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Welcome to the first issue of Pacific Energiser for 2017, the 23rd issue since the first roll-out in September 2010. This issue will hold some space in the history of the Regional Energy Programme (REP), given that it is released during a historical period in the annual calendar of the Pacific Community and its Economic Development Division; 2017 marks the 70th anniversary of the Pacific Community.

SPC is one of the oldest intergovernmental agencies on the planet, and we all owe much to the founding fathers who had the foresight and vision to create such a unique institution. SPC is famous as an agency that has shaped the lives of people scattered around the largest ocean on earth.

SPC has continuously evolved over the years, making itself relevant to the changing socio-economic and political influences within and outside the region. In terms of economic development in the field of energy, SPC has hosted the Regional Energy Programme (REP) for seven years and was specifically tasked with leading and coordinating implementation of the Framework for Action on Energy Security in the Pacific (FAESP: 2010–2020), which has now entered its last triennium. Certainly, the fit-for-purpose and prioritisation work that is part of SPC’s ongoing effort to achieving excellence will set the tone and be a platform for a more focussed and effective REP that better serves the needs of the region.

The release of this special issue of Pacific Energiser also coincides with the Third Pacific Regional Energy and Transport Ministers’ Meeting, which will be held in Nuku’alofa, Tonga from 24 to 28 April 2017. The meeting will bring to the attention of the ministers the latest international and regional developments in the energy and maritime transport sectors that affect Pacific Island countries and territories (PICTs), as well as the trends and challenges for the period 2017–2020. These include the targets set by the Framework for Pacific Regionalism, the Framework for Resilient Development in the Pacific, the Sustainable Development Goals (SDGs) and the Paris Agreement. Accessing global environment funding resources is also an ever-present challenge.

At this meeting, the energy ministers will set the direction for regional collaboration in the delivery of energy services to the Pacific Community country members. It is an opportunity for the region to take an unified position to strengthen its voice in the international arena. Adoption of regional targets in renewable energy and energy efficiency, transition to cleaner fossil fuels, and a commitment to phase out fossil fuel subsidies are some of the issues to be discussed. Furthermore, the region needs effective legislation to empower governments to coordinate, manage and regulate the energy sector if the energy targets in the nationally determined contributions are to be achieved. Central to this is the role of the regulators in ensuring a business environment of confidence for the private sector and investors in the energy sector.

Lastly, the release of this issue coincides with the inauguration of the Pacific Centre for Renewable Energy and Energy Efficiency, or PCREEE. The centre is a regional centre of excellence to promote sustainable energy markets, industries and innovation in the region. It will support PICTs to accelerate their progress on the SAMOA Pathway, Sustainable Development Goals 7 and 9, the regional Framework for Action on Energy Security in the Pacific and their nationally determined contributions under the Paris Agreement (Sustainable Development Goal 13).

Together we stand; divided we fall. The centre is an innovative fusion of regional and international efforts and capabilities, leveraging a network of intra- and extra-regional partnerships, serving as a hub for knowledge and technical expertise on sustainable energy project implementation and as a facilitator for innovative partnerships with the private sector.

We should all be pleased that South-South and SIDS-SIDS collaborations have taken another leap into reality, for the Pacific is now part of a network of regional sustainable energy centres of excellence for SIDS:

- the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE);
- the Southern African Centre for Renewable Energy and Energy Efficiency (SACREEE);
- the East African Centre for Renewable Energy and Energy Efficiency (EACREEE);
- the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) in the Arab region, and
- the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)

We certainly look forward to closer collaboration with all these centres of excellence in the years ahead.
History of the Pacific Regional Energy Programme

The origin of the Regional Energy Programme (REP) dates back to 1979, when senior officials of Pacific Island countries and territories (PICTs) met in Suva and emphasised the need for coordinating energy activities. They recommended that a meeting be arranged to formulate a regional energy programme. The 1979 South Pacific Forum then instructed the then South Pacific Bureau for Economic Cooperation (SPEC) to organise the meeting and, in cooperation with the UN Economic and Social Commission for Asia and the Pacific, a working group meeting was held in Samoa in June 1980.

The 11th South Pacific Forum of 1980 directed that a group of experts be commissioned early in 1981 to report urgently on the most appropriate institutional arrangements for undertaking the tasks of energy coordination and energy dissemination information in the Pacific. Mrs Suliana Siwatibau of Fiji, assisted by Dr E. I. Robertson of New Zealand, conducted a study on energy coordination and energy information dissemination in the South Pacific region. They noted that there is considerable room for improvement in the exchange of information, the coordination of specialist visits to island countries and on-the-job training opportunities. The 12th South Pacific Forum of 1981 in Vanuatu accepted the recommendations of the report, noting that, in assuming the role of regional energy coordinator on energy matters, SPEC should accord priority to establishing an appropriate framework within the bureau, utilising extra-budgetary sources of finance wherever possible. This landmark forum also agreed that SPEC should make its services on energy matters available, not only to SPEC member countries, but to all PICTs.

Between 1982 and 1991, the Pacific Regional Energy Programme (PREP) came into being at SPEC. It produced a report on the eight Pacific ACP states, which was the first attempt to develop data and understand energy issues facing the region. The goal was to strengthen the capacity of PICTs to plan and manage their energy sector. Associated with this step forward are Murray Ellis (New Zealand), David Clarence, Dr Tony Weir and Mr Peni Drololangi (Fiji).

Between 1983 and 1992, the Pacific Energy Development Programme came into existence and provided energy advice and capacity building to 13 PICTs. Here, we are reminded of Peter Johnston (Programme Manager), Herb Wade (Renewable Energy Adviser), Chris Cheatham (Power Adviser), George Tavanavanua (Petroleum Advisor) and Chris Filianga (Power Advisor).

During this period, UNDP and donor-funded energy planners were posted throughout the region. Prominent names here are Greg Stuzman – Tonga (died in Tonga during a wave power monitoring exercise) and Richard Haist – Solomon Islands. There was also James Conway, a US Peace Corp volunteer, who has called Tuvalu his home and is still working there.

From 1984 to 1995, under a finance agreement for Euro 6.19 million with the European Commission, assistance was provided under the framework of the Lomé II Pacific Regional Energy Programme, or Lomé II PREP. In this context, Frans Fein and John Vos are remembered for their work.

In 1992, the Pacific Power Association (PPA) was established and we are reminded of Patrick K Amini, Chris Cheatham, Tony Neil (1999–2010) and Andrew Daka (2011 until now).

In 1992, the Pacific Regional Energy Programme became a Division of the Forum Secretariat. Brian Dawson was the director between 1992 and 1994. Dick Goldberg continued from 1995 to 1997 and then we had Nick Wardrop, Brett Jacobs, Paul Fairbairn, Melania Tunidau (passed away in 2009) and Rave Tutoko to continue the work.

From 1993 to 1998, we had the Lomé III Pacific Regional Energy Programme, or Lomé III PREP, with the Forum Secretariat Energy Division (FSED) and Gerhard Zieroth, John Pirie, Suresh Raj and Albrecht Kaupp were heavily involved.

A Regional Petroleum Unit was established within FSED in 1994 with Mike Lawrence and June Morgan as prime movers.

SPC was working in the energy sector from 1994 through its Rural Development Programme, with Patrice Courty and Jean Michel Durand from 2000 to 2003. Fast forwarding, PREP was transferred to the Economic Development Division of SPC on 1 January 2010 and has remained with SPC since.

I am honoured to be part of PREP and on the occasion of its 35th anniversary and the inauguration of PCREEE, I wish to acknowledge and pay tribute to all, including those who have slipped my mind, who have contributed to shaping the regional energy landscape of Pacific Islands countries and territories. The fact that PREP has evolved and changed over the years is a testimony that it is still alive and relevant.

Long live the Pacific Regional Energy Programme!
Regional leadership in the energy sector of the Pacific Islands

This year marks the 70th anniversary of the Pacific Community, and it presents us with a timely opportunity to reflect and celebrate the shared progress we have made with our members and partners over the years.

SPC's efforts continue to be guided by our Strategic Plan 2016–2020, the Framework for Pacific Regionalism, the SAMOA Pathway and the 2030 Development Agenda and its Sustainable Development Goals. Proudly supporting development in the Pacific region since 1947, SPC works across more than 20 sectors, one of which is the energy sector.

Energy has long been part of SPC's work programme. In fact its Community Education and Training Centre (CETC), which celebrated its golden jubilee in 2013, always included energy issues as part of its technical and vocational training for women in the community development sector. The training covered the fabrication of low-cost solar water heaters, the use of more efficient and smokeless woodstoves, the maintenance of solar lighting systems and the safety of using fossil fuels and gas in cooking and household chores. More than 1,700 women and more than 500 entrepreneurs and business support service providers graduated from CETC, a great achievement.

In the 1980s and 1990s, SPC ran a Rural Development Programme, which focussed on renewable energy as the appropriate technology for rural development. The use of solar dryers to add value to agricultural products and the use of coconut oil as an alternative energy source in rural communities are just two examples of this work undertaken by SPC at the time.

