E4680 REV

Tuvalu Electricity Corporation

Environmental and Social Management Framework
Tuvalu Energy Sector Development Project

Final November 2014

Contents

Cover photo credits: Solar array, TEC Fogafale, Pene Ferguson. Wind turbine, Nananu –i-ra, Fiji, Masato Ikeda (flickr.com).

1 Introduction

Background

The World Bank is supporting Tuvalu Electricity Corporation (TEC) to deliver parts of a Master Plan for Renewable Energy and Energy Efficiency (MPREEE) through the Tuvalu Energy Sector Development Project (ESDP). This Environmental and Social Management Framework, or 'ESMF', is a tool to help TEC to integrate environmental and social stewardship into the project and meet the Environmental and Social Safeguards Policies of the World Bank.

The MPREEE outlines the way forward to generate electricity from renewable resources ("renewable electricity") and to develop an energy efficiency programme in Tuvalu. It builds on the Tuvalu National Energy Policy, 2009. The Master Plan is a response to the challenges of the reliance on imported diesel to provide electricity, and as a tool reduce Tuvalu's "carbon footprint" and help the nation become an international role model with regard to climate change mitigation.

Purposes of the Environmental and Social Management Framework (ESMF)

Assist TEC to deliver projects under the ESDP that:

- meet the environmental laws and regulations of Tuvalu; and
- meet the environmental and social safeguard policy requirements of the World Bank.

Content

The Framework covers all foreseeable and potential environmental and social impacts relating to the key aspects of the proposed investment programme[1] except: land acquisition, resettlement and compensation for lost assets or access to assets. These issues are covered by the project's Resettlement Policy Framework (refer Section 1.2).

Within the ESMF is the following:

- Brief details on the environmental and social context of Tuvalu, with a focus on the key issues and sensitive features that are specific to the project.
- Screening process for each investment or project – to determine the type of environmental assessment required to satisfy the Environment Protection Act 2008 and World Bank safeguard policies.
- Description of the roles and responsibilities of TEC.
- Codes of practice specific to the type of technology or project component, to assist with the mitigation and management of adverse environmental and social impacts.

1.1 Version

This is the final version dated 24 October 2014, and takes into account feedback from stakeholder and community consultation on the draft ESMF (dated November 2013). The ESMF may be updated following consultation, and following any new or amended project components. The ESMF

[1] New impacts may be identified during consultation or project implementation. The ESMF can be updated or an Environmental Management Plan can prepared to cover those impacts not identified or adequately addressed in this version of the ESMF.

(including the Codes of Practice) may also be updated if significant new environmental or social impacts or risks occur during project preparation or implementation.

1.2 Safeguards Instruments

This ESMF is the environmental and social safeguard instrument for the ESDP project. The involuntary resettlement safeguard document is a Resettlement Policy Framework (RPF) entitled 'Resettlement Policy Framework: Funafuti Airport and Road, Tuvalu Aviation Investment and Tuvalu Energy Sector Development Projects', dated 21 October 2013.

2 Project Description – Tuvalu Energy Sector Development Project

There are three components to the Tuvalu Energy Sector Development Project, as follows:

Component 1: Renewable Energy (RE) Investments. This component would finance the installation of power generation and management equipment including: (i) solar PV (about 500 kW peak) and wind power generation (up to 100 kW) to bring the renewable energy fraction in the Funafuti grid system to at least 30%, from the current 18%; (ii) batteries, sufficient for the storage requirements of the above installations, as well as other installations on the island; (iii) battery inverters and an integrated power control system to provide grid stability and other ancillary services; and (iv) a satellite-based communications system in Funafuti and the outer islands that will enable TEC to remotely monitor, control and improve the operation and maintenance of its power systems and enhance customer service.

The solar PV systems will be located on Fogafale. They will be ground-mounted arrays, not roof-mounted on existing buildings. The new structures may have other functions (such as pig pen shelters). The exact location and design is yet to be confirmed.

The wind turbines will be located on Fogafale. The exact location and design is yet to be confirmed.

The contract for the implementation of the RE subcomponent will be awarded using the standard bidding document for Plant Design, Supply, and Installation. Bidders will be responsible for the final design of the RE package—including the optimal combination of solar and wind power generation and storage—in order to deliver the RE penetration target, taking into consideration cost and technical characteristics of the equipment to be supplied and local conditions.

Component 2: Energy Efficiency Investments. This component will complement Component 1 by reducing energy demand and avoiding the need for the equivalent amount of more costly future investments on generation. It would finance the installation of prepayment meters in households and smart meters in large TEC accounts. Aside from assisting consumers to more effectively manage their electricity use, this investment would help TEC's demand side management (DSM) planning and considerably improve its revenue collection and overall financial status. With the smart meters, a data communication system will also be installed, to enable information from the meters to be transmitted to a central monitoring system for storage, analysis and necessary actions by TEC. The component will also finance the implementation of specific energy efficiency investments and measures, already identified in energy audits and consultant studies.

Component 3: Technical Assistance and Project Management Support. This component will finance the conduct of training courses and other capacity building activities for TEC and other Government staff to strengthen their capability to manage and implement the various activities under the project. The specific training and skills enhancement activities will be identified by a training needs assessment. The component will also finance the setting up of a data management system at TEC, and the conduct of technical and energy studies essential to the implementation of some of the project activities.

Four studies are proposed in advance of the project to be funded under ASTAE multi-donor trust fund to prepare Component 2.

The studies are:

Energy Efficiency

Study 1 will focus on identifying, evaluating and proposing energy efficiency measures for the island of Fogafale, supporting Tuvalu towards its goal to achieve a 30% improvement in energy efficiency in Fogafale. Study 1 will cover the auditing of buildings, industrial and commercial facilities, evaluation of electrical appliance efficiency and availability in the local market, and evaluation of the potential use of electric motorcycles, scooters and bicycles for individual transportation. The conclusions and recommendations of the studies will be incorporated in the Energy Efficiency Plan to be implemented as Component 2 of the Project.

Renewable Energy

Study 2 will involve the structural evaluation of public building and private dwelling roofs in Fogafale to identify potential roof space for the installation of additional solar PV generation. A structural/civil engineer will be hired to perform the work and design roof reinforcements, if needed.

Study 3 will involve an analysis of the viability of coconut oil being used as a bio-fuel for electricity generation in Tuvalu. The study will include analysis of outer island resources, inter-island supply chain, adaptation of existing diesel generators and erection of mini-mills; financial and economic modeling; and assessment of social, cultural and environmental issues.

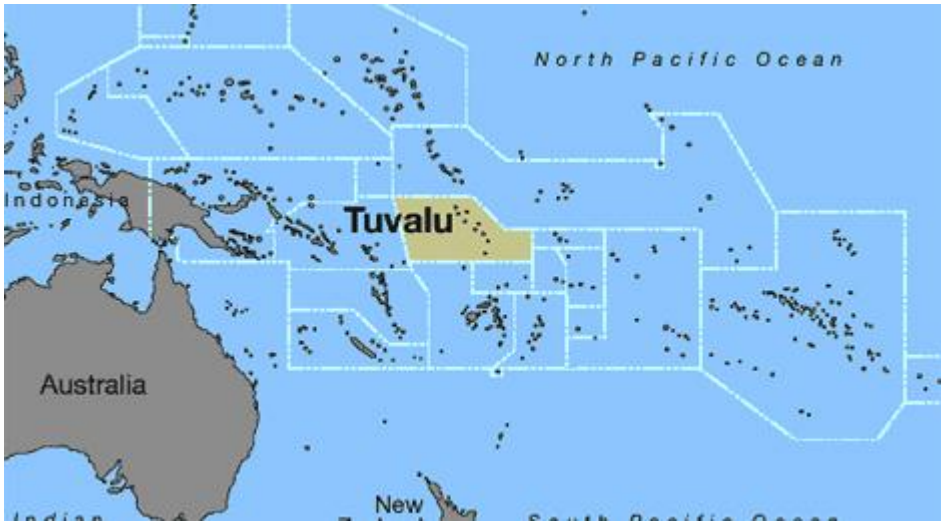
Study 4 will involve:
(a) the characterization of the operational and technical features of the existing Fogafale power system and the projection of its future development, so the size of the renewable energy package to be acquired under Component 2 may be defined, as well as the performance requirements of its components. The study will include the evaluation of the current diesel oil and PV generators and inverters, distribution system and electricity demand, interruptible loads, and dispatching and control systems configuration, and the recommendation of the strategy to facilitate the future high penetration of renewable energies. This strategy will include the definition of the equipment and power conditioning systems required to provide remote monitoring of the operation and ancillary services - including condition-based maintenance - maintain grid voltage and frequency stability, optimize the generation of all energy sources, save fuel, and extend the life of the storage units. Finally, the study will recommend the mechanisms for the measurement and verification of the amount and quality of the renewable energy delivered as part of Component 1.These recommendations and definitions will be used as inputs for the preparation of the bidding documents for the acquisition of the renewable energy package included in Component 1, and

(b) the detailing of the standards and technical specifications for the equipment to be supplied, taking into account the performance criteria as well as environmental, geographical, and social factors pertaining to the application in Tuvalu as well as recommended regional standards. The result will input into the preparation of the bidding documents for the acquisition of the renewable energy package included in Component 1.

3 Environmental and Social Context

Tuvalu is a Polynesian island nation located approximately 1,000 km north of Fiji, to the west of the international dateline. Tuvalu is a chain of three reef islands and six true coral atolls. The highest point above sea level is 4.6 metres. Tuvalu's population of 10,837 (2012 census) and small land mass makes it one of the smallest nations in the world.

Figure 1 Location of Tuvalu in the Pacific



Soils are poor for agricultural purposes. Only coconuts and pandanus can grow naturally. Banana, papaya and breadfruit are cultivated and pulaka, a variety of taro, is grown in pits excavated from coral rock.

Half the population is urban. Funafuti is home to 57% of the population, with a density of 373 persons per km^2. The majority of these people live on the main island of Fogafale, in the Funafuti atoll, which is also host to the only international airport, Funafuti International Airport.

Land is at a premium on Fogafale and there is very little 'idle' land. Land is used for government and community related infrastructure (roads, port, airport, public works depots, sports fields, maneapa, schools, hospital, landfill), dwellings and commercial enterprise. Agriculture, including animal raising, is domestic in scale.

The low profile and narrowness of the islands render them prone to overtopping and flooding from the sea. Tuvalu is extremely vulnerable to rising sea levels and coral bleaching as a result of climate change.

More detail on the social and environmental context of Tuvalu is provided in Annex 2:.

Figure 2 Typical domestic setting, showing lack of soil / grass / vegetation cover over coral rock substrate, Fogafale

4 Environmental Legislation and Safeguard Policies

4.1 Tuvalu Environment Protection Act 2008 and 2014 EIA Regulations

The Act covers impact assessment, international and regional environmental obligations, biodiversity protection, climate change strategy and waste management.

Under Section 18, the Department of Environment (DoE) has the power to create regulations to provide for a system of environmental impact assessment to be applied in Tuvalu.

4.1.1 EIA Regulations 2014

The 2014 Tuvalu Environment Protection (Environmental Impact Assessment) Regulations prescribes, under Schedule 1 Development Activities Section 9(n), that an electricity generating station is considered a development activity. All development activities require a development consent, issued by the Department of Environment. As part of the consent process, a Preliminary Environmental Assessment Report (PEAR) must be prepared by the developer (TEC).

The process, as prescribed by the 2014 regulations, is as follows:

1. All persons proposing to undertake any development activity to which these regulations apply must, prior to the commencement of the activity, – (a) notify the Department of Environment of the proposed activity; and (b) apply for a development consent under these regulations. All notifications must be accompanied by an application fee of $500.00.
2. A preliminary report (PEAR) shall contain the following particulars
    a. a brief description of the development proposal;
    b. a brief description of the area to be affected and the nature of the proposed change to the area (including a location map and site plan);
    c. a brief justification for the development proposal;
    d. an assessment of all reasonably foreseeable adverse and positive impacts, including long-term and short-term, primary and secondary consequences;
    e. an indication of possible alternatives to mitigate any identified adverse impacts; and
    f. an indication of measures that the proponent intends to take to mitigate or avoid identified adverse impacts.

The Department of Environment will approve the development consent, unless the Minister decides that, due to the potential risks of the project, a full Environmental Impact Assessment is required.

4.1.2 Schedule 1 of the Environment Protection Act 2006

Schedule 1 provides a list international conventions to which Tuvalu has signed. This includes:

- United Nations Framework Convention on Climate Change (Adopted at New York on 9 May 1992).
- Cartagena Protocol to the Convention on Biological Diversity (Adopted at Montreal on 29 January 2000).
- Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Waste and to Control the Trans-boundary Movement and Management of Hazardous Waste within the South Pacific Region (Waigani, PNG, 16 Sept, 1995).

4.2 World Bank Safeguard Policies

The World Bank's environmental and social safeguard policies are a cornerstone of its support to sustainable poverty reduction. The objective of these policies is to prevent and mitigate undue harm to people, their livelihoods and their environment in the development process. The safeguard policies that apply to this project and described below are:

- OP/BP 4.01 Environmental Assessment
- OP/BP 4.12 Involuntary Resettlement

OP4.04 Natural Habitats and OP4.11 Physical Cultural Resources do not apply to the project at the time of appraisal, but are described below and included in the screening processes for subprojects, in case issues come up during project implementation that are relevant to these two policies.

4.2.1 OP/BP4.01 Environmental Assessment

The purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are environmentally and socially sound and sustainable, and that potentially affected people have been properly consulted. The policy defines procedures to screen and assess potential impacts and mitigation, prepare safeguard instruments, ensure public consultation and transparency and that there are implementation and supervision of commitments relating to findings and recommendations of the environmental assessment.

