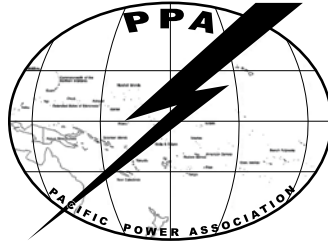
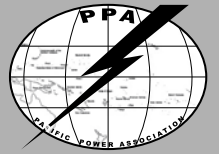


**Pacific Power  
Association**



# Strategic Plan

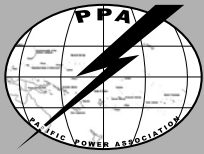
November 2018 - October 2023



# **Pacific Power Association**

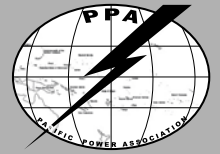
## **Strategic Plan** **November 2018 – October 2023**

**Prepared By**  
**Dr. Herbert Wade**  
**October 2018**



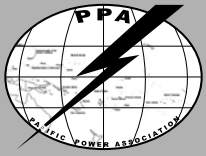
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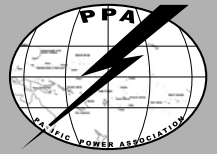


## **Acronyms and Abbreviations**

CEO	Chief Executive Officer
CROP	Council of Regional Organizations in the Pacific
DSM	Demand Side Management
EC	Executive Committee
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
GHG	Greenhouse Gas
GIS	Geographic Information System
HR	Human Resource
IPP	Independent Power Producer
JICA	Japan International Development Agency
KWh	Kilowatt Hours
MW	Megawatt
NZ	New Zealand
NDC	Nationally Determined Contributions (to greenhouse gas reductions)
PICT	Pacific Island Country and Territory
PNG	Papua New Guinea
PPA	Pacific Power Association or Power Purchase Agreement
PV	Photovoltaic (solar electricity production)
SCADA	System Control And Data Acquisition
SEIAPI	Sustainable Energy Industry Association of the Pacific Islands
SPC	Secretariat of the Pacific Community
USP	University of the South Pacific



## **Message from the Chairman**



## **PPA's Vision and Mission**

### **Vision**

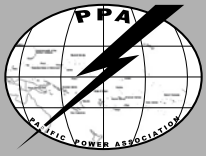
Access to sustainable and quality electricity services for the people of the Pacific Islands region

### **Mission**

To support the Pacific Island Country and Territory (PICT) power utilities in the provision of high quality, secure, efficient and sustainable electricity services.

In this context PPA will:

- be the regional voice for the PICT power utilities
- provide a forum for PICT utilities to address their needs
- contribute to the development of policies and programs to improve electricity services for the benefit of the PICTs, consistent with the Framework for Action on Energy Security in the Pacific, 2010-2020
- provide strategic information and institutional strengthening services to member utilities
- improve knowledge of the electricity supply business within the region



## 1. Background of PPA

The Pacific Power Association is a regional agency and a member of the Council of Regional Organizations in the Pacific (CROP). PPA was established in 1992 through support from the ESCAP Pacific Energy Development Programme that was based in Suva, Fiji. PPA's purpose has been to promote cooperation among Pacific island power utilities in technical training, promote exchanges of information, sharing of skilled staff, sharing of engineering expertise and other activities of benefit to members. Its objective is to improve the quality of electric power in the region through cooperative efforts among the utilities, the private sector, CROP members, development assistance agencies and others.

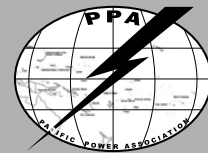
There are three main categories of PPA membership: Active (Pacific island power utilities), Allied (other power utilities, organisations and individuals with an interest in the region's power sector and suppliers of services and products for the utility sector), and Affiliate (any organisation that does not seek to gain financial benefits or direct services from PPA). In 2018, there were 25 Active Utility Members operating in 20 Pacific Island Countries and Territories, 104 Allied Members and 24 Affiliated Members. Active Members and an Allied Member representative have voting rights. Core funding is through annual membership fees but PPA has also received financial and technical support from a number of development assistance agencies.

PPA's Board of Directors consists of the CEOs or representatives of all Active Members and a member elected from Allied members. The Allied Members' representative has a three-year term. Other Board Members are permanent unless they resign from or are removed from their utility. Day-to-day affairs are managed by a Secretariat headed by an Executive Director who is an ex-officio board member.

An Executive Committee (EC) of the Board guides the Secretariat between annual PPA meetings and has the authority to make decisions on behalf of the Board between Board Meetings. The Memorandum and Articles of Association, last revised in 2006, specifies that an Annual General Meeting (AGM) is to be held at least once every calendar year, with a quorum of ten directors (present or represented by proxy) representing not less than eight of member PICTs. There are alternates for each EC member.

