
Concept Note

Pacific Regional Capacity Building Programme on Energy Management and Energy Audit

Targeted audience: (Entry Level Officers) Energy Divisions, Power Utilities and other relevant sectors

Date: 27 February - 03 March, 2023

Venue: Fiji

1.0 Background

The Small Islands Development States (SIDS) are particularly vulnerable to the impacts of climate change and are still heavily dependent on fossil fuel imports to meet its energy needs including the generation of electricity. The high cost of fossil fuel imports has resulted in the relatively high price of goods and services in SIDS. Consequently, decreasing the amount of electricity and fossil fuel use can provide significant financial benefits to consumers at household and macroeconomic level and simultaneously tackle the climate crisis through the reduction of greenhouse gas emissions.

As highlighted in the Framework for Energy Security and Resilience in the Pacific (FESRIP) 2021 – 2030, that despite the many challenges faced by the Pacific SIDS, there are still extensive opportunities for cost-effective improvements in demand-side management (DSM) energy efficiency (EE) efforts, where buildings alone account for about 50% of the Pacific's electricity sector. The Pacific Community (SPC), together with the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) and other regional organisations as well as development partners are also committed to undertaking regional and national capacity building initiatives on energy audits and energy management in households, government buildings and putting forward some policy recommendations for demand side management (DSM) efforts, such as developing standards, etc in cooperation with the Pacific Power Association (PPA), the Sustainable Energy Industry for Pacific Islands (SEIAPI) and the SIDS Lighthouses Initiatives amongst others.

The Pacific SIDS economies are relatively diversified, with several sectors, like tourism, fisheries, etc, making tangible contributions to GDP annually including the commercial and industrial sectors. Recognising that energy is an inevitable cost of doing business, there are several advantages to improving the energy efficiency in these sectors. Through energy audits and implementation of energy efficiency and energy management practices, business can significantly lower their operating costs and improve health and safety conditions by identifying opportunities to reduce energy consumption and increase energy efficiency. Furthermore, the implementation of energy efficiency measures can reduce the environmental impacts of a business which is increasingly attractive for

environmentally sustainable consumers and tourists. The Pacific SIDS, through its policies and programmes have prioritised energy efficiency including strengthening the capacity of its citizens to undertake energy assessments of their homes, schools, and businesses, to identify cost saving measures and to reduce their energy consumption. The active engagement of the overall population on energy transition is imperative as they are key actors in raising awareness as well as driving social change, innovation, and environmental protection. In addition, tourism represents an important economic driver for the Pacific economy. Recognizing the ever-growing concern of climate change, the recent oil price spike, and the forecasted increases in electricity prices, implementing energy efficiency and energy management practices in the hotel sector offers an opportunity to reduce carbon emissions and operating costs in hotel operations. Increasing the ability of representatives of the hotel sector to prepare sound energy audit reports and to prioritize financially viable recommendations is therefore expected to improve the number of bankable projects which can be submitted to development partners and financial institutions for funding and implementation support.

The International Renewable Energy Agency (IRENA) and other development partners through the SIDS Lighthouses Initiative (LHI) is providing support to SIDS energy transition efforts through the uptake of renewables and energy efficiency. Furthermore, IRENA recognises the vital role that the Pacific youth play in achieving climate stability and advancing the sustainable development agenda and energy transformation at large. SIDS LHI through its partnerships and collaborations with key development partners are providing technical assistance and capacity building support to strengthen the Pacific SIDS energy security, resilience towards natural disasters, increasing energy access and sustainable socio-economic development. Overall, improving energy efficiency and conservation through proper energy management practices can positively impact the economies by not only reducing energy waste and saving money but it can also contribute to bolstering the country's energy security and can deliver financial benefits to public budgets through increased income and lower expenses.

Furthermore, capacity building and knowledge sharing form a critical element of energy efficiency and conservation efforts. Increasing the ability of relevant stakeholders to prepare sound energy audit reports and to prioritize financially viable recommendations that form the basis of projects that can be submitted to development partners and financial institutions for funding and implementation. Engaging stakeholders on energy efficiency and conservation can therefore serve as a sustainable, long-term approach to building the capacity of the Pacific SIDS Energy Offices on cleaner energy production and more efficient energy consumption practices. The training also offers a combination of theoretical and hands on experience in the conduct of energy audits, energy audit report preparation including identifying recommendations for implementation.