Environmental assessment has been undertaken in accordance with this policy and this ESMF is the safeguard instrument for the ESDP and the linked ASTAE studies For the projects to be developed during project implementation, the screening checklists will determine which environmental safeguard instrument is relevant for the specific project – either a Code of Practice or a PEAR/EMP.

4.2.2 OP/BP4.12 Involuntary Resettlement

Involuntary resettlement refers to management of adverse impacts of loss of, or damage to, land, assets or livelihoods, where the affected person has no choice. Land may be needed for this project to install electricity generation, storage and communications infrastructure. This may occur on Government or private buildings, Government leased land or 'native' land. Assets such as tree crops may need to be trimmed or removed to allow access to sites / infrastructure.

A Resettlement Policy Framework has been prepared and publicly disclosed as the safeguard instrument under this policy.

4.2.3 Other Safeguard Policies

OP4.04 Natural Habitats

The conservation of natural habitats is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs.

In the environmental assessment for the ESMF, no threats to natural habitats were identified and this policy is not triggered for the TESDP. However the screening and environmental assessment for

each of the separate projects under the EDSP will require an assessment of the potential impacts on natural habitats in accordance with this policy.

OP 4.11 Physical Cultural Resources

This policy refers to the protection of physical cultural resources (including archaeological, paleontological, historical, cultural or spiritual artefacts and places, whether immovable or moveable). When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the environmental assessment process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.

In the environmental assessment for the ESMF, no threats to physical cultural resources were identified and this policy is not triggered for the TESDP. However the ESMF provides guidance on identifying physical cultural resources for any subproject not yet defined, and how to avoid or mitigate any potential impacts using the Codes of Practice or PEAR/EMP.

4.2.4 Gender Action Plan

A Gender Action Plan has been prepared for the ESDP project. While this is not a requirement of the World Bank Safeguard Policies, 'Gender and Development' is part of the wider set of the Bank's Operational Policies, and is relevant to the consultation processes under the ESMF. The Bank requires all Bank projects to be gender informed. To be gender informed, all projects should include (i) Gender Analysis and/or consultation on gender related issues, (ii) Specific actions to address the distinct needs of women and girls, or men and boys, or positive impacts on gender gaps, and (iii) Mechanisms to facilitate monitoring and/or evaluation of gender impacts. The objective of the Bank's gender and development policy is to assist member countries to reduce poverty and enhance economic growth, human well-being, and development effectiveness by addressing the gender disparities and inequalities that are barriers to development, and by assisting member countries in formulating and implementing their gender and development goals.

Where relevant, the Gender Action Plan is cross-referenced in the ESMF.

4.3 Comparison of Environmental Assessment Requirements

Table 1 Comparison of Environmental Assessment Documentation Requirements

Contents of Assessment Report	Environmental Protection Act EIA Regulations	World Bank Safeguard Policies
Report type / title	Preliminary Environmental Assessment Report (PEAR)	Environmental Management Plan (EMP) The World Bank policies are flexible. Use of in-country report type / title is acceptable to the Bank, as long as the EMP requirements are included.
Policy, legal and administrative		Yes

Contents of Assessment Report	Environmental Protection Act EIA Regulations	World Bank Safeguard Policies
framework		
Description of development proposal	Yes	Yes
Description of area to be affected (environment and social)	Yes	Yes
Nature of proposed changes	Yes	Yes
Location Map / Site Plan	Yes	Yes
Justification for the proposal	Yes	Yes
Assessment of impacts	Yes	Yes (significant only)
Mitigation of impacts	Yes	Yes (significant only)
Alternatives	Yes	Yes
Public consultation		Required, and a summary provided in the report.
Public disclosure of the document		Yes
Institutional arrangements		Yes
Capacity building		Yes
Relevant actions from the Gender Action Plan		Yes
Budget		Yes

5 Significant Potential Environmental and Social Impacts and Mitigation Measures

Table 2 Summary of significant potential impacts and key mitigation measures for potential investments under the ESDP

Activity	Significant Potential Impacts	Key mitigation measures	Safeguard Tools
Civil works	Hazardous substances and waste Source of aggregates for construction Solid waste Removal of vegetation Noise and dust, and disruption to building occupiers Disruption / damage to graves and physical cultural resources Workers causing disruption to traditional / island lifestyles	Safe storage of hazardous materials Use imported, fumigated aggregates from permitted sources Reuse waste aggregates from roading or runway projects Removal of all solid and hazardous waste off Tuvalu, compost or local disposal of vegetation. Minimise vegetation removal. Constrain working hours and provide adequate warning of works. Avoid graves and physical cultural resources in design. Worker training in HIV / AIDs, cultural awareness. Workshops with communities prior to construction.	Code of Practice for Construction and Earthworks (including Maintenance) Code of Practice Cultural Heritage PEAR/EMP for civil works relating to Solar or Wind
Solar PV Arrays	Selection of equipment Safety of public during operation Disposal of equipment (plus civil works as above)	Consider disposal of equipment in supply contract. Protective locks, fences, signage etc. and education of building occupiers. Require recycling or disposal of equipment off Tuvalu.	PEAR / EMP
	Land acquisition Tree trimming – loss of private assets	Participatory approaches to site selection. Prioritise government land in the first phase. Provide compensation for lost assets.	PEAR/EMP Resettlement Policy Framework
Wind Turbines	Land use / site selection Noise during operation Visual impacts during operation Bird strike during operation (plus civil works as above)	Site selection on government leased land. Participatory approaches to site selection. Type of turbine.	PEAR / EMP
	Access to properties for turbines. Tree trimming – loss of private assets	Site selection on government leased land Participatory approaches to site selection Consultation and protocol for access to private property. Provide compensation of lost assets.	Resettlement Policy Framework
Batteries	Selection of equipment Safety of public during operation Disposal of equipment	Consider disposal of equipment in supply contract. Protective locks, signage etc., and store batteries inside. Require recycling or disposal of equipment off Tuvalu	Code of Practice for Batteries
Network equipment and communications equipment	Location of equipment Disposal of equipment	Prioritise location on government land Require recycling or disposal off Tuvalu	Codes of Practice for Network Equipment

Activity	Significant Potential Impacts	Key mitigation measures	Safeguard Tools
Prepay meters	Access to properties	Consultation and protocol for access to private property.	Codes of Practice for Network Equipment TEC Operating Procedures for obtaining prior permission Resettlement Policy Framework
Technical advisory	Outputs that are contrary to good environmental management and community well-being, and contrary to donor safeguard policies or the Environment Protection Act of Tuvalu.	Requirement for consultants to consider environmental and social impacts and aspects as part of the advisory service.	Terms of Reference for Technical Advisory

6 Environmental Management Process

This process takes into account the EIA Regulations 2014 and the World Bank Safeguards Policies.

6.1 Subproject Screening

A subproject is an investment such as a solar array, wind turbine, batteries, installation of communications equipment and installation of prepayment meters or smart meters. It is also a technical advisory project, such as engaging consultants to undertake energy efficiency surveys.

For each subproject that is developed during project implementation:

Step 1. Screen for land ownership and requirements for land and land-based asset acquisition requirements, and determine whether voluntary land donation may be possible (refer Section 7 and Annex 13:) or whether a Resettlement Action Plan based on the involuntary Resettlement Policy Framework is required (Annex 4:).

Step 2. Screen the activity against the2014 EIA Regulations of the Environment Protection Act – Does the activity need a development consent and PEAR? Consult with Department of Environment if necessary. For solar arrays and wind turbines a development consent and PEAR is necessary.

Step 3. Scope environmental and social risks and impacts (Annex 5:).

Step 4: Determine the type of environmental safeguard document – PEAR / EMP, Code of Practice or clauses in the Terms of Reference for consultants carrying out Technical Advisory services.

Refer to Figure 2 for the screening process.

6.2 Documentation Preparation, Implementation and Monitoring

For Subprojects Requiring a PEAR / EMP:

- A suitably qualified staff member or consultant shall prepare the PEAR / EMP.
- Guidelines for preparing the document are included in Annex 6:. Prepare the document to meet the Tuvalu EIA Regulations and the World Bank Safeguards requirements. The Codes of Practice can form part of the mitigation / monitoring measures.
- Consult with the public and relevant stakeholders using the draft PEAR /EMP, and finalise the document with the feedback from consultation.
- Lodge the PEAR/EMP with the Department of Environment, following the 2014 EIA Regulations process. Send the PEAR / EMP to the World Bank for no objection.
- Publicly disclose the document.
- Ensure the PEAR / EMP and development consent are part of the tender documents for contractors, and part of the contract with contractors. Contractors are required to have a plan called a Contractors EMP that shows how the PEAR/EMP will be implemented.
- Implement the PEAR / EMP and supervise and monitor the implementation by contractors.
- Report progress to the World Bank and the Department of Environment during normal reporting procedures.

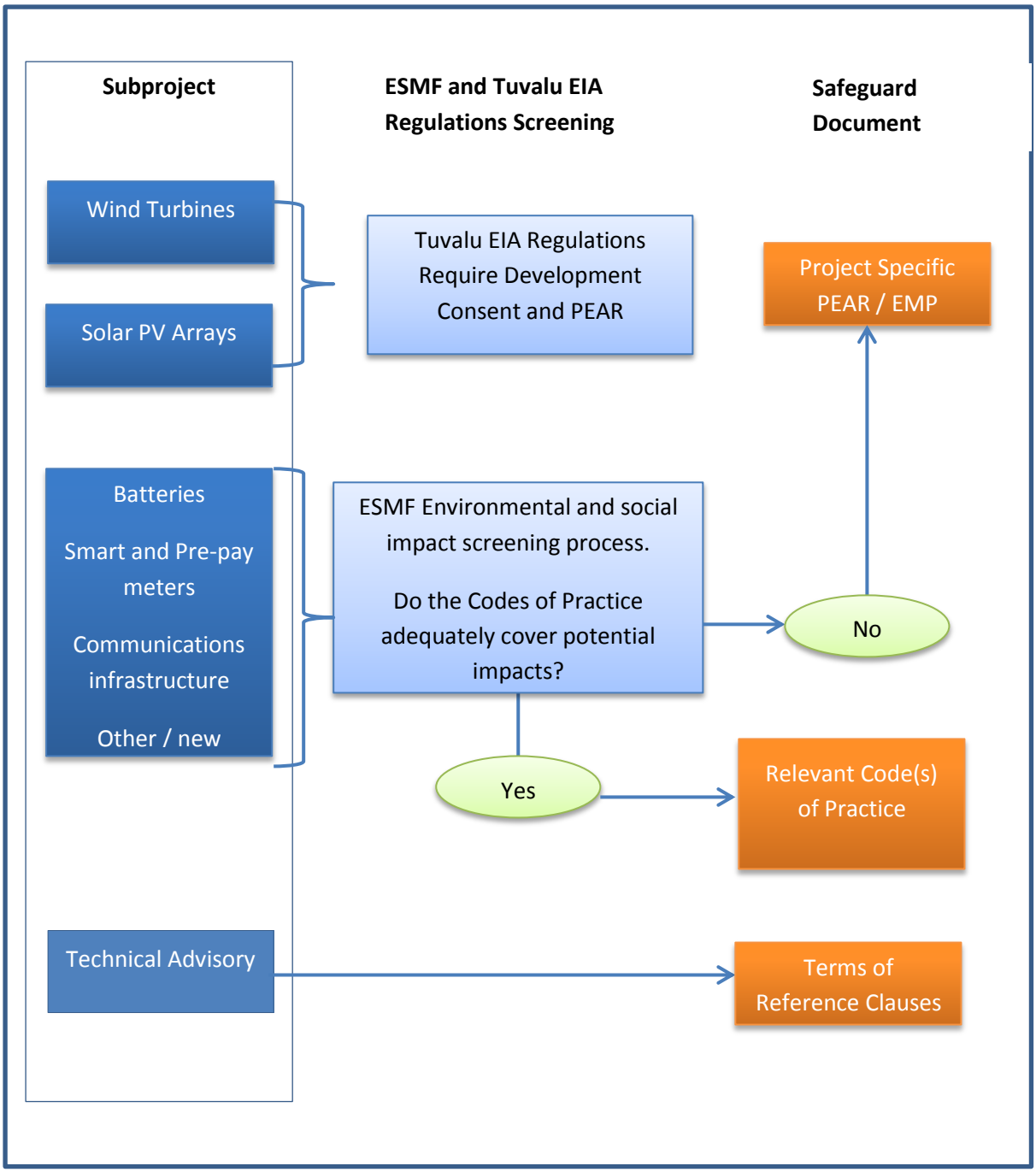
For Subprojects Using a Code(s) of Practice:

- Ensure the relevant Codes of Practice are part of the tender documents for contractors, and part of the contract with contractors.
- Implement the Codes of Practice and supervise and monitor the implementation by contractors.
- Report progress to the World Bank during normal reporting procedures.

For Subprojects Using the Technical Advisory Terms of Reference:

- Include the environmental safeguard clauses referring to World Bank approved safeguard documents and Safeguards Policies in the Terms of Reference for any consulting / technical advisory contracts. Ensure the provisions are included in the contract of the successful tenderer.
- Supervise and monitor the outputs of the consultant.
- Report progress to the World Bank during normal reporting procedures.

Figure 2 Screening Process for each Subproject



7 Voluntary Land Donation Principles

To meet World Bank safeguard policies, the principles governing voluntary donation are as follows.

Voluntary land donation refers to a process by which an individual or communal owner agrees to provide land or property for project-related activities. In general, voluntary land contribution is undertaken without compensation. Voluntary contribution is an act of informed consent, made with the prior knowledge of other options available and their consequences, including the right not to contribute or transfer the land. It must be obtained without coercion or duress.