In 2000, SPC implemented what was known as PREFACE – the Pacific Renewable Energy France-Australia Common Endeavour. PREFACE aimed to advance social and economic development with the use of sustainable renewable energy technologies in the SPC region.

This initiative has led to many interesting chapters in the regional energy scene. These include:

- the Pacific Islands Renewable Energy Project (PIREP);
- the Pacific Islands Energy Policy and Strategic Action Plan project (PIEPSAP);
- the Pacific Islands Greenhouse Gas Abatement through Renewable Energy Programme (PIGGAREP);
- the Pacific Environment Community Fund (PECF); and
- the North Pacific Renewable Energy Programme (North-REP).

SPC is honoured to have been the host of the Regional Energy Programme since 2010. A key part of our role is leadership by way of coordinating and leading implementation of the Framework for Action on Energy Security in the Pacific (FAESP: 2010–2020). To effectively carry out this role, we have adhered to the two premises that FAESP is based on:

- the many partners, one team approach; and
- the whole-of-sector approach.

The latter is a reminder that the energy sector is made up of many sub-sectors, such as planning and policy, capacity building, petroleum, renewable energy, energy efficiency, data, financing, and monitoring and evaluation. The former acknowledges that SPC cannot do everything alone. It acknowledges that energy is cross-sectoral and includes many actors.

We look forward to continuing our work with partners in advancing the UN sustainable energy for all (SE4ALL) initiative in the region and we hope that the Pacific Centre of Excellence on Renewable Energy and Energy Efficiency will be a catalyst for accelerating the excellent progress made to date.
Secondly, this year sees the Third Pacific Regional Energy and Transport Ministers’ Meeting – an opportunity to look back at where we came from, where are we now and where we are going as a region, all through the lens of Affordable, reliable and sustainable energy and transport services for all, the theme for the meeting.

The third event is the inauguration of the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE). The centre is a vehicle to support Pacific Island countries and territories (PICTs) to accelerate their progress on the SAMOA Pathway, SDG 7, SDG 9, the regional Framework for Action on Energy Security in the Pacific and their Nationally Determined Contributions under the Paris Agreement (SDG 13). Tonga is truly honoured to host this centre.

Like other Pacific Island countries, renewable energy and energy efficiency have always been high on our list of priorities. They came, however, under the aegis of an office established by a decision of cabinet and its agenda was mostly donor- and technology-driven. It was not until 2008, with the enactment of our Renewable Energy Act, that government signalled it is serious about transforming its energy agenda.

Immediately after this, in 2009, the government started developing its Tonga Energy Roadmap. Adopted in 2010, the roadmap provided a clear direction for government’s commitment to transform its energy sector. It became a flagship for the region, so much so that the 42nd Pacific Islands Forum in 2011 agreed on the value of developing credible whole-of-sector plans, such as energy road maps and structures to improve energy security, reduce dependence on fossil fuel for electricity generation and improve access to electricity.

Tonga tasted the first fruits of its political commitment in 2012, when it commissioned the 1 MW Maama Mai (Let there be light) solar farm at Tongatapu. This was followed by the 500 kW La’a Lahi (Big Sun) solar farm at Vava’u in 2013 and then in 2015 it was the 1 MW Mata ‘oe La’a (Eye of the Sun) micro-grid system at Vaini, Tongatapu – the first in the Pacific with a stabilising capacitor and a micro-grid control system. In addition to these, there are many other projects on renewable energy and energy efficiency in the country. Improved affordability, reliability and efficiency have been the direct outcomes of these investments.

To further consolidate our energy sector reforms, we embarked on drafting a legislative framework for the energy sector in 2015, with the expectation that such an instrument will assist in accelerating our effort towards our national energy targets, as contained in our Nationally Determined Contributions under the United Nations Framework Convention on Climate Change. The energy act will:

a. provide a coherent institutional and regulatory framework for the management, planning and co-ordination of the energy sector in Tonga;

b. establish and clarify the functions and powers of the Energy Department, the Energy Advisory Committee and the Energy Commission; and

c. provide for the regulation of energy services.

I greatly look forward to joining you all in celebrating SPC’s 70th anniversary, inaugurating PCREEE and sharing our experiences with my fellow ministers from around the region.
Global Network of Regional Sustainable Energy Centres: a sub-regional accelerator for circular economies

The first heartbeat of the Global Network of Regional Sustainable Energy Centres (GN-SEC) must have happened during the dramatic emergency meeting of the fifteen ministers for energy in the Economic Community of West African States (ECOWAS), which took place in 2008 in Burkina Faso. The participating least developed countries and small island developing states (SIDS) were confronted with a dramatic rise in oil prices, with devastating effects on their economies and social services. In addition, some of the countries were suffering significantly from extreme weather events and temperature rise caused by climate change (e.g. droughts, storms).

During the meeting, the attending ministers expressed the urgent need to decouple economic, industrial and social development from fossil fuel imports. Enforced sub-regional capacities and cooperation were identified as transformative elements in the strategy to upscale renewable energy and energy efficiency markets. At the meeting, the Director-General of the United Nations Industrial Development Organization (UNIDO) and the Austrian Minister for Foreign Affairs pledged technical assistance for the creation of a specialised regional sustainable energy promotion agency. Today, the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), situated in Praia, Cabo Verde, has become a lighthouse and shining example for a sub-regional accelerator.

The ECREEE model goes around the globe and what was a single centre has become a powerful South-South and triangular partnership. Under the common GN-SEC platform, UNIDO is assisting numerous regional organisations and their member states to establish and operate such centres. GN-SEC comprises a sub-network of centres for Sub-Saharan Africa (in cooperation with the East African Community, the Southern African Development Community, ECOWAS and the Arab League) and a sub-network of centres for small island developing states (in cooperation with SIDS DOCK, CARICOM (the Caribbean Community and SPC). Currently, the network is expanding also to Central America and the Himalaya-Hindu Kush.

The individual centres respond to the urgent need for increased sub-regional cooperation to address existing barriers hindering the uptake of sustainable energy markets, industries and innovation. Through regional approaches and methodologies, the centres complement and accelerate national efforts in the areas of policy and capacity development, knowledge and technology transfer, and awareness raising. They also promote investment and entrepreneurship. Regional markets are an important requirement to reach economies of scale to attract foreign investment and to create business and job opportunities for a domestic sustainable energy manufacturing and service industry.

The model of the centres is based on strong leadership and ownership of the respective regions. Up to now, the network has enjoyed high-level approval of more than 90 energy ministers and heads of state. The centres are closely linked to regional organisations and their decision-making processes, and represent an innovative fusion of partnerships among countries, international partners and the private sector. The global network forms a strong global advocacy group for SDG-7, SDG-9 and SDG-13 and the centres are important hubs for the Sustainable Energy For All initiative.

The centres will provide targeted regional support to assist countries in attracting and absorbing international climate finance earmarked for the implementation of the Nationally Determined Contributions. The Global Network of Regional Sustainable Energy Centers Platform offers an umbrella for South-South activities on common issues (e.g. gender, waste to energy, mini-grids and electric mobility).

With the inauguration of the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) on 26 April 2017 in Tonga, we are entering a new era of sub-regional leadership to accelerate the transformation of SIDS towards circular economies. UNIDO congratulates SIDS DOCK, the Pacific Community and Pacific Island countries and territories on this historic birthday!
The Regional Energy Programme

On the occasion of this special issue of Pacific Energiser, it is an honour to contribute, not only as a representative of the small islands states, but also as a member of the Pacific Energy Advisory Group.

The Regional Energy Programme (REP) has created opportunities for communities in Tuvalu to fully participate in the achievement of the country’s energy goals and targets, thereby taking part in the promotion of sustainable energy for all at the local level. Working closely with industry, local government and other stakeholders, the programme ensures these communities receive the necessary information, skills and resources that empower them to understand and evaluate renewable energy options for their long-term social, economic and environmental benefit. Through REP, Tuvalu has been provided with advice and support to harness these opportunities and also foster a more harmonised approach to the sustainable energy challenges of Tuvalu.
Tuvalu has greatly benefited from REP’s support. Some of these benefits are listed below.

- Progress towards achieving its 100% renewable energy target,
- Technical advice, training and capacity building for the staff of the Tuvalu Electricity Corporation and the Department of Energy. Training has been provided in various areas of energy planning and policy, renewable energy and energy efficiency, petroleum safety and pricing, data management and energy regulation.
- Coordination and management of regional projects:
  - renewable energy development in Tuvalu, including off-grid solar PV hybrid systems and stand-alone home solar systems on the outer islands and solar PV grid-connected systems on Funafuti;
  - a renewable resource impact study to determine the level of renewable energy penetration that will not affect the stability of the grid system;
  - establishment of the energy efficient demonstration fale and the loan scheme at the Development Bank of Tuvalu for energy-efficient appliances, which will assist Tuvalu to achieve its target of 30% increase in energy efficiency; and
  - energy labelling and standards legislation approved by parliament, which will greatly assist Tuvalu in its progress towards the energy efficiency goal contained in its Nationally Determined Contributions.