The chairman of the board is a Director appointed by the board for a term not exceeding three years. The EC is appointed from members of the Board, comprising the Chairman, the Secretary, the Treasurer, the elected Allied member representative, and the board member representing the Active member hosting the next AGM.

Key PPA activities in the past have included: a) an ongoing regional technical and non-technical training programme; b) a managerial, technical and financial cooperation programme for sharing utility expertise and experiences; c) a regional power sector database which is under development; d) publication of a quarterly magazine "Pacific Power"; e) provision of technical studies and advisory services; f) organising and conducting an annual meeting with a separate workshop for board members and



donors as well as a concurrent trade exhibition; g) organising and conducting a bi-annual engineering workshop in conjunction with the annual meeting; and h) other miscellaneous services for members.

## 2. The Strategic Plan for PPA

In 2011 PPA prepared a five -year strategic plan for the provision of services and support to the utilities. That plan continues to be valid in some of its content but by 2018, due to the lowered cost of renewable energy generation and international pressures to reduce the use of fossil fuels for power generation causing a rapid uptake of solar PV generation by utilities, some additions and updating of the strategies are needed, particularly those that focus on renewable energy and energy efficiency programs in the utilities. Also, some utility priorities have changed so there is a need to reduce or eliminate strategies that are no longer a high priority for utilities.

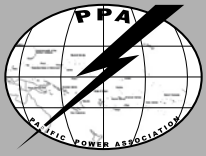
The PPA therefore initiated a program to update the 2011 Strategic Plan to continue activities that remain important to the utilities and to determine what additional services and support are needed as well establishing strategies that are needed to lead to the provision of those services and support.

## 3. The Power Sector in the Pacific

The Pacific island states range in size from Nauru, with only 21 km<sup>2</sup> of land area to Papua New Guinea (PNG), with nearly 463,000 km<sup>2</sup> and populations ranging from barely a thousand people to well over 5 million, spread over an ocean area larger than Europe. Unsurprisingly, PPA's 25 Active Member utilities are characterised by wide diversity:

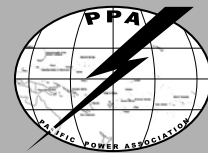
- Utilities range from small organisations with under 1 MW of capacity serving a few hundred customers to those with hundreds of MW serving many thousands of customers;
- Electrification rates range from under 20% in several Melanesian countries to nearly 100% in much of Polynesia;
- Some utilities operate a single grid network in one urban area, island or state while others provide a country-wide service with multiple grid systems on different islands;
- Some utilities are responsible for country-wide electrification, both on-grid and off-grid while others are solely responsible for grid-based electrification.
- Some utilities have well-developed power transmission systems with voltages above 33 KV, but most grids are limited to medium and low voltage distribution networks;
- Household electricity consumption from the power grid ranges from about 80





kWh to over 700 kWh per month.

- In some PICTs, taxes are charged on electricity sales but for others there is no tax or it does not apply to electricity. Several utilities pay no import duty or tax on fuels, but others are taxed. Some tariffs are stepped with different rates according to the kWh per month used while others have a flat tariff for all customers. Some include demand charges for commercial/industrial customers while others do not.
- Most utilities are rapidly increasing their amount of generation from renewable energy though often sourced from random donors as it comes available rather than working from a long-term plan.
- There is a surge of interest in IPP generation from solar since the goals for reduction of fossil fuel use by many countries is very aggressive and the utility cannot make the necessary investments in renewable energy generation that are needed to reach those goals on time.
- Most power utilities are self-regulating, whereas several have external regulators for technical standards and/or tariff setting;
- Most utilities provide only electricity services, but several are also responsible for water systems and sewer systems and at least one also provides bulk fuel bunkering;
- A number of utilities are run as private profit-making companies with full cost recovery from tariffs, but some have government-established tariff structures that have routinely been set below the cost of supply, undermining cash flow and causing operational and maintenance difficulties;
- The colonial past of the Pacific has resulted in three different sets of technical standards in the region: Australian/NZ for much of the south Pacific, US standards for US-affiliated PICTs, and French standards for the five Francophone utilities; added to that are some utilities that have portions of their grid built to Japanese standards due to funding from Japanese sources.
- For a few utilities, there is a legacy of decades of subsidies for power production that has resulted in artificially low prices for consumers and high levels of electricity consumption, a situation which is hard to sustain but also difficult to change quickly as the subsidies end or diminish;
- Some utilities have a national tariff structure (e.g. Fiji; PNG; Samoa; Solomon Islands) which results in high levels of cross subsidies from the main urban areas or the main island to other electricity consumers and may make IPP generation for off-grid areas financially impractical while others (e.g. Yap) have tariff structures tied to the real cost of service at remote sites; and



- Some utilities use advanced technology such as supervisory control and data acquisition (SCADA) for operations, a geographic information system (GIS) as an asset management tool, smart relays, load flow analyses, automatic remote revenue meter reading, prepaid metering, wireless communications, etc. whereas others use older and simpler technologies.