Voluntary land donation requires a declaration by the individual, household or group that they are donating either the land or the use of the land, for a specific purpose and a specific duration of time. It is noted that the project proposes permitting voluntary *use* of land but not *transfer of ownership*. This must include both women and men. It is provided freely and without compensation, and is acceptable only if the following safeguards are in place:

1) Full consultation with landowners and any non-titled affected people at the time of site selection (including the consultation with both women and men)

2) Voluntary donations should not severely affect the living standards of affected people based on the World Bank definition

3) Any voluntary donation will be confirmed through written record and verified by an independent third party such as customary tribunal, non-governmental organization (NGO) or legal authority

4) Adequate grievance redress mechanism should be in place.

If involuntary acquisition cannot be avoided, a Resettlement Action Plan is to be prepared according to the principles in the Resettlement Policy Framework.

7.1 Compensation Approach – Voluntary Land Use Consent

OP 4.12 defines “involuntary” as “actions that may be taken without the displaced person’s informed consent or power of choice”. If a clear choice exists, and if land is not transferred, there is no land acquisition (compulsory or otherwise). Notwithstanding this, the TEC is cognizant of the potential perceived or real risks associated with this approach. Accordingly, an Abbreviated Resettlement Action Plan (ARAP) will be prepared to provide a full explanation of the design process, consultation process and an explanation of the land ownership and land management arrangements in the project area. Documentation of consultation and the legal agreements between the villages and TEC will be appended to the ARAP.

An assessment of the key aspects of Voluntary Land Donation is included in the following table.

Key consideration	Application to this project
What the land is going to be used for, by whom and for how long?	The land will be used by local communities to allow the generation and distribution of renewable energy. The energy generated will be primarily for the local beneficiary communities. Benefits are primarily to the local

	community.
Will they be deprived of the ownership or right to use the land? What does this really mean?	No transfer of land ownership will take place. Land use rights will however be agreed and transferred to the TEC for the project. Based on ongoing consultation the proposal will be refined to reduce impacts on land, structures and crops. The TEC has undertaken consultation with affected communities and will continue to do so during project implementation.
Do they have the right to refuse to donate the land?	Yes. If the community does not request (or want) the infrastructure, it would have every right to say so, and refuse to let the TEC to use the land.
Are there proposals which would allow other land to be used?	A key aspect of project implementation will be options assessment which will be undertaken in close consultation with the affected/beneficiary communities. Options will be appraised by both the TEC and communities to develop and agree and preferred outcome.
What would the community need to do to donate the land, and what costs are involved?	The communities would sign an agreement allowing TEC to use the land for the purpose of the investment project. All costs would be borne by TEC.
What effect may the donation have on their family? What can they do if they (or their family or heirs) want the land back?	Once the beneficiaries have agreed to the voluntary land donation arrangement, there would be no ability to return the land to its current use.

8 Complaints and grievances

The complaints process relates to any project that is implemented under the ESMF. All feedback on projects is welcomed by TEC. TEC will operate the following complaints process:

The complaints process will offer remedies appropriate to the scale of the grievance.

All complaints will be recorded, including details of the complaint (what, when, date(s), time(s) of day, gender, other observations), contact details of complainant, remedy/remedies, and date of close out.

Complaints or feedback that can be resolved by contractors or TEC operational staff during normal working operations will be undertaken immediately. The complaint will be recorded, along with the resolution.

Other project-related complaints that cannot be resolved immediately, or by contractors or TEC operational staff, will in the first instance be notified to the project Safeguard Officers for mediation within a specified short time, preferably not more than ten working days. The project's Safeguards Officers will endeavour to arrange mediation hearings in open forum close to the place of residence of the affected person(s) or affected group. The complainant will be entitled to independent representation by a mediator of their choice, and will be encouraged to be accompanied by supporters during the process. TEC will ensure that such negotiations are transparent.

If mediation is unsuccessful, or if the matter is substantive, affected parties can file written or verbal grievances through the Court system. The availability of redress, and information about how to access it, will be publicly disclosed in the Project Information Bulletins for the media, and during consultations with the public for the individual projects.

9 Consultation

The Consultation Plan and guidelines are designed to ensure that the project contributes to sustainable development, that individuals and environment are not harmed by any project activity, and that if there are adverse impacts, they are identified, avoided, minimised and mitigated to the maximum possible extent. Essential to this process is the informed participation in consultations of all stakeholders, especially the potential beneficiaries and any affected persons. Consultation is planned to be open, accessible and inclusive so that all sectors of the community can contribute to project planning, participate in benefits, and contribute if they wish to monitoring outcomes[2].

9.1 Disclosure and Consultation on the TEDSP and the ESMF and RPF

The draft ESMF was publicly disclosed in Tuvalu in hard copy during the public consultation workshop August 2014. The final RPF was disclosed on the World Bank website and in Tuvalu via website and hard copy on August 16, 2013.

A Public Information Bulletin (PIB) was prepared (in English and Tuvaluan) to describe the ESDP and how the environmental and social issues and impacts would be managed. This PIB was disseminated to attendees to the public consultation workshop, 6 August 2014.

The final ESMF will be publicly disclosed on the World Bank website and in Tuvalu via website and hard copy in November 2014.

A public consultation workshop was held at the Vaiaku Lagi Hotel on 6 August 2014. The purpose of the workshop was to:

- present the key findings of the draft Environmental and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) including discussion on affordability and
- provide a summary of the Tuvalu Gender and Energy scoping assessment as well as preliminary indication of findings from the in-depth quantitative study comparing men and women's access and control of energy resources in the household and related affordability of energy resources
- provide an opportunity for local Tuvalu stakeholders to provide an input into the ESMF and the RPF to gain feedback on the approaches to environmental and social risk identification and management including affordability and concerns regarding the proposed prepaid meters and solar panels in the residence
- provide an opportunity for local Tuvalu stakeholders to provide an input into the proposed Gender Action Plan and the monitoring and evaluation framework, the proposed pre-paid meters as well as more broadly affordability concerns.

The PIB, in English and Tuvalu languages, were distributed to the attendees. The agenda, participation list and minutes from the workshop are included in Annex 15:.

No other feedback has been received by TEC on the ESMF or the PIB.

[2] The consultation guidelines are consistent with the Gender Action Plan.

9.2 Consultation and Communication Plan during Project Implementation

Communication and consultation are essential throughout the identification, preparation, implementation, management and monitoring of a project. The aim is to ensure that the general public and in particular those directly or indirectly affected are well informed, that projects are well designed, take account of social or environmental issues, and enjoy broad public understanding and acceptability. The steps are i) stakeholder identification, ii) preparation of a strategy to keep stakeholders of all sectors of society informed, and to provide them with an effective feedback and complaints mechanism throughout the life of the project, iii) assignment of responsibilities for execution of the communications plan, and iv) planning and implementation of the plan including regular reporting, monitoring and evaluation of the outputs and outcomes of communication as a normal part of the project reporting schedule.

The plan below outlines the actions needed to keep stakeholders informed of progress and to obtain feedback throughout the implementation of the ESDP.

Table 3 Consultation and Communication Plan during ESDP Implementation

Stakeholder	Content	Participants	Method and Responsibility	Timing	Outcome
1. Institutional Stakeholders	Project design; policy, project and programme coordination; safeguards instruments (ESMF, RPF)	Ministries of Finance, Natural Resources, Public Utilities and Energy, Home Affairs, Foreign Affairs, Trade, Tourism Environment and Labour Departments of: Women's Affairs,	Scheduled inter-agency coordination unit meetings	Regularly (at least quarterly) through life of programme	Whole of government overview and coordination of safeguards aspects in programme/projects to improve efficiency and optimise benefits; safeguards section in regular reports to development partners
2. Development Partners of the Government of Tuvalu	As above	World Bank, ADB, European Union, DFAT, NZMFAT, United Arab Emirates (UAE)	Ministry of Finance/TEC to organise exchange of information and coordination meetings	Regular involvement in planning; oversight of implementation and monitoring	Single coherent approach to safeguards in sub-projects to improve benefits and efficiencies and to reduce administrative burden for GoT
3. Commercial stakeholders	Contracts, safeguards obligations of commercial participants	TEC, consultants and contractors	TEC to ensure that safeguards are made binding upon all contractors. Contractors' regular reports to include safeguards issues encountered, management measures taken and recommendations for future management	As per contract	Environmental damage and loss of assets or livelihood is avoided
4. Civil Society Organisations	Environmental and social risk identification and management;	Tuvalu National Private Sector Organisation;	Participation in public consultations; participation in implementation and	During project identification,	Relevant expertise captured; independence in

Stakeholder	Content	Participants	Method and Responsibility	Timing	Outcome
	Safeguards instruments (ESMF, RPF, PEAR/EMP)	Tuvalu Association of Non-Governmental Agencies and /or individual members as appropriate	monitoring of Frameworks/ Plans as appropriate	during implementation and at their option during monitoring	administration and monitoring of safeguards
5. Communities that may be affected by site selection and civil works[3]	Details of project benefits and impacts in the area; provisions under the ESMF, PEAR/EMP and / or the RPF; how and where to consult them and comment.	Men, women, youth, occupational groups in communities in impact areas	TEC to arrange consultations with a group of local leaders (Kaupule, other respected persons in the community, e.g. teacher, health officer, Ulu Aliki, relevant NGO representatives) followed by public meeting in the local Meeting Hall with men, women, youth and occupational groups as appropriate; copies of the PIB; maps sketches, site and equipment photographs if available to use as visual aids. Goal is for women to make up at least 40% of the people participating in consultation. Consultation must be scheduled to enable working people, women and youth to attend.	During project identification, during implementation of safeguards measures and civil works and at their option during monitoring	Community can give informed comment on design options. Broad community support is obtained. Any potentially affected person knows where they can lodge comments and seek redress for any involuntary personal loss, or for damage to the environment. Mitigation/compensation measures are implemented
6. All Funafuti Consumers	Advise a week in advance about when their meter will be changed, what works will be undertaken, and any requirements for safe installation of the meter at their premises; safeguards provisos; contact details for further information. Basic consumer information about how the new meter works, electrical safety; payment arrangements and 'smart' use of electricity	Residents, electricity consumers on Funafuti	TEC advice through radio and in writing to be posted at, and publicized through the office of the Fono-o-Kaupule, school or other easily accessible local public agency, about the process and timing of meter changing in their area. Consumer information sheet delivered to customer with the new meter	At least two weeks prior to implementation of meter swaps in each area At time of installation	Consumers can make any necessary arrangements at their premises and seek advice and information. In event of adverse impact, consumers know how to seek redress. Consumers understand how to optimize their use of power under the new arrangements
7. All electricity Consumers	Consumer impacts and experiences – quality improvements due to power modelling activities, pre-pay meters,	Electricity account holders	TEC questionnaire on impacts at sales points and if required independent monitoring e.g. by NGO Feedback to	During and after implementation	Feedback in addition to that received through complaints mechanism into reports on

[3] Persons affected by involuntary impacts on land or livelihoods will also be engaged in consultation of resettlement measures under the RPF or subsequent Plan

Stakeholder	Content	Participants	Method and Responsibility	Timing	Outcome
	installation of new generation / storage facilities, operation of the grievance mechanism		be included in forward planning and impact reports to partners		what worked and lessons learned
8. Contractors	Consumer relations requirements; occupational health and safety; briefing on AIDS awareness and cultural sensitivity if non-Tuvaluan contractors are used. Feedback received from consumers and members of the general public	Contracting firm, managers and employees	TEC to include as part of contract; Contractor to report on safeguards incidents and complaints received as part of Contractors' standard activity reports	Prior to commencement of civil works and throughout implementation until sign-off.	TEC's consumer relations are maintained; positive and negative feedback; steps taken or recommended as a result; routine reports to TEC and development partners
9. General public	Project Information Bulletins informing about the project, likely benefits and impacts, safeguards instruments, how and where to consult them and comment Project progress and public safety notifications; success stories, lessons learned	All members of the public at their option	TEC to release Project Information Bulletins (PIB) to local radio and press to provide information on the conduct and results of the project	During project identification During implementation and monitoring	General public is aware of project; public acceptability and cooperation improved; complaints mechanism is known General public is informed; project and process enjoy public acceptability; successes celebrated

9.3 Consultation Guidelines

For any subprojects that will be developed during the project implementation phase, consultation will be specific to the subproject design, safeguards issues and the community(ies) where the project will be located.

The mode of consultation will vary according to the participants, but in all cases will promote participation by ensuring that the venue is accessible, the timing convenient and the manner of conduct of the consultation socially and culturally appropriate. Consultations will be announced to give sufficient notice for participants to prepare.

Public consultations will take account of the levels of education of participants, gender sensitivities with regards to consultations, be in the local language, and will avoid technical and bureaucratic jargon. All sectors of the public should be invited and encouraged to contribute. To get maximum input from women, their meetings should be held separately from men's meetings. The project goal is for women to make up at least 40% of the people consulted. Facilitators of meetings should engage with these participants at the conclusion of public meetings to ensure that their opinions on discussions ad decisions are recorded if they have not spoken up out of respect for custom and seniority. Occupational groups such as farmers or fishers who may also have particular energy needs should be specifically invited to participate and contribute.

Separate meetings may be required to accommodate working people, women and others that may not be able to attend public meetings.

All projects require at least one public consultation and the results of the consultation require documentation to be appended to the ESMF, or included in the project-specific PEAR/EMP.

The public consultation should be conducted during project preparation in order to discuss key environmental issues and proposed management actions to be included in the project design or safeguard instrument. Early consultation is preferred.

TEC is responsible for organizing, conducting and documenting public consultations.

The stakeholders, methods of communication, and timing are provided in the Consultation Plan in Section 9.2.

