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Pacific Power Association, Suva, Fiji Islands. The PPA is an inter-governmental agency and member of the Council of Regional Organisations in the Pacific (CROP) established to promote the direct cooperation of the Pacific Island Power Utilities in technical training, exchange of information, sharing of senior managment and engineering expertise and other activities of benefit to the members.

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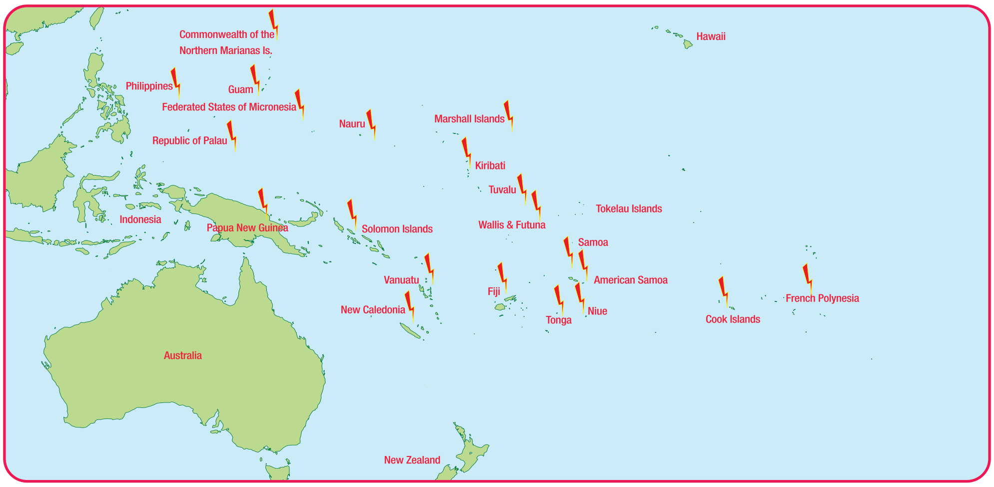

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Editor's Note

Gordon Chang
Executive Director

In this edition of the PP Magazine, I would like us all to welcome PPA's newly appointed Chairman, Mr. Wallon Young Fong who started in his new role on the 1 January 2025 for a term of 3 years.

Please be reminded that the 32nd Annual PPA Conference & trade Exhibition will be hosted in Palau this year with PPUC being the host utility. Preparations are underway with PPUC to again hold another successful conference this year. It has been stated each year that our Conference becomes increasingly better with more delegates, improved Trade Exhibition together with presentations that address the complete spectrum of utility issues. The conference theme for this year selected by the committee that was tasked to come up with the theme is "Smart Grids and Digital Transformation in Energy". The conference date selected by the host utility is from 22nd-25th September 2025. We look forward to all members' attendance and the PPA website has been set up to register your participants and trade tables of your choice.

In this issue of the PPA Magazine, I would like to thank all members who have contributed by way of articles that are included in this issue. In addition, I would like to welcome our newest allied member CRISIL Limited, based in Mumbai, India. In addition, the PPA Secretariat would like to welcome the four new CEOs from our following utility members as follows:

1 Mr. Scott Westbury, Chief Executive Officer, Tonga Power Limited
2 Mr. Kevin Watson, Executive Director, Commonwealth Utilities Corporation
3 Ms. Delilah Homelo, Chief Executive Officer, Solomon Power
4 Mr. Casey Freddy, General Manager, Kosrae Utilities Authority

Clearly 2025 will see a continuation of utility development processes which will bring about necessary improvements in the operations of our utilities in accordance with the increasing expectations of our key stakeholders, the customers, governments and our staff.

Thank you.

Nauru Waste to Power Project - On Track to Deliver Reliable and Sustainable Energy

Jamie Roodenrys, General Manager Business Development and Strategic Partnerships
Wildfire Energy

Introduction
Wildfire Energy, an Australian technology company, were recently invited to Tonga's capital Nuku'alofa to attend the 2024 Pacific Power Association (PPA) annual conference. At the conference Wildfire presented the findings of their recent Feasibility Report addressing the viability of using waste destined for landfill to produce sustainable electricity on Nauru[1] .

During the course of the PPA annual conference it became clear that there is a great interest in sustainable energy and a passion to clean up the environment across the Pacific. In this regard, the conference highlighted the fact that many Pacific nations face similar challenges to Nauru in the form of:

1. increasing populations and volumes of waste
2. rising sea levels as a result of the increasing greenhouse gas emissions and global warming
3. significant environmental challenges caused by unsuitable and often uncapped/unlined landfills, generating excessive greenhouse gas emissions and leachate contamination of the water table
4. very high costs of fossil-fuel based power

As a result of these challenges, Wildfire Energy were chosen to investigate if an Energy from Waste (EfW) project could assist Nauru with its challenges.

Wildfire Energy is an Australian company that has invented and proven technology called MIHG (moving injection horizontal gasification) that allows cost effective, environmentally friendly, and reliable conversion of landfill waste into electricity. Wildfire Energy is building a 40,000TPA Energy and Hydrogen Recovery facility in Brisbane at Bulwer Island, about 12km from the centre of Brisbane. The plant will ultimately be capable of producing 5MWe of electricity, 4MWt of heat and 1TPD of hydrogen. Figure 1, overleaf, shows a conceptual 3D model of the plant, which includes waste handling shed, MIHG gasification reactors, gas clean up equipment and gas engines for electricity generation.

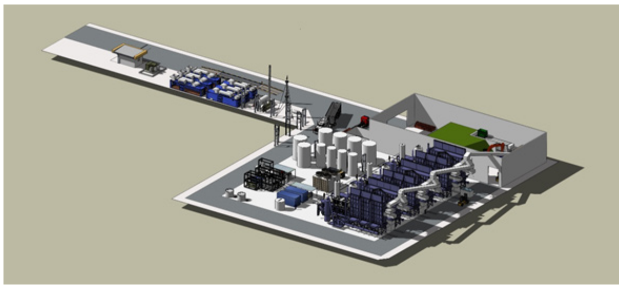


Figure 1: Wildfire Energy 40,000TPA project to be built at Bulwer Island, Brisbane.

Feasibility Study
The feasibility study for the Nauru Waste to Power Project (WPP) was established with clear goals to address the critical waste and energy-from-waste concerns and issues of the Island now and into the future. The scope of work included a range of key tasks designed to clearly investigate and define the possible outcomes of the project and allow the client and key stakeholders the ability to holistically assess the viability of the WPP project and to decide if further investigation was warranted.

The Feasibility Report was broken into three clearly defined components including:

Component 1 - Pilot Plant Trials
Using Wildfire Energy's $10M Pilot Plant in Brisbane (see Figure 2), a number of trials were undertaken on waste that replicated the actual waste on Nauru. These trials were designed to validate the real world expected outcomes of the WPP in Nauru using the Wildfire Energy MIHG technology.

[1] See the video of the Wildfire presentation to the Pacific Power Association Conference at https://www.youtube.com/watch?v=-vJPNdXGBo4

Figure 2: Wildfire Energy Pilot Plant in Murarrie, Brisbane. This equipment has been relocated to Wildfire's state of the art facility at Bulwer Island, Brisbane.

Extensive information has been collected and reported over time by various NGO's, Aid Agencies and consultants detailing the waste composition currently being delivered to the existing Nauru landfill facility. In particular, significant information was available as part of the Secretariat of the Pacific Regional Environmental Programme (SPREP) Waste Audit (2020).

Using the comprehensive information in this report, as well as visits to site, a detailed comparison was undertaken between the Nauru waste and the Brisbane City Council (BCC) "red bin" waste which was readily available in the vicinity of the pilot plant (see Figures 3 and 4 respectively). This work confirmed that the Nauru waste and BCC waste is similar in composition and some minor modifications to the BCC waste were undertaken to better reflect the Nauru composition for the pilot testing.

Figure 3: Nauru Landfill Facility, Nauru.

Figure 4: Waste collected in Brisbane and processed through the Wildfire Pilot Plant to replicate Nauru's landfill material.

Six pilot plant test runs were then undertaken to process over one tonne of BCC waste and to collect data on the syngas composition and yield, by-products and to validate the energy that can be produced from this waste in the MIHG technology.