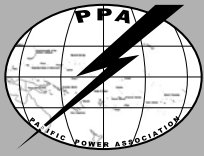
With such a diverse range of conditions and operating environments, there is a correspondingly wide variation in the technical and management skills required by the individual utilities, their ability to retain skilled personnel, and their local training capacity. Providing effective and cost-effective services to meet the wide range of member utility needs is a major challenge for PPA.

#### **4. A Five-Year Horizon**

Because the environment in which PICT utilities operate is changing rapidly, this strategic plan covers the fairly short period of five years, from late-2018 to late-2023. This is the minimum period in which the PPA Secretariat can realistically expect to access the additional resources necessary to develop and provide a significant increase in the level and quality of its services to member utilities and the PICTs. However, it is important that the five-year plan consider the longer term, and that PPA's activities and priorities in the medium term five-year period be consistent with addressing longer term issues.

In brief, PPA expects the following issues of relevance to PPA and its members to be important over the next five years and beyond:

- Rapid increases in the use of solar PV and associated energy storage for generation both to reduce/stabilize the cost of generation and to meet national goals for reducing Greenhouse Gas (GHG) emissions.
- Pressures applied for utility commercialisation, implementing regulatory mechanisms external to the utility and imposing tariffs that cover the full cost of supply.
- An increasing percentage of power supplied through Independent Power Producers.
- Continuing emphasis by development partners and other international agencies on renewable energy for electricity production in the PICTs and more efficient energy use by both utilities (supply-side) and consumers (demand-side).
- As funding agencies and governments continue to advocate renewable energy at larger scales, there is likely to be an increase in poor advice by promoters of inappropriate 'solutions' and companies offering PPAs that have terms that may cause long term problems for PICT utilities.



- Funding to the energy sector for mitigating the impacts of climate change is increasing but not necessarily in a form appropriate for many Pacific Utilities

## 5. Summary of the Strategic Plan

For the PICT utilities overall, a primary concern is reducing dependence on petroleum fuels which still account for the bulk of utility costs. The priority strategic goal of this plan is for the PPA to assist the utilities improve energy security while lowering generation costs by increasing reliable renewable energy generation in a planned manner, by increasing the efficiency of generation and increasing the efficiency of the use of electricity. Individual goals are

### 1. Strategic Goal 1: Using Petroleum Fuel More Efficiently and Reducing Utility Petroleum Consumption

Objective 1.1: Increase the use of renewable energy in a planned and sustainable manner

Objective 1.2: Increase the use of energy storage to support the grid

Objective 1.3: Improve the efficiency of electricity provision by utilities

Objective 1.4: Improve the efficiency of electricity use by utility customers

### 2. Strategic Goal 2: Provide Support for Building the Technical, Administrative and Regulatory Capacity of the PPA and the Utilities

Objective 2.1: Support technical and non-technical capacity building of utilities and their Boards of Directors

Objective 2.2: Capacity building of the PPA Secretariat

Objective 2.3: Support capacity building of island governments and regulators

### 3. Strategic Goal 3: Provision of Services by the PPA Secretariat to Improve Electricity Supply and Quality

Objective 3.1: Improve services to members

Objective 3.2: Improve information systems to better support members, development partners and project developers

Objective 3.3: PPA Operations Review

### 4. Strategic Goal 4: Support to Utilities for Financial Management

Objective 4.1: Support to utilities for electricity tariff design

Objective 4.2: Support for the selection and management of IPPs and PPAs

### Strategic Goal 5: Support to Utilities for Human Resource Management

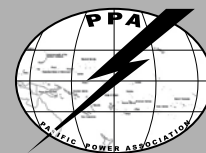
Objective 5.1: Assist utilities prepare programs for improving Customer Relations

Objective 5.2: Assist utilities prepare programs for increasing gender equality in their staff

Objective 5.3: Workforce development

### 5. Strategic Goal 6: PPA Support for the Development of Climate Change Resilience in Member Utilities

Objective 6.1: Assist utilities prepare programs that increase utility resilience to



climate change that are specific to their needs.

Objective 6.2: Develop a regional disaster response plan.

Objective 6.3: Assist utility members prepare disaster management plans.

## 6. Strategic Goals

This Strategic Plan does not specify precise actions or priorities to reach the strategic goals and objectives, but for each strategic goal it does include a sample program concept for the guidance of the PPA Secretariat as it develops action plans and projects in association with members. The Secretariat will also develop a monitoring and evaluation mechanism to assess progress and the quality of services as they are carried out.