Following consultation, provide documentation of the following:

- Manner in which notification of the consultation was announced: media(s) used, date(s), description or copy of the announcement
- Date(s) consultation(s) was (were) held
- Location(s) consultation(s) was (were) held
- Measures taken to ensure participation of vulnerable groups/women
- Materials presented at consultations, e.g. information bulletins, maps, plans, photographs
- Who was invited and who attended: Name, gender, Organization or Occupation, Telephone/ e-mail /address (home and/or office)

- Meeting Program/Schedule
- Summary Meeting Minutes (Comments by gender, Questions by gender and Response by Presenters by gender)
- List of decisions reached, and any actions agreed upon with schedules and deadlines and responsibilities.
- How the project plan/ESMF/PEAR/EMP or other documentation was amended to take into account the issues raised during the consultation.

For subprojects with a project-specific PEAR/EMP, the documentation will be provided in an Annex. For projects using the safeguard tools in the ESMF, the consultation documentation can be annexed to the ESMF and the ESMF can be re-disclosed.

10 Institutional Arrangements for the ESMF

10.1 Responsibilities

TEC is responsible for the implementation of the ESMF.

TEC is responsible for preparing any PEAR/EMP and applying for any development consents required under the Environment Protection Act 2008 and the 2014 EIA Regulations. TEC is responsible for ensuring all tenders include reference to the ESMF (or documents such as PEAR / EMP prepared under the ESMF), the ESMF is provided to all tenders and that the ESMF will form part of the contract for all contractors and consultants.

Any contracts for technical advisory shall include the clauses from Annex 12:.

All civil and electrical contractors shall prepare a Contractors Environmental Management Plan consistent with the ESMF. TEC will monitor the implementation of the Contractor's EMP.

All staff, consultants and contractors working for TEC are required to comply with the ESMF.

The World Bank task team has the responsibility of supervising the implementation of the ESMF.

10.2 Monitoring, Evaluation and Reporting

TEC will implement and monitor the ESMF (and all safeguard documents prepared under it) to ensure:

1. Safeguards tools are included in Terms of Reference for consultants, Bid Documents for Contractors, and in the contracts between TEC and consultants and contractors.

2. All parties are trained in, and familiar with, the safeguard tools relevant to this project.

3. That the safeguard tools are being used and are complied with.

4. New risks and issues are being identified and the safeguards tools updated if necessary.

5. Environmental or social incidents are reported, and resolved.

6. All complaints are recorded and addressed in accordance with the Complaints process.

TEC is to report to the World Bank through the project reports prepared as part of the Grant Agreement. Items to report are key actions carried out and incidents that occurred from the lists above. The World Bank is responsible for monitoring the performance of TEC with respect to the implementation of the ESMF, and working with TEC to remedy any shortcomings, under the project agreement.

TEC should periodically (at least annually) review and evaluate the ESMF and update it as necessary to reflect the current work program, and relevant risks and issues.

10.3 Capacity Building

TEC has operating procedures for accessing properties to carry out works (connection, disconnection, maintenance, repairs etc.). TEC does not have any dedicated environmental staff, or

staff dedicated to community outreach. Training is required, so that staff can confidently and effectively screen projects, implement the ESMF and the Codes of Practice, monitor effectiveness of implementation, supervise consultants and contractors, identify risks and issues, and report on safeguards to donors.

Prior to project implementation, key staff in TEC will be trained in the environmental and social aspects of the ESMF, and how to manage environmental and social issues and impacts throughout the project. This training will include how to contract consultants to prepare PEAR / EMP.

10.4 Budget

The budgets for environmental and social mitigation and management will generally be allocated to the project rather than specifically to the ESMF (such as preparing PEAR/EMP, protective equipment, monitoring equipment, training, consultation etc.). Specific budget items for implementing the ESMF are:

Budget Item	**Detail**	**Cost Estimate**
Consultation	Consultation of the Draft ESMF. Catering, transport, publication of materials.	$AU2,000
Training	TEC staff and contractors – environmental and social aspects of the ESMF, and how to implement the ESMF through the project cycle.	$AU4,000
	TEC Staff and contractors – refresher course within 2 years	$AU3,000
Total		$AU9,000

It is not anticipated at this stage that any new recruitment is required.

Annex 1: Priorities, Goals and Key Elements of the Tuvalu Master Plan for Renewable Electricity and Energy Efficiency in Tuvalu

Government of Tuvalu. 2013. *Enetise Tutumau 2012 – 2020. Master Plan for Renewable Electricity and Energy Efficiency in Tuvalu.*

The Master Plan for Renewable Electricity and Energy Efficiency in Tuvalu (MPREEE) was published in February 2013 and is endorsed by the Government of Tuvalu to achieve the commitments in the Tuvalu National Energy Policy, 2009, and a Government vision to achieve 100% Renewable Energy electricity generation by 2020.

The priorities for the electricity sector in Tuvalu are:

a) To provide a reliable and affordable electricity supply to all the people of Tuvalu;

b) To safeguard Tuvalu from future diesel price shocks;

c) To improve the efficiency of electricity utilisation and further reduce the already low energy consumption per person and per GDP; and

d) To reduce Tuvalu's "carbon footprint" and become an international role model with regard to climate change mitigation.

As a first step in a path towards100% renewable energy, the Government of Tuvalu has set two goals:

- To generate electricity using 100% renewable energy by 2020
- To increase energy efficiency by 30% on Funafuti and later in the Outer Islands.

The Master Plan provides the framework for the achievement of these goals which it is estimated will require a total renewable electricity generation capacity of 6 MW involving a capital investment of A$52 million.

The key elements of the renewable electricity programme are:

1) Development of renewable electricity generation supplemented with batteries initially on the Outer Islands;

2) The provision of additional renewable electricity generation capacity on Funafuti;

3) The implementation of an energy efficiency programme on Funafuti initially followed by a programme on the Outer Islands;

4) Conversion of supplementary generation from diesel to bio-diesel fuel.

Annex 2: Environmental Context

A2.1 Overview

Tuvalu is a Polynesian island nation located approximately 1,000 km north of Fiji, to the west of the international dateline. Tuvalu is a chain of three reef islands (Nanumanga, Nuilakita, Niutao) and six true coral atolls (Funafuti, Nanumea, Niu, Nukufetau, Nukulaelae, Vaitupu). The highest point above sea level is 4.6 metres. The low profile and narrowness of land masses renders them prone to overtopping and flooding from the sea. Tuvalu's population of 11,206 (2011 estimate[4]) and small land mass makes it one of the smallest nations in the world.

A2.2 Land and Population Density

Soils are poor for agricultural purposes. Only coconuts and pandanus can grow naturally. Banana, papaya and breadfruit are cultivated and pulaka, a variety of taro, is grown in pits excavated from coral rock. Limited use of fertilizer, small plot size, lack of access to credit, inadequate market infrastructure, and the lack of mechanization restrict agricultural production. Tuvalu is a net food importer and three-quarters of the food consumed on Funafuti is imported.

Population has more than doubled since 1980. In a small population, a few arrivals or departures can cause an apparently large percentage demographic shift in any one year, but the trend is to a population increase of around 0.7% per annum. The smallest island population and lowest population density is found on Niulakita, at 35 inhabitants and a density of 83 per km^2. Half the population is urban. Funafuti is home to 47% of the population, with a density of 373 persons per km^2. The majority of these people live on the main island of Fogafale, in the Funafuti atoll, which is also host to the only international airport, Funafuti International Airport.

Land is at a premium on Funafuti and there is very little 'idle' land. Land is used for government and community related infrastructure (roads, port, airport, public works depots, sports fields, maneapa, schools, hospital, landfill), dwellings and commercial enterprise. Agriculture, including animal raising, is domestic in scale. The population density is amongst the highest in the world when compared to other sovereign states. Any new land use will impact on, or compete with, existing land uses.

A2.3 Biodiversity and natural habitats

Land-based natural habitats have been modified where there has been human settlement. Much of the native broadleaf forest is now restricted to uninhabited islets. No natural unmodified forest ecosystem exists on Fogafale.

There are 34 species of birds recorded in Tuvalu – 1 has been introduced by humans, and many more are migratory. There are no endemic birds. The bristle-thighed curlew is 'vulnerable'; the only bird in Tuvalu with a threatened status as listed in the International Union for Conservation of Nature (IUCN) Red List Classification[5].

[4] Other statistical information in this section is derived from the latest population census in 2002, and the 2010 Household and Income sample-based survey.
[5] www.iucnredlist.org

Coastal and lagoon ecosystems are under pressure from fishing, pollution run off and litter. The Funafuti Conservation Area is one response to this pressure. It encompasses reefs, lagoon and islet environments, and covers about 20% of the total coral reef area of Funafuti lagoon. The protected area plays a key role in the conservation of biodiversity and is home to populations of the endangered Green Turtle5.

A2.4 King tides and storm surges

Parts of Funafuti are under water during king tides; ponds appear in low lying areas over the high tide period. All of the islands are at risk from storm surges where the sea inundates the land during cyclones and storms.

A2.5 Climate change threats

Tuvalu is extremely vulnerable to climate change. As sea level rises, inundation events will become more common, and it is expected that many islets will eventually be submerged. Climate change predictions are for increased intensity and frequency of intense rainfall days, increase in annual and seasonal mean rainfall, and less frequent droughts. The frequency of cyclones is predicted to decrease[6].

Increases in sea temperatures and ocean acidification will continue to cause coral bleaching in the reefs. This has a catastrophic effect on the reef ecosystem, and the ability of the reef to protect the lagoon from swells and storm surges.

A2.6 Fresh Water

Across Tuvalu, rain water is the main source of fresh and potable water. Typically the islands receive between 200mm to 400mm of rainfall per month. On Funafuti potable water is also provided by one of three desalination plants. Water is not reticulated. Droughts have led to severe drinking water shortages on the islands in recent times.

The groundwater lens on Funafuti is contaminated with sea water. In 1972, Cyclone Bebe, a large storm event, caused sea water to flood the island and infiltrate the groundwater[7]. It is no longer a potable water supply.

A2.7 Waste Management

There is one 'landfill' on Funafuti where all collected waste goes. Waste is not covered or buried; it is a health and safety risk, and is likely to be polluting the ground and marine environment. Due to a lack of space on Funafuti, this solution to waste management is not sustainable. Litter is also a big problem on the island. There are no facilities for recycling and no facilities for hazardous waste treatment or disposal.

A2.8 Physical Cultural Resources

It is custom that intangible and tangible cultural resources are interconnected, so that there is a strong relationship between the two. The Cultural Department within the Ministry of Home Affairs is responsible for managing cultural resources and artefacts. Cultural resources include:

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[6] Australia Government. Pacific Climate Change Science Program. 2011. Climate Change in the Pacific: Volume 2: Country Reports. Chapter 15. Tuvalu.

[7] www.wikipedia.org/wiki/Tuvalu. Accessed 30 August 2013.

- Pulaka Pits. Pulaka pits are both historical relics and culturally significant features, and are vital for providing one of the few locally grown vegetables. Pits are dug 6-10m from the ground surface to the groundwater lens, and pulaka (taro) is grown in a mix of compost and sand in the base of the pit.
- Maneapa / Ahiga. The Maneapa / ahiga is a multi purpose community structure where the Falekaupule and Kaupule meet, and where other community and cultural activities are held. There is one on each island, and there is also one for each island located on Funafuti.
- Human graves. These are usually located near houses and clearly marked.
- David's Drill – Funafuti. The boreholes on Funafuti, at the site now called David's Drill, are the result of drilling conducted by the Royal Society of London in the 1890's for the purpose of investigating the formation of coral reefs to determine whether traces of shallow water organisms could be found at depth in the coral of Pacific atolls. This investigation followed the work on the structure and distribution of coral reefs conducted by Charles Darwin in the Pacific. The site has scientific and historical value.

Annex 3: Social Assessment

The social assessment which follows addresses the requirements of World Bank Safeguard Policy OP/BP4.10, Indigenous Peoples.

A3.1 Legal and Institutional Framework Applicable to Indigenous Peoples

The Constitution and the law of the land apply equally to Tuvalu's entire population. There is no legal discrimination on the basis of ethnicity. The legal framework relevant to the ESDP is set out in detail in the RPF.

A3.2 Ethnicity

Tuvaluans are 96% Polynesian, and 4% Micronesian who mainly live on Nui, the closest island to Micronesian Kiribati with which Tuvalu was linked in the former British Protectorate as the Gilbert and Ellice Islands. The population speaks Tuvaluan and English, which are the official languages. Some of the Micronesian population also speaks a form of Gilbertese. The population is however homogeneous with small custom differences from island to island. Official statistics are not disaggregated by culture group, but rather by island. Prior to the development of regular transport, communications and a market economy, land was the main basis for subsistence, power and influence, and continues to be important in present-day livelihoods.

A3.3 Education and Livelihoods

The adult population of Tuvalu's is 99% literate, with a trend to longer schooling – an average of eleven years for girls and ten years for boys - and higher percentages attaining secondary and tertiary qualifications than in their parents' generation.

According to the Tuvalu Government Central Statistics Division Household Income and Expenditure Survey 2010 Report, the average person in Tuvalu receives $AU1,979 per year from household income, $AU441 per year from gifts received and $AU288 a year from other receipts. The wage and salary component of this is the largest contributor with $AU989 per year coming from this source. As expected, the figures per capita for the Funafuti population are much higher overall compared to the Outer Islands, however this trend is reversed for the income categories "home production" ($AU595 for Outer Islands, versus $AU130 for Funafuti), and "subsistence income - agriculture" ($AU98 for the Outer Islands, versus $AU31 for Funafuti). This is expected due to the large reliance on subsistence activities in the Outer Islands. Project consultations and plans under the ESMF and RPF will take cognisance of the importance of land-based livelihoods and ancestral attachments to land.