Last but not least, the establishment of the Pacific Centre of Excellence on Renewable Energy and Energy Efficiency (PCREEE) has come a long way and countries will soon reap the fruits. So I congratulate SPC, the United Nations Industrial Development Organization and all the partners on the inauguration of PCREEE. Long may it live!
An enhanced regional and national partnership towards improving livelihoods of all FSM citizens for affordable, reliable and environmentally sound energy

The Federated States of Micronesia (FSM), like other Pacific Island countries and territories, has continued to pursue the development of its energy sector as outlined in its national energy policy and plan. With additional funding opportunities, such as the 11th European Development Fund, the national indicative programme, the Green Climate Fund, World Bank assistance under IDA 18, and the continued technical assistance provided by the Regional Energy Programme, FSM’s state power utilities and energy working groups, through the Department of Resources and Development, have implemented and developed plans to achieve the national vision: to improve the livelihood of all FSM citizens and provide affordable, reliable and environmentally sound energy.

FSM has participated in the Pacific Energy Advisory Group that contributes to the architecture of the Regional Energy Programme. This programme and FSM have effectively collaborated in a range of activities: technical advice, training and capacity building, networking, project implementation, policy and legislative drafting, and information sharing, to name a few.

FSM will be participating and contributing to the discussions and decisions in the Third Pacific Regional Energy and Transport Ministers’ Meeting scheduled for 24–28 April in Nuku’alofa, Tonga. At the global level, FSM would like to highlight some key issues, such as progress towards the Sustainable Development Goals (SDGs), in particular SDG 7, and the Nationally Determined Contributions that require enhanced regional and national efforts. Further, at the national and state levels, FSM will draw attention to an efficient, effective and enhanced regional and national partnerships aimed at achieving its 2020 targets of 30% renewable energy and a 50% increase in energy efficiency.

FSM, together with other members of the Pacific Energy Advisory Group and small island states, would like to congratulate the Kingdom of Tonga on being host to the Third Pacific Regional Energy and Transport Ministers’ Meeting and the Pacific Centre of Excellence on Renewable Energy and Energy Efficiency (PCREEE).

FSM also acknowledges the support of the Regional Energy Programme and its partners for the development of the Pacific energy sector and look forward to the extension of PCREEE services to the North Pacific.

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The Pacific region’s targets on renewable energy and energy efficiency

At the global level, a wide range of scenarios on energy targets has been presented. The United Nations SE4ALL initiative has pledged to work towards goals related to energy access, energy efficiency and share of renewable energy. The European Union has set a region-wide target of 20% renewables, 20% increase in energy efficiency and 10% biofuels in transportation by 2020. In West Africa, ECOWAS (Economic Community of West African States) has committed to a renewable energy policy that includes targets for both on- and off-grid renewable energy applications by 2030. CARICOM (Caribbean Community) has regional targets for renewable energy at 20% by 2017, 28% by 2022 and 47% by 2027, and an energy efficiency target of 33% by 2027. SIDS DOCK has set a variety of sustainable energy targets for 30 small island states: 50% of power generation from low-carbon sources, 20-30% reduction in petroleum use in transportation and 25% increase in energy efficiency, all by 2033.

In 2010 the Pacific region took a significant step with the development and endorsement of the Framework for Action on Energy Security in the Pacific (FAESP, 2010–2020) and its associate action plan, Implementation Plan for Energy Security in the Pacific (IPESP). Establishing an official long-term vision for the development of the Pacific energy sector has outlined a common and cohesive strategic agenda to guide and commit key players and partners.

Pacific Island countries and territories (PICTs) have individual national targets on renewable energy and energy efficiency. PICTs have also committed in policy statements, strategic plans and roadmaps towards these ambitious targets. In many cases, existing policies and legislation to meet such targets are not sufficiently developed, or implementation has been inadequate.

The Pacific as a region does not have a common regional target for renewable energy and energy efficiency. This would allow the region to set specific goals to demonstrate a common vision and benchmark its progress with other regions.

Available data and information on Pacific national renewable energy targets and renewable energy penetration in electricity generation vary, as illustrated in Figure 1. To determine a Pacific renewable energy target, the renewable energy potential across the Pacific is assessed. Past and available technical assessment results estimate a total of about 600 MW potential in renewable energy across the Pacific. This comprises 81% hydro, 11% solar, 3% wind, 3% biomass and 2% geothermal. The data are to be updated to provide a more accurate potential of renewable energy based on recent feasibility studies.

Energy efficiency targets in the Pacific are measured in various forms, ranging from 1% improvement in fuel-efficient vehicles to 90% of households using LPG for cooking. Energy intensity is the widely used indicator but this has limitations and needs to be further explored and explained in the Pacific context if used as the energy efficiency measure for the regional target.

PICTs also have national emission reduction targets that are categorised into two components, electricity and transport. They range from 23% to 48% for electricity and 28% to 61% for transport.

Figure 1 shows that the Pacific as a region has accomplished 23% of the proposed average 73% of national renewable energy targets. The methodology of having the target(s) put against the regional technically assessed renewable energy potential and available resources shows a practical target in the range of 25%–30% for the Pacific, which the region is currently in line to achieving by 2020.

The Pacific Energy and Transport Ministers and Officials meeting in Tonga on 24–28 April will discuss the need for Pacific targets in renewable energy and energy efficiency. It is anticipated that a comprehensive analysis and update of data and information are required to determine practical targets within available resources in the Pacific.

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Figure 1 National renewable energy targets and percentage of renewable energy connected to the grid

Sources: Available data with SPC and the Pacific Power Association
First Pacific TVET certificate climate change course launched

The first ever technical vocational education and training (TVET) certificate level course in the field of climate change and disaster risk reduction was launched during the opening ceremony on 21 February at the Vanuatu Institute of Technology.

Speaking at the ceremony, Director General of the Vanuatu Ministry of Education, Jesse Dick, said that he was proud that Vanuatu was the first nation in the Pacific to implement a climate change qualification at the certificate level.

‘There are already some post-graduate courses offered by the University of the South Pacific (USP) in climate change, but nothing at pre-university level that can cater for the needs of people living in remote locations,’ he said.

Mr Joe said that the certificate course in climate change and disaster risk reduction would be taught in two languages. ‘An interesting feature of the course is that the materials are provided in both English and French, in keeping with the bilingual aims of the Vanuatu education system,’ he said.

Director General of the Ministry of Climate Change, Jesse Benjamin, said that this course would assist rural people who want to help their communities address the challenges faced by climate change.

‘This course is designed for men and women in rural areas who have a passion to help their communities adapt to climate change and reduce the impacts of disasters,’ he said.

Mr Benjamin said that students involved in these courses will do a lot of practical work to build their skills in climate change adaptation. ‘They will upgrade their skills in interpreting and drawing maps and graphs and in processing statistical information. They will learn how to demonstrate a number of adaptation measures to others and how to assess a community’s level of risk to hazards and climate change,’ he said.

Mr Benjamin credited the development of the certificate course in climate change to the Pacific Community, USP, the German aid agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the European Union-funded Pacific Technical and Vocational Education and Training Project (EU PacTVET).

Team Leader of the EU PacTVET Project, Dr Sarah Hemstock, said that the course is the end result of nearly five years of collaboration involving many agencies and project groups and she was glad to see the courses launched.

‘This is a great demonstration of what collaboration can achieve and should have a big impact on local communities’ ability to understand and cope with climate change issues locally,’ she said.

Currently there are 32 students enrolled in the course who were selected from various levels of society – from government ministries and national disaster management offices, to graduates from rural training centres and secondary school leavers.

The certificate level course in climate change and disaster risk reduction began on 27 February 2017 and will run until the end of July.
For more information, please contact:

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PACIFIC FUEL PRICE MONITOR
COVERING 4TH QUARTER 2016 (OCTOBER–DECEMBER)

WHAT’S INSIDE

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1. PACIFIC FUEL PRICES AT A GLANCE

Figure 1: Regional retail prices including duty and taxes

![Average retail fuel prices including tax and duty - 4th quarter 2016](chart)

2. KEY OBSERVATIONS – Pacific fuel prices

**Overview**

In Q4.2016, average fuel prices in Pacific Island countries and territories (PICTs) increased for diesel and decreased for mogas, kerosene and LPG compared to Q3.2016. For mogas, PICT fuel prices decreased by 1% and 0.28% for retail and wholesale tax inclusive, diesel retail and wholesale tax-inclusive both increased by 1%, kerosene decreased by 2% and 1% and LPG by 6% and 3% for retail and wholesale respectively, compared to Q3.2016.

**Mogas**

Hawaii had the lowest tax inclusive retail price, followed closely by American Samoa and Fiji. Pre-tax lowest was Fiji (53.40 cpl), Sydney (53.68 cpl), Hawaii (55.47 cpl) and Samoa (60.37 cpl). Highest pre-tax prices were Niue (137.91 cpl), Tuvalu (128.57 cpl) and Wallis and Futuna (122.56 cpl). American Samoa had the lowest PICT wholesale price, followed by Papua New Guinea and Solomon Islands. The range (low to high price gap) of pre-tax fuel retail prices (Fiji compared with Niue) for mogas in PICTs was 84.50 cpl.

