

## PROJECT PREPARATORY TECHNICAL ASSISTANCE

### A. Justification

1. A PPTA is required to develop the proposed project. It will include (i) due diligence for all technical, economic, financial, environmental, legal and social considerations of each project site in (a) Ha'apai, including 'Uiha, Nomuka, Ha'ano and Ha'afeva; (b) Vava'u; and (c) 'Eua, including social and environmental safeguards, and gender action plan; and (ii) operation, maintenance and capacity strengthening program for TPL including customers.

### B. Major Outputs and Activities

2. The major outputs and activities are summarized in Table A4.1.

**Table A4.1: Summary of Major Outputs and Activities**

Major Activities	Expected Initiation Date	Major Outputs	Expected Completion Date
1.1 Review existing technical information; (i) Carry out network study; and (ii) inventory of assets in project sites for quantifying/computing loss reduction potential. 1.2 Study and quantify potential for replacing conventional street lighting by solar lighting and propose other solar applications for achieving the project target of increasing by 50% power distribution efficiency. 1.3 Conduct due diligence: technical, economic, financial, social and environment, capacity building program, and cofinancing assessment.	March 2013	Deliverable 1: Inception Report	May 2013
	May 2013	Deliverable 2: Progress Report , including draft safeguard due diligence reports/plans	June 2013
1.4 Draft due diligence study and training programs for TPL, customers, O&M, and manuals	June 2013	Deliverable 3: Draft Final Report	August 2013
2. Prepare final report	August 2013	Deliverable 4: Necessary inputs to prepare the Report and Recommendation to the President, including linked documents.	October 2013
3. Prepare tender process	October 2013	Deliverable 5: Tender Documents	November 2013

Source: Asian Development Bank estimates.

### C. Cost Estimate and Proposed Financing Arrangement

3. The PPTA is estimated to cost \$0.4 million equivalent, of which \$0.4 million equivalent will be financed on a grant basis by the Multi-Donor Clean Energy Fund under the Clean Energy Financing Partnership Facility<sup>8</sup> (CEFPF), administered by ADB. The government's counterpart contributions will include counterpart staff, office and housing accommodation, office supplies,

<sup>8</sup> Contributors: the governments of Australia, Norway, Spain, and Sweden.

secretarial assistance, domestic transportation, and other in-kind contributions. The value of government contribution is estimated to account 10% of the total TA cost. A detailed cost estimate is presented in Table A4.2.

**Table A4.2: Cost Estimates and Financing Plan**  
(\$'000)

Item	Total Cost
<b>A. Multi donor Clean Energy Fund under the Clean Energy Financing Partnership Facility (CEFPF)<sup>a</sup></b>	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (11 person-months)	250.0
ii. National consultants (6 person-months)	36.0
b. International and local travel	30.0
c. Reports and communications	10.0
2. Equipment <sup>b</sup>	10.0
3. Workshops, training, seminars, and conferences <sup>c</sup>	10.0
4. Surveys	14.0
5. Contingencies	40.0
<b>Total</b>	<b>400.0</b>

<sup>a</sup> Contributors: the governments of Australia, Norway, Spain, and Sweden.

<sup>b</sup> Equipment (to be turned over to executing agency or implementing agency upon TA completion)  
Type: Measurement instruments                          Quantity: 1 lot                          Cost: \$10,000

<sup>c</sup> Workshops, training, seminars, and conferences  
Purpose: Stakeholder consultation                          Venue: TPL  
Source: Asian Development Bank estimates.

#### **D. Consulting Services**

4. The TA will require 11 person-months of international and 6 person months of national consulting inputs. The scope of this project is an extension of the proposed Outer Island Renewable Energy Project, therefore single source selection of the same consultancy firm (High Chem GmbH) is proposed. This fact will allow the natural continuity in the technical approach, highly qualified work, retaining experience acquired, continued professional liability, and continuation of good performance. The firm was previously engaged through quality- and cost-based selection method (quality-cost ratio of 90:10), due to the specific technological complexity of the previous project preparation using a simplified technical proposal in accordance with the *Guidelines on the Use of Consultants* (April 2010, as amended from time to time). The proceeds of the PPTA will be disbursed in line with ADB's *Technical Assistance Disbursement Handbook* (April 2010, as amended from time to time).