Based on the pilot plant process data and analysis of the Nauru waste composition data, the waste will be easily and reliably converted into energy and the estimated gross power output for the WPP, using all of the available domestic waste on Nauru, ranged from 0.9 to 1.1 MWe. As the MIHG technology produces electricity continuously, this represents around 15-20% of the Nauru's total electricity demand.

Component 2 - Scoping Study
Six potential sites on the island were evaluated as potential candidate sites for the WPP. The outcome from the Scoping Study included a recommendation for a Primary Site for the project to take forward, and identification of a Secondary Site which can be used as an alternate site, if required. The final site for the project will be decided by the authorities on Nauru during the FEED study.

Component 3 - Feasibility Study
The objective of the Feasibility Study was to provide sufficient information to allow the client to undertake an informed assessment of the project impacts and commercial viability and to make a decision on whether to proceed through to the FEED (Front End Engineering and Design) phase.

The Feasibility Study was completed using the concept design based on Wildfire Energy's MIHG modular reactor system (see Figure 5) which is just a much larger version of the pilot plant design. The standard modular system can process between 30 and 45 TPD of waste and produce about 1 MWe of electricity from domestic garbage waste streams. Two MIHG reactors are utilised in this system, operating alternatively in tandem as a system to process waste loaded in batches into a continuous stream of syngas for conversion into electricity.

The project would be built from modules, pre-fabricated in a low cost jurisdiction and shipped directly to Nauru. Each module will use a 40ft or 20ft ISO container form factor or be a smaller size that can be transported in standard shipping containers.

The capital and operating costs were estimated based on vendor quotes for the major equipment items and a financial model was developed for the Nauru Waste Power Plant (WPP) project.

Figure 5: Concept 3D layout of Nauru WPP comprising one standard module of MIHG reactors, with gas processing equipment and two gas engines for electrcity production.

Nauru WPP Feasibility Report Outcomes

The WPP Feasibility Report showed that a Wildfire Energy MIHG solution deployed to Nauru has the potential to:

1. produce 1.1MW (or 26MWhr per day) of carbon negative "green" electricity from about 10,000 tpa of waste.
2. provide the construction industry over 4TPD of construction aggregate.
3. reliably reduce the waste going to landfill by 95-98%, as well as to progressively reclaim and rehabilitate a proportion of the existing landfill.
4. eliminate approximately 15,000TPA of CO2 equivalent greenhouse gas emissions per year (10-15% of the island's TOTAL GHG emissions).
5. produce 13x full time jobs plus university pathway for engineers
6. the estimated Levelised Cost of Electricity (incl CAPEX) was 20% less than current costs using diesel generators

The Feasibility Report was submitted to the client and the decision to proceed to FEED (Front End Engineering and Design) was approved in the later stages of 2024.

Nauru WPP FEED Progress

Tenders were called from appropriate engineering companies and the FEED contract was awarded to Thyssenkrupp (Thailand) in late 2024. The FEED study is scheduled to be completed in March 2025. Further value engineering and optimisation work may follow. Project investment and financing discussions are underway and a Final Investment Decision could be made later in 2025 to build the project. Figure 6 shows an alternate view of the conceptual design and layout of the Nauru Waste to Power Project.

Figure 6: Concept 3D layout of Nauru WPP comprising one standard train of MIHG reactors, gas clean up equipment and gas engines and able to produce about 1 MWe net output.

Other Projects in the Pacific

Wildfire Energy would be happy to discuss other projects in the Pacific - please don't hesitate to visit the website at www.wildfireenergy.com.au or to contact Wildfire at email jamie.roodenrys@wildfireenergy.com.au

Leveraging the Hawai'i Experience in Support of Pacific Island Resilient Energy Transitions

Damon Schmidt, Senior Energy Regulatory/Policy Analyst
Hawaii Natural Energy Institute

The need for more affordable, reliable and resilient electric service is a major and growing area focus for Pacific Island Countries (PICs), where high electricity tariffs, limited natural resources and vulnerability to the effects of nature present significant challenges for local economies. Concerns in the PICs over issues such as sea-level rise, more frequent and intense storms, and dependence on imported fossil fuels have given rise to aggressive governmental mandates not only for power companies to transition from conventional thermal generation to more localized and sustainable energy sources, but also to ensure that their electrical infrastructure is able to withstand and quickly recover from natural disasters. The need for PIC utilities to navigate these energy transitions has created considerable demand for capacity building in areas where traditional utilities have historically had little experience.

Hawai'i has been a global leader in the transition to clean energy resources since 2008 when, in response dramatic increases in the global cost of crude oil, the State, U.S. Department of Energy and Hawaiian Electric Company (HECO) launched the *Hawai'i Clean Energy Initiative* to transform Hawai'i to a 70% clean energy economy by 2030 – a target that has since been expanded to 100% renewable energy (RE) by 2045. Now in the seventeenth year of its energy transition, HECO has achieved a consolidated renewable portfolio standard (RPS) of over 36%, with substantially higher RE penetrations on Hawai'i's outer islands (e.g., approximately 60% on the island of Kauai). With that progress has come a wealth of lessons learned from confronting and overcoming the many challenges posed by integrating large amounts of variable energy resources into island power systems.

Formed and led by tenured faculty specialist Leon Roose, the Grid System Technologies Advanced Research Team (Grid***START***) of the Hawai'i Natural Energy Institute (HNEI) at the University of Hawai'i develops and tests advanced grid architectures, new technologies and methods for effective integration of RE resources, power system optimization and resilience, and enabling policies. Comprised of a diverse group of former utility senior management, energy policy experts, engineers and financial specialists, capacity building to share the lessons learned from Hawai'i's clean energy transition with stakeholders in developing countries is a significant area of focus for HNEI. In addition to its expertise with natural energy, the collective utility knowledge and experience of Grid***START***'s senior staff enable the team to support many of the traditional utility functions that are vital to the provision of safe and reliable electric service. Although HNEI's Asia-Pacific work has historically been focused on ASEAN counties, HNEI has significantly increased its presence in the PICs over the past few years.

Many PIC utilities today are at the dawn of their energy transitions and facing the same knowledge gaps encountered in Hawai'i over the past two decades. To help fill that void and meet the growing demand for technical, regulatory and policy expertise, HNEI has been working with the Pacific Power Association (PPA) since 2023 to shape a partnership to deliver much needed capacity building to PPA's member utilities.

Figure 1 - Recent HNEI Engagements in the Asia-Pacific Region

As discussed in turn below, leveraging funding from federal agencies such as the U.S. Office of Naval Research (ONR) and Agency for International Development (USAID), HNEI's recent capacity building engagements in the PICs have included support in Palau, Rarotonga, Yap, Majuro and Fiji. One of the most recent examples of HNEI supporting PIC utilities involved hosting staff from Palau Public Utilities Corporation (PPUC) and Te Aponga Uira (TAU) for three days of training in HNEI's newly-acquired SAInt power system modeling software, which can simultaneously analyze production costs, capacity expansion and network power flows. Although such analytics generally have not been available to PIC utilities in the past, they are precisely the types of analytics that will be needed to support their clean energy transitions.

Republic of Palau

Figure 2 - Capacity building on Renewable Energy Integration for PPUC on Koror

In 2023 and 2024, HNEI provided eight days of capacity building on RE integration at its offices in Honolulu and on Koror for staff from both the Palau Energy & Water Administration (PEWA) and PPUC. In additional to formal capacity building, HNEI's support of PPUC has included performing a high-level technical and financial analysis of PPUC's current and future grid operations; and developing a modern grid code for Palau that includes updated requirements for the interconnection of inverter-based resources (IBRs). HNEI remains actively engaged in various technical and regulatory support to PEWA and PPUC, including hosting capacity analysis and capacity building on system planning.

Cook Islands

Since 2023, HNEI has provided over a week of capacity building support in Honolulu and on Rarotonga to Te Aponga Uria (TAU) management, as well as the TAU and Cook Islands Investment Corporation (CIIC) boards of directors. HNEI is continuing to support the Cook Islands' clean energy transition in key areas including: distribution feeder analysis to determine the "hosting capacity" for distributed PV; sharing Hawai'i's experience with customer programs to enable customer choice; strategic measures to support and improve utility financial integrity; and planning for and procurement of future RE projects.