A3.4 Religion and Social Organization

Before the then Ellice Islands became a British Protectorate in 1898, each island had a dominant male Ulu Aliki (chief), whose position was hereditary until he lost popular support or was supplanted by another who manoeuvred himself into a position of power. Following missionization, driven mainly from Samoa, religious leaders also became influential. The country is 98.4% Protestant Christian, 1.4% Seventh-Day Adventist, 1% Baha'i and 0.6% other, including Muslim.

During the period of colonial administration, the British approach was to preserve traditional social structures, though concepts such as leasing and rental were introduced to provide for the need for commercial development. The country became independent in 1978. In 1997 the Falekaupule Act replaced local Island Councils with an elected Kaupule.

The Kaupule is the elected executive of the Falekaupule or traditional assembly of the island. The Kaupule has local government decision-making powers under a head Pule o Kaupule and a Secretary. An elected Ulu Aliki as Island Chief is a member of the Kaupule. In line with traditional respect for seniority, Kaupule members are all male, and generally over the retirement age of 55, and are often retired civil servants, though especially in the Outer Islands, some have not had the opportunity for formal education. Every Kaupule appoints a Women's Community Worker. Decisions on community affairs are taken at regular meetings of the full Kaupule in the Maneapa or Ahiga, the local traditional meeting house. While women can now attend the meetings, their role has been and continues to be largely a silent role, with few able to become actively involved in discussions.

Unless by specific invitation, these are not public or community meetings, but are a local council meeting that takes decisions on such matters as public order, services and development projects, "in consultation with the community, government agencies, non-government organisations and other development partners" (Falekaupule Act 1997: S40a). The Kaupule also has rights of land acquisition for the performance of its statutory functions. The Kaupule has a specific responsibility for crime prevention and detection. Most local disputes are resolved through the Kaupule, though the People's Lawyer Act 1988 still provides for mediation and resolution, often out of court, of disputes for which no local solution is found.

A3.5 Gender[8]

The patriarchal nature of Tuvaluan society is still a major constraint for progress towards gender equality. While commitments have been made to mainstream gender at a broad government level, this is not supported by an allocation of resources and is not reflected in the work conducted by central government or sectors of government. Broad macro-economic policies do not reflect any of these commitments and while some good practices may have been introduced, they have not been sustained. Women are still not equitably included in local government decision-making processes noted, though this is slowly changing with proposed amendments to the Falekaupule Act.

Violence against women in Tuvalu is an issue that often remains unreported. It constitutes an alarming threat to the rights and dignity of women, and it has a tremendous impact on children and a heavy cost for the society. The 2007 Tuvalu Demographic and Health Survey (TDHS) reported that 4 in 10 women have been subjected to some type of physical violence, with their current husbands or partners being the main perpetrators (84.6%).

As in other Pacific countries, the traditional and stereotypical perception in Tuvalu is that women are only responsible for domestic duties. According to the 2007 TDHS more women (49%) than men (15%) reported not being employed in the 12 months preceding the survey. The women are more likely to be in the lowest wealth quintile and have limited (secondary or primary) education. Women are more likely to hold professional/technical/managerial and clerical jobs than men. The majority of

[8] Excerpts from National Gender Equality and Women's Empowerment Policy, Tuvalu 2014; and Faletoese, R. 2014. Gender and Energy in Tuvalu, A Scoping Study. World Bank Support to TESDP. Tuvalu

women work for cash only in non-agricultural work, are employed by non-family members and work throughout the year. Over 60% of working women surveyed for the TDHS reported that their earnings were less than those of their husband and partner. The TDHS highlights the significant gender disparity in the employment participation rates of men and women in Tuvalu, with more men employed than women (57% of women compared to 90% of men).

Women in Tuvalu encounter many barriers to equal participation in parliament, with only one woman parliamentarian from 1986 to 1993 and no woman parliamentarian from 1993 until 2011. At present (2013), there is one female parliamentarian within the political arena of Tuvalu. There were 41 senior positions within the public service of Tuvalu in 2013, including permanent secretaries, senior assistant secretaries, assistant secretaries and directors. Men dominate the senior positions within the Government. From 2009 to the present, women have occupied 9 senior positions: 2 were permanent secretaries, 1 was senior assistant secretary, 3 were assistant secretaries and 3 were directors.

At the local government level in Tuvalu, decisions are made by the Falekaupule (island decision-making entity), with the Government Department of Rural Development and the Kaupule (the executive arm of the Falekaupule) as primary advisors. Development plans for each island community are prepared and implemented by the Kaupule upon final approval by the Falekaupule. Depending on the setting and regulations of each Falekaupule, women are generally not allowed or able to be present during decision-making meetings.

It is claimed that the participation of women in decision-making processes in Tuvalu remains limited at every level of authority – from community to national levels[9]. This limited participation may reflect, amongst other factors (education, self-confidence, financial status), the social and cultural structure of the Tuvalu society, whereby women normally stay at home and care for children. Tuvalu is a patriarchal society and the status of women has long been determined by their roles as wives and mothers. The societal status of women tends to depend on their behaviour and demeanour which reflects how they obey and respect the expected cultural norms. These social norms dictate that men are the heads of the households, therefore men are the rightful decision makers on behalf of their family in the home and community.

The National Gender Equality Policy, published in 2014, developed with the assistance of the Secretariat of the Pacific Community (SPC), reflects the Tuvalu Government's values and commitments in durable and meaningful development results for all. It provides guidance on pursuing more effective, evidence-based investments in gender equality and the empowerment of women and incorporating these efforts into our core development programming.

A Gender Action Plan[10] has been developed for this project, based on three key pieces of work:

- A draft Gender and Energy Scoping Study for Tuvalu[11] was undertaken in March 2014. This document provided the background and a qualitative analysis of the social, cultural,

[9] Kofe, S.S. and Taomia, F.2006 'Advancing Women's Political Participation in Tuvalu': A research project commissioned by the Pacific Islands Forum Secretariat. Online:
http://www.forumsec.org/resources/uploads/attachments/documents/Content_1-17.pdf
[10] Faletoese, R. 2014. Gender Action Plan. World Bank Support to TESDP. Tuvalu.
[11] Faletoese, R. 2014. Gender and Energy in Tuvalu – A Scoping Study. Draft, Unpublished.

economic and human rights characteristics of the Tuvalu energy related environment. This scoping study provides an important baseline for gender mainstreaming into the ESDP providing an overview of key gender issues as well as the specific energy sub-sector program activities to assess whether the project can either address or engage with them.

- A quantitative study was carried out in August 2014 which considered the significant relationships between gender and energy in Tuvalu and demographic characteristics such as income, location and education[12]. Important considerations around affordability of energy in the household in Funafuti and outer islands based on income levels were considered.
- Gender and Energy Action Plan Workshop - was held at Vaiaku Lagi Hotel on the 6th August 2014. Twenty one Tuvalu national participants attended from Government, private sector and civil society.

A Gender Action Plan was developed following the workshop, and this has informed the consultation requirements prescribed in the ESMF.

A3.6 Key Project Stakeholders

Institutional stakeholders are the Tuvalu Electricity Corporation as implementing agency, and the Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour. Grass roots stakeholders are the men, women and children who consume electricity.

A3.7 Potential Project Impacts

Project benefits will be improved access to more reliable and relatively cheaper electricity service compared with diesel-based generation for the 91% of the private houses that are already electrified and possible access to electricity if new generation facilities are able to serve the remaining 9%. Potential adverse project impacts are possible land requirements for communications installations, generation and storage facilities. This has been summarized above in Section 5.

A3.8 Measures to Avoid Adverse Impacts

Land scarcity is a potential source of vulnerability for Tuvaluans. Land requirements will be met if possible on Government-leased land, and on land that does not affect livelihoods or amenity. Unavoidable involuntary land acquisition will be compensated under Plans developed by TEC in accordance with the Resettlement Policy Framework.

[12] Faletoese, R. 2014. The Relationship Between Gender, Income, Location and Education Levels in Energy Provision. World Bank Support to TESDP, Tuvalu. Unpublished.

Annex 4: Resettlement and Compensation Checklist

Use the following checklist to determine if land[13] or assets will be involuntarily impacted, and if so, which safeguard tool to use:

1	If land is required, is the location of the required land known?	No	Refer to the Resettlement Policy Framework
		Yes	Proceed to next screening question
2	Is the land required under Government lease?	Yes	Ascertain that there is no dispute or informal use of the land or land based assets, and proceed to next screening question. If there are disputes, proceed to next screening question.
		No	Proceed to next screening question
3	Is the required land under a registered title?	Yes	Ascertain that the title is not disputed; proceed through steps below.
		No	Identify all persons (men and women) with rights to occupy or use the land and any assets on it and proceed through steps below.
4	Will there be tree trimming, alternations to buildings (demolition or construction), removal of vegetation, etc. due to installation of generation, storage or communications facilities.	Yes	Note and go to question 5
		No	Go to question 5
5	Are the land owners/users willing to donate the land and/or assets voluntarily for the public good?	Yes	Prepare voluntary land donation documents.
		No	Proceed to identify required form of resettlement plan (Questions 6 and 7).
6	Will physical displacement of affected persons[14] be required?	Yes	Prepare a Resettlement Plan in accordance with the RPF.
		No	Determine the scope and severity of impacts.
7	Will more than 200 people be affected, and/or will affected persons lose more than 10% of their livelihood assets?	Yes	Prepare a Resettlement Plan in accordance with the RPF.
		No	Prepare an Abbreviated Resettlement Plan in accordance with the RPF.

[13] 'Land' includes the ground and any assets on it, such as structures, trees or crops.

[14] An 'affected person' is anyone, irrespective of gender, titled, customary or informal land ownership or access status, who involuntarily loses land or any element of their livelihood, such as structures, trees, crops or income due to a project.

Annex 5: Environmental Scoping Checklist

Scoping should be done as early as possible to determine whether the Codes of Practice in the ESMF will be adequate for the subproject, whether a subproject-specific PEAR/EMP is required. Follow the process in Section 6. Here are the key steps to scoping the environmental and social impacts. Scoping is about looking at the risks and issues to determine whether more detailed work is required. It should be an exercise that can be done in the field / at the desk. But if in doubt about the significance or scale of potential impacts, consult with the Department of Environment, World Bank task team, or an independent environmental or social specialist.

Define the project:

What technology; location and footprint of structures / construction; spatial extent of project impacts – otherwise called 'area of influence' (wider than footprint, and includes sourcing aggregates, tree trimming, air emissions, waste disposal requirements); construction / installation methods; operational requirements.

Find out what sensitive environments and land uses are within the area of influence of the project:

Will there be work or discharges in the foreshore or marine area?

Will there be work in any protected natural areas?

Will there be any work in or near the routes or habitats of significant migratory or transient bird species, or any vulnerable species (as defined by IUCN red list or local knowledge)?[1].

Nearby activities that may be sensitive to noise, dust or other disturbances – dwellings, schools, maneapa or other gathering areas, churches, workplaces, medical centres, Queen Margaret Hospital.

Trees, crops, water tanks, pig pens, roofs or other structures that may need to be trimmed, removed or altered to construct the project. They may be on the site, the neighbours' property, or belong to a tenant. Compensation is required for any involuntary loss of assets.

Wild food gathering areas that may be affected – fruit, shellfish, fish.

Places or artefacts of religious, cultural or archaeological significance, including grave sites, pulaka pits, maneapa and archaeological remains.

On site or nearby there is the possibility that birds or other animals (transitory, migratory, sedentary) feed, nest, breed or travel through.

Ensure fair access to consultation, to electricity generated by the project and to any jobs or income generated by the construction or operation.

Consider the significance of the potential impacts and what type of mitigation is appropriate:

Natural habitats (including impacts on wildlife): Consider whether the impacts are significant and can be mitigated. Consider whether the World Bank Policies will be met[15].

Physical cultural resources: Consider whether the impacts are significant and can be mitigated. Consider whether the World Bank Policies will be met. Consider whether the Codes of Practice are suitable for managing mitigation.

Social impacts (noise, dust, safety etc.): Consider whether the Codes of Practice are suitable for managing mitigation.

Other impacts: Consider whether the Codes of Practice are suitable for managing mitigation.

Where the risks may be significant and / or not easily mitigated, prepare a project-specific EMP (even if a development consent is not required). This process should include the study the significant risks in more detail and the preparation of detailed mitigation plans.

If environmental assessment shows that natural habitats may be impacted, then the World Bank Safeguard Policy 4.04 Natural Habitats should be consulted. An excerpt from the policy is: *Specifically, the policy prohibits Bank support for projects which would lead to the significant loss or degradation of any Critical Natural Habitats, whose definition includes those natural habitats which are either: legally protected, officially proposed for protection, or unprotected but of known high conservation value.*
In other (non-critical) natural habitats, Bank supported projects can cause significant loss or degradation only when i) there are no feasible alternatives to achieve the project's substantial overall net benefits; and ii) acceptable mitigation measures, such as compensatory protected areas, are included within the project.

Annex 6: PEAR / Environmental Management Plan Template

This template is relevant for any subproject under the ESDP where the following applies:

1. *The subproject is an 'energy generating station' as per Clause 9(n) of Schedule 1 of the 2014 EIA Regulations under the Environmental Protection Act 2008. (Solar arrays, wind turbines etc.); or*
2. *Environmental and social impacts and risks are not adequately mitigated by the Codes of Practice in the ESMF.*

Use this as a guide for preparing a PEAR/EMP that will satisfy World Bank safeguards policy OP/BP4.01 Environmental Assessment, and the 2014 EIA regulations under the Tuvalu Environment Protection Act.

Note that within the ESMF, this document is called a PEAR/EMP to cover both the in-country and World Bank processes. It can be called a PEAR, or an EMP, as long as all parties agree.

A6.1 Introduction

A brief overview of the project, environmental and social context and purpose of the PEAR/EMP.