## 7. Development of the Strategic Plan

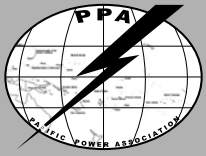
The process used to develop the plan is described in an assessment report of October 2018. This report is available from the PPA Secretariat.

Key high-level strategic goals, objectives to meet the goals, and broad strategies and indicative activities to work toward achieving the objectives were developed by the Consultant using inputs from Utilities, Allied Members, Development Partners and PPA management. Those were discussed by the Executive Committee at a meeting in Nadi on 12 and 13 October, 2018, and their directions were followed in the preparation of the final document.

It was agreed that a five-year planning period is appropriate. It is understood that progress will be highly dependent on the availability of external finance which requires time to access and some of which may not become available during the five year period. Therefore, it is recognized that some objectives may not be fully achieved during the planned period.

## 8. Strategic Goals and Objectives

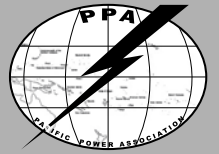
The primary concern for PICT utilities overall is their dependence on imported petroleum fuels which accounts for the bulk of utility costs and their requirements to shift generation to renewable energy so national governments can meet their goals for greenhouse gas emission reduction. Assisting the power utilities to improve energy supply by using petroleum more efficiently, assisting customers use electricity more efficiently, and reducing dependence on fossil fuels collectively form the key goal of this plan. The following pages list the goals, supporting objectives and program concepts that support each objective of the strategic plan. Also, following the section showing the individual Strategic Goals and Objectives there is a section with a program concept paper for one of the program concepts listed under each Strategic Goal.



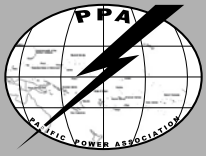
## 9. PPA Training Activities

Clearly, training is the most important activity that the PPA will need to engage in to meet the goals of this Strategic Plan. It is also clear that there will need to be several types of training approaches developed to meet the various needs of the members. Those needs include basic training of new employees, hands-on training in technologies new to the utility, addressing the informational needs of members of the utility Board of Directors and helping the private sector.

Basic training can typically be provided through inexpensive Audio-Visual (AV) pre-recorded sessions, while training in more complex activities that are specific to the utility, such as O&M of specific pieces of equipment, may require an expert trainer to visit the utility. Where the number of people to be trained in each utility is small, regional or sub-regional trainings can work well.



**2018 – 2023  
STRATEGIC PLAN GOALS,  
OBJECTIVES, CONCEPTS AND  
CONCEPT PAPERS**



## **Strategic Goal 1: Using Petroleum Fuel More Efficiently and Reducing Utility Petroleum Consumption.**

### **Objective 1.1:**

**Increase the use of renewable energy in a planned and sustainable manner.** PPA to assist utilities in developing long range plans for reaching Nationally Determined Contributions (NDCs) for GHG reduction through the use of renewable energy and energy efficiency to address climate change and work with development partners and capital sources to help the utilities carry out their plans.

#### **Program Concepts:**

Assist utilities design and obtain funding for resource assessments focused on data collection needed for reaching the national climate change goals.

Assist utilities develop plans and processes for reaching GHG reduction goals in a sustainable manner through assisting the utilities access to the necessary human and financial resources.

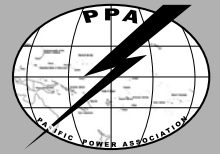
### **Objective 1.2:**

**Assist the utilities assess and implement solutions for stabilizing the grid that include some type of storage followed by bulk storage as appropriate.** Energy storage is essential for the large-scale use of variable renewable energy on the grid both to reduce the effects on the grid of the variability of the renewable energy sources and to have bulk storage to deliver to the grid when there is insufficient direct input from solar to deliver the needed services. PPA will support utilities for grid modelling, donor inputs and IPPs to reach the level of energy storage on the member utility grids needed to provide stable and reliable power delivery.

#### **Program Concepts:**

PPA develop and disseminate written and video training materials in the use of energy storage for island utilities to improve grid reliability and stability as well as reduce the need for fossil fuel generation by teaming storage with renewable energy sources.

Arrange for utilities with energy storage installations to share their experiences regarding the design, financing, procurement, installation and use of their energy storage installations with emphasis on problem areas and how they have been handled.



**Objective 1.3:**

**Improve the efficiency of electricity provision by utilities.** Facilitate the improvement of generating and distribution efficiency.

**Program Concepts**

Assist in the development of supply side energy efficiency through helping identify losses in electricity supply systems through benchmarking.

Assist utilities in establishing meter calibration programs to maintain accurate metering of delivered energy both within the network and at customer deliver points.

Assist utilities prepare programs for proper disposal of waste oil and other waste products of electricity generation.

**Objective 1.4:**

**Improve the efficiency of electricity use by utility customers.** Support utilities in delivering demand side energy management programs.

