In this issue:

LEADERSHIP, GOVERNANCE, COORDINATION
AND PARTNERSHIPS
Unutoa Auelua Fonoti appointed new regulator ..........4

CAPACITY DEVELOPMENT, PLANNING, POLICY
AND REGULATORY FRAMEWORKS
Efficient lighting strategy for the Pacific ......................5
EU PacTVET Inception Workshop a success ..................7
Needs and Gaps of the Pacific Island Countries ............8
Companies responsible for American Samoa oil spill fined USD 1 million .................................................9

ENERGY PRODUCTION AND SUPPLY
(PETROLEUM)
Second quarter 2015 Oil Market Report
(April–June) .................................................................10
Pacific fuel price monitor ..........................................14
Focusing on dangers at petrol stations ........................30

ENERGY PRODUCTION AND SUPPLY (RENEWABLE
ENERGY)
Kiribati and Tuvalu on the way to achieving their clean
energy targets ..............................................................33
Funafuti rooftop solar energy project completed ........35

PACIFIC ENERGY EVENTS CALENDAR
(JANUARY – NOVEMBER 2016) ..............................36

Disclaimer: While all care and diligence has been used in extracting, analysing and compiling information for this publication, SPC gives no warranty that the information is without error.
Bula everyone,

It is the last issue of your Energiser for another year, and we are just thankful to have come this far, 5 years and a total of 19 issues. Thanks to all your kind assistance and contributions.

The last quarter of the year has not been short of exciting news, in particular, the region’s preparations leading to the 21st Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC). The pivotal role of energy sector has again been highlighted in the high level meetings leading up to the COP.

The Polynesian Leaders Group Taputapuātea Declaration called on State parties to the UNFCCC to help them come out of their energy dependency through the provision of technical and financial means for energy transition and prioritise investments in energy saving, energy efficiency and renewable energy production.

The Suva Declaration on Climate Change called for an integrated approach to transitioning Pacific countries to low carbon transport futures, in particular, sea transport given its central role in providing connectivity for Pacific Small Island Developing States, including a regional strategy to advocate for and monitor implementation of sector targets through relevant UN agencies commensurate with the 1.5 C threshold. It also called for a new global dialogue on the implementation of an international moratorium on the development and expansion of fossil fuel extracting industries, particularly, the construction of new coal mines, as an urgent step towards decarbonising the global economy.

In the Hiri Declaration regarding Strengthening Connections to Enhance Pacific Regionalism, leaders recognised that their shared quest for greater energy security and energy accessibility for all is vital to promote connectivity.

As part of the preparations for COP 21, the 14 PICs who are parties to the UNFCCC submitted their Intended Nationally Determined Contribution and these contain each countries’ planned greenhouse gas reduction target, which are mostly in the energy sector.

An agreement was reached in Paris and we are extremely proud of the stellar effort of our Pacific Leaders and all those that stood alongside and supported them. One of the key implications of the Paris Agreement would be the need for an overhaul of the global energy system and to accelerate the existing effort to transform from fossil fuel to one based on renewable energy and energy efficiency. Energy Ministers from around the region have endorsed the establishment of a centre of excellence on renewable energy and energy efficiency as a key vehicle for this transformation. With the strong support of UNIDO, the Austrian government, SIDS Dock and many other supporters the Pacific Centre for Renewable Energy and Energy Efficiency or PCREEE will join a global network of similar centres in other SIDS and regions of the world.

We look forward for the establishment of the PCREEE in 2016 but until then, we all deserve a well-earned break. Here’s wishing you and your loved ones all the joys of Xmas and the best of the year ahead of us.

Malo ‘Aupito

Solomone Fifita
Deputy Director (Energy), SPC
Unutoa Auelua Fonoti Appointed New Regulator

At the end of September, the Samoan Cabinet confirmed Ms Unutoa Auelua Fonoti as the newly appointed head of the Office of the Regulator. The Regulator leads the office in regulating the country’s telecommunications, broadcasting and postal sectors.

Ms Fonoti will take over from Mr Donnie De Freitas, who left earlier in the year. Fonoti’s appointment is unique for Samoa. Where her predecessors were all foreigners, Fonoti will be the first Samoan to fill the post. Fonoti is not new to the Office of the Regulator (OOTR), holding the position of Manager - Spectrum and Technical Service since 2009.

Fonoti graduated with a Bachelor’s Degree in Engineering (Engineering Management) from Melbourne University and a Master’s Degree in Engineering (Electronics) from Queensland University, Australia. Her subsequent career began in television and radio broadcasting from 1998 until 2008 as a Principal Engineer for Samoa Broadcasting Corporation. She later worked as an Engineering Maintenance Coordinator for the Foster Group Samoa Breweries Ltd. In her new role as Regulator, Fonoti is a Chartered Professional Engineer (CPENG) and a council member of the Institute of Professional Engineers of Samoa (IPES).

During her time as Regulator, she will focus on the creation and facilitation of a regulatory framework that will protect consumers in the sector, whilst simultaneously encouraging further investment in the sector. The OOTR’s mantra, “provision of universal service and introduction of innovative services at affordable costs” will guide Fonoti in the mission to assume a further successful responsibility for the remaining utility sectors.