A6.2 Project Description

A description of the investment, the location, the construction works required, what will happen during operation, and any important issues regarding decommissioning. Include project components that may have an environmental or social impact, such as:

- Types of materials required (aggregates, fresh water)
- Transportation of materials during construction
- Waste management
- Hazardous materials
- Demolition of structures, removal of trees
- Current access / availability of electricity / energy, and any issues with electricity

A6.3 Environmental and Social Context

Description of the land ownership and leasing arrangements, description of the locality and land use (fallow land, residential, commercial, adjacent to a school, on the foreshore), physical cultural resources in the vicinity, closest dwelling(s), coastal area that will receive drainage, natural habitats (bird nesting areas, foreshore environments, etc.), protected areas, significant or relevant ecosystems, flora and /or fauna in the area (foreshore biodiversity, migratory birds etc.).

Describe the community, local social and governance or council structures, and any notable features relating to access to electricity or energy. The social context should also describe occupations and sources of livelihood, gender roles and issues, land tenure and the socio-economic conditions, including any commentary on poverty, vulnerability due to gender, ethnicity or culture group, age or disability in the community, resource allocation and access and income distribution.

A6.4 Legislative Context

Provide an overview of the 2014 Regulations under the Environment Protection Act and how this document provides the relevant information for an environmental permit.

Provide an overview of how the PEAR/EMP meets the requirements of the World Bank safeguard policies.

Provide commentary on any international environmental agreements that Tuvalu is party to, relevant to the project.

Identify relevant legally protected areas.

A6.5 Significant Impacts

Provide a summary of significant environmental and social impacts and how the project will manage them to incorporate applicable safeguards policy requirements. Relevant Codes of Practice from the ESMF can be included.

A6.6 Physical Cultural Resources Management Plan

If necessary, include specific measures to identify, protect or otherwise move or alter any physical cultural resources. Consult with the Cultural Department and community for the most appropriate methods.

A6.7 Impacts and Mitigation Plan

Activity	Impact	Mitigating Measure	Residual impact	Responsibility	Cost
Design and Pre-Construction Phase					
General Civil Works and Construction Phase					
Operational Phase					
Decommissioning Phase					

A6.8 Monitoring Plan

Issue	What *parameter is to be monitored*	Where *is the parameter*	How *is the parameter to be monitored/ type of*	When *is the parameter to be monitored-*	Responsibility	Cost

		to be monitored	*monitoring equipment*	*frequency of measurement or continuous*		
Design and Pre-Construction Phase						
General Civil Works and Construction Phase						
Operations Phase						
Decommissioning Phase						

A6.9 Institutional Arrangements

A short narrative discussion supported by organizational charts detailing who is responsible for which task under the PEAR/EMP.

Institution	Responsibility

TEC is responsible for preparing PEAR/EMP. TEC is responsible for ensuring that any consultants working for them prepare the PEAR/EMP in accordance with the ESMF and the 2014 EIA regulations under the Environment Protection Act.

TEC is responsible for obtaining any development consents from the Department of Environment.

The World Bank task team will be responsible for reviewing the project against their safeguard policies, assigning a risk category (if relevant), and supervising the implementation of the PEAR/EMP.

A6.10 Institutional Strengthening

Describe the tasks and equipment that are required for the project to support TEC, their contractors and others to implement the environmental management measures proposed.

- Equipment purchases (personal protective equipment, monitoring equipment etc.)
- Training (workshops, formal training, tool box training)
- Consultancy fees (workshops, on-the-job training, monitoring services)

A6.11 Consultation

Describe the consultation plan and provide records of what was carried out, who participated (men and women) and what the outcomes were, and how the feedback was incorporated into the final PEAR/EMP. Refer to consultation guidelines in the ESMF for further details.

A6.12 References

A6.13 Annexes (supporting information, technical reports etc.)

Annex 7: Code of Practice for Construction and Earthworks (including Maintenance Works)

A7.1 Provision of labour

Engage locals in work wherever possible, and prioritise local spending for food and services wherever possible. Ensure equitable access for men and women.

For Contractor's workers; Provide worker awareness training, and workshops with the community to support / encourage assimilation of workers into the island communities during construction. Include HIV/Aids and STD issues in the training.

A7.2 Site Access

Ensure all agreements are in place prior to starting works, including agreements to enter sites or buildings, and to install infrastructure and / or modify buildings or sites.

A7.3 Clearing Vegetation

Selectively clear vegetation. Only remove what is absolutely necessary.

Agreement from the owner shall be given, and any compensation agreed to, prior to trees being trimmed or removed.

Whenever possible, land owners and occupiers should be allowed to benefit from cut vegetation for firewood and other uses.

A7.4 Sediment Control

Disturb as little ground area as possible and trap sediment onsite using brush fences or silt fences.

Divert water around construction sites or disturbed areas with ditches.

A7.5 Hazardous Substances, Fuel Storage and Maintenance Activities

Operate a dedicated equipment maintenance and fuel storage areas (>20m from high water). Hazardous substances should be covered from rain and sun, in locked storage areas, and have concrete floors. Concrete floors should be bunded to capture spills.

Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas

Never dispose spent oils on the ground or into the sea.

All spills and waste petroleum products shall be treated as hazardous waste (see below).

A7.6 Aggregates

All aggregates required for construction of foundations or platforms shall be recycled aggregate or imported from another country. No coral or sand aggregates from local sources shall be used. No imported coral aggregates shall be used.

Any leftover natural or engineered aggregate should be made available for reuse by other parties, or stockpiled in Tuvalu for later use (with the permission of the Department of Environment).

A7.7 Noise and Operating Hours

Confine operations to between 6am and 6pm, Monday to Saturday, to avoid impacting on home life after work hours.

Negotiate with schools, hospitals and other sensitive sites a schedule of noisy work, taking into account the needs of students/patients.

Inform occupants and neighbours when there will be unusual or unavoidable noise.

A7.8 Waste Management

(Refer also aggregates and hazardous substances).

At all times, the Contractor is responsible for the safe and sound storage and recycling or disposal of all solid waste.

Minimize the production of waste:

- Avoid over-ordering of materials imported to Tuvalu (don't over-specify);
- Prefabricate parts (such as frames) off-shore and transport to Tuvalu ready to install;
- Train staff to reduce mistakes and wastage of materials;
- Find local uses for left over materials;
- Select materials that are easily reused or recycled at the end of their life.

All workers to use public toilets.

Store waste safely and securely on site. Separate hazardous waste, green waste, recycling, etc. Identify and demarcate storage areas clearly indicating the specific materials that can be stored in each.

Solid waste includes;

- Inorganic non-recyclable waste = waste that cannot decompose / break down easily and which cannot be recycled
- Hazardous waste, examples such as asbestos, waste oil etc.
- Recyclable waste = waste that can be recycled, i.e. plastics, metals, timber, paper.

All solid waste that cannot be reused locally is to be removed from Tuvalu for safe recycling or disposal in another country with suitable facilities; preferably to New Zealand or Fiji.

Hazardous wastes such as used oil, batteries, etc. must be stored safely and securely and removed from Tuvalu prior to the end of the construction period. The export of hazardous waste must be in compliance with the Waigani Convention and any relevant laws enacted by Tuvalu and the recipient country.

Permissions in the form of official documentation must be received for receipt of waste from Tuvalu into another country.

Green (organic) waste (i.e. waste that will decay / break down in a reasonable amount of time, such as plant waste and food waste) maybe left on the island, in designated dumping or composting areas. Land owners and occupiers should have access to any tree trimmings and other materials that may be of use for firewood or other purposes.

Natural or engineered aggregates (such as concrete or paving) that are suitable for reuse shall be stored safely on land in a manner that does not contribute silt or sediments to the marine environment. Natural or engineered aggregates that are not reusable shall be removed from Tuvalu as solid waste (see above).

No waste is to be left on site after the work is completed.

A7.9 Occupational Safety

The Contractor shall be responsible for complying with all Tuvalu safety requirements for working around electricity and at heights, and any other measures necessary to avoid accidents, including the following as a minimum:

- Carefully and clearly mark pedestrian-safe access routes around the construction areas;
- Conduct safety training for construction workers working at heights and around electricity, and driver safety training for heavy vehicle drivers, prior to beginning work;
- Provide personal protective equipment and clothing (gloves, boots, etc.) for construction workers and enforce their use;
- Post Material Safety Data Sheets for each chemical present on the worksite and ensure workers understand them.
- Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers with correct protective equipment;

General Health and Safety Awareness for construction and maintenance workers will include:

- Introduction to health and safety issues in construction sites by the Contractor;
- Formal training on working with electricity and electrical equipment;
- Education on basic hygienic practices to minimize spread of tropical diseases, including information on methods of transmission and protection;
- Prohibition of drugs, kava and alcohol on construction sites;
- Assure availability of medical assistance in emergency or non-emergency situations and availability of other health-related assistance.

Further guidance is provided in the IFC EHS Guidelines (in reference list below).

A7.10 Demolition or Alternation of Existing Buildings

The Contractor shall implement adequate measures during demolition of existing infrastructure to protect workers and public from falling debris and flying objects. Among these measures, the Contractor shall:

- Ensure all compensation and / or resettlement has occurred and access is authorized, prior to demolition.
- Set aside a designated and restricted waste drop or discharge zones.
- Conduct sawing, cutting, grinding, sanding, chipping or chiselling with proper guards and anchoring as applicable.

- Maintain clear traffic ways to avoid traffic hazards from loose scrap.
- Provide all workers with safety glasses with side shields, hard hats, and safety shoes.

A7.11 Community Relations

Inform the community about construction and work schedules, and the potential risks and harm from construction sites or maintenance work.

Inform local community as early as possible and repeat at least one day in advance of any interruption to electricity supply. Advise through postings at the project site, at public meeting places, and in affected homes/businesses.

Advise people of the complaints mechanism under the EMSF that can be used to provide feedback and lodge complaints.

A7.12 Environmental Emergency Procedures

In the event that accidental leakage or spillage of diesel/chemicals takes place, the following response procedures shall be followed:

- The person who has identified the leakage/spillage shall immediately check if anyone is injured and shall then inform the Supervisor.
- In such cases, all personnel shall take immediate action to stop and contain the spillage / leakage;
- The Contractor shall arrange maintenance staff with appropriate protective clothing to clean up the chemicals/chemical waste. This may be achieved through soaking with sawdust (if the quantity of spillage/leakage is small), or sand bags (if the quantity is large); and/or using a shovel to remove the sand / topsoil (if the spillage/leakage occurs on bare ground);
- Contaminated sand and materials must be handled as hazardous waste (see above).

The Contractor shall prepare a report on the incident detailing the accident, clean-up actions taken, any pollution problems and suggested measures to prevent similar accidents from happening again in future. The incident report shall then be submitted to TEC for review and submit to the Department of Environment.

A7.13 Environmental Training and Awareness

The Contractor should ensure that all concerned staff are trained and aware of the requirements of the ESMF, the Codes of Practice and the development consent (if relevant).

A7.14 Roles and Responsibilities

TEC is responsible for ensuring that all works are in compliance with this Code of Practice. TEC is responsible for ensuring that any contractors working for them work in accordance with this Code of Practice.

The ESMF and the Code of Practice should form part of the tender documents for any contractual work, and form part of the contract with Contractors.

The relevant donor task team will be responsible for supervising the implementation of the Code of Practice.

A7.15 Monitoring

Visual site inspections on a weekly basis to ensure compliance with the Code of Practice. Remedies to be discussed and implemented during the site inspections, and records kept.

A7.16 References

IFC. 2007. Environmental, Health and Safety Guidelines 2.0 Occupational Safety.

Annex 8: Code of Practice for Solar PV Arrays (Stand-alone and Roof Mounted)

The purpose of this Code of Practice is to provide practical methods to avoid, minimise or mitigate environmental and social impacts from the design, installation, use, maintenance and decommissioning of PV panels in Tuvalu.

A8.1 Design

Hardware must be removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar. To ensure this happens, provide funding and resources at the time of decommissioning. Use the contract conditions with the manufacturer and / or supplier to ensure this will happen after the 20- 30 year time frame, or seek additional funding at the time of decommissioning.

Ensure that the solar panels are resistant to corrosion and will enable the collection of rain water for drinking.

Protect health and safety of the public by ensuring the following:

- Inhibit unauthorized access to the PV modules using fences, gates, locks;
- Cover inverters with a locked metal cage firmly attached to the wall in order to avoid unauthorized manipulation (especially by playing children with the risk of accidents) or theft;
- Mark sites with comprehensive and visible signs (pictograms) indicating danger and no-go-areas; and
- Put the wiring underground in order to avoid accidents and damage (accidentally or intentioned by vandalism).

A8.2 Site selection and preparation

- Consider using participatory approaches so that the community helps to decide where the arrays will be located.
- Prioritise roof-mounted systems over stand-alone arrays wherever possible, to minimise the need for land and minimise the need for aggregates and earthworks.
- Prioritise government buildings over private buildings in the early phases of the project, as demonstration sites, and to reduce any possible barriers from landlords.
- Consider secondary uses for stand alone array structures, to maximise the benefit of the land use – such as:
    - Pig pens
    - Bike / car shelters
    - Outdoor class rooms / meeting spaces / shelters from the rain and sun
    - Sheds or other storage facilities
- Avoid any sites where physical cultural resources may be affected, unless the impacts can be mitigated to the satisfaction of the local community (see the Code of Practice for Physical Cultural Resources).

- Avoid the need to remove or trim productive trees if possible. Where this is unavoidable, mitigate or compensate for impacts in accordance with resettlement processes in the ESMF.

A8.3 Building Inspections

Advise building owners and occupiers (including tenants) of the need to inspect the building, at least 1 week prior to visiting. Confirm prior permission. Inspectors visiting private dwellings must provide personal identification and a Project Information Bulletin and provide these to the occupiers prior to entering the property / building to inspect.

If complaints are made during the inspection process, refer to the complaints procedure in the ESMF.