**Program Concepts**

Assist in the development of demand side management through helping utilities develop specific programs for DSM that include basic programs for general dissemination and programs that are specifically targeted to high energy use industries and commercial enterprises.

Identify commercial and government organizations that may support DSM programs through access to funding and DSM program materials.

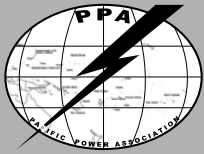
**Strategic Goal 2:**

**Provide Support for Building the Technical, Administrative and Regulatory Capacity of the PPA and the Utilities.**

**Objective 2.1:**

**Support technical and non-technical capacity building for utilities and their Boards of Directors.** Through development and implementation of training programs for staff, administrators and utility Boards of Directors, increase the capacity within utilities to improve the reliability and efficiency of power generation while reducing overall costs per kWh.





### Program Concepts

Develop and carry out technical training programs of various types in all areas of utility operations with special emphasis on operation and maintenance of generation and distribution systems.

Facilitate training to utility Boards of Directors that focuses on defining their specific roles and explaining the utility responses needed to meet their country's NDCs for greenhouse gas reduction and renewable energy implementation.

Develop concepts for activities by the utilities for income generation to offset reductions in incomes due to energy efficiency and private solar installations such as contracting for maintenance of private solar installations and energy auditing and advisory services for high energy use customers.

### Objective 2.2:

**Capacity building of the PPA secretariat.** Increase the capacity of the PPA Secretariat through staff training and staff expansion, both permanent and temporary, as needed to meet strategic goals and to effectively address utility issues. Continue work to get the Home Country Agreement with the Fiji Government approved and investigate options for basing the PPA in other Pacific nations. Promote PPA through collaboration with other organizations.

### Program Concepts

Recruit additional staff and train existing staff for procurement, project management and project evaluation.

Review and improve processes and procedures in the PPA Secretariat relating to finance, procurement, and human resources to provide confidence to development partners and program developers.

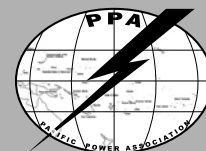
### Objective 2.3:

**Support capacity building for island governments and regulators.** Through workshops and local support, help increase the capacity of island governments and regulators to understand and to properly support and regulate the power utility.

### Program Concepts

Working with development partners, develop regional workshops specifically focused on the regulation of island utilities.

Assist utilities in developing appropriate standards and getting government to recognize utility standards and guidelines as necessary requirements for donor project acceptance.



### **Strategic Goal 3: Provision of Services by the PPA Secretariat to Improve Electricity Supply and Quality**

#### **Objective 3.1:**

##### **Improve services to members.**

Facilitate and provide high quality support services to the members both as a group and with support specifically intended to fit each individual member's needs.

#### **Program Concepts**

Assist utilities access development partner programs and then assist in their development of proposals under those programs.

Review the PPA communication processes for notification of members of programs and activities that may be of interest. Ensure that they are timely and use a medium likely to be immediately accessed by users.

Develop strategies to increase the number of businesses that support power utilities joining PPA as Allied Members.

Develop systems to inform utilities of Allied Member services that may be useful in project design and implementation.

Develop systems to inform Allied Members of projects being undertaken by utilities that may include procurement of services and goods.

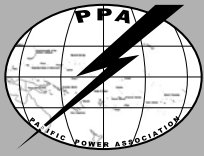
#### **Objective 3.2:**

**Improve information systems to better support members, donors and project developers.** Improve and regularly update PPA's website to include an up-to-date power sector database as well as information, links and references relevant to PICT utilities.

#### **Program Concepts**

Assist utilities in developing data collection systems appropriate to utility needs and the needs of development partners.

PPA website to include up-to-date utility data entered directly by utilities to help donors and other users of utility data access the most recent data for Pacific utilities.



**Objective 3.3:**

**PPA Operations Review.** Review and improve processes and procedures relating to finance, procurement, and human resources to help development partners and program developers working with the PPA have confidence in the ability of the PPA to properly carry out its development responsibilities.

**Program Concepts**

Annually review the program activities that have been carried out during the previous year. Determine areas that need improvement and carry out actions- that result in the needed improvements.

**Strategic Goal 4:  
Support to utilities for financial management**

**Objective 4.1:**

**Support to utilities for electricity tariff design.** Tariffs are complex when there are multiple sources of energy at different prices and that is increasingly the case with Pacific utilities. PPA will provide support to the utilities to design tariffs that are specific for their situation.

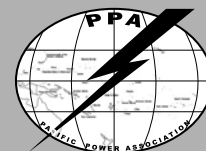
**Program Concepts**

Support regional tariff design workshops for utility management and regulatory/government agency staff.