Federated States of Micronesia

During 2024, HNEI engaged in discussions with PPA to collaborate on regional trainings for utility staff to support their clean energy transitions. In October 2024, HNEI presented a pilot of a new regional training curriculum to the Yap State Public Service Corporation (YSPSC) at its offices on Yap proper. The training consisted of two full days of slide presentations and discussions on various topics of interest identified by YSPSC. As part of the training, HNEI also provided its internally developed *Generation Mix Resource Modeling Tool* to YSPSC personnel and trained them on its use. Similar regional trainings are currently being planned in partnership with PPA.

Republic of the Marshall Islands

HNEI analyzed the feasibility and benefits of sequentially modifying the current energy system at the Pacific International Inc. (PII) dock on Majuro to enable it to operate both as a microgrid connected to the Marshalls Energy Company (MEC) electric system or as a stand-alone facility. The analysis included evaluations of various combinations of existing and potential renewable and thermal electricity generation resources and energy storage capabilities. At a high level, the results indicate that there is an opportunity for PII to significantly reduce its operating costs and mitigate its business risks by maximizing self-generation and including solar photovoltaic (PV) panels on the roofs of its facilities, thereby improving RMI's competitiveness in the tuna transshipment industry.

Republic of Fiji

At the request of Energy Fiji Limited (EFL), HNEI is planning to conduct two half-day online training sessions for that company's key operations staff in the first half of 2025. In March 2025, in collaboration with the Japan International Cooperation Agency (JICA), HNEI provided a three-hour presentation on RE integration and Hawai'i's clean energy transition at the *First Regional Training for Energy Transition in PICs*, held in Nadi in connection with the *JICA Technical Cooperation Project for Energy Transition in Pacific Islands Countries*.

A Case Study: Cook Islands Motu Beachfront Villas Resort

The German New Zealand Chamber of Commerce

As part of this environmental analysis, the techno-economic feasibility study considers hydrogen as a storage technology. Economic factors such as the levelized cost of electricity, capital costs, and the payback of the investment (break-even point) are also considered. Other relevant metrics include the shares of renewable energy sources, surplus electricity produced, and CO2 emissions.

The scenarios and analyses of the case studies created by using a Multi-Vector Simulation software (MVS) show that energy systems based entirely on renewable, as well as hydrogen and fuel cell technologies, promise substantial cost reductions and emission savings in most cases. The information on the respective conditions and the results of this study, collected by the German Chamber of Commerce and analysed by the Reiner Lemoine Institute, demonstrate the possibilities and economic benefits of integrating green hydrogen and fuel cell technology into the decentralized energy supply of island nations. The project was funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV).

The Motu Beachfront Villas Resort is located on Rarotonga, the largest of the Cook Islands. Nearby are the Kent Community Hall (about 100 meters away) and the Titikaveka School (about 200 meters away). Due to high electricity and diesel prices, the resort operators are looking for alternative solutions for their power supply and want to start a community project by integrating the resort, the adjacent school, and the community centre into a shared mini grid. Currently, these three institutions receive grid power, which is reliable but cost intensive.

The following will first present all the important input parameters for this case study. Then, there will be a brief overview of the main results of the energy system modelling for the resort.

1. Electricity Consumption

1.1 Motu Beachfront Villas Resort

The load estimation for the Motu Beachfront Villas Resort is based on a monthly electricity bill provided by the resort for a period of one year. Based on this, a potential load profile was simulated with two peak loads per day (breakfast and dusk/return of guests). The following illustration visualizes the monthly fluctuations in the resort's electricity consumption based on the present electricity bill.

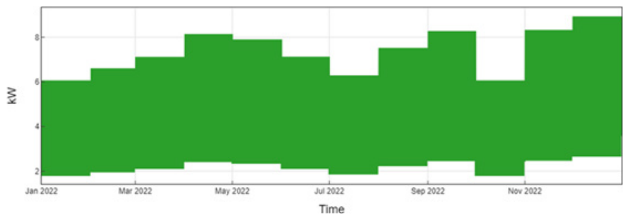


Illustration 1 Annual Load Profile for the Motu Beachfront Villas Resort

The key demand characteristics of electricity consumption are listed in the table below.

Load Demand Motu Beachfront Villas Resort

- Peak Load: 8.9 kW
- Average Consumption: 4.7 kW
- Annual Consumption: 40,864 kWh

1.2 Kent Community Hall

The load estimation for the community centre is based on a monthly electricity bill provided for a year. Based on this, a potential load profile was simulated, assuming that consumption firstly increases at 14:30 on weekdays (student activities) and then peaks in the evening at 19:00 (adult activities and community meetings). For the weekend, it was assumed that electricity consumption increases earlier in the day, with Sundays generally having more activities than Saturdays. The following illustrations visualize the monthly fluctuations in electricity consumption of the community centre based on the present electricity bill (above) and the assumed load profiles for weekdays and weekends (below).

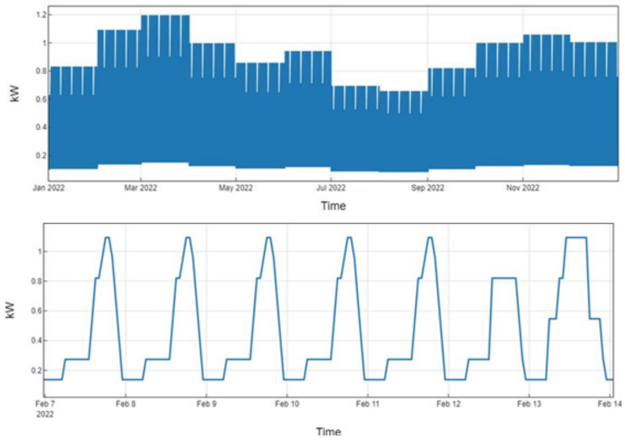


Illustration 2 Annual Load Profile (above) and Weekly Load Profile (below) for the Kent Community Hall

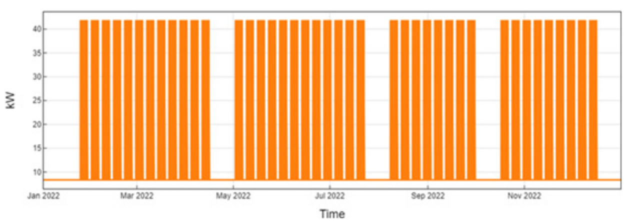
The key demand characteristics of the community centre's electricity consumption are listed in the table below.

Load Demand Kent Community Hall

- Peak Load: 1.2 kW
- Average Consumption: 0.39 kW
- Annual Consumption: 3,416 kWh

1.3 Titikaveka School

For the load estimation of the Titikaveka School, there were neither an electricity bill nor other information available. Only the school hours from 8:00 to 14:30 and the number of students (120) were known. According to a study, each student requires about 2.5 m² of space in the classroom, and the school size is thus calculated based on double this space requirement (for the library, sports rooms, etc.). For 120 students, this results in a total area of the school of 600 m². Assuming numbers from the Hertfordshire Council, that a school has an electricity consumption of about 196 kWh/m² per year, results in an annual consumption of 117,600 kWh. The school load profile was also developed considering the official holiday periods of the Cook Islands. This resulted in the load profiles visualized in the following illustration.



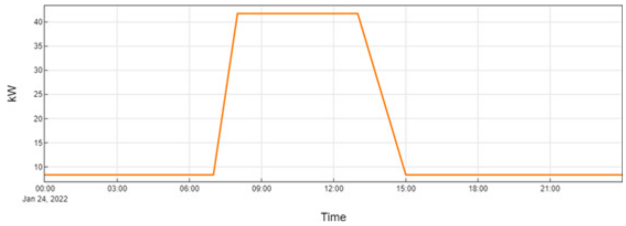


Illustration 3 Annual Load Profile (above) and Daily Load Profile (below) for the Titikaveka School

The key demand characteristics of the community centre's electricity consumption are listed in the table below.

Load Demand Titikaveka School

- Peak Load 41.7 kW
- Average Consumption 13.4 kW
- Annual Consumption 117,600 kWh

2. Solar Potential

The online tool "Renewables.ninja" was used to calculate the hourly power generation of PV systems for the location of the Motu Beachfront Villas Resort. The tool considers weather information and data, particularly solar radiation at specific locations, and converts it into power generation using the GSEE model (Global Solar Energy Estimator) (Pfenninger and Staffell, 2016). The chosen coordinates are the location of the resort, and the optimal tilt and azimuth angles were calculated based on the location and are listed in the table below.

