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SEIAPI Sustainable Energy

Newsletter of the Sustainable Energy Industry Association of the Pacific Islands **Issue 2 • JUNE 2024**

WORKSHOP ON ACCELERATING OFF GRID ELECTRIFICATION IN FIJI

Article by: Sandip Kumar

Participants at the June 2024 Regional Workshop at Southern Cross Hotel, Fiji.

An exciting regional workshop was held from June 19th to 21st in Suva, Fiji. It was jointly organised by Arizona State University (ASU), Global Green Growth Institute (GGGI), Fiji Rural Electrification Fund (FREF), Fiji Department of Energy (FDOE) and Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE).

The workshop gathered a broad set of stakeholders to collaboratively act in response to the Pacific Forum Leaders' statement on a just transition to a Fossil Fuel Free Pacific. Attendees included the solar industry (solar companies and SEIAPI), regulators (including Fiji's FCCC), community representatives and beneficiaries, government (FDOE), and funders (investment and donor institutions).

A one-day training was organised on June 19 including the use of COMET and Xendee for community engagement, load estimation, and generation system sizing.

The remaining two days saw interesting presentations from various stakeholders. Collective discussions were held and feasibility study results for 75 remote off grid sites in Fiji were presented by ASU as the mainstream event.

The 75 remote sites covered 30 islands, 3000+ people engaged and surveyed, 94 villages with 17,820 population, 34 schools, 52 health centres and 250+ shops and small businesses. FREF has explored three options of ownership and business models. Interestingly, this included 15–20-year O&M expenditure within the tariff model. All sites are expected to have pre-paid payment systems. The first set of tenders are expected to be released by year end for the initial sites.

FREF has recently secured grant funding, NZD 2.4m from the New Zealand government and AUD 8.25m from the Australian government for these projects.

Relevant tariff models will be implemented as explained below. The Fijian Competition & Consumer Commission (FCCC) is working on determining the tariff rates that will be applied for these off-grid sites. The willingness to pay by the villages averages FJD 0.41/kWh according to the survey, with a levelized cost of energy (LCOE) projects varying from USD 0.30 to USD 0.70/kWh. The deficit is planned to be covered by grant funding. However, FREF wants appropriate use of grant funding so that they could electrify more sites. GGGI is assisting with financial modelling for these sites.

The electrification of these remote sites will definitely contribute towards increasing the percentage of Fiji households with reliable electricity access.

1MW SOLAR AND BESS SYSTEM- EFL TAVEUNI

Article by: Clay Energy

1MW solar farm in Taveuni

Clay Energy, a wholly owned subsidiary of Sunergise International, partnered with the Fiji Government, Korea International Cooperation Agency (KOICA) and Energy Fiji Limited (EFL) to launch Fiji's first large-scale grid-connected solar and battery system on Taveuni, the country's third largest island.

The 1MW solar farm with 500kW/1MWh battery storage stabilises the grid by providing on-demand energy supply to the islands grid and cuts carbon emissions by reducing diesel fuel usage. Excess solar and hydro energy is used to charge the batteries for use during periods of low generation or high demand.

Despite post covid logistical challenges and supply chain issues, the project was successfully commissioned in March 2024. The project scope included civil works involving removal of trees on site and levelling, installation, and commissioning of equipment for grid integration, integration of site control with a grid supervisory control and data acquisition (SCADA) system and powerhouse construction to house switchgear and control equipment.

By harnessing Fiji's abundant solar energy, this project supports Fiji's long term 100% renewable electricity goal and a 30% greenhouse gas reduction by 2030. It boosts living standards, health, jobs, climate resilience and food security while ensuring reliable energy access for Taveuni residents.

Acknowledgement

Global Green Growth Institute (GGGI) carried out a pre-feasibility study and then a full solar feasibility study for Taveuni and facilitated the dialogue to bring KOICA onboard as the funder of the project. Throughout 2016 to 2019, there were many discussions with the Ministry of Finance, Fiji Department of Energy and Energy Fiji Limited (EFL) to complete the feasibility study and arrange the next steps.

SEIAPI would like to acknowledge the GGGI contribution towards the 1MW Solar PV project in Taveuni.