Prepare a tariff design template to help regulators and utility financial staff understand the various costs associated with electricity supply when using multiple types of generation.

**Objective 4.2:**

**Support for the selection and management of IPPs and PPAs.** For many PICTs, the rapid conversion to a high percentage of renewable energy required by their governments makes it necessary to include IPPs in the generation mix. However, contracting to an IPP is a 20 to 30 year commitment and the terms of the agreement need to be carefully negotiated.



**Program Concepts**

Facilitate subregional workshops on Power Purchase Agreement contracting and the integration of IPP generated power into the grid.

Assist utilities access external resources to support their integration of IPP power into their grid.

Training for staff in financial analysis and financial management.

Identify and disseminate information regarding risk management for utilities.

**Strategic Goal 5:  
Support to Utilities for Human Resource Management**

**Objective 5.1:**

**Assist utilities prepare programs for increasing gender equality in their workforce:**  
Support utilities to create and deliver programs to increase the hiring of women by the utility in both technical and managerial positions.

**Program Concepts**

In association with local educators, PPA to prepare a general program for school children with specific activities designed for ages 11 through 18 to introduce them to utilities, their operations and the opportunities they offer for a career in both technical and administrative work. Programs will be designed to be interesting for both females and males. It will be intended to increase the number of young women that choose STEM programs and graduate in engineering and management and join the utility staff. PPA will assist the utilities in fitting the program specifically to their needs and to best fit the local culture and educational system.

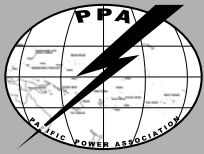
Develop video presentations for school programs of interviews of women graduates in engineering and management who are employed by Pacific Utilities.

Work with universities in the region to actively recruit qualified women for technical and managerial roles.

Assist utility members review and improve processes and procedures relating to finance, procurement and human resources to provide confidence to donors and program developers that the utility is properly managed and gender neutral in its hiring processes.

Develop training programs to ensure that utilities properly follow the guidelines of development partners in all areas including gender neutrality.

Develop work force development programs such as internships, apprenticeships, staff training, worker exchanges and succession planning that are clearly gender neutral.



**Objective 5.2:**

**Assist utilities prepare programs for Improving Customer Relations.** PPA to develop/improve processes for determining customer satisfaction and the methods for its measurement. Disseminate those to the utilities.

**Program Concepts**

Investigate the use of Internet social media for improving interactions with customers.

Develop training for utility staff that interact with customers to improve that experience for customers.

Assist utility HR managers develop customer relations guidelines for staff.

During the annual PPA meeting include a session for sharing ideas for complaint management and the improvement of customer satisfaction.

**Objective 5.3:**

**Workforce Development.** Assist utilities to include interns, apprentices, staff training, worker exchanges and succession planning in their HR systems.

Assist member utilities in planning and carrying out arrangements with their home country educational system for qualified students to join the utility during their school vacation as interns in both technical and non-technical areas.

PPA to support member utilities in the short term sharing of workers.

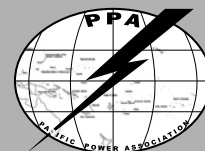
Assist member utilities in succession planning.

**Objective 5.4:**

**Workforce Development.** Assist utilities in further developing performance management.

Assist member utilities in the use of benchmarking data to help managers focus on utility overall performance.

**Strategic Goal 6: PPA support for the development of climate change resilience in member utilities.**



**Objective 6.1:**

**Assist utilities prepare programs that increase utility resilience to climate change that are specific to their needs.** PPA work with member utilities in the preparation of plans for reacting to rising sea levels, higher King tides, increased violence of tropical storms, changes in rainfall patterns, changes in average temperatures and other factors related to climate change that may adversely affect utility infrastructure.

**Program Concepts**

Develop programs to assist utilities survey their infrastructure to determine areas likely to be adversely affected by climate change.

Assist utilities obtain funding for increasing their resilience in the face of climate change.

**Objective 6.2:**

**Develop a regional disaster response plan.** Work with member utilities, and regional development partners to develop a fast response plan that provides for a rapid response by unaffected member utilities to help member utilities affected by a disaster as well as a rapid response from developed countries to help member utilities needing disaster management assistance.

**Program Concepts**

Determine the actions needed for rapid recovery of power services from each of the major disasters that may affect the Pacific utilities including tropical storms, floods, earthquakes, major fires, tsunamis, volcanic eruptions and major landslides. Work with the governments and utilities of relevant development partner countries to develop rapid response programs to assist utilities affected by disasters restore services quickly.

**Objective 6.3:**

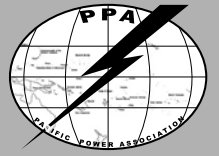
**Assist utilities prepare programs to prepare disaster management plans.** Assist with the creation of programs intended to help return power to all customers following a disaster that are specific to each utility.