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1. Fuel prices per litre are expressed in US cents per litre (cpl) throughout this article.
ADO

Fiji and American Samoa had the lowest tax-inclusive retail price, followed by Papua New Guinea and Samoa. Pre-tax lowest was Fiji (43.05 cpl), Samoa (59.17 cpl), Vanuatu (60.35 cpl) and Tonga (61.12 cpl). Highest pre-tax costs were Niue (139.33 cpl) and Tuvalu (128.77 cpl). Papua New Guinea had the lowest PICT wholesale price, followed by Fiji, American Samoa and Samoa. The PICT retail pre-tax ‘low-to-high’ price gap (Fiji compared with Niue) for ADO was 96.28 cpl.

Kerosene

Fiji had the lowest tax-inclusive retail kerosene prices, followed by Tonga and Kiribati. Pre-tax lowest were Fiji (51.71 cpl), Samoa (54.33 cpl) and Tonga (59.77 cpl). Papua New Guinea had the lowest wholesale kerosene price (40.76 cpl) followed by Fiji and American Samoa. The highest wholesale kerosene prices were in Niue, Vanuatu, and Wallis and Futuna. The PICT retail pre-tax ‘low-to-high’ price gap (Fiji compared with Palau) for kerosene was 154.34 cpl.

LPG

The lowest retail LPG prices were in Fiji (USD 1.14 per kg), closely followed by Tonga and Kiribati. Palau had the highest LPG price (USD 5.51 per kg). The PICT pre-tax ‘low-to-high’ price gap (Fiji compared with Palau) for LPG was USD 4.37 per kg.

Crude oil

Average Dated Brent crude oil prices increased by USD 4.50 per barrel compared to Q3.2016.

3. MOGAS (UNLEADED PETROL) PRICES

Figure 2: Retail tax-inclusive mogas price
Figure 3: Retail mogas prices sorted by pre-tax cost

Figure 4: Wholesale mogas prices sorted by pre-tax cost
Key observations – Mogas

Most PICTs import 92 RON mogas. Niue, Cook Islands, New Caledonia, Vanuatu, and Wallis and Futuna import 95 RON, which is 4% more expensive than 92 RON.

The Pacific-wide average pre- and after-tax retail price for mogas was 0.85 cpl and 1.11 cpl respectively.

The average pre- and after-tax wholesale price for mogas was 0.70 cpl and 0.99 cpl respectively, which was the same as Q3.2016 prices.

The pre-tax wholesale price was lowest in Papua New Guinea (42.03 cpl), New Zealand (43.26 cpl), Australia – Sydney (45.99 cpl) and Samoa (46.73cpl).

The PICT pre-tax low to high wholesale price gap (Papua New Guinea compared with Niue) for mogas was 70.76 cpl.

Average MOPS for mogas 92 and 95 RON during October–December was USD 38 cpl and 40 cpl respectively, with both fuel types recording an increase of 3 cpl when compared to July–September.

Mogas-related retail tax rates in PICTs ranged from 1.32 cpl (Palau) to 64.87 cpl (New Zealand).

Mogas-related wholesale tax rates in PICTs ranged from 5.24 cpl (Kiribati) to 45.16 cpl (Vanuatu).
4. AUTOMOTIVE DIESEL PRICES

Figure 6: Retail tax inclusive diesel prices

![Retail diesel tax-inclusive price chart]

Figure 7: Retail diesel prices sorted by pre-tax cost

![Retail diesel sorted by pre-tax chart]
Figure 8: Wholesale diesel prices sorted by underlying pre-tax prices

Figure 9: Regional prices of diesel (including tax and duty)
**Key observations – diesel fuel**

Pre-tax and duty, Fiji, American Samoa and Vanuatu have the lowest retail ADO costs and prices, closely followed by Tonga and American Samoa. Palau imposes the lowest amount of tax and duty but is mid-ranking in terms of comparative retail sales price.

The majority of PICTs import 500 ppm sulphur (S) ADO for land transport. Palau has specifications of 50 ppm. American Samoa, Cook Islands, Niue, Wallis and Futuna, and Vanuatu import 10-ppm diesel for land transport. Noticeably, these are contributing factors to price variations among PICTs.

The Pacific-wide average pre- and after-tax retail price for ADO was 0.88 cpl and 1.09 cpl. Papua New Guinea had the lowest tax-inclusive wholesale prices, followed by Fiji and American Samoa.

The pre-tax wholesale price was lowest in New Zealand (41.29 cpl), followed by Papua New Guinea (41.52 cpl), Samoa (45.745 cpl) and Fiji (52.32 cpl). The PICT pre-tax ‘low to high’ wholesale price gap (New Zealand compared with Niue) for ADO was 72.53 cpl.

The Pacific-wide average pre- and post-tax wholesale price for ADO was 0.71 cpl and 0.93 cpl.

Average MOPS for gasoil 10 ppm and 500 ppm during October–December was both 0.38 cpl and both increased by 0.04 respectively compared to July–September.

ADO retail tax rates between PICTs ranged from 1.32 cpl (Palau) to 44.35 cpl (Vanuatu).

ADO related wholesale tax rates in PICTs ranged from 1.85 cpl (Papua New Guinea) to 44.18 cpl (Vanuatu).
5. KEROSENE PRICES

Figure 10: Retail tax- inclusive kerosene prices

![Figure 10: Retail tax-inclusive kerosene prices](image)

Figure 11: Retail kerosene prices sorted by underlying pre-tax cost

![Figure 11: Retail kerosene prices sorted by underlying pre-tax cost](image)
Figure 12: Wholesale kerosene prices sorted by underlying pre-tax cost

![Wholesale kerosene sorted by underlying pre-tax prices](chart12)

- **Taxes (Duty plus VAT)**
- **Kerosene WS Pre-Tax Price**
- **Pacific Average Pre-tax WS Price**
- **Platts Benchmark Jet/kerosene**

Figure 13: Wholesale and retail prices of kerosene (including tax and duty)

![Kerosene price including tax and duty](chart13)

- **Retail Prices**
- **Wholesale Prices**
- **Average MOPS Jet/Kerosene**
- **Pacific Average retail price**
- **Pacific Average wholesale price**
Key observations – Kerosene

Fiji had the lowest retail kerosene prices and Papua New Guinea had the lowest wholesale prices. Highest prices were found in Palau and Niue.

The Pacific-wide average pre- and after-tax retail price for kerosene was 96 cpl and 109 cpl respectively.

Average MOPS for Asian jet fuel (the main end-use for kerosene) during October–December was 38 cpl.

Papua New Guinea had the lowest tax inclusive wholesale prices, followed by Fiji and American Samoa.

Pre-tax wholesale price was lowest in Papua New Guinea (40.76 cpl) followed by Samoa (42.41 cpl) and Fiji (50.49 cpl).

The PICT pre-tax ‘low to high’ wholesale price gap (Papua New Guinea compared with Niue) for kerosene was 96.36 cpl.

Kerosene-related retail tax rates in PICTs ranged from zero (Kiribati) to 37.18 cpl (Wallis and Futuna).

Kerosene-related wholesale tax rates in PICTs ranged from zero (Kiribati, Papua New Guinea and Fiji) to 37.18 cpl (Wallis and Futuna).
6. LIQUEFIED PETROLEUM GAS (LPG) PRICES

The international benchmark for the cost of LPG in the Asia-Pacific region is the Saudi Aramco Contract Price, also known as the 'Saudi CP'. It increased in the fourth quarter for propane and butane by 78 USD per metric tonne and 103 USD per metric tonne respectively, compared to the previous quarter. Saudi CP for butane and propane for the quarter averaged at USD 410 and USD 370 per metric tonne respectively.
Key observations LPG

Average Saudi Aramco LPG butane and propane increased by 27% to 0.370/kg and by 34% to 0.410/kg respectively.

Between October and December 2016, Fiji had the lowest LPG retail and wholesale prices at USD 1.14 per kg and USD 1.06 per kg respectively. Palau had the highest retail price USD 5.51 per kg. Wallis and Futuna wholesale price was USD 3.28 per kg.

Average PICTs’ price for LPG retail and wholesale decreased slightly, compared to Q3.2016, by USD 0.20 per kg and USD 0.08 per kg respectively.