The appointment of Fonoti was confirmed by Lautafi Fio Purcell, Minister of Public Enterprises, in his capacity as the Minister of Public Service Commission (PSC). Upon request for comments on her new appointment, Fonoti said she was not in a position to comment on it and referred to Tu’u’u, Chairman of PSC, or the Minister for further comments.

The Pacific Community (SPC) congratulates Unutoa Auelua Fonoti and wishes her a fruitful and successful career.

For more information:

Samantha Naidu
Research and Information Assistant
Research and Information, EDD, SPC
SamanthaN@spc.int
Efficient Lighting Strategy for the Pacific

Measures outlined in the first ever Pacific Efficient Lighting Strategy (PELS) for the region’s transition to high efficiency and environmentally-sound lighting by 2020, will reduce its electricity consumption for lighting by 36 per cent per year, save the region over US$ 1.7 billion and reduce greenhouse gas emissions by 4.6 million tonnes by 2030.

The Pacific Island Countries and Territories (PICTs) suffer disproportionately from the adverse consequences of climate change. Therefore, despite their relatively minor influence on climate change, it is critical that they make a significant effort in terms of energy conservation and efficiency – both to contribute to (and thus encourage) global efforts to stabilise greenhouse gas (GHG) concentrations, and to increase the resilience of the island communities to the effects of the changing climate by strengthening them economically.

Lighting, which accounts for 18% of household electricity consumption used by PICTs, is a key end-use sector that can be targeted to address these goals. The most advanced technologies, light emitting diodes lamps and smart control systems, can reduce electricity consumption attributed to lighting by more than 50%. Improving the energy efficiency of lighting will therefore result in measurable GHG emission reductions and energy cost reductions for consumers, as well as significant economic and livelihood improvements for the vulnerable island populations. In addition, for PICTs that are confronted with issues of electricity supply shortages and constraints in transmission and distribution networks, increasing the energy efficiency of lighting is a cheaper and faster solution than adding more power plants or reinforcing the grid.

To this end, the Pacific Community (SPC) and the United Nations Environment Programme - Global Environment Facility en.lighten Initiative, with financial and technical support from the Australian government, have coordinated the development of the first ever Pacific Efficient Lighting Strategy (PELS) to guide the region’s transition to high efficiency and environmentally-sound lighting by 2020. The PELS development process benefited significantly from the awareness raised and policy development initiated under the Pacific Appliance Labelling and Standards (PALS) programme funded by the Australian government and implemented by SPC.

The PELS was validated by representatives from nine PICTs at a dedicated workshop in Nadi, Fiji in August 2015, and it will be submitted for approval during the Pacific Energy Advisory Group meeting in November 2015.
To ensure an effective and self-sustaining transition to efficient lighting in PICTs, the PELS presents a cohesive set of national and regional actions for on-grid and off-grid lighting, targeting lighting end-uses in residential, commercial and government buildings, as well as street and outdoor lighting. It recommends a structured, three-phase approach, which takes into account the uneven development status of the institutional and regulatory frameworks required to support efforts to phase out incandescent lamps and promote efficient lighting in each participating country.

During Phase I, between 2016 and 2017, the PELS concentrates on building strong foundations for a lighting transition, through establishment of supporting regulatory frameworks, product registration and database systems, and development of recommended measures for sectoral lighting improvements in each participating country. Phase II, between 2017 and 2018, will focus on the implementation of the efficient lighting activities and measures recommended in Phase I, and Phase III, during 2019 and 2020, will focus on efforts to harmonise and enhance the effectiveness of efficient lighting programmes in PICTs.

It is estimated that implementation of PELS at the regional and national levels will require a budget of approximately US$ 5.8 million. It is hoped that around 65% of this proposed budget will be secured from international and bi-lateral donor agencies and development banks to support technical assistance, direct expenses for regional activities and seed funds for financial mechanisms and demonstration projects. The remaining 35% will be in-kind and cash contributions from PICTs for implementation of relevant in-country activities.

Speaking after the validation workshop, the Tongan representative, Mr. Kakaumoeloa Foliaki, Energy Officer, and the PELS National Coordinator, at the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications offered an insight on the expectations of the region, “The development of PELS is an important initiative for Tonga and the Pacific Island Countries as it provides a stepping stone towards minimising the prevalent use of inefficient lighting technologies that are flooding the local market. From a national perspective, the PELS provides a door of opportunity to enhance energy security, accessibility and affordability for the people of Tonga. The PELS itself offers a win-win solution for lighting and I’m hopeful that this strategy will expand at a later stage to cover other sectors (such as buildings and transport) and also attract funding.”

For more information:
Makereta Lomaloma
Programme Manager
PALS and PELS Programmes
Economic Development Division, SPC
MakeretaL@spc.int
EU PacTVET Inception Workshop a success

Fifteen Island delegations met in Suva last week for a two-day European Union (EU) Pacific Technical and Vocational Education and Training (PacTVET) inception workshop. Delegations discussed areas in which their vocational education sector could use some assistance in strengthening climate change adaptation and the development of sustainable energy in the region.