**Program Concepts**

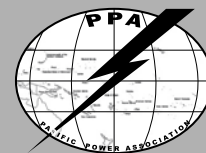
PPA assist member utilities in the preparation of plans for recovery from high intensity tropical storms, major fires, landslides, floods, earthquakes, tsunamis and volcanic eruptions that seriously damage utility infrastructure.

During disaster recovery periods, assist the utilities affected obtain manpower and other external assistance from member utilities that were not so seriously affected. PPA to work with Allied Members to quickly support disaster recovery efforts by member utilities.

Prepare a training program in disaster recovery management for utilities and assist utilities in the preparation of a management plan



# **Annex 1: CONCEPT PAPERS**



### **Strategic Goal 1: Using Petroleum Fuel More Efficiently and Reducing Utility Petroleum Consumption.**

This goal covers both supply side efficiency (which is being addressed through the Benchmarking process) and demand side efficiency. An example of a program to support DSM would be to develop a "do-it-yourself" home and small business energy auditing program.

*Concept Paper for Strategic Goal 1, Objective 1.4:*

#### ***Demand Side Energy Audit Program***

- PPA to solicit funding for a one year project with three months for preparatory work, eight months when it would be active for utilities to participate and one month for review and closing out the project.
- PPA work with relevant professional organizations to develop templates and instructions for end users to carry out a basic home or small business energy audit. Note the availability from UNDP Fiji of relatively recent home appliance surveys carried out in several countries.
- PPA to develop spreadsheets for the utilities to carry an analysis of the information customers enter in the template and generate recommendations for customer actions appropriate for the reduction of energy use.
- Train utility personnel in the use of the templates and analysis spreadsheets
- Each utility advertise and distribute the templates and instructions.
- Utilities to advertise a 'hotline' for customers to ask questions about using the template.
- Completed templates to be returned by customers to the utility for analysis.
- Utility to mail or, if the customer prefers, email the analysis to the customer and the list of actions proposed for the improvement of energy efficiency for that customer that is recommended by the analysis spreadsheet.
- Utility to report to PPA the results of their portion of the project.
- PPA to report to the funding agency the overall project results.

### **Strategic Goal 2: Provide Support for Building the Technical, Administrative and Regulatory Capacity of the PPA and the Utilities.**

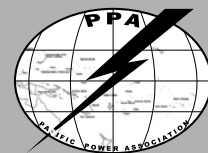
Based on discussions with utilities, three approaches to training appear to be needed, distance training through video or power point presentations, hands-on training using visiting trainers to train on actual utility facilities and regional/sub-regional workshops to cover issues that are the same in many utilities.

*Concept Paper for Strategic Goal 2, Objective 2.1:*

#### ***Basic Training for Staff and Board of Directors.***

Prepare computer based training using Power Point presentations with audio and video components or solely as video presentations. Note that computer based





training materials are proposed rather than internet based training due to problems of limited bandwidth and reliable access to the Internet in many PICTs. Printed training materials and components for basic hands-on practical training in support of the video training should be Included with the video/Power Point files where appropriate. This type of training is appropriate for:

- Basic training of staff both as a refresher for existing staff and as an introductory training for new staff.
- Trainings that do not require significant interaction with participants either through discussions with the instructor nor do they require hands-on practical works that cannot be carried out in the training room.
- Training to develop skills that are applicable over a wide range of tasks in Pacific utilities such as using test equipment.
- Training that needs to be repeated on a regular basis.

Examples of this type of training are:

- Introduction to the installation and maintenance of transformers.
- Basics of renewable energy integration for Boards of Directors.
- Utility regulation for the Board of Directors.
- Utility Finance Management for staff and the Board of Directors.
- Introduction to the responsibilities of the Board of Directors of a utility.
- Introductions to various RE/EE Technical Guidelines developed under SEIDP.
- Introduction to maintenance of on-grid solar installations.

Utilities will need a training room large enough for the number of participants anticipated and a table area large enough for any practical works to be carried out.

The PPA will need to work with utilities to determine specifically what training materials are needed and then work with development partners to contract for the design and preparation of the audio-visual, written and practical works kits.

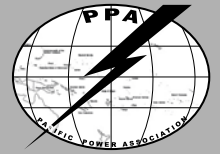
### **Strategic Goal 3: Provision of Services by the PPA Secretariat to Improve Electricity Supply and Quality**

To support development partner programming and facilitate sharing of information, a project to add web pages where operational data from each of the PPA member utilities can be added to the PPA website and kept up to date by the member utilities themselves is proposed.