VISION ENERGY SOLUTIONS POWERS ASHABHAI CO.PTE LTD

Article by: Vision Energy Solutions

In a 2024 project, Vision Energy Solutions has successfully installed a commercial scale solar energy system for Ashabhai Co. Pte Limited in Fiji. This 572 kW_p project will enhance the company's energy efficiency while contributing to environmental sustainability.

Advanced Technology Integration

The solar system incorporates cutting-edge technology to ensure maximum efficiency and reliability. At the heart of this system are the SolarEdge Power Optimizers. These advanced devices provide real-time visibility into panel-level energy generation, allowing for precise monitoring and management. By optimising the performance of each individual panel, the system can achieve higher energy yields and greater overall efficiency.

Complementing the Power Optimizers are the highly efficient and reliable SolarEdge Synergy Inverters designed to work seamlessly with the Power Optimizers, converting the DC power generated by the solar panels into usable AC power for the facility. The synergy between these components provides optimal performance and long-term durability.

Mounting System

To withstand the challenging environmental conditions in Fiji, the solar system is built on the Clenergy structure. This is engineered to meet Category 5 wind speeds of up to 260 km/hr, for increased stability and durability in extreme weather conditions. This provides better peace of mind for Ashabhai Co. Pte Limited.

Environmental and Economic Impact

The environmental benefits of this solar installation are significant. By generating clean, renewable energy, the system will reduce Ashabhai Co.'s reliance on fossil fuels, resulting in substantial CO_2 savings. The estimated lifetime reduction of 183 tonnes of CO_2 emissions is equivalent to removing dozens of petroleum-fueled cars from the road.

Economically, the solar system offers considerable benefits. The energy generated will lead to substantial cost savings on electricity bills, providing a favorable return on investment over time. The reduction in energy costs enhance the company's financial performance and operational efficiency, making the transition to renewable energy both an environmentally and economically sound decision.

System Installation

The installation of the 572 kW_p solar system was completed by SEIAPI member, Vision Energy Solutions, with an estimated lifetime energy generation of 466.85MWh and CO_2 savings of 183 tonnes, this project exemplifies the tangible benefits of advanced solar technology.

SOLAR SYSTEM FOR PAPAGENO RESORT IN KADAVU

Article by: Solar Fiji

Solar Fiji has successfully implemented a substantial solar power project at Papageno Resort in Kadavu, Fiji. The installation features a 13.30kW_p solar power system consisting of 28 Jinko Solar 475W panels. This advanced system is designed to meet the energy demands of the resort, which includes 10 guest villas, providing a reliable and sustainable power supply.

The solar setup is complemented by Victron Lithium batteries with a total storage capacity of 50.69kWh. This robust battery storage rovides power even during periods of low sunlight. The system is further enhanced by Victron Quattro inverters, which provide continuous three-phase power of 30kVA with the capability to handle peak loads. The integration of these inverters significantly boosts the system's efficiency and reliability, crucial for the resort's seamless operation.

A standout feature of this installation is the Victron VRM remote monitoring system. This technology allows for real-time tracking and management of the solar system's performance, so that any issues can be quickly addressed, minimizing downtime and maintaining a steady power supply. This remote monitoring capability is particularly beneficial for a resort setting, where consistent power is essential for guest satisfaction and operational efficiency.

The successful implementation of this solar power system at Papageno Resort underscores the resort's commitment to sustainability. By harnessing renewable energy, the resort not only reduces its carbon footprint but also sets an example for other commercial entities in Fiji and the broader region. This project highlights the potential of solar energy to provide reliable and eco-friendly power solutions for hospitality and other industries.

Solar Fiji's project at Papageno Resort is a testament to the effectiveness of modern solar technology and smart energy management systems. The combination of high-efficiency solar panels, robust battery storage, and advanced remote monitoring demonstrates a comprehensive approach to sustainable energy solutions. This project not only enhances the resort's operational efficiency but also promotes environmental stewardship, aligning with global trends towards renewable energy adoption.

SOLAR DIPLOMA LEVEL 5 TRAINING DISCUSSIONS FOR TONGA

Article by: SEIAPI Secretariat

Participants at the ToT session held in Tonga at the PCREEE office in April 2024

Under a UNIDO STAR C project, a Tonga mission was undertaken between 8th April to 11th April 2024. Mr. Sandip Kumar from GSES/SEIAPI undertook this short mission with two important activities. A series of consultations and meetings on Diploma Level 5 solar qualification for Tonga with relevant stakeholders was held on Tuesday 9th April 2024. This was followed by a Training of Trainers (ToT) overview session for trainers and relevant stakeholders, that was held on Wednesday 10th April 2024.