A8.4 Installation

Confirm access to land or buildings, in accordance with the resettlement processes in the ESMF, to ensure there is voluntary land donation, and / or that there is a compensation agreement in place prior to works beginning.

Ensure the correct building permits have been obtained.

Have an agreement in place between TEC and the land owner regarding responsibilities for maintenance, the security of the panels and personal safety.

Prior to installation, TEC (or their contractors) are to speak with land owners and occupiers on the function and features of the panels, to try to reduce the potential for vandalism, and to allay any health and safety concerns. Key messages are:

- No tampering with the equipment – the dangers associated with electrical equipment, and any hazardous substances (if any) if the panels are broken. Fences, locks and other mechanisms may be required to prohibit tampering.
- Drinking water can be collected from the arrays – there is no harm to human health.
- How this will (or won't) affect their power bill.
- Maintenance – what is required, who will do this, how, and how often.
- Who to contact if there is a problem or they need to know more information. Noting it is necessary that they should report immediately to TEC any case of damage of any component, or any health or safety incident.

Refer to the Codes of Practice for Construction and Earthworks to mitigate environmental and social impacts during building works, tree trimming etc.

A8.5 Operations and Maintenance

A maintenance protocol should be established by TEC prior to commissioning.

Maintenance to be undertaken by trained TEC staff or contractors, who have received health and safety training and equipment necessary to work at height and with electrical equipment. Regular checks should be carried out for safety and security and in particular after storms or heavy rainfall events.

The land owner, building owner and / or occupier should report any damage to TEC as soon as possible.

Clean panels with fresh water when required (prolonged dry periods), using a soft cloth if necessary, but no detergents.

Ensure any parts that are replaced are removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

Inform land owners and occupiers at least 1 week prior to the visit. Seek prior permission for entry.

Seek land owners' permission prior to trimming trees.

Complaints should be logged and actioned according to TEC's usual procedures, consistent with the ESMF complaints procedure.

Records should be kept on maintenance activities and complaints.

A8.6 Emergency Procedures for Broken Panels

TEC should adopt a procedure for managing contamination of ground or drinking water or marine environment from heavy metals leaking from damaged panels. The procedure should involve:

- Medical assistance for any persons affected;
- Clean up procedures (including health and safety protocols and equipment);
- Disposal of broken panels and contaminated sands / soils in a designated landfill or facility in another country (such as Australia or NZ). The export of hazardous waste must be in compliance with the Waigani Convention and any relevant laws enacted by Tuvalu and the recipient country.
- Disposal of contaminated drinking water into a septic tank.

A8.7 Decommissioning

All equipment and infrastructure must be removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

To ensure this happens, provide funding and resources at the time of decommissioning. Use the contract conditions with the manufacturer and / or supplier to ensure this will happen after the 20-30 year time frame, or seek additional funding at the time of decommissioning.

A8.8 Roles and Responsibilities

TEC is responsible for ensuring that all design, installation, use and decommissioning works are in compliance with this Code of Practice. TEC is responsible for ensuring that any contractors working for them work in accordance with this Code of Practice and development consent (if relevant).

The relevant donor task team will be responsible for assessing the project against its safeguard policies, assigning a risk category (if relevant) and supervising the implementation of the Code of Practice.

A8.9 References

EECA. 2010. Power from the People: a Guide to Micro-Generation. EECA, Wellington NZ.

Annex 9: Code of Practice for Cultural Heritage (Physical Cultural Resources)

A9.1 Cultural Heritage

Cultural heritage are the sites, areas, objects, or artefacts that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural, religious or spiritual significance to a Kaupule and / or to the nation. They may also have international significance. This 'tangible cultural heritage' includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes, for example:

- Falekaupule / ahiga buildings
- Sacred burial sites or human remains
- Pulaka Pits
- WWII historic sites
- Fossils
- Places of worship
- 'David's Drill site on Fogafale

A9.2 Project Screening: What if Cultural Heritage items or sites are identified in the project area?

As part of the project design, undertake a survey of the project area / footprint to see if there will be any items or sites that may need to be protected, avoided, relocated, removed, altered or destroyed in order of the project to go ahead.

Avoid any damage or desecration to cultural heritage unless absolutely necessary and a Cultural Heritage Plan has been prepared and approved by the Cultural Department.

A9.3 Cultural Heritage Plan

If any cultural heritage items have been found in the project footprint, **to be consistent with the World Bank Safeguard Policy on Physical Cultural Resources OP/BP4.11,** a plan for the measures to avoid or mitigate any adverse impacts on physical cultural resources must be prepared and disclosed publicly. The plan should be prepared with participation from the Cultural Department of the Ministry of Home Affairs, the Falekaupule and the land owners, and consistent with the laws of Tuvalu.

When preparing the plan, provide the following:

- Detailed descriptions and maps of the site / item, and the location.
- Detailed descriptions of the methods for avoidance, protection, removal etc. (such as fencing, signage, dismantling and reconstruction), including which organisations or individuals must be involved, and the timing for works.
- Compensation process for damage or loss.

The plan must also include:

- provisions for managing chance finds (see below);
- any necessary measures for strengthening institutional capacity for the management of physical cultural resources; and
- a monitoring system to track the progress of these activities.

The plan can be a chapter in the subproject Environmental Management Plan or appended to this ESMF.

The plan should form part of the tender documents for Contractors, as part of the contract with Contractors, and part of any training and capacity building for the project.

A9.4 Project Implementation: Chance Find Procedures

If any person working on the project discovers a cultural heritage site or item the following procedures should be followed:

1. Stop the activities in the area of the chance find;
2. Delineate the discovered site or area (e.g. fencing);
3. Secure the site to prevent any further disturbance, damage or loss. In cases of human remains, arrange for a guard to watch the site until the police, Falekaupule and / or Cultural Department take over;
4. Prohibit the collection of objective by any person;
5. Notify the Cultural Department and Falekaupule within 24 hours (and police if it is human remains);
6. Any objects that are found must be handed over to the Cultural Department.
7. Project works can resume only after instruction is provided from Cultural Department.

A9.5 References

Paeniu, B.; Sioni, A. 2010. Draft Tuvalu National Policy on Culture.

Annex 10: Code of Practice Batteries

The purpose of this Code of Practice is to provide practical methods to avoid, minimise or mitigate environmental and social impacts from the installation, use and disposal of batteries connected to renewable energy generators in Tuvalu.

A10.1 Design

Select batteries from manufacturers or suppliers that will agree to a contract condition ensuring that the batteries will be removed from the island and recycled or disposed of at an approved landfill facility at the end of its working life, as part of the contract for supply.

Protect health and safety of the public by inhibiting unauthorized access to batteries by providing locked facilities.

Protect the environment by housing batteries in covered structures, with concrete floors. Floors should be bunded to contain any acid spills.

A10.2 Emergency Procedures

TEC should adopt a procedure for managing contamination of ground or drinking water or marine environment from heavy metals leaking from batteries. The procedure should involve:

- Medical assistance for any persons affected;
- Clean up procedures (including health and safety protocols and equipment);
- Disposal of batteries and contaminated sands / soils in a designated landfill or facility in another country (such as Australia or NZ).

A10.3 Decommissioning

The batteries must be removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

To ensure this happens, provide funding and resources at the time of decommissioning. Use the contract conditions with the manufacturer and / or supplier to ensure this will happen after the 20-30 year time frame, or seek additional funding at the time of decommissioning.

Annex 11: Code of Practice for Installation and Use of Network Equipment (including Smart Meters)

The purpose of this Code of Practice is to provide practical methods to avoid, minimise or mitigate environmental and social impacts from the installation of equipment in the grids and mini-grids in Tuvalu operated by TEC, including communications equipment and smart meters.

A11.1 Design

Hardware must be removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

To ensure this happens, provide funding and resources at the time of decommissioning. Use the contract conditions with the manufacturer and / or supplier to ensure this will happen after the 20-30 year time frame, or seek additional funding at the time of decommissioning.

Protect health and safety of the public from electrical and communications equipment by ensuring the following:

- Inhibit unauthorized access by using fences, gates, locks;
- Mark sites with comprehensive and visible signs (pictograms) indicating danger and no-go-areas; and
- Put the wiring underground wherever possible in order to avoid accidents and damage (accidentally or intentioned by vandalism).

A11.2 Site selection for infrastructure

Where relevant, prioritise government leased land and buildings (TEC depots, hospitals, schools) over private buildings or custom-owned land to reduce any possible barriers from landlords, and to reduce the impacts on other land uses (due to land scarcity across the islands).

Avoid any sites where physical cultural resources may be affected, unless the impacts can be mitigated to the satisfaction of the local community (see the Code of Practice for Physical Cultural Resources).

A11.3 Site preparation and maintenance

Avoid the need to remove or trim productive trees if possible. Where this is unavoidable, mitigate or compensate for impacts in accordance with resettlement processes in the ESMF.

Confirm access to land or buildings, in accordance with the resettlement processes in the ESMF, to ensure there is documented voluntary land or asset donation, and / or that there is a compensation agreement in place prior to works beginning.

Ensure the correct building permits have been obtained.

Avoid interference with transmitting equipment. Consult with agencies such as the Tuvalu Communications Corporation and Funafuti International Airport regarding the location of equipment that may interfere with transmitting equipment.

A11.4 Consultation and Complaints

Refer to the ESMF Guidelines and to the complaints process within the ESMF.

A11.5 Installation

Have an agreement in place between TEC and the land owner regarding responsibilities for access for maintenance and for providing security for equipment (such as perimeter fencing).

For the installation of smart meters, or other equipment in or on private dwellings, TEC or its contractor to make contact at least 48 hours' prior and agree with the householder the date and time (allowing a half-day window) within which works will be done. Confirm prior permission for entry.

Refer to the Codes of Practice for Construction and Earthworks to mitigate environmental and social impacts during building works, tree trimming, operations and maintenance.

A11.6 Operations and Maintenance

A maintenance protocol should be established by TEC prior to commissioning.

Maintenance to be undertaken by trained TEC staff or contractors, who have received health and safety training and equipment necessary to work at height and with electrical equipment. Regular checks should be carried out for safety and security and in particular after storms or heavy rainfall events.

The land owner, building owner and / or occupier should report any damage to TEC as soon as possible.

Ensure any parts that are replaced are removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

Seek land owners' permission prior to undertaking maintenance of equipment, trimming trees, etc.

Complaints should be logged and actioned according to TEC's usual procedures, consistent with the ESMF complaints procedure.

Records should be kept on maintenance activities and complaints.

A11.7 Hazardous Materials

TEC should adopt procedures for storing and using hazardous materials. The procedures should include:

- Storing hazardous materials under shelter from rain and sun, and in a locked area.
- The storage area should have a concrete floor, and be bunded to contain spills.
- Transfer of oil should occur using spill trays or bunds to prevent drips or leaks reaching the ground or sea.

- Maintain a set of Hazardous Materials Data Sheets for all chemicals, and train staff how to use them.
- Provide suitable protective equipment for staff handling hazardous materials.
- Train staff in all procedures relating to storage, handling use and disposal of hazardous materials.
- Waste materials should be stored safely as above, and transported to another country for recycling and / or disposal. The export of hazardous waste must be in compliance with the Waigani Convention and any relevant laws enacted by Tuvalu and the recipient country.

TEC should adopt emergency procedures for hazardous materials. The procedure should involve:

- Medical assistance for any persons affected;
- Clean up procedures (including health and safety protocols and equipment);
- Disposal of wastes in a designated landfill or facility in another country (such as Australia or NZ).

A11.8 Decommissioning

Hardware must be removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

To ensure this happens, provide funding and resources at the time of decommissioning. Use the contract conditions with the manufacturer and / or supplier to ensure this will happen after the 20-30 year time frame, or seek additional funding at the time of decommissioning.

A11.9 Roles and Responsibilities

TEC is responsible for ensuring that all design, installation, use and decommissioning works are in compliance with this Code of Practice. TEC is responsible for ensuring that any contractors working for them work in accordance with this Code of Practice.

The relevant donor task team will be responsible for assessing the project against its safeguard policies, assigning a risk category (if relevant) and supervising the implementation of the Code of Practice.

A11.10 Monitoring

During construction: Visual site inspections on a weekly basis to ensure compliance with the code of practice. Remedies to be discussed and implemented during the site inspections, and records kept.

During operation: Visual site inspections during maintenance visits to ensure compliance with the code of practice. Remedies to be implemented during the visit, or as soon as possible following the visit, and records kept.

Annex 12: Terms of Reference for Technical Advisory Projects

The Terms of Reference for any Technical Advisory projects should contain the following clauses as a minimum:

1. Analysis should include the environmental and social aspects and impacts, consistent with the safeguard policies of the World Bank and the Environmental and Social Management Framework of the Tuvalu Energy Sector Development Project.
2. Outcomes and outputs (including, but not limited to, technical or policy recommendations, concept design, detailed design, equipment specification) should be consistent with the safeguard policies of the World Bank and the Environmental and Social Management Framework of the Tuvalu Energy Sector Development Project.

Annex 13: Sample Consent Form (Voluntary Donation)

Date: _____

I/We: _____ male household head _____female household head, AND/OR person exercising customary title over the affected land_____

Resident/s of _____Village in _____

Declare that I/We/the group is voluntarily donating the use of (specify land, assets, location, size, type etc.)

_____

_____

_____

For the purpose of: (specify activity)

_____

_____

_____

For the duration of: (specify commencement date and duration)

_____

_____

Of My/Our own free will, I/We are waiving My/Our right to compensation of any kind for the specified duration of the activity.