7. INTERNATIONAL PRICING MARKET TRENDS

Figure 16: Comparison – Singapore gasoline, jet fuel/kerosene, diesel and Dated Brent

In Q4.2016, the Dated Brent crude oil price increased by 10% from USD 46.44 per barrel to USD 50.94 per barrel compared to Q3.2016. In order to speed up oil market stabilisation, reduce fuel volatility and create new investment, OPEC agreed to reduce output by 1.2 million bpd from 1 January 2017. Non-OPEC member, Russia, also agreed to reduce its oil consumption by 300,000 bpd gradually and was optimistic that by March 2017 it would be producing 200,000 bpd. However, Gary Ross (OPEC Watcher) mentioned, ‘They are all enjoying higher prices and compliance tends to be good in the early stages. But then as prices continue to rise, compliance will erode.’
Singapore fuel prices

Noticeably in Q4.2016, Singapore free-on-board (FOB) prices for mogas 92, diesel 500 ppm, kerosene and Dated Brent increased by 15%, 11%, 11% and 10% respectively. FOB fuel price comparison for Q3.2016 versus Q4.2016 is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Q3.2016 Average (USD/barrel)</th>
<th>Q4.2016 Average (USD/barrel)</th>
<th>Difference (USD/barrel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline 92</td>
<td>52.19</td>
<td>60.24</td>
<td>8.05</td>
</tr>
<tr>
<td>Diesel 500 ppm</td>
<td>54.11</td>
<td>60.29</td>
<td>6.18</td>
</tr>
<tr>
<td>Kerosene</td>
<td>54.28</td>
<td>60.52</td>
<td>6.23</td>
</tr>
<tr>
<td>Dated Brent</td>
<td>46.44</td>
<td>50.94</td>
<td>4.50</td>
</tr>
</tbody>
</table>

Figure 17: Difference between market prices

Observations – refiners margin

For Q4.2016, in comparison with Q3.2016, the refiners margin increased for all petroleum products, with mogas 97, 95 and 92 recording the highest by 33%, 43% and 62% respectively. Kerosene, diesel 10 ppm and diesel 500 ppm for the fourth quarter increased by 22%, 21% and 22% respectively.
8. EXCHANGE RATES

In the fourth quarter, AUD, Euro, FJD, NZD, PGK, WST, SBD, TOP, Vatu and XPF currencies weakened against the US dollar compared to the third quarter. This could be associated with the USA Presidential Election held in November 2016 and the increase in US interest rate of 0.03% in December 2016. Overall in Quarter 4 2016, the Euro, Papua New Guinea PGK, Samoa WST and New Caledonia/Wallis Futuna XPF were at their lowest against USD.

Figure 18: Pacific currencies against USD exchange rate
9. PICT FUEL-PRICING METHODOLOGIES

Samoa, Tonga, Papua New Guinea, Wallis and Futuna, New Caledonia, Vanuatu and Solomon Islands carry out price reviews on a monthly basis.

Fiji reviews petroleum product prices on a quarterly basis. Price change is based on MOPS prices of the previous quarter.

American Samoa reviews prices on a fortnightly basis.

Niue and Cook Island price changes are carried out on an ad hoc basis. Price change is mostly influenced by either a major surge or fall in international market prices.

Kiribati has held its fuel prices constant since 2012.

**Price data sources**


NZ data are sourced from [http://www.med.govt.nz/](http://www.med.govt.nz/).


Data for Saudi Aramco LPG prices were adapted from [http://gasenergyaustralia.asn.au/](http://gasenergyaustralia.asn.au/).

Figures 16 and 17 are generated using daily MOPS data sourced from Platts Asia-Pacific/Arab Gulf Marketscan.

Prices for diesel, gasoline and jet/kerosene prices are provided by Platts (S&P Global Platts) under subscription.

Figure 18 derives from [www.oanda.com](http://www.oanda.com).

10. GLOSSARY AND CONVERSIONS

**Abbreviations and definition of key terms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADO</td>
<td>automotive diesel oil or diesel fuel</td>
</tr>
<tr>
<td>After–tax price</td>
<td>prices including tax and duty</td>
</tr>
<tr>
<td>Bbl</td>
<td>barrel (of oil), approximately 159 litres</td>
</tr>
<tr>
<td>bpd</td>
<td>barrels per day</td>
</tr>
<tr>
<td>cpl</td>
<td>cents per litre</td>
</tr>
<tr>
<td>DPK</td>
<td>dual purpose kerosene (i.e. jet fuel and domestic use)</td>
</tr>
<tr>
<td>FOB</td>
<td>free-on-board</td>
</tr>
<tr>
<td>Gasoil</td>
<td>refinery designation of diesel fuel</td>
</tr>
<tr>
<td>kl</td>
<td>kilolitres (thousand litres)</td>
</tr>
<tr>
<td>Mogas</td>
<td>motor gasoline – normally unleaded</td>
</tr>
<tr>
<td>MOPS</td>
<td>Mean of Platts Singapore</td>
</tr>
<tr>
<td>MR</td>
<td>medium range tankers, generally 20,000–30,000 metric tonnes</td>
</tr>
<tr>
<td>Pacific-wide</td>
<td>All surveyed Pacific Island countries (excluding Australia and New Zealand)</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>Retail price</td>
<td>fuel price at retail/service stations, also called pump price</td>
</tr>
<tr>
<td>Pre-tax price</td>
<td>price excluding tax and duty</td>
</tr>
<tr>
<td>Pump price</td>
<td>refer to retail price</td>
</tr>
<tr>
<td>RON</td>
<td>research octane number</td>
</tr>
<tr>
<td>S</td>
<td>sulfur content (usually in diesel fuel)</td>
</tr>
<tr>
<td>ULP</td>
<td>unleaded petrol</td>
</tr>
<tr>
<td>USD per bbl</td>
<td>US dollars per barrel</td>
</tr>
<tr>
<td>USD per l</td>
<td>US dollars per litre</td>
</tr>
<tr>
<td>USG</td>
<td>US gallon</td>
</tr>
</tbody>
</table>

**Conversions**

<table>
<thead>
<tr>
<th>Conversion</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litres to USG</td>
<td>3.785</td>
</tr>
<tr>
<td>Litres to barrel</td>
<td>159</td>
</tr>
<tr>
<td>USG to barrel</td>
<td>42</td>
</tr>
</tbody>
</table>

Note: A more detailed petroleum glossary can be accessed from the PRDR website: [http://prdse4all.spc.int/system/files/petroleum_glossary.pdf](http://prdse4all.spc.int/system/files/petroleum_glossary.pdf)

For further information on PICT fuel pricing, please contact

**Mr Solomone Fifita,** Deputy Director
Energy ([solomonef@spc.int](mailto:solomonef@spc.int)) or

**Ms Tirisa Wainihalagi,** Assistant Petroleum Officer ([tirisaw@spc.int](mailto:tirisaw@spc.int))
REGIONAL PETROLEUM FUEL AND GAS PRICE REVIEW

This report has been prepared by the Database Team of the SPC Economic Development Division Energy Programme to review and analyse regional fuel and LPG prices for the fourth quarter of 2016 (Q4.2016) based on monthly averages of Mean Platt’s Singapore (MOPS) benchmark prices that are published daily.

FOURTH QUARTER OIL MARKET REPORT (OCTOBER 2015–DECEMBER 2016)

During the last quarter of 2015 and the first quarter of 2016 there was a significant drop in the international price of oil, which was selling below USD 50/barrel, reaching its cheapest, since 2008–2009. This was mainly due to the global over-supply of crude oil and the collapse in prices. By the end of November 2016, The Organisation of the Petroleum Exporting Countries (OPEC) reached a deal among its 14 country members to curtail oil production. They (OPEC ministers) decided to implement a production adjustment of 1.2 million barrels per day (bpd), effective from 1 January 2017, in order to prop up its price. This would continue for six months, extendable for another six months, taking into account prevailing market conditions and prospects. Russia (a non-OPEC member) also committed to reducing oil production by 300,000 bpd.

Other factors that contributed to the slight upward movement of international fuel prices in the fourth quarter were the presidential election in USA in November, the ongoing pipeline wars in USA and the political and civil unrest in Nigeria and Libya. The price of Dated Brent crude oil increased by 13% compared to the last three quarters (Q1.2016–Q3.2016).
By the fourth quarter, there was upward movement in MOP prices for mogas, gasoil and jet/kerosene compared to the last nine months. In October, there was a slight increase in the daily MOP fuel prices. On 8 November, the USA held its presidential election and on the following day MOPS prices dropped. By the end of November after the announcement by the OPEC ministers, MOP daily fuel prices began to pick up. At the end of December 2016, mogas, gasoil and kerosene were selling above USD 65/barrel. The price of Mogas 92 increased by 17%, kerosene by 15%, gasoil 10ppm and gasoil 500ppm by 15% compared to the third quarter. For heavy fuel oil, there was a huge increase of USD 7.75 per barrel, or 32%, compared to the third quarter. Noticeably, in the fourth quarter, on average (apart from HSFO), mogas, gasoil, kerosene and Dated Brent were selling above USD 50/barrel due to a higher demand and a stable supply.
Refiners margin compared with Dated Brent

Asian refining margins increased in the fourth quarter compared to the previous quarters. For mogas 97, 95 and 92, prices increased by 21%, 25% and 32% respectively, compared to Q3.2016.

Freight rates

The Clean Tankwire spot freight rates from Singapore to Australia weakened in the fourth quarter in comparison to the last nine months. The average freight rate decreased by 5% from USD 21.13 per metric tonne in the third quarter to USD 20.03 per metric tonne in the fourth quarter. The Singapore-Australia route was assessed at 162.96 worldscale points: a decrease of 5% from the previous quarter. This may be subject to the increasing competition stemming from abundant vessel supply.