2.1 Motu Beachfront Villas Resort

- Coordinates (Lat., Long.): -21.271524967753574, -159.75873575301432
- Tilt Angle: 21.9°
- Azimuth Angle: 0° (geographic North)

The following illustration shows the specific PV potential over the course of a year. The annual potential is 1,401 kWh/kWp, with peak production occurring in the winter months, reaching up to 0.88 kW/kWp.

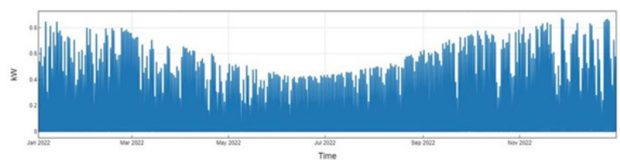


Illustration 4 Annual Solar Potential for the Motu Beachfront Villas Resort

2.2 Site-specific Input Parameters

Any site-specific input parameters relevant for the calculation of the scenarios are summarized in the following table. The data is based on information provided by the resort as well as own research.

Input Parameters Motu Beachfront Villas Resort

Parameter	Unit	Value	Source
Weighted Average Cost of Capital (WACC):	%	6.622	ADB, verified by resort
Electricity Price	EUR/kWh	0.50	billing provided by resort
Diesel Price:	EUR/L	1.50	billing provided by resort

3. Summary of Results

The results for the three calculated scenarios are summarized below. The following table lists the relevant energy system components and their installed capacities in each scenario.

Evaluation Motu Beachfront Villas Resort

Component (Unit) / Scenario	Diesel Generator (kW)	PV (kWp)	Battery Storage (kWh)	Electrolyser (kW)	Fuel Cell (kW)	Hydrogen Storage (kg H2)	Grid Power (Peak Load) (kW)
Status Quo:	-	-	-	-	-	-	-
Cost Minimization:	-	185	127	42	8	18	51
100% Renewable Energy (PV, H2):	-	340	-	95	38	116	-
100% Renewable Energy (PV, Battery, H2):	-	253	270	28	8	103	-

Besides the design parameters, it is important to consider economic and ecological indicators in the analysis of the different scenarios. These parameters are summarized in the following table, illustration 61 visualizes the calculation of the break-even point.

Scenario Parameters Motu Beachfront Villas Resort

Key Figure (Unit) Scenario	LCOE (€/ kWh)	Renewable Energy Share (%)	Net Present Value (NPV) (€)	Initial Investment Costs (€)	Operating/ Maintenance Costs (€/ year)	Break Even Point (years)	Excess Electricity (MWh/ year)	CO2 Emissions (kgCO2eq/ year)
Status Quo:	0.50	0	883,399	0	80,940	-	0	33,509

Cost Minimizati on:	0.23	94	411,709	281,010	12,560	5	40.8	3,259
100% Renewable Energy (PV, H2):	0.32	100	561,058	505,540	8,255	8	179.3	0
100% Renewable Energy (PV, Battery, H2):	0.28	100	502,124	423,361	, 7,152	7	117.6	0

The levelized cost of electricity (LCOE) in this case study ranges from 0.23 EUR/kWh to 0.50 EUR/kWh, with all scenarios reducing electricity costs compared to the current power supply. Both 100% renewable energy scenarios include hydrogen technology and lead to long-term cost savings compared to the status quo due to high local grid electricity prices. The break-even point is reached after 5 years in the cost-minimizing scenario, and after 7 years (PV, battery, hydrogen technology) or 8 years (PV and hydrogen technology) in the renewable energy scenarios, as shown in the following illustration.

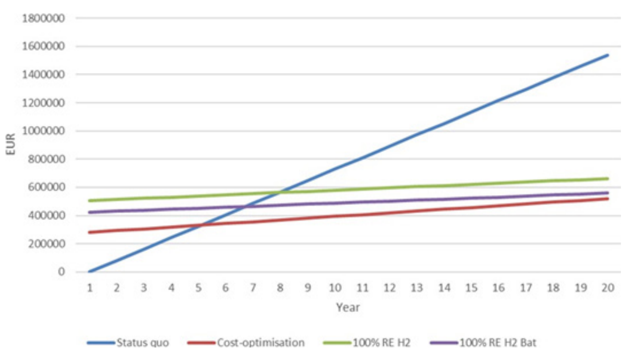


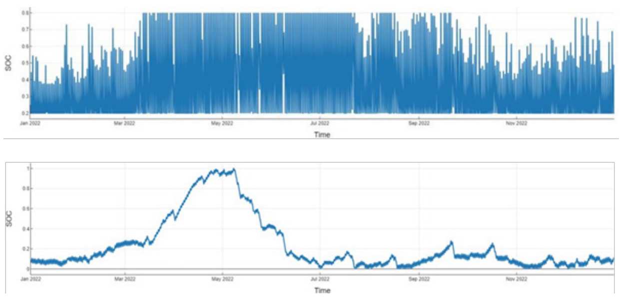
Illustration 5 Visualization of the Break Even Point Calculation

Compared to the status quo, CO2 emissions in the cost-minimizing scenario can be reduced by 90%. Excess electricity is generated, which could potentially be used elsewhere (grid injection under appropriate regulations or operation of a seawater desalination plant). In this case study, the water requirement for hydrogen production is assumed to be high at a water consumption of 9 litres per kilogram of produced hydrogen which translates to about 14,400 litres (approximately 39 litres per day) for the scenario with 100% renewable energy (PV, battery storage, and hydrogen technology). For the scenario with 100% renewable energy based on PV and hydrogen technology only, the total water demand amounts to 32,670 litres per year (about 90 litres per day).

Major cost distribution (annuities) shares of the individual system components used in the cost-minimizing scenario include primarily the investment in the PV system (52%), followed by expenses for the remaining grid supply (21%), and the battery storage with 15%. Hydrogen technology constitutes only 12% of total annual costs (2% for storage and fuel cell, respectively, as well as 8% for the electrolyser).

To further analyse the different operating characteristics and functions of the storage technologies (battery and hydrogen), the storage levels (SOC) of both technologies are visualized over a year in the illustration below.

Illustration 6 Visualization of the State of Charge (SOC) of the Battery Storage (above) and the Hydrogen Storage (below) for the 100% Renewable Energy Scenario (PV, Battery, Hydrogen) over a Year



Similar to other case studies examined for this project, battery storage is used to balance short-term fluctuations in power generation, while the hydrogen storage balances seasonal fluctuations with a noticeable peak in May.

4. Sensitivity Analysis

4.1 Electricity Price

First, the influence of fluctuating electricity prices (electricity prices – EP) on the simulation results was examined. With a current electricity price of 0.50 EUR/kWh as in this case study, the following deviations (25% or 50% higher or lower electricity prices) occur:

- +50% => 0.75 EUR/kWh
- +25% => 0.63 EUR/kWh
- Status Quo = 0.50 EUR/kWh
- -25% => 0.38 EUR/kWh
- -50% => 0.25 EUR/kWh

Assuming these values in the MVS for the cost-minimizing scenario, the results shown in the following graph are obtained. The installed capacities of the respective system components are visualized here, with the reference scenario (cost minimization at status quo prices) for comparison:

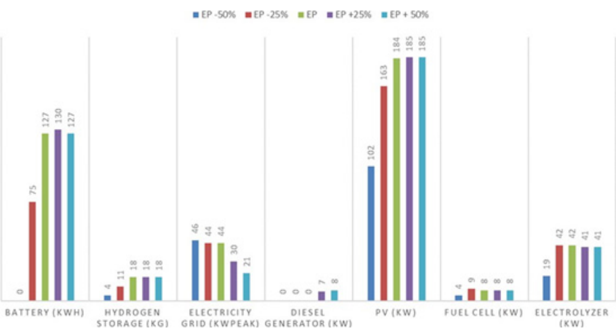


Illustration 7 Optimized Capacities of Individual Technologies at Electricity Price Fluctuations

The largest absolute capacity fluctuations are thus observed in the solar plant and the battery storage. Since large capacities of these components are already recommended in the baseline scenario, there are only minor deviations from the status quo when electricity prices rise, while their role becomes significantly smaller at decreasing electricity prices. In the unlikely scenario of a halving of grid electricity prices, battery storage capacities even completely drop out of the system. Hydrogen components, which are mostly similarly dimensioned in the other sensitivity cases, also face significant cuts in such extreme electricity price reduction. The construction of a new diesel generator is only recommended by the model at rising electricity prices, without considering whether the rise in electricity costs is caused by higher fuel prices (and thus also higher operating costs for the generator).