2.0 Objectives

Through the SIDS Lighthouses Initiative, IRENA, in collaboration with the Pacific Community (SPC), the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) and the Ministry of Public Works, Transport and Meteorological Services of Government of Fiji will host a five-day training which aims to strengthen the capacity of the Pacific SIDS Energy Offices to conduct energy assessments to better manage their energy consumption.

Specifically, the capacity building initiative on energy audit and energy management aims to strengthen the capacity of representatives of the energy, tourism, commercial and industrial sectors. Additionally, household owners who are interested to participate in this capacity building initiative will be considered based on availability and to address the following issues:

- a) identify various cost-effective options and solutions for optimizing energy production and consumption,
- b) conduct and evaluate an energy audit in existing buildings and facilities in various sectors,
- c) plan for the implementation of the findings and the development of action plans to continually improve and sustain energy performance over time;

It also provides a forum for national stakeholders from various sectors to identify and discuss challenges and opportunities to improve energy efficiency policies and programs at both the national and regional levels.

3.0 Learning Outcomes

In this training, participants will learn about:

- The principles of energy use, including the importance of energy efficiency and conservation and its contribution to addressing climate change and sustainable development
- The factors that impact electricity rates in the Pacific region and components of the electricity bill

With the energy assessment, topic it will provide insight on:

- The amount of energy the facility (households, schools, hotels, hospital, office etc.) uses
- Various energy audit equipment and tools
- How to identify energy saving opportunities
- How to manage and reduce electricity consumption through a range of energy saving measures and best practices.
- How to calculate savings generated
- Energy efficient appliances and devices
- The principles of energy use, including the importance of energy efficiency and conservation and its contribution to addressing climate change and sustainable development
- The factors that impact electricity rates in the various countries and components of the electricity bill (here to ask the countries to take a photo shot of their electricity bills and send it to the trainers).

Through the energy audit, the training, will provide insight on:

- The amount of energy a facility uses
- How to identify energy saving opportunities
- How to manage and reduce electricity consumption through a range of energy saving measures and best practices
- How to calculate savings generated
- Energy efficient appliances and devices.

- How to prioritise financially viable recommendations that can form the basis of projects to be submitted to development partners and financial institutions for funding and implementation.

Target audience

This training will target entry level energy officers, representative of the private sectors and relevant industries (buildings, tourism and commerce) in the Pacific SIDS region to gain an introduction to energy conservation and management with a focus on conducting an energy audit.

Timeline and format of the training

The training will be held for five (5) days in Fiji. Participants will be requested to provide an overview of energy efficiency policy interventions and programmes in their respective countries and provide their expectations for the meeting, highlighting any specific topics they would like to cover in advance of the meeting, so that their needs can be integrated into the delivery of the training. Each day will also finish with an exercise (question and answers) on the session to cover the topics presented on each day.

Draft Agenda

Day 1	
Time	Topic
09:00 - 09:20	Opening Session <ul style="list-style-type: none"> • Welcoming remarks <ul style="list-style-type: none"> - Pacific Community (SPC) - Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) - International Renewable Energy Agency (IRENA) • Keynote address <ul style="list-style-type: none"> - Representative of the Ministry of Public Works, Communications, Transport and Meteorological Services, Fiji
09:20 – 09:30	Housekeeping and Introduction of Participants
09:30 - 09:45	IRENA Overview <ul style="list-style-type: none"> - SIDS Lighthouses Initiative - Objectives of the Pacific Regional Capacity Building on Energy Management and Energy Audit
09:45 – 11:00	Overview of Pacific Small Island Developing States (SIDS) Energy Sector <ul style="list-style-type: none"> • 4 Pacific SIDS • SPC Programmes
11:00 – 11:15	<i>Tea break</i>
11:15 - 12:30	Overview of the Pacific SIDS Energy Sector