Jointly implemented by the Pacific Community (SPC) and the University of the South Pacific (USP) in partnership with the European Union (EU) the project is working to develop recognised accreditation in the vocational education sector, particularly in the interest of strengthening climate change adaption and supporting the development of sustainable energy in the region.

Dr Sarah Hemstock, EU’s PacTVET Project Team Leader, said that the two-day workshop was organized to help all Pacific Island countries work out their priority areas. “We are putting in competencies, accreditation and programs that will benefit all 15 countries,” she said.

Delegations presented their findings from their in-country consultations on the gap analysis and training needs assessment under the PacTVET Project.

These presentations focused on each country’s TVET qualification frameworks, curricula and accreditation guidelines together with training needs and potential programmes, the key stakeholders and the challenges that the countries face.

Dr Richard Wah from Fiji Higher Education Commission stressed the importance of a graduate profile in their accreditation process.

“We are very particular that the programs we put together have a graduate profile. This means that at the end of every study program, the student should clearly know what they can do, how they can do it and who they are,” he said.

Each delegation selected a priority area to present. Some of the common areas in sustainable energy that these 15 countries highlighted were the training and upscaling of staff in the vocational sector, installations of solar photovoltaics and balancing traditional, modern knowledge, food and water security in regards to climate change.

Dr Hemstock said in her closing remarks that they had received a list of priorities, but solar and project managements were key issues, and that there was agreement to follow the Pacific qualifications framework.

“If we can deliver the courses that you want in line with your national accreditation scheme and with the Pacific qualifications framework, people can build their skill sets at any of the institutions, and it will lead to a regional qualification,” she added.

Dr Hemstock said that they would work on devising national plans whereby a work plan will be developed for each country, based on their priorities.

The implementation process is scheduled to begin in January 2016, before which the National Plans are to be completed. The EU PacTVET project commenced in August 2014 and is a component of the EUR 35 million, “Adapting to Climate Change and Sustainable Energy (ACSE) Programme” funded under the 10th European Development Fund (EDF 10).

Countries under the project include: Fiji, Cook Islands, the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu.

Partners under the ACSE include: the European Union, the Pacific Islands Forum Secretariat, the Pacific Community (SPC), the University of the South Pacific (USP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the Asian Development Bank (ADB) and representatives from New Zealand’s Ministry of Foreign Affairs and Trade.

For more information:
Sharol Kondiya and Abishek Chand
University of the South Pacific.

Sarika Chand
sarika.chand@usp.ac.fj
Needs and Gaps of the Pacific Island Countries

Fifteen Pacific Island countries assembled at the Holiday Inn Hotel in Suva from 8-9 October 2015 for the European Union (EU) Pacific Technical and Vocational Education and Training (PacTVET) meeting. From consultations that were held in-country under the PacTVET project, countries were able to share their gap analysis and training needs assessments.

Many of these countries had similar gaps and needs in the areas of sustainable energy (SE) and climate change adaptation (CCA).

Other major but similar issues raised by the Pacific Island delegations were the need to upscale technical trainers; prioritise solar energy developments; build capacity on renewable energy; improve food and water security; and to find the balance between traditional and modern knowledge.

Training stood out as a common and crucial need in several areas, such as engineering skills, government staff, maintenance of existing technologies, data collection, project management and certified electricians.

The areas of priority in climate change were food and water security. Workers with expertise in food security, management skills and technical skills are needed in Pacific Island countries. Papua New Guinea, for instance, suggested including SE and CCA in the existing modules of the TVET curriculum.

Timor-Leste is a small developing island that is also part of the 15 Island countries in the forum, whose delegates raised issues regarding soft skills. They proposed that soft skills such as gender sensitivity, should be included in the training together with watershed management training, which is vital to achieve climate change adaptation.

As one of the Pacific Island countries with the largest population, Papua New Guinea brought forward the need for stakeholders, like the education department, to take ownership of the project, and the need for more technical training centres and trainers.

“Sustainable energy and climate change adaptation are top priorities for Pacific countries and the EU. The partnership with SPC and USP is the best way to build TVET capacities and provide the technical expertise for the countries to deal with these challenges in the long term,” said Mr. Jesús Laviña, Acting Head of Cooperation of the EU Delegation for the Pacific.

The objective of the project is to enable the 15 Pacific Island countries to have sustainable livelihoods with initiatives such as building capacity for technical expertise and responding and adapting to climate change and sustainable energy challenges.

For more information:
Sharol Kondiya and Abishek Chand
University of the South Pacific

Sarika Chand
sarika.chand@usp.ac.fj
Companies responsible for American Samoa oil spill fined USD 1 million

Oil spills in the marine environment can have a wide-spread impact and long-term consequences on wildlife, fisheries, coastal and marine habitats, human health and livelihood. The effects can be especially devastating for Pacific Island communities that rely heavily on the ocean and its resources, while clean-up cost can also be very high. A recent incident in American Samoa highlights those risks.