5. The cluster TA, ADB's Pilot Asia Pacific Climate Technology Finance Center, Subproject B, Assessment of Technology options for priority projects, will finance as in-kind contribution 3 person months of international consulting inputs. Table A4.3 reflects required services.

**Table A4.3: Summary of Consulting Services Requirement**

International Name of Positions	Person-months	National Name of Positions	Person-months
Electromechanical/Power Specialist and Team Leader	7.0	Support local professional	6.0
Renewable Energy Specialist	3.0	(Financed by ADB’s cluster TA)	
Financial Specialist	2.0		
Social Specialist	1.0		
Environment Specialist	1.0		

Source: Asian Development Bank estimates.

6. **Electromechanical/ Power Specialist and Team Leader** (international, 7 person-months). Will demonstrate substantial experience in fossil fuel generation and distribution networks. Experience working with smaller, rural networks is an advantage. The specialist will have the following responsibilities:

- (i) Review existing data and work closely with TPL to assess the status of existing 3 power distribution networks (Ha’apai, Vava’u and ‘Eua), and 4 mini-grids (‘Uiha, Nomuka, Ha’ano and Ha’afeva )including inventory of all parts and pieces necessary to replace for achieving efficiency improvement of the grids. **Deliverable 1:** Inception Report
- (ii) In coordination with the team, conduct a network study and synchronization analysis using appropriate software, conduct fuel usage and existing load profile analysis; key words: grid stability and compensation, integrated energy matrix. Develop demand forecasts with and without project.
- (iii) Lead the due diligence process for the selected power distribution networks (technical, economic, social and environmental), including governance, anticorruption, regulatory and policy assessments.
- (iv) In coordination with the Financial Specialist, conduct financial analysis.
- (v) Design the procurement plan.
- (vi) Lead consultation workshops with Government and non-Government representatives and relevant stakeholders to assess system issues and discuss the proposed projects. **Deliverable 2:** Progress Report
- (vii) Final Report: Exact contents will be determined during the inception mission but will include site description, technical specifications, detailed cost estimates, economic and financial feasibility, procurement plan, environmental and social safeguard findings.
- (viii) Develop training programs, manuals and system design books for TPL personnel and DSM-Plan and capacity building for customers. The program will include risk management aspects.
- (ix) Explore other private project cofinanciers and donors. Conduct stakeholder training workshops. **Deliverable 3:** Draft Final Report (including Training Report)
- (x) All necessary inputs to prepare the Report and Recommendation of the President to the Board of Directors including linked documents. **Deliverable 4**
- (xi) Draft Tender Documents, according to ADB’s guidelines. **Deliverable 5**

7. **Renewable Energy Specialist** (international, 3 person-months). Financed by the cluster technical assistance ADB’s Pilot Asia Pacific Climate Technology Finance Center, Subproject B, Assessment of Technology options for priority projects. The specialist will have a minimum of 5 years working experience and have following responsibilities:

- (i) Carry out preliminary technical evaluation of the existing solar power generators connected to each of the power distribution network to gather electrical data, energy outputs.
- (ii) Assess feasibility (technology, economics and finances) of detaching public services from the power distribution network as i.e. public lighting, cooling, and public building lighting using solar energy.
- (iii) Develop training programs, manuals and system design books for TPL personnel and DSM-Plan and capacity building for customers. The program will include risk management aspects.
- (iv) Assist the Project Team Leader in drafting all deliverables

8. **Financial Specialist** (international, 2 person-months). Will have at least 5 years experience in project finances. The consultants' work will consist of the following:

- (i) Prepare cost estimates for the power distribution network schemes, including power demand, least-cost, sensitivity and risk analysis, EIRR, FIRR, WACC. Calculate how the capital and operational expenses will affect the financial exercise. Discuss the results. ADB's *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*, will provide guidance.
- (ii) Assess the impact of the project on the uniform national power tariff, and design the financial and economic feasibility to justify the investment
- (iii) Prepare inputs for the Report and Recommendation to the President, including linked documents, and draft Tender Documents, according to ADB's guidelines