Exchange rates

In the fourth quarter Australia (AUD), New Zealand (NZD), Fiji (FJD), Papua New Guinea (PGK), Samoa (Tala), Solomon Islands (SBD), Tonga (TOP), Vanuatu (Vatu) and French Pacific (XPF) currencies depreciated. The lowest Pacific currency against the US dollar in Q4.2016 was the French Pacific XPF, followed by the Vanuatu and Solomon Islands currencies. Throughout 2016, the Euro and the Papua New Guinean, Samoan and French Pacific currencies were at their lowest in the fourth quarter.
Data Sources

2. LPG price is sourced from http://gasenergyaustralia.asn.au/.
3. Prices for diesel, gasoline and jet/kerosene prices are provided by Platts (S&P Global Platts).

Historical reports

Historical fuel and LPG review reports can be downloaded from the SPC PRDR Energy Portal by typing 'price reviews' in the search box of the library: http://prdrse4all.spc.int/list/publication?keys=price+reviews

Abbreviations and glossary

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<td>research octane number</td>
</tr>
<tr>
<td>MT</td>
<td>Metric Tonne</td>
</tr>
<tr>
<td>MOPS</td>
<td>Means of Platts Singapore</td>
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</tbody>
</table>

For further information, please contact Ms Tirisa Wainibalagi, Assistant Petroleum Officer Energy Programme SPC Economic Development Division (tirisaw@spc.int)
Reliability and safety linked to prices of petroleum products in the Pacific

The petroleum sector of the Pacific Island countries and territories is an estimated USD 6 billion industry.

It remains a key driver of their economies and a major determinant of their energy security.

Recognising the need to enhance an understanding of the Pacific petroleum industry and the mechanics of the various factors that influence the prices of petroleum products, the Pacific Community (SPC) in collaboration with S & P Global Platts conducted a week-long (20–24 March) regional petroleum industry workshop in Auckland, New Zealand.

S & P Global Platts is the lead provider of petroleum pricing data in the Asia-Pacific region.

Pacific Island countries and territories rely on Platts as an independent source of petroleum market data and benchmark prices for the verification of price submissions from petroleum companies.

The workshop offered an opportunity to learn more about the use of the publications noting that a small error over millions of litres of fuel can be substantial loss to the consumers.

More importantly, it provided an opportunity to discuss a more cost effective way of accessing these publications with possible fewer restrictions thereby allowing government authorities and major consumers like the power utilities to have direct access to these data and information for their fuel price setting, supply contract negotiations and verification purposes.

A repeat of SPC and Platts 2012 workshop which focused on pricing, this workshop has been expanded to emphasise safety and opportunities for collective regional actions in the petroleum sector. In terms of the latter, an example would be the chance for government officials and the industry to discuss opportunities for a transition to higher quality and cleaner fuels.

Subsidies on fossil fuels can be a barrier to the region’s renewable energy and energy efficiency effort, therefore phasing out subsidies on fossil fuel will be a topic for discussion.

In addition, this workshop was a lead up to the Third Pacific Regional Energy and Transport Ministers’ Meeting in Tonga this month and therefore an avenue for matters raised and discussed to be presented at the ministers’ meeting.

SPC Sustainable Energy Adviser, Rupeni Mario, said, “petroleum is a fast evolving industry and the more opportunities we provide for the industry, governments, major consumers, pricing authorities and regulators to sit together and openly discuss safety, pricing and reliability issues, the better the understanding and outcomes for the consumers.”

“A recent fire incident in Samoa and a fuel shortage at Vava’u in Tonga demonstrated that safety in the industry and reliability of fuel supply are intrinsically linked to the negotiated price and adopted pricing methodology,” Mr Mario, said.

“SPC would like to acknowledge the contributions from Platts, Pacific Energy and Vital-FSM PetroCorp of the Federated States of Micronesia and South Pacific Oil of the Solomon Islands towards this five-day workshop,” he said.

In his opening address, Tonga Electricity Commission Chief Executive Officer, Hon. Lord Dalgety emphasised the importance of petroleum products in the economic and social development of Pacific Island countries and territories.

“Petroleum industry will continue to dominate but the governments of Pacific Island countries and territories, regulators, politicians, consumers need to understand the continuing market and note that there is no one regulatory model, which nations can easily adopt. Each nation must adopt the model they prefer, and fine tune it to their particular requirement,” he said.

South Pacific Oil Board Chairman, Gideon Zoloveke, acknowledged SPC and S & P Global Platts initiative in organising the workshop; bringing experts in pricing, safety, supply logistics and importantly providing a forum for networking on key issues that affect the Pacific Island countries and territories. For more information, please contact:

For further information, please contact Atishma Lal
Project Information Assistant
SPC Economic Development Division
atishmal@spc.int
Joint scoping mission for the Kiribati EU-GIZ ACSE Project:
solar hybrid in boarding schools

Two boarding schools in Kiribati, Alfred Sadd Memorial College on Abemama Island and Mereangi Tabwai Secondary School on Fanning Island (locally called Tabuaeran Island), are recipients of support under the European Union (EU) and German Agency for International Cooperation (GIZ) Adapting to Climate Change and Sustainable Energy (ACSE) Programme. This energy project in Kiribati is being implemented by the Kiribati Ministry of Public Works and Utilities (MPWU) and the Pacific Community (SPC), with additional technical and operational support provided by GIZ and €475,000 funding provided by the EU. The project is assisting the Government of Kiribati to achieve its goal of 100% electricity demand from renewable energy sources in rural and private institutions, including boarding schools, by 2025.

The ACSE project’s main objective is to increase access to reliable and affordable electricity in the two boarding schools. In 2014, eight out of ten existing boarding schools in Kiribati had solar hybrid systems installed, or were in the process of installation. These past projects were funded by the EU-EDF 10 and the Italian Government under its bilateral project – the Kiribati-Italian Renewable Energy Project. The latter also provided nine schools with solar water pumps, which have enabled the school communities to access potable, clean water.

The first scoping mission, to ASMC boarding school on Abemama Island, was carried out by the ACSE project technical team from SPC and GIZ from 30 January to 16 February 2017. The was comprised of the SPC EU-GIZ ACSE Project Manager, Koin Etuati, and GIZ Technical Adviser, Craig Bohm, accompanied by the GIZ In-Country Coordinator (ICC), Takarabu Tofinga. A Kiribati-based project officer is soon to be recruited and will be based with the Energy Planning Unit in MPWU.

The team carried out energy assessments, focussing on the current and future energy demand of the school and its community, while also fully integrating gender needs. The energy and gender assessments would inform the solar PV design of the ASMC solar hybrid system.

The team also conducted a one-day training on energy efficiency and gathered information on how the community can reduce its current energy demand by using more energy-efficient lighting. The schools hope to have 24-hour lighting available for students, so that they can increase their study time and therefore improve their educational outputs.

Another key aspect of the mission was to establish a project governance mechanism. A governance working group for Alfred Sadd Memorial College was formed, tasked with guiding the design and installation of the solar hybrid system, as well as setting rules for its use and, most importantly, maintenance (and thus sustainability). The first meeting of the group was conducted during the visit to the school and the terms of references were discussed and endorsed.

On 2 February 2017, the project was also adopted by the Kiribati National Expert Group (KNEG) as its Project Steering Committee. The Office of the Beretitenti (President) is the focal point of the project and is responsible for facilitation of national stakeholders’ engagement, as well as reporting the project outcomes to its national and regional stakeholders, including the KNEG.

During the mission, the project technical team also visited two solar hybrid systems already installed in boarding schools on Abemama Island; these were at the Chevalier Secondary School (CSS) and the Kauma Adventist Secondary School (SDA). The CSS houses a 24 kW system solar hybrid system and the SDA has a 42 kW system. Both schools were facing challenges with their systems, including limited supplies of distilled water to top up their wet cell batteries. The SDA system was also not fully operational, due to an inverter failure (and lack of distilled water). In addition, CSS was experiencing outages as the electricity usage of staff had increased rapidly in their homes due to ‘energetic’ purchasing of electrical appliances, including freezers, fans, sewing machines and irons. The school’s generator was also not functional and, while parts had been ordered, the lack of a skilled mechanic to repair the generator was delaying its repair and use.

The EU-GIZ ACSE project will consider the experiences from these, and other, boarding schools and solar hybrid installations, and work with Alfred Sadd Memorial College and Mereangi Tabwai Secondary School to design the best way forward to ensure continuous, 24-hour access to electricity in those schools.

The project team will undertake its second joint scoping mission to Mereangi Tabwai Secondary School in March 2017.

For further information, please contact
Koin Etuati, Energy Policy Officer, EDD, koine@spc.int
Craig Bohm, GIZ Technical Adviser, craig.bohm@giz.de
Tarakabu Tofinga, ICC, Office of Beretitenti, tarakabu.tofinga@gmail.com
Solar Power brings new opportunities for sugarcane families

Suva, Fiji – Four hundred remote rural households in Fiji’s sugarcane belt areas will have electricity by the middle of this year, thanks to a European Union funded, Micro Projects Programme (MPP) for clean, green solar power, implemented by the Pacific Community (SPC).

Each of the 400 households in Sigatoka, Nadi, Lautoka, Ba, Tavua and Rakiraki will have lighting and power-points installed. For some, this is the first reliable electricity supply they have had.