On 17 October 2014, a collision occurred between two fishing vessels at the main dock in Pago Pago Harbour. One of the operators failed to control his vessel as it lost power due to an electrical fault. In his efforts to avoid hitting the dock, the operator slammed into the bow of another vessel causing an oil spill into the ocean. Strong winds caused the leaked fuel to spread throughout much of the harbour within a short time. The oil spill was eventually dealt with by the United States Coastguard, but not before the damage was done.

The serious nature of the incident and high cost of dealing with it was demonstrated on 29 October 2015, when the US Justice Department handed down a fine of USD 1 million to the owners of the fishing vessel that caused this incident. The owners, Tri Marine Management, Tri-Marine Fishing Management and Cape Mendocino Fishing agreed to pay the fine and carry out inspections in their fleet to prevent such an incident from occurring in the future.

The Pacific Community (SPC) recognises that it is essential for Pacific Island countries and territories (PICTs) to recognise, understand and mitigate against the risks associated with the importation, handling and storage of petroleum fuels. These are potential pollutants in a marine setting and on environmentally fragile islands.

The SPC Petroleum Advisory Services (PAS) provides PICTs with technical assistance, including carrying out petroleum industry reviews, assessments of service stations and bulk storage site compliance with industry accepted standards. PAS also provides training of PICT officials and identifying suitable dangerous goods auditors from credible organisations, such as WorkSafe New Zealand for carrying out safety audits of fuel storage sites.

To promote hands-on training for PICT officials and industry participants on dealing with incidents as they occur, PAS has also coordinated participation of PICTs in oil spill training, such as that organised by the American Samoa Government Office of Petroleum Management jointly with Clean Islands Council Hawaii, which was held in April 2015.

For more information:

Sione Lousiale Kava
Petroleum Officer
Office of Petroleum Management
American Samoa
captain.kava@hotmail.com

Samantha Naidu
Research and Information Assistant
Research and Information, EDD, SPC
SamanthaN@spc.int
Second quarter 2015 Oil Market Report

(April–June)

The price of Dated Brent rebounded in April by USD 3/bbl to average at USD 60.93/bbl. The increase was supported by easing supply with higher demand from peak US driving season. In addition, continued conflict in places such as Yemen and Iraq added increased risk and uncertainty that led to higher oil prices. In comparison to the first quarter of 2015, the price of Dated Brent crude in the second quarter of 2015 increased by USD 8.51/bbl from USD 54.99/bbl to USD 63.50/bbl.

*Note: Platts lowered the sulfur specification of its flagship Singapore Gasoil assessment to Gasoil 500 ppm (from Gasoil 5000 ppm) on 2 January 2013, which explains why gasoil 500 ppm and gasoil prices are the same from 2 January 2013.

The Asian petroleum products moved in an upward trend during April due to limited supply amid heavy demand. The Asian gasoline price increased as a result of steady demand from Indonesia, as well as due to strength in the US gasoline market. The Asian gasoil market firmed as a result of spot demand from Sri Lanka and Vietnam. Asian refining margins weakened in April due to increasing inflows within the region that outweighed the strong regional gasoline and middle distillate demand in several Asian countries, causing refinery margins to fall.

Crude oil prices were recovered in May from the low levels witnessed at the beginning of 2015. Dated Brent averaged more than USD 62/bbl in May due to stronger seasonal demand for petroleum products and decrease in US supply inventories. Meanwhile, Asian margins strengthened on the back of higher regional demand amid decreasing supply, which was further exacerbated by heavy refinery maintenance in the region.

The Asian petroleum product market strengthened during May due to strong regional gasoline and middle distillate demand. The Singapore gasoline prices moved in an upward trend during May on the back of strong regional demand with increasing consumption being reported from India, Indonesia and Pakistan. Demand for gasoil and jet fuel/kerosene, along with ongoing regional turnarounds, eased the supply overhang causing price to increase. The gasoil market was further supported by expectations of growing requirements from Saudi Arabia, from seasonally higher demand over the upcoming summer period, and from Australia, as refineries there were under maintenance.
The price of Dated Brent in June fell by 2.81% on expectations of slowing refinery demand after an unexpected build up in product inventories. Asian margins retained the strength they gained the previous month, as regional demand continued lending support to the market amid heavy refinery maintenance.

The Asian petroleum product market exhibited mixed performance during June where gasoline continued to strengthen on the back of strong regional demand while the middle and bottom of the barrel weakened. The Singapore gasoline price continued its upward trend during June on the back of strong regional demand with increased buying interest from Sri Lanka, Vietnam, Thailand, India and Indonesia, and with higher requirements also being reported from North Africa and East Africa. At the middle of the barrel, price of gasoil decreased due to pressure from the supply side, with some refineries coming back from maintenance.