*Concept Paper for Strategic Goal 3, Objective 3.2:*

#### **Add an open source data page on the PPA website for each utility.**

- PPA prepare a funding proposal to add a section to the PPA website that allows each utility to enter up to date production and other data that may be of interest to project designers, development partners, Allied members and other interested parties.
- Through discussions with development partners and utilities, determine the



- specific data to be entered by the utilities and its format.
- Create the webpage and test its operation.
  - PPA obtain legal advice in preparing a disclaimer if the data is incorrect or misleading.
  - Training provided by the project for utilities to properly enter data onto the webpage.
  - Assign personnel and develop a process at the PPA office to regularly check the data entries and request validation from the utilities for any questionable data and also request updating if data is not updated as was agreed upon by the utility and PPA when the site was made available to the utility for its use.
  - Advertise the availability of the data to Allied Members and development partners and on the opening page of the PPA website.

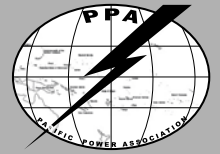
#### **Strategic Goal 4: Support to utilities for financial management.**

As more generation sources are added to the grid, financial management of the utility becomes more complex and procedures need to be updated to fit the new conditions. A major financial management concern is the design of tariffs. While many Pacific Utilities must in the end accept tariffs that are set by government, it is important to determine the tariff needed that covers all costs and a reasonable rate of return and provide that to government for their consideration.

##### *Concept Paper for Strategic Goal 4. Objective 4.1*

#### **Support to utilities for tariff design.**

- PPA to design and submit a proposal for development of a tariff design template and training two senior utility finance personnel in each Pacific Utility in the design of tariffs that reflect the real cost of electricity delivered to customers.
- PPA to contract for support in the creation of a tariff design template suitable for use with standard spreadsheet programs such as Microsoft Excel or Apple Numbers. The template should allow multiple generation sources and entries for each of their individual components of generation cost as well as all fixed costs, variable costs of generation, distribution costs, customer service costs and all other costs that affect the cost of operating the utility and delivering reliable power to its customers.
- PPA to carry out regional or sub-regional workshops in the design of tariffs and the use of the template as developed by the PPA. Included would be the design of feed-in tariffs for private renewable energy generation, stand-by tariffs for customers that generate the bulk of their own energy needs, and power use tariffs for customers that intermittently require high power levels of supply.

**Strategic Goal 5: Support to Utilities for Human Resource Management.**

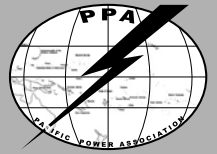
Utilities need to attract more talented young people, especially females since they are very much under represented in engineering and management positions. To accomplish that goal it will be necessary to encourage students at all levels to know of the opportunities in the utilities for graduates in the fields of engineering and management.

*Concept Paper for Strategic Goal 5, Objective 5.1****Assist utilities prepare programs for increasing gender equality in their engineering and management staff.***

- In association with Pacific educators, PPA to prepare a general program for school children from age 11 to 18 to introduce them to the utility, its operations and the opportunities it offers both men and women for a career in technical or management work.
- PPA to seek funding for development and support of the program.
- PPA develop programs for utilities to use in middle schools to interest students and improve their understanding of what the utility does and the types of jobs it includes. These may include presentations to sciences classes, tours of utility facilities, demonstrations showing the differences in energy use of various types of appliances, simple home energy audits carried out by students, etc.
- Develop programs for utilities to use in high schools with a focus on demonstration experiments in high school science labs and classrooms relating to the measurement of electricity, solar energy, the use of an oscilloscope to demonstrate the AC waveform and other waveforms such as from a poor quality inverter, some one speaking into a microphone, etc.,
- Assist utilities design tours of utility facilities and presentations suitable for high school students.
- Assist utilities provide internships for students, both male and female, during the school vacation period just before the last year of high school.
- Create a presentation for senior high school students that covers the jobs typically available in a utility and the qualifications for each of them. Include video presentations of interviews of an equal number of men and women working in senior engineering or management positions in the Pacific Utilities.

**Strategic Goal 6: PPA support for the development of climate change resilience in member utilities.**

Climate change is a serious problem both in terms of increased storm severity and frequency due to the increasing temperature of the sea and the need to improve the resilience of the utility to the changing climate and its associated weather conditions.



*Concept Paper for Strategic Goal 6, Objective 6.1:*

***Assistance to utilities for the development of climate change resilience plans and activities for Pacific utilities.***

- PPA to prepare a proposal for funding to support training and other activities relating to disaster preparedness and climate change resilience for Pacific utilities.
- PPA to develop a system for Pacific utilities to survey its infrastructure and operations to determine the components most vulnerable to climate change.
- Using the funding, obtain the necessary expertise to provide training to utilities through regional or sub-regional workshops in the development of comprehensive plans for managing their recovery from natural disasters and for improving the resilience of the utility to climate change, particularly sea level rise and increased frequency and intensity of tropical storms.