The stakeholders included Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE), Tonga Department of Energy, National Electrical Contractor's Association (NECAT), Tonga Institute of Science and Technology (TIST), Tonga National Qualifications & Accreditation Board (TNQAB), Tonga Power Limited (TPL) and the Electricity Commission.

NECAT emphasised the necessity of solar training for their electricians and that training should also encompass remote monitoring of systems for the outer islands and that they support the discussions on level 5 potential delivery. NECAT currently has 27 members in Tonga.

Furthermore, TIST supports offering the programme at Diploma level 5 in Solar Energy as a pathway for the in-practice electricians who could upgrade and specialise in solar PV systems at level 5.

Tonga Power Ltd also supports the discussions on solar training being offered at level 5. Currently, there are 4 Engineers/Technicians who are part of the Renewable Energy team. TPL feels training will be pivotal in moving from their current 10MW+ utility scale PV system to the planned 24MW PV capacity. TPL's main emphasis is Operation and Maintenance (O & M) training but they also appreciate the design and install fundamentals required to assist in growing roof-top installations in the near future.

Tonga's electricity supply RE contribution is currently around 27%. Their RE target is 70% by 2025 and 100% by 2035. TPL also works with Independent Power Producers (IPPs.)

Overall, the Tonga mission facilitated qualitative discussions on solar training at level 5 potential delivery to be based on the GIZ Pacific Training Material with stakeholders such as TIST, Tonga Power Ltd, NECAT, Electricity Commission, PCREEE and DOE. After the Tonga visit, two trainers from TIST have been provided free access by GSES/SEIAPI to the USP Pacific TAFE Design and Install Off grid courses. This aligns with SEIAPI's capacity building initiatives in each PIC. After the visit, TNQAB, PCREEE and SEIAPI are discussing the paperwork and are going through the relevant processes to have the qualification registered under the Tongan national framework.

SEIAPI is also now in discussions with Vanuatu Institute of Technology (VIT) in Vanuatu to provide accredited practical solar training and liaising with Kiribati Institute of Technology (KIT) in Kiribati with regards to solar training set-up. This is in addition to the online solar training available from USP Pacific TAFE (Suva, Fiji) and solar training facilitation with SINU in Solomon Islands. SEIAPI is targeting the establishment of solar training in each of the larger Pacific Island countries for the benefit of its members and for the betterment of the industry.

OBITUARY

JON MARK PITTAR
1963-2024

It is with deep sadness that we annouce the passing of Jon Mark Pittar, a valued friend, colleague, and leader in the solar energy community.

Jon founded Solar Solutions (PNG) in 2013, a company dedicated to bringing light and electricity to remote and powerless communities. His work positively impacted many lives, ensuring even the most isolated regions of PNG could access electricity for the first time. Throughout his journey, Jon built a close knit family of staff, colleagues and partners who will carry forward his vision with the same dedication and passion he demonstrated.

Jon was also co-founder and the current Vice-President of the Solar Energy Association of Papua New Guinea. Throughout his dedication efforts, he played a significant role in expanding and improving the solar industry in PNG.

On a human level, Jon was a kind and considerate man, well-liked by everyone who knew or worked with him. His warm personality and dedication made him a respected figure in both his professional and personal life.

Jon was survived by his family: Lilian, Marissa and Kieran. As we mourn his loss, we also celebrate his remarkable life and the impact he made on our community. His legacy continues to inspire us all.

SEIAPI WELCOMES NEW MEMBERS

1. **Solar King Limited** joins as an Associate Member

SolarKing provides solar energy solutions to the Home Solar, Off Grid Solar and Commercial Solar markets. SolarKing is owned and operated by certified electricians with a vast amount of experience in the New Zealand market. Their design team has been involved in the solar energy industry for over 15 years.

For more information, please visit: www.solarking.co.nz or www.powerstation.nz

2. Its **Time Foundation** joins as an Associate Member

Its Time Foundation delivers renewable power solutions for remote Pacific Island schools with the dual objectives of reducing carbon emissions and enhancing education in the target communities.