Refiner margins indicate that motor gasoline margins are far outperforming middle distillates, indicating that fundamental supply imbalances persist. This could drive prices lower in the coming months.
Freight rates

Freight rates strengthened in the second quarter in comparison to the previous quarter. The average rate for the quarter stood at around 180.60 WS, an increase of close to 2.40%, compared to the previous quarter.
Exchange rates

All major currencies depreciated against the US dollar during the second quarter 2015 while the Samoan tala remained relatively stable.

Source:

- The report has been generated using data and information from Platts Asia-Pacific/Arab Gulf Marketscan and Platts Clean Tankerwire.
- Organization of the Petroleum Exporting Countries (OPEC) monthly reports were also sourced for information.

For more information:

Pritanshu Singh
Assistant Petroleum Officer
Economic Development Division
PritanshuS@spc.int

*Exchange rates were sourced from www.oanda.com
Pacific Fuel Price Monitor

Covering 2nd Quarter 2015 (April–June)

WHAT’S INSIDE

1. Pacific Fuel Prices at a glance
2. Key Observations – Pacific Fuel Prices
3. Unleaded motor gasoline (mogas) prices (excluding taxes and duty)
4. Automotive diesel oil (ADO) prices (excluding taxes and duty)
5. Kerosene prices (including and excluding taxes and duty)
6. Liquefied petroleum gas (LPG)
7. International market pricing trends
8. Exchange Rates
9. PICT Fuel Pricing Methodologies
10. Glossary and conversions

1. PACIFIC FUEL PRICES AT A GLANCE

Figure 1: Regional retail prices including duty and taxes
2. KEY OBSERVATIONS - Pacific Fuel Prices

Overview

Overall, PICT retail mogas, diesel, kerosene and LPG prices rose in the second quarter 2015 (2Q-2015) compared to the previous quarter average. Underlying international oil prices in 2Q-2015 increased by US5.35 cents per litre (cpl) to average at US39.94cpl. This increase will be reflected at pumps in all PICTs in the order of US6cpl.

Mogas

American Samoa had the lowest tax inclusive retail price followed closely by Hawaii and Fiji. Pre-tax lowest was Fiji (57.90 UScpl), Sydney (65.02 UScpl), Darwin (65.70 UScpl) and Hawaii (66.40 UScpl). Highest pre-tax costs were Niue (142.05 UScpl), Cook Islands (131.93 UScpl) and Tuvalu (130.94 UScpl). American Samoa had the lowest PICT wholesale price followed by New Zealand, Fiji and PNG. The PICT retail pre-tax ‘low-to-high’ price gap (Fiji compared with Niue) for mogas was 84.15 UScpl. Volume weighted, the best performing mogas markets were Fiji, American Samoa, Samoa and Tonga.

ADO

American Samoa and Fiji had the lowest tax inclusive retail price followed by New Zealand and New Caledonia. Pre-tax lowest was Fiji (56.89 UScpl), Sydney (60.89 UScpl), Darwin (65.31 UScpl) and American Samoa (70.08 UScpl). Highest pre-tax costs were Wallis & Futuna (132.70 UScpl) and Niue (143.52 UScpl). PNG had the lowest PICT wholesale price comparable with that of NZ and AUS, followed by Fiji, American Samoa and New Zealand. The PICT retail pre-tax ‘low-to-high’ price gap (Fiji compared with Niue) for ADO was 86.83 UScpl. Volume weighted, the best performing ADO markets were Fiji, American Samoa and Samoa.

Kerosene

Fiji had the lowest tax inclusive retail kerosene prices followed by American Samoa and Kiribati (Gilbert). Pre-tax lowest was Fiji (61.68 UScpl), Samoa (69.30) and French Polynesia (72.65 UScpl). PNG had the lowest wholesale kerosene price (56.47 UScpl) followed by Fiji and Kiribati (Gilbert). The highest kerosene prices were in Palau and Niue. The PICT retail pre-tax ‘low-to-high’ price gap (Fiji compared with Palau) for kerosene was 126.06 UScpl.

LPG

The lowest retail LPG prices were in Fiji (USD1.45 per kg), closely followed by American Samoa, Tonga and New Caledonia. Palau had the highest LPG price (USD5.51 per kg), a gross margin of USD5.02 per kg over the Saudi Aramco LPG Contract Price. The PICT pre-tax ‘low-to-high’ price gap (Fiji compared with Palau) for LPG was USD4.06 per kg.

Crude oil

Average Dated Brent crude oil prices increased by USD8.51 bbl or 5.35 UScpl for 2Q-2015 compared with 1Q-2015.

General

- On a volume weighted comparison, American Samoa, Fiji, Samoa and Tonga continue to achieve the best prices for Mogas and ADO.
- The major PICT markets of Papua New Guinea, New Caledonia and French Polynesia have potential to achieve lower fuel costs based on their market economies of scale.
3. MOGAS (UNLEADED PETROL) PRICES

Figure 2: Retail tax inclusive mogas price

Figure 3: Retail mogas prices sorted by pre-tax cost
The centre of the bubble represents the price.