Additionally, fluctuations in the grid-fed peak loads also occur in this case study, as the share of peak loads covered by the grid decreases with a further increase in the already high local grid electricity prices. This reversed correlation can also be transferred to the overall consumption from the grid in the other scenarios, as the following illustration shows.

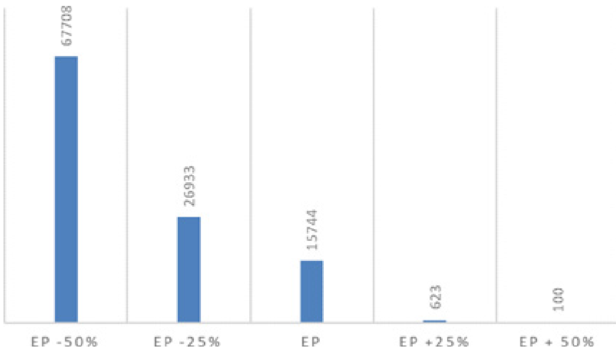


Illustration 8 Grid Electricity Consumption in kWh for the Calculated Sensitivity Cases (Electricity Price Fluctuations)

The following illustration shows the percentage share of each system component in covering the electricity demand. "Direct PV" refers to the PV electricity that is directly fed into the system without being directed to the battery storage or the electrolyser for hydrogen production.

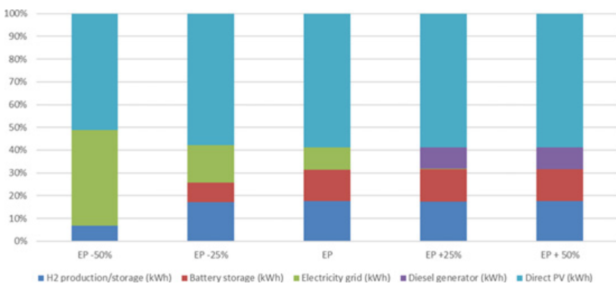


Illustration 9 Share in Covering Electricity Demand at Electricity Price Fluctuations

In each of the depicted price scenarios, PV power covers the largest share of the system's electricity mix. With decreasing grid prices, the share of grid power supply increases, while this share is increasingly replaced by a mix of battery storage, diesel generator, and hydrogen technology when grid electricity prices rise. The share covered by hydrogen technology remains relatively constant, except in the case of collapsing electricity prices.

As the last illustration of this sensitivity analysis, the development of the levelized cost of electricity (LCOEs) and the share of renewable energy in the system is visualized.

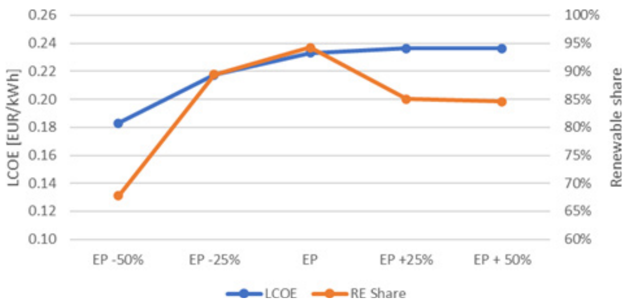


Illustration 10 Development of the Levelized Cost of Electricity and the Share of Renewable Energy at Electricity Price Fluctuations

The LCOE ranges between 0.18 and 0.24 EUR/kWh (higher grid electricity prices lead to higher levelized costs of electricity). Due to the increasing independence of the system when grid prices rise, LCOEs remain relatively constant if this happens. The share of renewable energy carriers remains in the range of 65% - 94%, with the highest share in the status quo. By using a diesel generator (problem of possible correlations described above), this share decreases again at high electricity prices, but remains constant with a further price increase.

Investment Costs Hydrogen Technology

Analogous to the sensitivity analysis of electricity prices, the effects of price fluctuations in hydrogen components on the recommended capacities in the system were simulated. For the calculation of the sensitivities, price increases and decreases of 25% and 50% were also assumed.

This results in the following changes in the CAPEX costs:

Hydrogen Storage (original price at 350 EUR/kg):

- +50% => 525 EUR/kg
- +25% => 438 EUR/kg
- -25% => 263 EUR/kg
- -50% => 175 EUR/kg
-

Electrolyser (original price at 610 EUR/kW):

- +50% => 915 EUR/kW
- +25% => 763 EUR/kW
- -25% => 458 EUR/kW
- -50% => 305 EUR/kW

Fuel Cell (original price at 870 EUR/kW):

- +50% => 1,305 EUR/kW
- +25% => 1,088 EUR/kW
- -25% => 653 EUR/kW
- -50% => 435 EUR/kW

Again, the reference scenario (cost minimization under status quo prices) is shown in green:

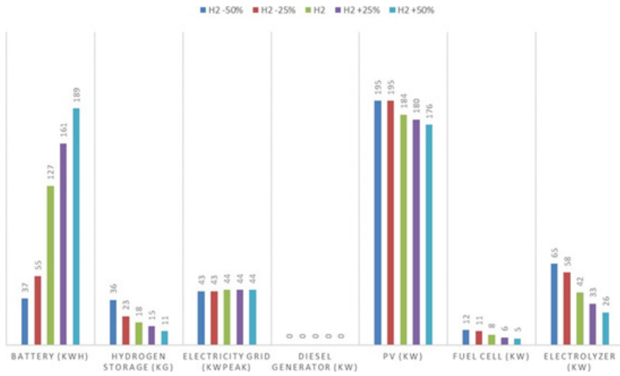


Illustration 11 Optimized Capacities of Individual Technologies at Fluctuations of Hydrogen Investment Costs

Accordingly, with rising investment costs in hydrogen technologies, the need for battery storage as an alternative increase significantly. Unlike in the case of fluctuating electricity prices, a diesel generator is not integrated into the system in any of the cases. Also, the coverage of peak loads from the grid remains largely constant, in contrast to the previous sensitivity analysis. In the following illustration of grid electricity consumption, it is apparent that their shares increase with a price drop in hydrogen components and initially decrease with higher investment costs, then rise again slightly. Overall, there are fluctuations of a maximum of 1,393 kWh.

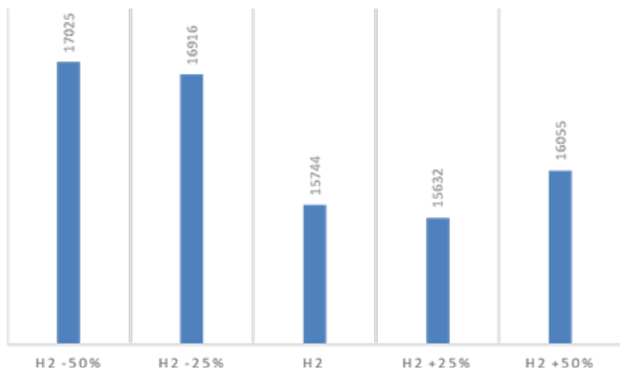


Illustration 12 Grid Electricity Consumption in kWh for the Calculated Sensitivity Cases (Investment Costs of Hydrogen Components)

Regarding the entire system, the share of demand coverage from the grid (green) thus remains largely constant, as does the direct electrification from the PV plant. Starting from almost equal shares in the status quo, the choice of storage technology changes analogously to component costs in both directions. However, in none of the extreme scenarios does one of the technologies completely drop out of the system, which underlines the interplay between battery and hydrogen storage.