Fifty of the 400 households will also be supplied with water pumps and five households with freezers, powered by the new solar equipment. The solar photovoltaic (PV) systems consist of solar modules (panels), sealed lead-acid batteries, inverter(s), portable lamps and other accessories that capture sunlight and convert it to power.

SPC Deputy Director-General (Suva), Dr Audrey Aumua, said energy poverty, including access to electricity, is one of the most important obstacles to social and economic development of the rural, remote and resource poor communities.

"The high costs of fossil fuels can account for up to 25 per cent of average rural incomes making conventional energy increasingly unaffordable for the poor," Dr Aumua said.

The MPP is one of a number of EU funded projects being implemented by SPC in Fiji’s sugarcane-belt areas, all working to boost productivity and improve the livelihood of those whose income is built around sugarcane farming.

The five households receiving freezers and the fifty being supplied with solar powered water pumps are in Sigatoka, Nadi, Lautoka, Ba, Tavua and Rakiraki. They have been selected for the additional support because they demonstrate existing income-boosting potential.

Some households already supplement their sugarcane income with other agricultural produce such as seasonal vegetables, root crops and fruits. Their access to solar water pumps will enable these farmers to keep their produce irrigated and increase their production. Farmers located near coastal areas who are engaged in fishing for extra income will also have access to freezers to store their fish.

"Access to clean, and renewable energy will enhance their quality of life by improving conditions for income generation and diversification beyond sugarcane farming. Importantly, this has broader positive impact on public health, education, environmental protection and conservation," Dr Aumua explained.

In addition to the rural electricity initiative, the project offers Income Generation and Livelihood training to support the capacity of farmers to assess their income opportunities.

Each household will get basic training on the operation and maintenance of the solar home systems. A user manual, selected spare-parts and basic tools are provided with the system.

The SPC Rural Electrification Team hope to have the new solar home systems online for the farming families by the middle of the year - weather permitting. Installation work is underway now on selected farms that supply the Lautoka and Rakiraki mills.

The FJ$10 million EU funded Fiji Micro Projects Programme (MPP) was redesigned in May, 2016, to assist Fiji in implementing a medium to long-term response following the impact of TC Winston.

Rural electrification and specifically “Improved access to affordable electricity and increased income generating opportunities” is one of the two key result areas of MPP. Improved access to safe and disaster resilient water supply, sanitation and hygiene facilities and practices” is the programmes second key result area.

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Energy Programme
SPC Economic Development Division
makeretal@spc.int
Small Energy Projects Programme (SEPP)

The continuous lack of access to better services such as education, electricity, transport, water and health care remains a challenge and hinders development, especially for rural communities in the Pacific region.

In terms of access to electricity, Papua New Guinea, Solomon Islands and Vanuatu are the most disadvantaged Pacific Island countries (PICs), as electricity was accessible to only about 22% of the population in 2015. From a regional development perspective, these countries appear to lag behind. The estimated electrification rate connected to the grid stands as low as 17% in Papua New Guinea, 9% in Solomon Islands and 27% in Vanuatu and it is estimated that, in 2015, 3% of households in Papua New Guinea, 34.2% of households in Solomon Islands and 5.3% of households in Vanuatu had access to off-grid electricity.

In supporting the three partnerships launched by SPC at the 3rd International Small Island Developing States (SIDS) conference in Samoa in 2014, SPC provides a small discretionary support for the Small Energy Projects Programme (SEPP). Six projects were approved for the Small Energy Projects Programme funding for 2015/2016. Four of these projects are described below.

Two solar projects were implemented in Solomon Islands. One was at the Hulavu Conference Centre in Hulavu village in the west of Guadalcanal Province. The village has a population of approximately 400 people, or 70 households. In partnership with the Honiara-based West Guadalcanal Constituency Association, the Department of Energy, and Superfly Limited, the centre was installed with a 610 Watt solar system, which provides power for lights, general power points, freezers and fans.

The Hulavu Conference Centre is managed by the women’s group and enjoys a very good reputation. It hosts meetings and workshops for research institutions and government organisations. Its new freezer allows the centre to generate additional income through the sale of frozen goods and storage of fish to its community and nearby villages. The Hulavu women are confident that the centre is a good model of using renewable energy for productive use in Solomon Islands.

The other solar energy project provided support for the installation of a 1 kilowatt stand-alone solar system at the Taroniara St. Claire clinic located in the Central Province of Solomon Islands. The clinic serves more than four thousand people in 15 small villages and four big villages. The solar system serves as a back-up for power generation at the clinic, which can now provide better health services. Importantly, with the new freezer, it can now store vaccines and other medications that need to be kept at a specific cool temperature. In addition, the solar security lights provide a secure space in the clinic vicinity for women and girls who are waiting for boat transport to travel to Honiara. The project was implemented in partnership with the Anglican Church of Melanesia, the Department of Energy, and Superfly.

The other two SEPP projects promote the efficient cooking for improvement of livelihoods in Kiribati and Tuvalu. Both projects are implemented by the Cooking for Life partnership. The projects promote access to clean cooking fuel, efficient technologies, and a clean cooking environment through the use of liquefied petroleum gas (LPG) stoves and biomass-efficient stoves. The partnership comprises the Kiribati Gender and Climate Coalition, the Fanau Niutao Funafuti Association, the Energy Planning Unit, and SilverFire. One hundred and ten households were selected in South Tarawa and Funafuti to pilot the improved biomass stoves, and 100 households in South Tarawa and 50 households in Funafuti will pilot the LPG kit.

The SEPP projects have demonstrated that access to modern energy can dramatically affect human development. The projects have provided energy services that have improved education, health care, safety and security for vulnerable members of communities. They have also encouraged economic production, and improved livelihoods in the rural communities of Melanesia and the urban centres of Kiribati and Tuvalu.

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1 SPC 2009 Country Energy Profile.
2 Six approved SEPP projects: SI – Hulavu Conference Centre, Taroniara clinic solar project; PNG – Faseu Micro Hydro Scheme Rehabilitation Project; Kiribati – Efficient cooking for the improvement of livelihoods in Kiribati, Tuvalu – Efficient stove and cleaner cooking fuel in Tuvalu.
Life jacket manufacturer and Sunergise find a new way to save

Managing Director Mike Towler founded the company 24 years ago, and has built PFD into a significant player in the sportswear sector — exporting in excess of 250,000 lifejackets per year. 'I like to say our products are Made in Paradise,' he jokes. Working with raw materials — webbing, foam, fabric — his team of 230 cuts, sews, fabricates, packs and ships out of the Suva plant.

'If you are an ocean sports enthusiast — boating, paddling, water skiing or kite surfing — chances are good that you have worn a product from Performance Flotation Developments (PFD). Fiji-based PFD is one of the Pacific region’s major manufacturers of lifejackets, and the fabrication engine behind several well-known retail brands.

'Verifying ahead of the market requires constant innovation in our designs and processes. Our customers want top quality at affordable price levels,' adds Mike. PFD’s latest manufacturing foray is the integration of solar energy into their energy portfolio. 'Energy is among our top operational expenses after raw materials and labour. Individually, sewing machines are modest energy users, but we have a lot of them, and their consumption adds up. Other major loads come from our larger machines like a rotary press, for sublimation of sports clothing, and tunnel ovens for curing ink. We are continually seeking to improve our energy efficiency and lower costs.'

On the origins of his idea to adopt solar energy, Mike recalls, 'I’ve always thought about the fact that we get sun and rain for free, and we ought to take advantage of those resources. Serious thought about integrating solar into our manufacturing came after a presentation by Sunergise at the Fiji-Australian Business Council meeting a few years’ back. They offer a unique commercial model for solar integration that perfectly matched our needs.'

PFD’s 147 KW rooftop solar system from Sunergise was launched in February 2016. The grid-connected solution consistently pumps out nearly 45% of the factory’s energy consumption, with a corresponding huge reduction in the monthly utility bill.

Sunergise Fiji Director Ajay Raniga observes, ‘We are seeing strong demand for solar from several of the manufacturing sectors — textiles, agriculture, the beverage industry. They are energy-consuming industries with common goals of maximising shareholder returns while strengthening brand integrity. Solar is an obvious solution to streamline costs and build a brand platform.’

With savings in hand, Mike is now thinking about the bigger picture. ‘Our end-users are generally people who appreciate the outdoors and are conscientious about the environment. Knowing that our products are produced in a sustainable way could help build loyalty and satisfaction. We are looking for ways to get the solar message out through our retail partners.’

Asked for parting advice, Mike’s tip to other manufacturers is, ‘If the sun is shining, then don’t wait for tomorrow, get started today. Solar is an easy way to save.’

For further information, please contact

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PFD solar Array

PFD production
Vanuatu Rural Electrification Project benefits remote communities

Like many Pacific Island countries, Vanuatu is a dispersed nation, with islands scattered across vast distances and many remote communities not having access to electricity. That is about to change. In 2014 Vanuatu launched its Rural Electrification Project, with assistance from the World Bank and the Government of New Zealand, in order to provide electricity for remote areas of the country.