Many island schools struggle with no electricity supply – or rely on dirty diesel generators they can barely afford to run a couple of hours per day. The kids have little or no chance of a modern education. Its Time Foundation provides clean, free electricity for lighting and computers and transforms the education and prospects for these kids. Their charity projects include Naiviivi Primary, Beqa Yanuca Secondary, Ratu Lalabalavu Secondary, Rakau, Sawau District School, Yanuca Island School and many more.

When schools receive a solar system, they commit to spend 15 minutes each week picking up plastics – ocean drift plastics as well as their own. This simple commitment reduces marine plastics, but more importantly it gives young people a sense of ownership and belief that they can influence and be part of a more sustainable world.

For more information, please visit: www.iitime.org

INVITATION

ONE-DAY WORKSHOP ON GRID CONNECT PV SYSTEMS – AUSTRALIAN STANDARDS AND APPLICATION PROCEDURES

Dear Fiji Stakeholders

On behalf of the SEIAPI Executive Committee and the Secretariat of the Pacific Power Association, we cordially invite you to attend a one-day workshop on Australian Standards and application procedures for Grid connected PV systems.

SEIAPI has an objective of creating an enabling environment for the uptake of Renewable Energy (RE) and to leverage dialogue on its enhanced usage. We would like to contribute towards streamlining processes and reducing delays reasonably for the overall grid connection process including relevant application paperwork and commissioning of systems so that the RE generation percentages increase and the processes are clear and consistent across the Fijian Solar Industry.

Hence, SEIAPI/PPA is organising a 1-day workshop on Monday 15th July, followed by a separate one-day training of EFL inspectors on Tuesday 16th July 2024.

Date: Monday, 15th July
Time: 8.30 a.m. to 4 p.m.
Facilitator: Mr Geoff Stapleton
Venue: USP Pacific TAFE Statham Campus
(Light refreshments will be provided)

Scope

- Overview of the key requirements of AS/NZS 5033 and AS/NZS 4777
- The application requirements for grid connected PV systems and the licensing and approval process undertaken by Fiji Commerce and Competition Commission (FCCC) and Energy Fiji Limited (EFL) respectively.
- Open forum between SEIAPI members, EFL inspectors/Planning and Regulatory staff and FCCC.
- Overview of the inspection check sheets that have been developed for inspectors.

Each SEIAPI member company can nominate maximum of 2 staff to attend due to space constraints.

Please RSVP (admin@seiapi.com) by 8th July 2024 before 5pm.

If you are not a current SEIAPI member we invite you to join SEIAPI and attend the workshop.

SEIAPI SECRETARIAT

UPCOMING EVENTS

Sustainable Energy Industry Association of Pacific Islands

Notice Of Annual General Meeting

Thursday, July 4th, 2024

Virtual (Online) Meeting – 12noon Fiji Time

For More Information, please email to Mr Geoff Stapleton on eo@seiapi.com

SEIAPI
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PACIFIC POWER ASSOCIATION

31st Annual Conference & Trade Exhibition
30 September – 3 October 2024
Tonga

Conference Theme: ***"The Cost of Transition to Renewables"***

5th International Conference on Solar Technologies and Mini-Grids to Improve Energy Access Hybrid

Once again, this unique gathering is scheduled to take place at the University of the Balearic Islands in Palma de Mallorca (Spain) from **September 4 to 6, 2024.**

The primary goal of this conference is to provide a dynamic platform for professionals from industry, academia, and institutions dedicated to **promoting decentralized energy access and local development**. By fostering the exchange of knowledge and experiences, we aim to facilitate meaningful connections and collaborations among participants. The conference will delve into technical, social, and environmental issues, as well as business and management aspects, all grounded in real projects with a practical approach.

Did you know?

The cost of solar power has seen a dramatic drop over the past decade. In 2010, the cost to produce electricity from solar photovoltaics was about $0.381 US per kilowatt-hour. By 2020, this price had fallen by 85% to just $0.057 US per kilowatt-hour. This cost reduction has made solar power more competitive with traditional energy sources. For comparison, in 2022, solar power was 29% cheaper than coal-powered electric generation.

Let us know what important technical topics you wish to see in the next newsletter and we will try to get them to you.

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For more updates, please visit http://www.seiapi.com or email on info@seiapi.com/secretariat@seiapi.com for any queries and comments.

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Tonga Diploma level 5 Consultations