Key observations – Mogas

- Most PICTs import 92 RON mogas however, Niue, Cook Islands, New Caledonia, Vanuatu and Wallis and Futuna import 95 RON, which has a higher cost than 92 RON. This goes some way to explain variations between PICTs.
- Regulated PICT markets tend to have lower retail prices than non-regulated markets.
- The Pacific-wide retail average pre and after tax retail price for mogas was USD 0.99/litre and USD 1.27/litre respectively.
- Average pre and after tax wholesale price for mogas was USD 0.85/litre and USD 1.13/litre.
- Pre-tax wholesale price was lowest in Fiji (UScpl 55.01), Papua New Guinea (UScpl 59.05) American Samoa (UScpl 62.89) and Samoa (UScpl 63.10).
- The PICT pre-tax low to high wholesale price gap (Fiji compared with Wallis & Futuna) for mogas was 63.37UScpl.
- Average MOPS for mogas 92 and 95 RON during the April-June period was USD 0.49/l and USD 0.50/l respectively.
- Pre-tax margins above the Platts average mogas MOPS price (USD 0.49/l) for the period fell in the range of USD/l 0.09 (Fiji) to USD 0.98 USD/l (Niue).
- Mogas related retail tax rates between PICTs range from 1.32UScpl (Palau) to 76.06 UScpl (French Polynesia).
- Mogas related wholesale tax rates between PICTs range from 5.44UScpl (Kiribati) to 76.06UScpl (French Polynesia).

*Note: For figure 6.0, total and mogas volume for New Caledonia is projected over 1995 data and it is an SPC estimate. The centre of the bubble represents the price.
4. AUTOMOTIVE DIESEL PRICES

Figure 7: Retail tax inclusive diesel prices

![Retail diesel Tax-inclusive Price graph]

Figure 8: Retail diesel prices sorted by pre-tax cost

![Retail Diesel sorted by underlying Pre-Tax Prices graph]
Figure 9: Wholesale diesel prices sorted by pre-tax cost

Figure 10: Regional prices of diesel (including tax and duty)
**Key observations – diesel fuel**

- Pre-tax and duty, Fiji, Sydney & Darwin (Australia) has the lowest retail ADO costs and prices, closely followed by American Samoa and Samoa. Palau imposes the lowest amount of tax and duty however is mid-ranking in terms of comparative retail sales price.
- The majority of PICTs import 500ppm Sulphur (S) ADO for land transport. Cook Islands and Palau have specifications of 50 ppmS. American Samoa, New Caledonia, Niue, Wallis and Futuna and Vanuatu import 10ppm diesel for automotive use, factors that contribute to price variations between PICTs.
- The Pacific-wide average pre and after tax retail price for ADO was USD 1.06/litre and USD 1.26/litre.
- Papua New Guinea had the lowest tax inclusive wholesale prices followed by New Zealand and Fiji. Pre-tax wholesale price was lowest in Papua New Guinea (UScpl 57.64), New Zealand (UScpl 52.46), Fiji (UScpl 58.11) and American Samoa (UScpl 64.04).
- The PICT pre-tax low to high wholesale price gap (Fiji compared with Wallis & Futuna) for ADO was 63.37UScpl.
- The Pacific-wide average pre and post-tax wholesale price for ADO was USD0.87/litre and USD 1.12/litre.
- Average MOPS for gasoil 10ppm and 500ppm during the April-June period was USD 0.48/l and USD 0.47/l respectively.
- Pre-tax retail margins above the Platts average ADO MOPS price (USD0.47) for the period fell in the range of USD 0.09 (Fiji) to USD 0.96 (Niue).
- ADO retail tax rates between PICTs range from 1.32 UScpl (Palau) to 71.31 UScpl (French Polynesia).
- ADO related wholesale tax rates between PICTs range from 2.41 UScpl (Papua New Guinea) to 71.31 UScpl (French Polynesia).

*Note: For figure 11, total and diesel volume for New Caledonia is projected forward based on 1995 data and is an SPC estimate. The centre of the bubble represents the price.*
5. KEROSENE PRICES

Figure 12: Retail tax-inclusive kerosene prices

Figure 13: Retail kerosene prices sorted by underlying pre-tax cost
Figure 14: Wholesale kerosene prices sorted by underlying pre-tax cost

Figure 15: Wholesale and retail prices of kerosene (including tax and duty)
Key observations – Kerosene

- Fiji has the lowest retail kerosene prices while Papua New Guinea had the lowest wholesale prices. Highest prices are found in Palau and Niue.
- The Pacific-wide average pre and after tax retail price for kerosene was USD 1.02/litre and USD 1.23/litre respectively.
- Average MOPS for Asian jet fuel (the main end-use for kerosene) during the April-June period was USD 0.47/litre.
- Papua New Guinea had the lowest tax inclusive wholesale prices followed by Fiji and Kiribati.
- Pre-tax wholesale price was lowest in Papua New Guinea (UScpl 56.47), Fiji (UScpl 57.75) and Samoa (UScpl 61.75).
- The PICT pre-tax low to high wholesale price gap (Papua New Guinea compared with Niue) for kerosene was 84.77 UScpl.
- Kerosene related retail tax rates between PICTs range from zero (Kiribati and Fiji) to 44 UScpl (Wallis and Futuna).
- Kerosene related wholesale tax rates between PICTs range from zero (Kiribati, Papua New Guinea and Fiji) to 44.29 UScpl (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’ slightly decreased in the second quarter. Saudi CP for butane and propane for the quarter averaged at USD462 and USD443 per Metric Tonne respectively. The price decrease was related to surplus supply.
Key observations LPG

- Between April-June 2015 Fiji has the lowest LPG retail and wholesale prices at USD 1.45/Kg and USD 1.17/Kg respectively.
- Palau, Niue, Papua New Guinea and Wallis and Futuna had the highest retail LPG prices which are all more than double that of Fiji.
- There is significant potential to reduce regional LPG prices.