9. **Social Specialists** (international, 1 person-month). Will have at least 5 years experience in social analysis, the consultants' work will consist of the following:

- (i) Organize and conduct surveys in the project area, and consultations with Government and non-Government organizations to supplement secondary data. Prepare a poverty profile of the project area.
- (ii) Conduct stakeholder consultation activities, including community leaders, elderly, disabled, women and other beneficiaries.
- (iii) Conduct poverty analysis and pro-poor impacts within the project area, and assess the capacity and willingness of the poor to pay for electricity services. Present findings in the Summary Poverty Reduction and Social Strategy template.
- (iv) Design the sustainability structure of the project by targeting gender headed households and designing capacity building in the use of electricity for improve livelihoods, and enhance their sources of income and education.
- (v) Identify gender issues, suggest remediation measures and incorporate them into the project design. Prepare and integrate the Gender Action Plan into the PAM.
- (vi) Prepare an indigenous peoples plan (if any), following ADB's Safeguard Policy Statement.
- (vii) Investigate whether the project will require land acquisition, or restriction in land use, or restricted access to land and natural resources. If the project is likely to involve such impacts, undertake necessary due diligence/assessment and prepare a resettlement plan (RP) based on census of affected or displaced people, inventory of losses, and socio-economic survey of DPs, review of the country safeguard systems and identification of necessary measures in accordance with ADB's SPS. The contents of the RP should follow the outline in Appendix 2 of SPS.

- (viii) Assess if the project involves existing facilities. If so, conduct a social compliance audit for the existing facilities to identify past or present concerns related to impacts on land acquisition/resettlement or indigenous peoples in accordance to *ADB Safeguard Policy Statement*, Appendix 4, para 12. If needed, prepare a corrective action plan to bring the project into safeguard compliance.

10. **Environment Specialist** (international, 1 person-month). The Environment Specialist will have at least 5 years experience in environmental assessment of infrastructure projects. The consultant's work will consist of the following:

- (i) Prepare the environmental assessment for the project in accordance with local and ADB's Safeguard Policy Statement (2009).
- (ii) Draft (a) Gantt Matrix focusing on energy, technology, environment, social, legal, and economic aspects; (b) listing of impacts on soil, air and water and relevant mitigation measures, including climate change; (c) consultation with project stakeholders; (d) assessment of the institutional capacity of the Project proponent, relevant regulatory agencies involved with implementing the Project's environmental management plan; (e) draft related TOR for capacity building.
- (iii) Draft, (a) initial environmental examination and environmental management plan, in accordance with ADB's Safeguard Policy Statement (2009); (b) environmental text for the Project Administration Manual, including detailed activities, and (c) draft environment text for key project documents as RRP, and Project Agreement.

11. **National Support Professional** (Electrical engineer, 6 person-months). Will undertake following activities:

- (i) Assist the Project Team in gathering existing background data and reports.
- (ii) Support the team in selecting suitable sites for carrying out resource assessments, and Government in coordinating and implementing TA activities
- (iii) Assist the project team in (a) arranging travel logistics, (b) arranging meetings and workshops, (c) maintaining contacts with stakeholders, (d) obtaining relevant country background data, and (e) obtaining follow-up technical data.
- (iv) Assist during stakeholder consultations during project design.
- (v) Assist in communications, preparation of technical specifications and feasibility studies, and implementing workshops and dissemination activities.

## **E. Implementation Arrangements**

12. The executing agency will be the Ministry of Finance and National Planning. The implementing agencies will be the Tonga Energy Road Map Implementing Unit (TERM-IU) and TPL. The government has appointed TERM-IU as the energy sector cross-cutting implementing agency. The proposed TA processing and implementation schedule is listed in Table A4.4.

**Table A4.4: Proposed Technical Assistance Processing and Implementation Schedule**

<b>Major Milestones</b>	<b>Expected Completion Date</b>
Concept Paper Approval	December 2012
Signing of TA letter of Agreement	December 2012
Extension of contract of recruited firm	December 2012
Consultant Mobilization	January 2013
Inception Report	May 2013
Draft Final Report	July 2013
Physical Completion	November 2013
Financial Closure	December 2013

Source: Asian Development Bank estimates.