During a recent visit to the region, Victoria Kwakwa, World Bank Vice-President for East Asia and the Pacific, was able to see first-hand the positive impact the project is having.

Pang Pang Village is a remote community on the coast of Efate Island, about 45 kilometres east of the capital, Port Vila. It was here that Victoria met local resident Lina Bae, previously one of the 75 per cent of the population who had never had access to electricity. Through the project, Lina was able to purchase a solar power kit, allowing her to light her home and charge her phones and other mobile devices.

After displaying her new solar lighting system, Lina explained how in the past they relied on dangerous kerosene lamps and candles for light. Today she is happy that her children are able to read and study in the evenings after school, and feels content to leave a light on all night for her young children's safety.

The Government of Vanuatu has set a target of 65 per cent power generation from renewable energy by 2020 to increase energy security and fight climate change. With this project, 17,000 households throughout Vanuatu will be supported to access non-grid, renewable electricity through solar power.

With low population densities and large distances between communities, a key challenge for the project has been providing access to electricity in a way that is cost-effective and efficient.

To do this, the project is subsidising 50 per cent of the cost of solar power systems for families. Community-operated and managed health posts and not-for-profit community halls also have access to subsidies to purchase solar systems. Initially, the project is focusing on solar power systems that are ‘plug and play’ – installed easily by the owner and requiring little to no maintenance other than replacing batteries. These systems provide lighting and phone charging capabilities, with some systems able to support other uses, such as radios and small televisions.

The solar kit used by Lina Bae.
At the same time, the project is helping eligible low-income families to access the main electricity grid through subsidies of up to 80 per cent of the cost of household connection and wiring – making electricity access a reality for more than 4,000 of Vanuatu’s lowest-income families.

Back in the hot, humid village of Pang Pang, Victoria Kwakwa reaffirmed the World Bank’s commitment to working with the Government of Vanuatu to increase people’s access to electricity. The government’s overall goal is to provide 90 per cent of Vanuatu’s population with access to electricity by 2020, and this project is an important step in that process.

To support the government’s goal, the World Bank is working with the Scaling-Up Renewable Energy Program under the Climate Investment Fund and the New Zealand Government. The programme will scale up the rural electrification project and supply larger solar home systems, micro-grids and mini-grids, with an overall investment of USD 35 million, to achieve an access target of 85 per cent.
Energy audit has potential in Vanuatu

The escalating price of imported fuel has placed a substantial burden on the average urban household and on public and private institutions in Vanuatu, while the government tries to meet its economic growth goals. Despite Vanuatu’s potential for hydropower, solar power, wind power and available geothermal resources, the utilisation of these renewable energy sources has yet to be fully explored.

The objective of the Promoting Energy Efficiency in the Pacific (PEEP Phase 2) project was to implement energy efficiency measures in order to reduce energy consumption in the residential, commercial and public sectors, as well as reduce fossil fuel imports, thereby achieving total energy savings and reducing greenhouse gas emissions.

In this context, PEEP Phase 2 conducted energy audit training in Port Vila and equipped the Department of Energy (DoE) with electrical devices and guidelines for awareness raising purposes.

In 2016, the Northern District Provincial Hospital (NDPH) located in Luganville, Espiritu Santo, requested assistance from DoE as they reported high electricity costs, averaging over VT 1.5 million (approx. USD 13,500) per month. After an audit, DoE staff replaced most of the lighting installations with energy-efficient fluorescent tubes supplied by PEEP Phase 2, and NDPH saved exactly VT 1.5 million (approx. USD 13,500) over the first three months.

NDPH’s Medical Superintendent, Dr Andy Ilo, who worked alongside staff of DoE during the energy audit, explained. ‘Being a large consumer of electricity, our hospital has always struggled to control the consumption and expenditure on electricity without compromising patient care. We tried several internal measures to cut our electricity expenses but without much luck, and it wasn’t until I spoke to a local consultant that I was directed to the Department of Energy. After we covered the cost of bringing the DoE officers to conduct the audit, VT 50,000, we are pleased to say it has been extremely rewarding!’

NDPH General Services Manager, Ms Gerrolyn Tagaro, confirmed that since implementing some of the recommendations of the energy audit in July 2016, an average of VT 500,000 (approx. USD 4,700) has been saved each month.

Numerous recommendations put forward in the energy audit report prompted the NDPH management into action. NDPH staff were reminded about energy efficiency habits and took every opportunity to save power.

Since the energy audit, NDPH has made palpable progress in improving hospital services and in this age of climate change and limited resources, being energy-efficient has made a lot of sense.
All the best

Antony Garae

The readers of Pacific Energiser newsletter would like to extend their best wishes to Mr Antony Garae, Director of Vanuatu Department of Energy, who will be pursuing one year Masters in Engineering-Power and Energy System at the Auckland University of Technology, Auckland, New Zealand. Antony will be finishing off his studies in June 2018. All the best with your studies Antony, Vanuatu and the region will be awaiting for your valuable contributions.

Farewell

Anare Matakiviti

The International Union for Conservation of Nature (IUCN) Oceania Regional Office recently farewelled Mr Anare Matakiviti. Anare joined the Oceania Regional Office in 2008 as Energy Programme Coordinator. The IUCN Energy Programme had begun with funds given by the Government of Italy for a regional energy programme entitled Pacific SIDS Energy, Ecosystems and Sustainable Livelihood Initiative (PSIDS EESLI) and the project was entitled “Managing the Ecosystem Implications of Energy Policies in the Pacific Islands”. Italy was later joined by the Government of Austria. Together they funded projects in six initial countries namely Palau, Marshall Islands, Samoa, Tonga, Tuvalu and Vanuatu. Under Anare’s leadership, the programme was extended to a Phase II in 2013 with the governments of Luxembourg and Spain joining Italy and Austria. In addition to the initial six countries, Fiji, Papua New Guinea, Kiribati and the Federated States of Micronesia joined the IUCN PSIDS EESLI programme. When Anare retired in December 2016, the IUCN Energy Programme had comprised four staff looking after the ten countries. Anare wants to spend more time with his people in Natewa and IUCN extends its well wishes.

IUCN launches 2017 Energy Small Grants Programme

The International Union for Conservation of Nature (IUCN) Oceania Regional Office launched its 2017 Call for Proposals for its Energy Small Grants Programme in late March (25 March). Applications for funding will remain open until 1 June 2017.

IUCN Oceania’s Energy, Ecosystems and Sustainable Livelihoods Initiative (EESLI) has been funding renewable energy and energy efficiency development in 14 Pacific Island Countries through a multilateral agreement with the Governments of Austria, Italy, Luxembourg, and Spain since 2008.

The Energy Small Grants Programme will provide funding of up to US$20,000 for renewable energy & energy efficiency based projects in any of the participating countries, which currently include Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

IUCN Oceania extends an invitation to communities, civil society organisations, and private enterprises seeking to safeguard biodiversity and create nature-based solutions to pressing development issues throughout the Oceania region to ensure a better future for all to apply for this fund.

Projects must demonstrate a particular focus on renewable energy systems, energy efficiency improvements, and sustainable land & sea transport initiatives. These priority areas should be coupled with strong linkages to biodiversity/ecosystem conservation. Cross-cutting impacts upon other sectors will be taken into account, such as the inclusion of marginalised groups; women, children, disabled persons, and the elderly, or positive benefits for other sectors such as gender equality, health, education, food and water security, and disaster resilience.

The application form is available below: https://www.iucn.org/sites/dev/files/sgp_application_form_24.03.2017_final.pdf

For further information, please contact
SmallGrantsOceania@iucn.org
or Andrew Irvin, Energy Programme Officer
Andrew.Irvin@iucn.org
American Samoa annual spill drill and exercise

The Pacific Energy SWP Limited Terminal Operator in conjunction with the American Samoa Petroleum Cooperative, the Office of Petroleum Management and the Clean Islands Council have scheduled annual OPA 90 (Oil Pollution Act 1990) spill drill and exercise from Tuesday 25 to Friday 28 April.

For those who intend to participate in this training can contact: Sione Lotolua Louisale kava, Office of Petroleum Management & American Samoa Petroleum Cooperative, Petroleum Officer on email captain_kava@hotmail.com or Nicholas King, Pacific Energy SWP Limited Terminal Manager on +684 2587233 or +684 6334101. Here are some pictures from 2013 OPA 90 spill drill and exercise.
## Pacific Energiser events calendar

(April–September 2017)

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<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Responsible agencies</th>
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<tr>
<td>18–21 April</td>
<td>Energy database discussion</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC</td>
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<td>24–28 April</td>
<td>Third Pacific Regional Energy and Transport Ministers’ Meeting</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC and Tonga Government</td>
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<td>26 April</td>
<td>Inauguration of the Pacific Centre for Renewable Energy and Energy Efficiency</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC and Tonga Government</td>
<td>Solomone Fifita</td>
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<td>24–28 July</td>
<td>CRGA 47 and Pacific Community Conference</td>
<td>Noumea, New Caledonia</td>
<td>SPC</td>
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<td>4–8 September</td>
<td>Pacific Island Forum Leaders Meeting</td>
<td>Apia, Samoa</td>
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