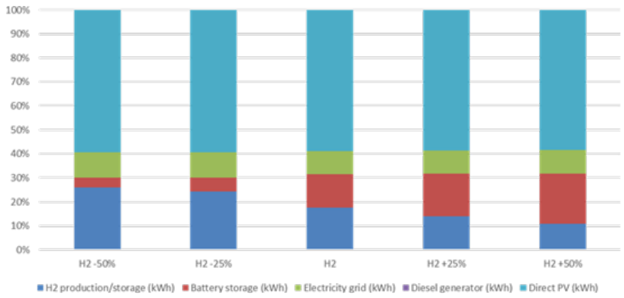


Illustration 13 Share in Covering Electricity Demand at Fluctuations of Hydrogen Investment Costs

Finally, the following illustration shows both the development of the levelized cost of electricity and the share of renewable energy carriers in the respective sensitivity cases. It becomes clear that the LCOE remain largely constant (between 0.22 and 0.24 EUR/kWh) and only increase slightly even at high component costs, while the share of renewable energy stagnates at 94%. This illustrates, analogous to the previous illustration, the constant share of storage technologies in the system, regardless of their composition.

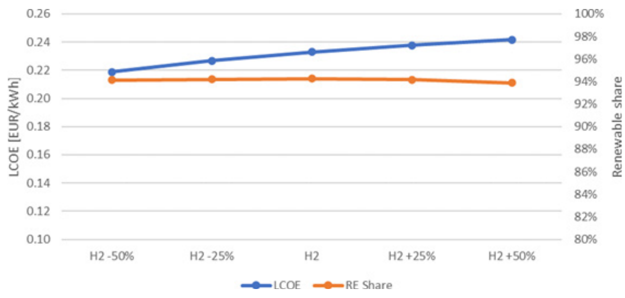


Illustration 14: Development of the Levelized Cost of Electricity and the Share of Renewable Energy at Fluctuations of Hydrogen Investment Costs

5. Conclusion

For the power supply of the Motu Beachfront Villas Resort, the Kent Community Hall, and the Titikaveka School, the installation of a system consisting of PV, battery storage, and hydrogen technology is profitable and would more than halve electricity costs in the long term (- 53%).

Even with the presence of batteries and a rise in component prices, all scenarios include the use of hydrogen technologies. However, their installed capacity decreases with strongly falling electricity prices or rising investment costs, whereas, in both cases, additional battery storage capacities would be installed as substitutes

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Power Factory Workshop in Guam

Pacific Power Association

1. Executive Summary

The section summarizes the PowerFactory training session held in Guam from February 17th to 21st 2025, aimed at enhancing the power system analysis skills of Pacific Island power utilities.

- **Training Overview:** The training was conducted at the Crown Plaza Resort, from the power utilities in the northern Pacific Ocean including, YSPSC, PPUC, CPUC, PUC, KUA, MEC and CUC. The attendance of the participants from the CUC were funded by the PPA while the rest were sponsored by the World Bank.

- **Introduction to PowerFactory:** The training focused on the PowerFactory software, which helps analyze power grids for stability limits, protection requirements, and renewable energy integration.

- **Funding and Sessions:** The World Bank provided $250,000 for the training, which included three sessions in the Solomon Islands, Fiji, and Guam. The World Bank organized and coordinated the training.

- **Program Structure:** The five-day program included presentations and practical work on various topics such as PowerFactory fundamentals, short circuit calculations, and harmonic analysis.

- **Trainer and Participants:** Wayne Ong from DIgSILENT Pacific conducted the training, which included Technicians, Engineers, and Chief Executives, most of whom were new to PowerFactory.

- **Participant Engagement:** Participants were highly motivated and attentive, and by the end of the training, they had significantly improved their PowerFactory skills.

- **Evaluation and Feedback:** Fourteen participants responded to an online survey, rating the overall quality of training at an average of 4.92 out of a maximum of 5.

- **Proposed Topics for Future Training:** Participants suggested topics for future training, including load dispatching, advanced protection, renewable energy integration, dynamic modeling and simulation of events, and more.

- **Conclusions and Recommendations**: The training met the needs of Pacific Island utilities, and advanced training is needed in specific areas like load flow analysis, protection coordination, dynamic modelling and simulation, and navigation of PowerFactory.

- **Acknowledgements:** The World Bank for funding and organising the program, Pacific Power Association for assisting with member utilities, and DIgSILENT Pacific for conducting the program are acknowledged for contributing to the successful program.

2. Introduction:

A crucial need of power utilities in the Pacific Islands is the use of power system analysis application software to better understand and prepare their electric grid for the future demand and the increased adoption of renewable energy production technology. This will enable the analysis of the power grid to identify stability limits, protection requirements and argumentation requirements to enable a higher penetration of renewable energy, especially variable large and distributed renewable energy sources such as solar PV and wind generating sources.

Unused funds from the SEIDP project of US$ 250,000.00 was made available by the World Bank for use by the PPA. PPA proposed that the funds be used for capacity building in power system analysis using the PowerFactory application and upgrading the VPN for the PPA server to allow the use of the PPA PowerFactory remotely by Pacific Island power utilities.

Due to the demand for this training, the World Bank program provided for three sessions:

Session	Date	Power Utilities
Honiara, Solomon Islands	14th to 18th October, 2024	Solomon Power, PNG Power Limited and UNELCO of Vanuatu
Nadi, Fiji	21st to 25th October, 2024	EFL, EPC, TPL, TEC, NUC,
Guam	17th to 21st February 2025	MEC, KAJUR, KUA, PUC, CPUC, YSPSC, PPUC

This report summarizes the training session held at the Crown Plaza Resort in Guam for the Northern Pacific island power utilities.

3. Summary of Program:

The program was conducted over 5 days involving presentations and practical work as follows:

Day 1	• PowerFactory Fundamentals • PowerFactory User Interface • PowerFactory Data Structure and Model Development • Introduction to Load Flow Calculations
Day 2	• Short Circuit Calculations • Analysing results in PowerFactory • Medium Voltage Network Analysis
Day 3	• Operation Scenarios • Parameter Characteristics • Quasi-Dynamic Simulation • Protection Elements
Day 4	• Time Overcurrent Protection Analysis • Introduction to Time Domain Simulations • Motor Start Up Simulations
Day 5	• Introduction to power System harmonics in PowerFactory • Harmonic Load flow Analysis Tools • Harmonic Network Frequency Response

4. Trainer:

DIgSILENT GmbH founded in Germany is the developer of the PowerFactory power system analysis software. DIgSILENT Pacific based in Australia, a member of the DIgSILENT group, designated Wayne Ong to deliver the week-long training. He has over 12 years of service with the company and delivered dozens of PowerFactory trainings including to international customers in the Pacific Islands, Timor-Leste, Mongolia, Bangladesh and New Zealand.

The trainer observed the participants in Nadi to be very attentive with a desire to develop their skills in power system analysis using the PowerFactory software. This is exhibited by their deep motivation in working through the PowerFactory exercises, to the very end of the scheduled day.

Most of the participants were new users of the PowerFactory software. By the end of the week-long training, they have confidence to navigate the power system analysis tool to build network models, conduct basic power system analysis and present results through plots and diagrams.

Participants with prior PowerFactory experience improved their effectiveness in using the power system simulation tool. In addition, broader advanced power system analysis functions, data interchange and model management were discussed with these experienced users.

Regular use and practice are vital to solidify knowledge learnt and expand into advanced areas of power system analysis. Building on the participants' fundamental skills in PowerFactory, future training may extend their competence on advanced subject matter as suggested by the participants in their feedback.

5. Participants:

Fourteen of the fifteen participants registered the training program completed the training. A participant from Kosrae, Atelea Taualupe, unfortunately due to the breakdown of a power generator that resulted in load shedding, had to return home to address the emergency and therefore did not complete the training. Table 1 list the participants and their position within the utility they work for. All participants work in the appropriate sections of the power utility that will benefit from the use the PowerFactory software.

Table 1: List of Participants

	First Name	Surname	Position	Email address.	Utility
1	Sidney	Kilmete	Chief Power Distribution	sidneyk@mypuc.fm	PUC
2	Mac Arthur	James	GIS Specialist	macarthur@mypuc.fm	PUC
3	Atelea (Robert)	Taualupe	Operation Manager	taualuper@gmail.com	KUA
4	Casey	Freddie	Acting CEO	caseyfreddy5@gmail.com	KUA
5	John	Chieng	Manager, Engineering Division	j_chieng@yspsc.org	YSPSC
6	Christopher	Igem	Manager, Power Plant Division	ctigem@gmail.com	YSPSC
7	Kasio Kembo	Mida	CEO	kembo.mida@cpuc.fm	CPUC
8	Dennis	Triana	Manager Power Plant	dennis.triana@cpuc.fm	CPUC
9	Hansen	Uchel	Supervisor System Control	h.uchel@PPUC.COM	PPUC
10	Alexandra	Lutuni	Electrical Engineer	alex.lutuni@mecrmi.net	MEC
11	Wayne	Kijiner	Electrical Engineer	wayne.kijiner@mecrmi.net	MEC
12	Clarence	Kitalong	Electrivcal Programming Specialist	c.kitalong@ppuc.com	PPUC
13	Abundio II	Cano	Renewable Energy Engineer	abundio.cano@cucgov.org	CMNI
14	Adrian	Reyes	Electrical Engineer	adrian.reyes@cucgov.org	CMNI
15	Jonathan	Camacho	Engineer, Power Transmission and Distribution	jonathan.camacho@cucgov.org	CMNI

The participants comprised a mix of seniority ranging from Graduate Engineers to Executive Management positions. All participants indicate that this was the first time they were using PowerFactory.