Signed:

Male household head _____ Female household head_____

Person exercising Customary title _____

Annex 14: Environmental Assessment Guidelines – Wind Turbines

The following is a brief guide of the issues to address in an Environmental Assessment of wind turbines on Fogafale. Further guidance, including mitigation measures and monitoring, is provided in the IFC EHS Guidelines for Wind Farms (in reference list below). A PEAR/EMP Template is provided in the ESMF.

A14.1 Land ownership and occupation

Site planning: a review of land tenure on all proposed locations should be carried out to determine land ownership, and the ease or likelihood of access for TEC to install and operate wind turbines. Where possible, identify government-owned land, or land that may have straight forward leasing arrangements.

Avoid structures in the coastal marine area and /or foreshore area, where civil works may impact on shoreline erosion and deposition patterns.

Consider participatory approaches to locating turbines, so that the communities / land owners can participate in the decision making.

Avoid the need to remove or trim productive trees and crops if possible, unless the impacts can be mitigated or compensated in accordance with the ESDP Resettlement Policy Framework.

A14.2 Noise

Site planning and design: Locate wind turbines away from areas sensitive to noise (class rooms, hospitals, dwellings). Due to high density of houses this may not be possible, so an alternative is to consider quieter technology.

Impact assessment: Noise maps should be produced to assess the impacts of noise from the turbines on sensitive locations. Consider relocating turbines, or changing turbine technology, if the modelling and mapping shows noise will be unacceptable to sensitive receptors.

Refer to standards such as NZS6808: Acoustics – Wind Farm Noise.

A14.3 Visual Impact

Many objections from communities come from the visual 'intrusion' of wind turbines, as artificial structures in 'natural' landscapes. This is often the case when clusters can be seen from several kilometres away, and not necessarily from 'close up'. Shadow flicker is an impact experienced close to turbines, when sunshine flickers through the spinning blades.

Site planning: Consider any significant views that may be affected by the turbines. Consider that these views may be from the lagoon, or adjacent islands, and not just from Fogafale. Consider the height of turbines in terms of visual impact (particularly cumulative impact).

Impact assessment: Consider the impact on views and amenity from sensitive locations (e.g. dwellings). Consider any cumulative impacts from multiple turbines. Consider the potential for shadow flicker. Use consultation to gauge the potential for visual impact from people in the surrounding community. Consider whether views of turbines can be screened. Consider relocating turbines where visual amenity will be significantly impacted. Paint the turbines a uniform colour, typically matching the sky (light grey or pale blue), while observing marine and air navigational marking regulations.

A14.4 Biodiversity

Flying birds can strike turbines, guy wires and other parts of the generation equipment, for a number of reasons. Some species are more vulnerable than others, and some environmental factors lead to more strikes. Some bird species are impacted by the air disturbances from turbines and from the noise. Impacts are species and site specific.

Impact assessment: An assessment of bird life in the Funafuti area, including migratory and transient species must be carried out, and the potential impacts from bird strike on vulnerable species carried out. The relevance of any potential bird strike to the success of the population should be assessed. This assessment should include (i) field visits by competent observers and (ii) checking the scientific literature and consulting with experts (as needed) regarding possible bird concentrations during those other seasons of the year when field visits were not made.

Mitigation measures should be identified to reduce or eliminate the potential for bird strike, if relevant and appropriate. The most bird-friendly wind turbine designs are those with (i) tubular towers (not the lattice-type towers which offer hazardous perches to birds near the turbines); (ii) blades that rotate slowly (rather than the fast-spinning ones which are less visible to birds); and (iii) painted with colours that contrast with the surrounding landscape (for maximum visibility).

Apart from birds, an assessment of biodiversity and habitats on and around Fogafale and Funafuti should be carried out to determine any other species vulnerable to the location and operation of wind turbines.

A14.5 Electromagnetic Interference and Aircraft Operations.

Site planning: Avoid the line of site of radar or telecommunications facilities. Consult with Tuvalu Communications Corporation. Avoid locations near Funafuti Airport. Consult with the Airport Authority.

A14.6 Physical Cultural Resources

Avoid any sites where physical cultural resources may be affected, unless the impacts can be mitigated to the satisfaction of the local community (see the Code of Practice for Physical Cultural Resources).

A14.7 Public Safety

Design : Ensure that the turbines cannot be tampered with, to avoid the potential for electrical shocks, vandalism, equipment failure and / or ‘blade throw’ (which can cause injury or death from flying debris).

Inhibit unauthorized access to the turbines and inverters (fences, gates, locks).

Mark sites with comprehensive and visible signs (pictograms) indicating danger and no-go-areas.

Put the wiring underground in order to avoid accidents and damage (accidentally or intentioned by vandalism).

A14.8 Maintenance

Impact assessment: Consider management protocols for wastes such as engine parts, batteries and transmission oil. For example, waste oil should be contained in a secure environment and eventually removed from the island for recycling. Refer to the Code of Practice for Batteries.

A14.9 Decommissioning

Impact Assessment: Consider the end-of-life requirements for turbines and other equipment. There should be funds and capacity to ensure that materials are removed from the island and recycled or disposed of at an approved landfill facility in New Zealand, Australia or similar.

A14.10 Construction-related impacts

Refer to the Code of Practice for Construction and Earthworks and Code of Practice for Physical Cultural Resources for typical mitigation measures.

A14.11 Displacement of Diesel

Impact assessment: Calculate the benefits of displacing diesel: the value to the economy and the offset emissions of climate change gases.

A14.12 Consultation and Grievances

Refer to the ESMF guidelines and the complaints mechanism for methods and procedures to consult with the public and stakeholders, and how to manage complaints and grievances.

A14.13 Monitoring

Develop a monitoring plan for ensuring compliance environmental permits during operation.

A14.14 References

Danish Ministry of Foreign Affairs. 1998. Guidelines for the Preparation and Evaluation of Investments in Wind Farms. DANIDA's Mixed Credit Programme.

EECA. 2010. Power from the People: a Guide to Micro-Generation. EECA, Wellington NZ.

Garrad Hassan Pacific Pty Ltd. 2013. Funafuti Wind Energy Report. Issue D. Final.

IFC. 2007. Environment, Health and Safety Guidelines for Wind Energy.

Ledec, G., Rapp, K and Aiello, R. 2011. Greening the Wind. Environmental and Social Considerations for Wind Power Development. World Bank, Washington DC.

Annex 15: Consultation Workshop, 6 August 2014

A15.1 World Bank Pre-Appraisal Mission Workshop Agenda: Tuvalu Energy Sector Development Project (ESDP).

Time: Wednesday August 6th, 2014

Date: 9:00 am – 4:15 pm

Location: Vaiaku Lagi Hotel

Objective: The mission's objective is to review all aspects of the proposed project and discuss potential implementation arrangements, including agreeing on the resultant framework.

The Workshop will:

- present the key findings of the draft Environmental and Social Management Framework (ESMF) and the Resettlement Policy Framework (RPF) including discussion on affordability and
- provide a summary of the Tuvalu Gender and Energy scoping assessment as well as preliminary indication of findings from the in-depth quantitative study comparing men and women's access and control of energy resources in the household and related affordability of energy resources
- provide an opportunity for local Tuvalu stakeholders to provide an input into the ESMF and the RPF to gain feedback on the approaches to environmental and social risk identification and management including affordability and concerns regarding the proposed prepaid meters and solar panels in the residence
- provide an opportunity for local Tuvalu stakeholders to provide an input into the proposed Gender Action Plan and the monitoring and evaluation framework, the proposed pre-paid meters as well as more broadly affordability concerns.

Distributions of Public Information Booklets in English and Tuvalu languages

Note takers: Daniel Toga, Nicole Jenner and Rosemary Faletoese

Day 1.

9:00 – 9:30	Dr N Toba – World Bank	Overview of proposed World Bank TEDP project
9:30 - 10:30	Mr Mafalu Lotolua TEC	Overview of the key environmental safeguard dimensions related to the Draft Environmental and Social Management Framework (FSMF) and Resettlement Policy Framework (RPF) – including concerns around affordability and the proposed pre-paid meters and solar panel installation in residence (if IT Power study proposes,

		additional discussions on location of windmills and sewage management system).
10:30-10:45 am		**Morning Tea**
10:45 – 11:30 am	Mr Mafalu Lotolua TEC	Discussion session on the social and environmental safeguard dimensions including risks and concerns around affordability, pre-paid meters benefits and costs and local management of these risks and costs, and discussion for the ESMF and RPF to receive some feedback on the approaches to environmental and social risk identification and management
11:30 am - 12:30 pm	Dr Rosemary Faletoese World Bank Consultant	Overview of Gender and Energy Scoping Assessment and preliminary findings from Quantitative Energy Affordability and Value of Lost Loads (VOLL) study
12:30 - 1:30 pm		Lunch Break
1:30 - 2:00 pm		Brief consideration of Gender Action Plan for TEDP – Purpose and applicability to the TEDP – How the GAP can become a Tuvalu mechanism to encourage Gender Equity and Equality – Agree on the target indicators, monitoring and evaluation (M&E) system of TEDP.
2:00 -3:15 pm	Ms Lanuola Fasiai Department of Gender	**Group work:** Discuss local mechanisms and specific actions that can address gaps to Gender Equity, Equality and Mainstreaming within the TEDP – a mix of Government, NGO and consumers in each group to highlight concerns and local mechanisms to address.
3:15		**Afternoon Tea**
3: 30 - 4:00	Dr Rosemary Faletoese - coordinate	Presentation of key actions and programs, target indicators and M&E that can be included within the Gender Action Plan
4:00 – 4:15	Mafalu	Closing Remarks

A15.2 List of Participants

Name	Institution and Title
Hon. Vete Sakaio	Deputy Prime Minister and Minister of Public Utilities and Energy
Mafalu Lotolua	General Manager, Tuvalu Electricity Corporation
Vitoli F. Iosefa	Project Manager, Tuvalu Aviation Investment Project (TVAIP)
Kilifi T O'Brien	Ministry of Home Affairs
Sunema Maheu	Treasury, Ministry of Finance
Emelina Tuilagi	Treasury, Ministry of Finance
Ms Lanuola Fasiai	Gender Affairs Department (GAD)
Lolesi Aleke	Government
Moe Satala	Environment Department
Petelema Eti	Planning and Budget Department
Aoga Kofe	Tuvalu National Private Sector Organization (TNPSO)
Peniele Metia	Filamona Guest House
Satini Wanuella	Tuvalu National Private Sector Organization (TNPSO)
Fanoiga Falasa	Tuvalu Association of Non-Governmental Organizations (TANGO)
Mati Afelee	New Zealand Office
Seleseisa T Kaitu	Vaiaku Lagi Hotel
Natsuko Toba	Senior Economist, World Bank
Nicole Jenner	Gender Focal Point for Pacific, World Bank
Ernie Terrado	Lead Renewable Energy Consultant, World Bank
Rosemary Faletoese	Gender Consultant, World Bank
Daniel Toga	Operations Consultant, World Bank

A15.3 Minutes Relating to the ESMF:

TEC highlighted the purpose of ESMF is to manage possible environmental and social impacts of the proposed TEDP through investigation and dissemination of findings. The ESMF key findings include waste disposal, land acquisition, and affordability of prepay meters.

Due to the lack of adequate waste disposal in country, prepay meters will need to be exported to another country for disposal. The Ministry of Home Affairs advised the task team of the national waste disposal project and requested that the two project team's work together to ensure consistency. Additionally, the World Bank funded Aviation rehabilitation project is currently looking to hire a solid waste consultant to identify appropriate off shore locations for waste disposal.

TEC informed participants that whilst land acquisition will be required for equipment installation, the overall impact is anticipated to be minimal. Priority will be given to use of government leased land, however, use of communal or privately owned land use may be unavoidable. In such case, a resettlement frame work will be drafted to ensuring community consultations are undertaken and a resettlement plan finalized inclusive of compensation. It was noted that solar panels, if purchased under the project, will not be placed on individual rooftops but, placed in a centralized location to assist with long term maintenance. The project would not place any restriction on individual household's use of solar panels or generators should they be able to afford them. Participants sought clarification on how land will be selected under the project and in particular, if current land use and fertility will be taken into account such as less fertile lands being selected first. The Task Team confirmed that land will be selected under TEDP on the basis of ease of use and the minimizing of environment impacts however; any future development will take into account current land use

and fertility. TEC ensured their commitment to continue consultations on land issues throughout the life of the project and communicate any complaints received.

Whilst it was acknowledged that the change to prepaid meters is needed for TEC's improved cash flow and their ability to purchase fuel, the affordability of prepay meters at the household level was raised as a concern by participants, in particular, reduced flexibility of day of payment. Participants also sought clarification on the functionality of the prepay meter and the ability to purchase additional credits to the cards outside of TEC business hours. The project team reassured participants that prepay metering will have no increased electricity costs to households however due to the ability to monitor usage over the course of the month, prepay metering may encourage better household choices regarding efficiency. Additionally, prepay meters will eradicate the current late payment fee of $15 which has been reported as a budgetary constrain for some households. The system will be very similar to telecom prepay system in which a unique code will be punched into the meter. TEC confirmed they will look into possibilities for out of hours top up purchase locations and is committed to giving households sufficient time to prepare for the change and dissemination of information is already underway in the outer islands.

In response to assurances being sought by participants on the reliability of prepay meters, the task team confirmed that the selected prepay meters have undergone bench testing by the manufacture and meters will continued to be monitored by TEC for faults after installation. The Government of Tuvalu and TEC will be responsible for the accuracy and reliability of the prepay meters however; on screen usage amounts will also help individual households monitor their own usage and costs. Participants requested a cost benefit analysis of the proposed Energy Sector Development Project. The World Bank project team confirmed that costs benefit analysis is required under the project and assistance from Tuvalu to provide data on this would be greatly appreciated. Furthermore, a representative of United Nations Development Programme (UNDP) highlighted the current appliances efficiency and safety project which aims to establish energy use averages of a number of commonly used household appliances.