019)
- 3.5 PMC teams prepare final report after 5 years of activities (Q4 2019)

Inputs

ADB:	\$3.44 million (current) \$5.00 million (additional) \$8.44 million (overall)
Government of Australia:	\$4.50 million (current) \$0.00 (additional) \$4.50 million (overall)
European Union:	\$0.00 million (current) \$3.57 million (additional) \$3.57 million (overall)
Second Danish Cooperation Fund for Renewable Energy and Energy Efficiency for Rural Areas:	\$0.00 (current) \$0.75 million (additional) \$0.75 million (overall)
Government of Tonga:	\$0.97 million (current) \$0.60 million (additional) \$1.57million (overall)

ADB = Asian Development Bank, kWp = kilowatt-peak, MWh = megawatt-hour, MWp = megawatt-peak, O&M = operation and maintenance, PMC = project management consultant, Q = quarter, SHS = solar home system, TPL = Tonga Power Limited.

Source: Asian Development Bank.

C. Monitoring

52. **Project performance monitoring.** PMU, in coordination with MFNP and assisted by PMC, will prepare quarterly monitoring reports, including disaggregated baseline data for output and outcome indicators. The quarterly reports will provide information necessary to update ADB's project performance reporting system. The two annual loan and grant reviews and the quarterly monitoring reports will include environmental and social safeguard monitoring reports.

53. **Compliance monitoring.** In addition to the standard assurances, compliance with the specific assurances will be monitored. Implementation of covenants will be (i) summarized in the quarterly progress reports, (ii) discussed during PMU meetings, and (iii) reviewed during biannual loan and grant review missions. The executing and implementing agencies will cause the detailed consolidated project accounts to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited accounts will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency. The government has been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures. For revenue generating projects only, ADB requires audited financial statements (AFS) for each EA and IAs associated with the project.

54. **Safeguards monitoring.** Environment and social safeguards will be monitored by international and national specialists within the PMU, assisted PMC, in accordance with the initial environmental examination and the resettlement plan. The results of the safeguard monitoring will be reported in the PMU quarterly reports. Additionally, the two annual review missions will report on safeguard compliance.

55. **Gender and social dimensions monitoring.** The project's GAP will be implemented by the PMU which will include a social specialist with relevant gender-related experience. The specialist will be responsible for incorporating social and gender mainstreaming measures into project planning and implementation, including awareness activities and establishment of gender-disaggregated indicators for project performance and monitoring. PMU assisted by PMC will report the progress of activities in its quarterly progress reports on overall project activities to ADB and the government.

B. Evaluation

56. ADB and the EA assisted by PMU will conduct two annual reviews throughout the implementation of the project as well as a mid-term loan/grant review for project. The review will monitor (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. Within 3 months of physical completion of the project, the EA will submit a project completion report to ADB.²⁵

C. Reporting

57. PMU will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a)

²⁵ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan, (d) updated implementation plan for the next 12 months; and (iii) a project completion report within 3 months of physical completion of the project. To ensure that projects continue viability and sustainability, project accounts and the executing agency AFS, together with the associated auditor's report, should be adequately reviewed.

D. Stakeholder Communication Strategy

58. PMU will prepare a stakeholder communication strategy and submit to ADB for review by the end of month 3 after loan/grant effectiveness. All communication will be in language suitable for the specific audience and will follow the ADB Public Communication Policy. The stakeholder strategy will incorporate the following components:

- (i) Compilation of stakeholder communication activities already undertaken.
- (ii) Role of PSC in coordinating and communicating with relevant government stakeholders.
- (iii) Public communication plan for disseminating information regarding project development to the public who may be impacted by the proposed projects.

X. ANTICORRUPTION POLICY

59. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project. All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.

60. To support these efforts, relevant provisions are included in the loan agreement and grant agreements and the bidding documents for the project. Additionally, the government will (a) comply with ADB's Anticorruption Policy (1998, as amended to date), and cooperate fully with any investigation by ADB and extend all necessary assistance, including providing access to all relevant books and records for the satisfactory completion of such investigation; (b) ensure that relevant staff are trained in ADB's Anticorruption Policy; (c) ensure that the audited annual project accounts under the project, project progress, and procurement activities are disclosed on relevant government entities; and (d) allow and facilitate ADB's representatives to conduct spot and random checks on (i) flow of funds and their use for the projects in accordance with the legal agreements; (ii) work-in-progress; and (iii) project implementation under the project.

XI. ACCOUNTABILITY MECHANISM

61. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.

XII. RECORD OF PAM CHANGES

Date Changed	Section Changed	Changes made
1. Fact-Finding Mission: 22 May 2015	<ul style="list-style-type: none"> • Project Rationale (para. 1) • Section II. Implementation Plans, A and B: Project Readiness Activities, and Overall Project Implementation Plan • Section III. A. Project Management Arrangements • Section III.B. Key Persons Involved in Implementation • C. Project Organization Structure including Figure 1 • Section IV. Cost and Financing • Section IV. B-F • Fund Flow Diagram (FFD) • FFD, paragraph 8 • FFD, paragraph 12 • FFD, paragraph 13 • FFD, paragraph 34 • Section VIII. Gender Action Plan • Section IX. Performance Monitoring, Evaluation, Reporting and Communication 	<ul style="list-style-type: none"> • The project scopes are updated based on Review and Fact-Finding Mission MOU. • EU is included as a member (observer) of PSC and the PSC members are updated. • The Key persons of ED, TPL and ADB are updated. • ED is the implementing agency in lieu of TERM-AGENCY. • Updated, including cofinancing from ADB, EU and SDCFREEERA. • Grants from ADB, EU and SDCFREEERA are added • The EU grant is added • The Environment Specialist position is added • The list of PMU staff is updated. • The PSC members are updated. • The Environment Specialist position is added • Updated including the proposed power distribution network component • Updated based on the latest implementation plan, including the proposed power distribution network component
2. Fact-Finding Mission: 12 Aug 2016	<ul style="list-style-type: none"> • Paragraph 3 (ii), Impact and Outcome • Section II. Implementation Plans, A. Project Readiness and B. Overall Project Implementation Plan • Section III. Project Management Arrangements, B. Key Persons Involved in Implementation • Section IV. Costs and Financing, paragraph 8 • A. Project Financing Plan, paragraph 9, including Table 1: Revised Investment Plan, 2: 	<ul style="list-style-type: none"> • The project scopes are updated based on Joint Review and Fact-Finding Mission MOUs. • Additional output for Grid Rehabilitation. • Revised to reflect new timeline for the additional financing. • Reflected the current CEO of the Ministry of Financing and National Planning on behalf of the Government of the Kingdom of Tonga. • Updated to include information on additional financing of grant and loan from ADB.

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- Revised Financing Plan
- C. Detailed Cost Estimates by Expenditure Category
 - D. Allocation and Withdrawal of Grant Proceeds/C.3 Additional Financing II
 - E. Detailed Cost Estimates by Financier
 - F. Detailed Cost Estimates by Year
 - G. Contract and Disbursements S-Curve (Overall Project)
 - Section V. Financial Management, A. Financial Management Assessment, paragraph 22
 - B. Summary of Financial Management Assessment of Tonga Power Limited, paragraphs 24, Table 1, 25; C. Financial Management Internal Control and Risk Assessment, paragraph 26, Table 2
 - D. Disbursement, paragraph 29
 - Section VI. Procurement and Consulting Services, C. Procurement Plan
 - VII. Gender Action Plan
 - IX. Performance Monitoring, Evaluation, Reporting and Communication, A. Design and Monitoring Framework
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