7. INTERNATIONAL MARKET TRENDS
Oil prices continued to recover in Q2 -2015.

Continued conflict in places such as Iraq, Syria, Turkey and Yemen; easing supply and high demand from peak US driving season, drove oil prices high in 2Q15.

In comparison to the first quarter of 2015, the price of Dated Brent in the second quarter 2015 increased by USD8.51/bbl from USD54.99/bbl to USD63.50/bbl.

Singapore Fuel Prices

In 2Q-2015, Singapore free on board (FOB) prices for Mogas 92 increased by 22.48%, Kerosene prices by 8.64% and 10ppm and 500ppm Diesel by 10.90 and 10.15 percent respectively. FOB fuel price comparison for 1Q15 vs 2Q15 is as follows:

<table>
<thead>
<tr>
<th></th>
<th>1Q15 Average (UScpl)</th>
<th>2Q15 Average (UScpl)</th>
<th>Difference (UScpl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline 92</td>
<td>40.24</td>
<td>49.28</td>
<td>+9.04</td>
</tr>
<tr>
<td>Diesel 500ppm</td>
<td>42.82</td>
<td>47.17</td>
<td>+4.35</td>
</tr>
<tr>
<td>Kerosene</td>
<td>43.26</td>
<td>47.01</td>
<td>+3.75</td>
</tr>
<tr>
<td>Dated Brent</td>
<td>34.58</td>
<td>39.49</td>
<td>+5.36</td>
</tr>
</tbody>
</table>

In comparison to first quarter of 2015, the price of Dated Brent crude in the second quarter increased (in USD/bbl terms) by 8.51 from 54.99 to 63.50. PICTs are part of the Asia Pacific fuel market with Singapore the recognised regional trading market as well as a petroleum refining and distribution centre. The pricing benchmarks for PICT fuel markets are traded Singapore prices for diesel (gasoil) with maximum 10, 50 and 500 ppm Sulphur, gasoline (92 and 95 RON) and jet/kerosene.

Figure 19: Difference between market prices

Observations – refiners margin

Observed refining margins indicate that regional demand for jet and diesel fuel has been supporting all petroleum product prices from mid-2013. That has completely reversed in Q2–2015, with gasoline refiner margins at a historical high level, indicating that demand for gasoline is apparently pulling all fuel prices upward.

Asian refining margins during the period April-June strengthened on the back of higher regional demand amid decreasing supply, which was further exacerbated by heavy refinery maintenance in the region.
8. EXCHANGE RATES

The PICT currency - USD exchange rate is an important factor directly influencing retail fuel prices because the international benchmark prices of refined petroleum products are quoted in US dollars.

Figure 20: Pacific currencies against USD exchange rate

All major currencies depreciated against the US dollar during the second quarter 2015 while the Samoan tala remained relatively stable at the same time when international fuel prices increased.

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 price on a quarterly basis. Price change is based on MOPS prices of previous quarter.
- American Samoa reviews prices on a fortnightly basis.
- Niue and Cook Islands 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 is sourced from http://www.med.govt.nz/

Hawaii prices are calculated using US average refiners wholesale prices sourced from http://www.eia.gov/ plus Hawaii taxes for diesel and Mogas which was sourced from http://www.api.org/

Singapore data is sourced from www.facebook.com/PetrolWatchSingapore

Data for Saudi Aramco LPG prices was adapted from http://gasenergyaustralia.asn.au/

Figures 14 & 15 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 (The McGraw-Hill Companies, Inc.) under subscription.

Fuel volumes

Graphs referring to fuel volumes plot the Quarter average prices against the annual volume demand for mogas and diesel of each PICT.

Annual volumes used in this report are based on 2009 annual market volumes as collected and published by SPC Economic Development Division unless otherwise indicated.

For American Samoa, French Polynesia, Palau and Wallis and Futuna, 2012 volume is used. For Guam, 2013 volume as published by the Guam Department of Energy was used but does not include volumes allocated for military use.

New Caledonia fuel volume is projected using 1995 data and is an SPC estimate.

The size of the ball in the volume weighted price graphs (figures 6 and 11) represents the annual total volume of all fuels within the PICT, which is an indicator of the import economies of scale available. (NB. PNG total volume includes refinery production).