6. Attendance:

Picture 1: Award of the Certificate of Attendance to Alexandera Lutuni of MEC

Fourteen participants attended the training course. Eleven were funded by the World Bank, while the three participants from CNMI Utility Corporation was funded by the PPA.

Each participant was awarded certificates for completion of the training course.

The attendance sheet for each day of the course is provided in Appendix 1

7. Evaluation and Feedback from Participants:

An online survey was conducted to evaluate the training program. Thirteen of the fourteen participants responded to the on-line evaluation form. The survey questions and responses are summarised as follows:

1. Do you feel you achieved your desired learning outcome?

Yes	13
No	0
Not Sure	1

2. How would you rate the instructor's overall teaching performance?

   Average rating 9.77/ 10

3. Level of Agreement/ Disagreement to Statements Regarding the Instructor.

Level of Agreement / Disagreement to the Following Statements	Strongly Agree	Somewhat Agree	Neutral	Somewhat disagree	Strongly Disagree
The instructor prepared well for each session.	13	1	-	-	-
The intructor communicated clearly on course expectations.	13	1	-	-	-
The instructor delivered the course in a clear and easy to understand approach.	13	1	-	-	-
The instructor provided sufficient time for in-class participation.	11	3	-	-	-
The instructor maintained my interest throughout the whole course.	13	1	-	-	-
The intructor practised good time management during the workshop.	12	2	-	-	-

4. Teaching Effectiveness

Rate the Effectiveness of the Training	Very Effective	Somewhat Effective	Neutral	Somewhat Ineffective	Very Ineffective
Teaching Materials prepared for this workshop	12	2	-	-	-
Learning activities used in this workshop.	13	1	-	-	-
Use of technology during this workshop.	12	2	-	-	-

5.

Rate Usefulness of the Topics	Very Useful	Somewhat Useful	Not so Useful	Not very Useful
PowerFactory Fundamentals - User interface, network model building, introduction to loadflow and short-circuit calculation.	14	-	-	-
Analysis of Results and Distribution Feeder - Operation scenarios, parameter characteristics, quasi-dynamic load flow.	14	-	-	-
Protection analysis - time overcurrent plots, relays, fuses, protection coordination	14	-	-	-

Time-domain analysis - Setup and run dynamic simulation, short-circuit events, motor startup analysis	12	2	-	-
Harmonics, other - Power system harmonics, distortion diagrams, network frequency responses	10	4	-	-

6.

Rating Maximum of 5	Score
Please rate your travel arrangements	4.54
Please rate your accommodation	4.85
Please rate the quality of the training room and facilities	4.46
Please rate catering services, lunch and refreshements.	4.54

7. All fourteen participants responded that the course met their expectation.

8. All fourteen participants also responded that they would like to attend advanced training in PowerFactory.

9. All fourteen-participant responded that they would recommend this training to others.

10. The overall average rating of the training by participants was 4.92 out of the maximum of 5.

11. The participants were requested to proposed topics they would like to be included in this training or in advanced training. The responses received were as follows:

    1.) Protection Analysis- Relays.
    2.) More on calculation of generator protection
    3.) Designing Solar Systems
    4.) Distribution Network Tools, building model from scratch, advanced geographic model topics.
    5.) Practice in collecting information actually used to input into models of generators, relays, transformers, loads and lines (Customized for each utility). Actually drawing components in our system can provide the necessary start up needed for us to model our whole system with minimized worries if we are modelling and simulating our system correctly.
    6.) The overall topics is well presented and just need more time on training on Power Modelling before going onto Advance.
    7.) Modelling for renewable energy
    8.) More in-depth on protection
    9.) Further Protection Coordination training.
    10.) Power flow analysis for inverter-based systems
    11.) Applying Power Factory Software into the Utilities' Power Network,
    12.) Separate (Advance) and more focus on Relays protection for Feeders, Generation, Switchgear and Transformer in detail with more examples including application of the symmetrical faults in the analysis using Power Factory.

8. Conclusions & Recommendations:

The conclusions and recommendations arising from the evaluation of the training are:

1. Power utilities need to analyze their power networks under all operating conditions to identify stable operating limits, protection coordination requirements, and augmentation needs to cater to increasing demand and improve operational efficiency. This is especially needed to connect variable renewable power sources and distributed sources. The result of this analysis forms the basis of any power development and network augmentation development plans. The training on PowerFactory was appropriate and useful and met the Pacific Island utilities' needs to accelerate the connectivity of renewable energy sources to the electric grid. The responses from participants indicate an interest in and the need to continue this training in all the power utilities.
2. There is a need for advanced training that involves deep dives into each particular topic such as:
    a.) load flow analysis and medium feeder analysis. This would be very useful for understand the impact of distributed renewable energy sources such as roof top solar power plants.

b.) Protection coordination to ensure proper and adequate protection of the network elements and stable operation of the grid under various events and operating scenarios.

c.) Dynamic modelling and analysis of the grid under various conditions and control modes/ devices to develop operating policies and procedures for operating the network to provide a safe and secure power supply to consumers.

d.) Navigating around the PowerFactory application to provide enhanced modelling and presentation of results, including the import and exporting of data and linking to other applications such as a GIS system.

e.) Studies required to connect renewable energy in the electric grid.

9. Acknowledgements:

The following are acknowledged for their contribution to this successful program.

1. The World Bank is to be commended for funding and coordinating this program that provided the Pacific Island utilities with the knowledge and skills to improve their networks and meet the needs of the economy and well-being of the Pacific island nations and territories, and accelerate the connection of renewable energy sources to achieve the United Nations SDG 7 goals.
2. The Pacific Power Association is commended for facilitation and sponsoring of non- World Bank member countries to attend this training program.
3. DIgSILENT Pacific, Australia for providing the expertise and training to execute this program.

Picture 2: Participants, Trainer, PPA ED, and World Bank Consultant taken with the World Bank Employee Yangji Kim in the middle of the Picture.

The Power Factory Workshop in Guam – Participants being presented their certificate of participation


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The Solar Fund (Fiji) Established by its Time Foundation

Rob Edwards
Its Time Foundation

Off-grid solar is a simple, effective and environmentally sound solution to give kids in remote schools 24-hour power and therefore the opportunity of a modern education. To date Its Time Foundation has installed 32 school solar systems and is currently working to significantly increase that number. That's great, but these systems require monitoring and on-going maintenance to ensure they last for decades, delivering their social and climate impacts.

Its Time Foundation established The Solar Fund (Fiji) as a protected fund for the financing and overseeing of maintenance of those remote school solar projects in the Fiji Islands.

Under the guidance of highly credentialed board members and advisors, The Solar Fund (Fiji) accumulates funds that are readily available to deploy quick response repairs to the school solar systems when issues occur. The Fund has a retained solar/electrical contractor to monitor and do preventive maintenance on the solar systems, as well as being at the ready to deal with outages and other issues.

The Solar Fund (Fiji) attracts revenue from multiple sources. These include: inviting initial project donors to contribute an additional amount ear marked for system maintenance; a modest portion from the fuel savings created by the solar system is contributed by the schools; businesses and Not For Profits are invited to be part of the journey as supporting partners; direct donations; grants and raffles by supporting Not For Profits and tourism partners.

It appears that The Solar Fund (Fiji) maybe the first independent protected maintenance fund for small scale infrastructure in the South Pacific. Hence in 2025 we are developing a guidance document and examples for the establishment of similar entities for other impacts and countries. The document will include our processes and various documentation. Our advisory consultant that developed our procedures and documentation is available to guide in the establishment of similar entities. Please feel free to contact Its Time Foundation by mid Q1 2025 should you be interested in a copy of the document.