	<ul style="list-style-type: none"> • 4 Pacific SIDS • PCREEE Initiatives
<i>12:30 – 13:30</i>	<i>Lunch</i>
13:30 – 14:45	Overview of the Pacific SIDS Energy Sector <ul style="list-style-type: none"> • 4 Pacific SIDS • Minimum Energy Performance Standards – Fiji Experience
14:45 – 15:00	Q & A
<i>15:00 – 15:30</i>	<i>Tea break</i>
<i>15:30 – 16:30</i>	Overview of the Pacific SIDS Energy Sector <ul style="list-style-type: none"> • 4 Pacific SIDS • Experiences on the PALS programme in the Region
<i>16:30 – 16:45</i>	<ul style="list-style-type: none"> • Palau Home Loan Experience – Energy Efficiency & Energy Conservation
<i>16:45 – 17:00</i>	Wrap-Up of Day 1

Day 2	
Time	Topic
09:00 - 09:30	Welcome <ul style="list-style-type: none"> • Housekeeping • Key Takeaways from Day 1
09:30 – 10:30	Energy Audit and Energy Management Training <ul style="list-style-type: none"> • Introduction to Energy and Electricity Concepts • Overview of various types of energy audits • Methodology for conducting an energy audit
10:30 – 11:00	<i>Tea break</i>
11:00 - 12:00	Practical Session <ul style="list-style-type: none"> • Monthly energy consumption calculations in various facilities • Q&A
12:00 – 13:00	Practical Session <ul style="list-style-type: none"> • Case Studies on Homes, Government buildings, Educational Institutes • Data Analysis • Energy saving opportunities and calculations from case studies • Q&A
<i>13:00 – 14:00</i>	<i>Lunch</i>

14:00 – 15:00	Practical Session <ul style="list-style-type: none"> • Case Studies on Hotels, Fisheries, Restaurants • Data Analysis
15:00 – 15:30	<i>Tea break</i>
15:30 – 16:30	Practical Session <ul style="list-style-type: none"> • Energy saving opportunities and calculations from case studies • Q&A
16:30 – 17:00	Wrap-Up of Day 2

Day 3	
Time	Topic
09:00 – 09:30	Welcome <ul style="list-style-type: none"> • Housekeeping • Key Takeaways from Day 2
09:30 – 10:30	Technical Session <ul style="list-style-type: none"> • Identification of energy saving recommendations in various systems including lighting, air conditioning, waste water treatment • Financial analysis and prioritisation of recommendations
10:30- 11:00	<i>Tea break</i>
11:00 – 12:00	Technical Session <ul style="list-style-type: none"> • Energy Audit Report Preparations
12:00 – 13:00	Group work <ul style="list-style-type: none"> • Preparing an energy audit report using sample data and energy saving recommendations from Homes, Government buildings, Educational Institutes, Hotels, etc
13:00 – 14:00	<i>Lunch</i>
14:00 – 15:00	Group work <ul style="list-style-type: none"> • Preparing an energy audit report using sample data and energy saving recommendations from Homes, Government buildings, Educational Institutes, Hotels, etc
15:00 – 15:30	<i>Tea break</i>
15:30 – 16:30	Group Presentations
16:30 – 16:45	Wrap Up for Day 3

Day 4: Site Visit

09:00 – 09:45	Presentation by IRWIN Alsop – Energy Efficiency & Conservation Experiences in the Pacific Region
10:00 – 17:00	Site Visit
18:00 – 21:00	Official Dinner

Day 5

Time	Topic
09:00 – 09:30	Welcome <ul style="list-style-type: none"> Housekeeping Key Takeaways from Day 3 and the site visit
09:30 – 10:30	Practical Session <ul style="list-style-type: none"> Observations, lessons learned, challenges during field visit Identification of energy audit recommendations Energy savings calculations Q&A
10:30 – 11:00	<i>Tea break</i>
11:00 - 12:00	Practical session <ul style="list-style-type: none"> Economic Analysis and energy audit report preparation from field visit
12:00 – 13:00	Group Work <ul style="list-style-type: none"> Development of Concept Notes for the financing of energy audit recommendations Q&A Feedback from trainers
13:00 – 14:00	<i>Lunch</i>
14:00 – 15:00	Stakeholder Discussion Way Forward
15:00 – 16:00	Evaluation and Closing <ul style="list-style-type: none"> Training evaluation Closing Remarks <ul style="list-style-type: none"> SPC PCREEE IRENA
16:00	CONCLUSION OF THE EVENT