$125m to Support the Pacific's Renewable Energy Transition

SEIAPI
December 2024 Newsletter

The Australian Government has announced a $125 million investment to support renewable energy in the Pacific, addressing key challenges in energy access and climate resilience. Announced at COP29, this funding will:

- Deliver off-grid and community-scale renewable energy in rural and remote areas through the $75 million "REnew Pacific" program.
- Boost skills, training, and Pacific-led energy transition projects with $50 million through the Australia-Pacific Partnership for Energy Transition (APPET).

This initiative aims to help Pacific Island countries reduce reliance on imported fossil fuels, improve energy security, and meet climate goals while supporting livelihoods and resilience in the region.
Delivered by the Australian Infrastructure Financing Facility for the Pacific, the 'REnew Pacific' program will help deliver off-grid and community scale renewable energy in remote and rural parts of the Pacific.
The program will enable lighting, access to water, improved agriculture, better food security, quality education and health services, reliable communications connectivity and enhanced incomes.

The $50 million APPET funding responds to Pacific priorities to capture more of the benefits of renewable energy investments. This may include energy transition modelling, grid studies, renewable energy project feasibility studies, university collaborations and other activities to support energy transition progress.

It will support the skills and training needed to grow the Pacific's renewable energy workforce and provide practical, Pacific-led support to Pacific governments and energy operators.

Australia recently announced an additional $9 million contribution to the Pacific Regional NDC Hub, which is designed to respond to Pacific requests for support on a range of climate activities.

SMA Advances Energy Storage with SI X Battery Integration

Pelangi Saichu, Technical Promotion Manager
SMA Australia and SMA Altenso

[Bali, 19.11.2025] – SMA Solar Technology AG is pushing the boundaries of energy storage with the latest advancements in the integration of the Sunny Island X (SI X) with multiple battery technologies. In a recent development, SMA has announced successful compatibility tests with a range of leading battery manufacturers, reinforcing its commitment to providing robust and flexible energy solutions. The connection box allows easy integration with one or more diesel generators.

Expanding Compatibility for a Stronger Energy Ecosystem

The SI X, SMA's latest battery inverter, is designed to operate seamlessly in both On-Grid and Off-Grid applications. To ensure optimal performance and system security, SMA collaborates closely with battery manufacturers to conduct rigorous integration tests. The batteries that have already been successfully tested and approved include:

- **Tesvolt**
- **Pylontech Powercube M1C**

Additionally, SMA is in the process of certifying other batteries such as BYD MaxLite, CEGASA E-Scal, and Sunwoda Oasis 60. While preparations for these certifications are underway, some batteries, such as CEGASA, will not be officially compatible before June.

Driving Innovation and Industry Collaboration

SMA's ongoing efforts to expand its battery compatibility portfolio highlight the company's commitment to innovation and industry collaboration. These partnerships aim to provide customers with a wider range of energy storage solutions, improving reliability and efficiency across different applications.

"With the SI X, we are not only delivering a highly flexible and scalable solution but also ensuring that our customers have access to the most advanced and compatible energy storage options available in the market," said Pelangi Saichu, Technical Promotion Manager at SMA. "Our goal is to continually optimize performance and system integration for the best possible user experience."

Upcoming Industry Presence

SMA is also gearing up for major industry events, including the upcoming trade fair in Rimini this March. The company is evaluating the need for additional support at the event and is open to providing expert insights on SI X and its applications.

About SMA

As a leading global specialist in photovoltaic system technology, SMA is setting the standards today for the decentralized, digital and renewable energy supply of tomorrow. More than 4,000 SMA employees in 20 countries have devoted themselves to this task. Our innovative solutions for every type of photovoltaic application offer people and companies worldwide greater independence in meeting their energy needs. In collaboration with our partners and customers, we are helping people transition to a self-sufficient, decentralized and renewable energy supply.

Announcement of the 32nd PPA Annual Conference and Trade Exhibition

Pacific Power Association

PPA conference dates and venue

The PPA Secretariat is happy to announce its 32nd Annual Conference and Trade Exhibition which will be held on the 22-25 September 2025 at the Ngarachamayong Cultural Centre, Koror, Palau, proudly hosted by Palau Public Utilities Corporation.

Ngarachamayong Cultural Centre

Registrations are Now Open

Members are advised to register online using the links provided in the weekly bulletins.

PPA Conference Theme

The conference theme for this year is ***"Smart Grids and Digital Transformation in Energy"*** which was selected and agreed upon the conference theme committee chaired by Ms. Lesley Katoa together with the following theme committee members, Mr. Ildo Agnetti and Mr. Trevayne Esiel.

Accommodation in Palau

The PPA Secretariat during its pre-conference visit was able to negotiate rates for accommodation in Palau at two hotels, Palasia Hotel and West Plaza Hotel.

Call for Papers

This will be announced to all members once the Secretariat finalizes the set up of its presentation format.

Draft Summary Agenda

Below is a copy of the Draft summary agenda. This can also be accessed on the PPA conference website.

Sunday, September 21	Monday, September 22	Tuesday, September 23	Wednesday, September 24	Thursday, September 25
	0830 - 1000 ❖ CEOs Retreat ❖ Engineers Workshop ❖ Utility Board Directors Workshop	0830 - 1000 ❖ Official Opening ❖ Official Conference Photograph Ngarachamayong Cultural Centre	Session 4: 0830 - 1000 ❖ Speed Networking: TBC	Session 7: 0830 - 1000 ❖ Presentations (3 spaces Ngarachamayong Cultural Centre ❖ Engineers Workshop Ngarachamayong Cultural Centre
	1000 - 1030 Morning Tea			
	1030 - 1200 ❖ CEOs Retreat ❖ Engineers Workshop ❖ Utility Board Directors Workshop	Session 1: 1030 - 1200 ❖ Presentations (3 spaces) ❖ Utility Board Directors Workshop ❖ Engineers Workshop Ngarachamayong Cultural Centre	Session 5: 1030 - 1200 ❖ Speed Networking: TBC	Session 8: 1030 - 1200 ❖ Presentations (3 spaces Ngarachamayong Cultural Centre (Falemasiva Hall) ❖ Engineers Workshop Ngarachamayong Cultural Centre
	1200 - 1300 Lunch			
1200 -1700 Conference Registration Ngarachamayong Cultural Centre	1300 - 1500 ❖ CEOs Retreat ❖ Engineers Workshop ❖ Utility Board Directors Workshop ❖ Allied Members Informal meeting	Session 2: 1300 - 1500 ❖ Presentations (4 spaces) ❖ Utility Board Directors Workshop ❖ Engineers Workshop Ngarachamayong Cultural Centre	Session 6: 1300 - 1500 Field Trip/Informal Networking: TBC	Session 9: 1300 - 1500 ❖ Presentations (4 spaces Ngarachamayong Cultural Centre
	1500 -1530 Afternoon tea			
	1530 - 1700 Allied Members Formal meeting	Session 3: 1530 - 1700 PPA Board Meeting (Open to all Members) Ngarachamayong Cultural Centre	Continuation of Field Trip/ Informal Networking: TBC	Session 10: 1530 - 1700 Annual General Meeting Ngarachamayong Cultural Centre
	1700 -1800 Prepare for Evening Events			
	1830 - 2130 Welcome Dinner	1800 - 2100 Cocktail - Opening of Trade Exhibition Ngarachamayong Cultural Centre	1800 - 2130 Conference Dinner: TBC	1830 - 2130 Cocktail Closing of Trade Exhibition Ngarachamayong Cultural Centre

Welcome!

TO THE NEW ALLIED MEMBERS

There has been one new Company who has joined the PPA as Allied Members since our last PPA Magazine.

CRISIL LIMITED: Crisil Limited is based in Mumbai, India. Their primary activity is Research and Financial Services.


A//
Accelerating sustainability in marine and energy
We develop, produce and service turbochargers and digital solutions: these make engines more powerful and efficient, while also reducing emissions. Our advanced products are used in a wide-range of sectors including marine, energy and rail. These industries make our world turn and we power them, reliably and sustainably, while also helping them decarbonize.
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