10. GLOSSARY AND CONVERSIONS

Abbreviations and definition of key terms

ADO  automotive diesel oil or diesel fuel
After–tax price  prices including tax and duty
bbl  barrel (of oil), approximately 159 litres
Cpl  cents per litre
DPK  dual purpose kerosene (i.e. jet fuel and domestic use)
FOB  free on board
Gasoil  refinery designation of diesel fuel
kl  kilolitres (thousand litres)
Mogas  motor gasoline – normally unleaded
MOPS  Mean of Platts Singapore
MR  Medium Range tankers, generally 20-30,000 metric tonnes
Pacific-wide  All surveyed Pacific Island countries (excluding Australia and New Zealand)
ppm  parts per million
Retail price  fuel price at retail/service stations, also called pump price
**Pre-Tax price**  price excluding tax and duty

**Pump price**  refer to retail price

**RON**  research octane number

**S**  Sulfur content (usually in diesel fuel)

**ULP**  unleaded petrol

**USD/bbl**  US dollars per barrel

**USD/l**  US dollars per litre

**Conversions**

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

Note: A more detailed petroleum glossary can be accessed from the PRDR website: [http://prdrse4all.spc.int/production/node/1523](http://prdrse4all.spc.int/production/node/1523)

**For more information:**

Alan Bartmanovich  
Petroleum Adviser  
Economic Development Division  
[AlanB@spc.int](mailto:AlanB@spc.int)

Pritanshu Singh  
Assistant Petroleum Officer  
Economic Development Division  
[PritanshuS@spc.int](mailto:PritanshuS@spc.int)
Focusing on dangers at petrol stations

During our early in-country missions, a number of retail fuel outlets have been visited to ascertain their level of safety compliance. It was observed that many of the sites did not comply with minimum industry-accepted standards and were, therefore, operating at a high risk level.

As a result, the SPC Petroleum Advisory Service undertook retail risk assessments in other countries. The risk assessed included storage and handling of flammable, combustible liquids and liquefied petroleum gas at service stations. A comprehensive guidance document covering all risks for the industry had not been available but is now being developed by the SPC Petroleum Advisory Service. In the absence of such a document, the audits were conducted against the requirements set out in AS1940:2004 “The storage and handling of flammable and combustible liquids”, and AS/NZS 1596:2014 “The storage and handling of liquefied petroleum gas”.

A summary of the assessment (below) shows that while certain sites in some countries were operating at a high risk and required immediate shut down, the underlying risks at other sites were being managed to an acceptable level. Some of the risks identified with recommended actions are listed below.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Observation</th>
<th>Recommended Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel Stains on Forecourt. Fuel and oil spills in the shop or forecourt are flammable and slippery</td>
<td>Visible spill stains on the forecourt and the pump island.</td>
<td>Spill to be cleaned using bio-degradable detergent. All materials used to clean the stain should be disposed in an environmentally friendly manner. Resulting effluent should be properly treated prior to discharge to the storm water system or the environment.</td>
</tr>
<tr>
<td>Splash guards</td>
<td>Dispenser nozzle does not have splash guards.</td>
<td>All nozzles should have splash guards to avoid products splashing onto the dispenser and the forecourt.</td>
</tr>
<tr>
<td>Signage</td>
<td>No prominent signage.</td>
<td>Prominent signage to be installed close to the dispenser. For storage of petrol and diesel, signage needs to be in compliance with PART 2: AS1940 7.2.5 AND 3.8.2 SIGNAGE. For storage of LPG cylinders, signage needs to comply with Appendix G of AS/NZS1596:2014.</td>
</tr>
<tr>
<td>Fire extinguisher</td>
<td>The fire extinguisher is inaccessible as it is placed behind items and this can cause difficulty in accessing fire extinguishers during a fire emergency.</td>
<td>Extinguishers must be easily accessible when dispenser is in use. When dispensing of fuel occurs during operating hours, fire extinguishers must be available on the forecourt area and not just kept inside the shop area. They may be located in a box with break glass screen to prevent theft and damage by vandalism. Ensure fire extinguishers are maintained and regularly serviced and that access is not obstructed.</td>
</tr>
<tr>
<td>Vents</td>
<td>Vents and pipeline are rusted.</td>
<td>Vents and pipeline require painting.</td>
</tr>
</tbody>
</table>
| **Aboveground diesel tank** | ➔ Tank has no signage to indicate what product is stored inside.  
➤ The bund is filled with storm water and cannot be drained out as there is no outlet to the bund.  
➤ Pipelines from the tank to the dispenser are unprotected and any leaks will go directly onto the ground.  
➤ The tank is single walled.  
➤ There is no interceptor installed.  

| Requirements for storage in aboveground tank should comply with Section 5 (Storage in Tanks) of AS1940:2004. The following needs to be considered.  
➤ a) Markings (signage)  
➤ b) Pipework  
➤ c) Separation distance  
➤ d) Bunds and compounds  
➤ e) Compound drainage (valves, discharge from sumps and interceptors) |
|---|---|
| **Waste water Interceptor** | ➔ There is no interceptor at the sites.  

| ➔ It is recommended that the site has an interceptor installed in the forecourt.  
➤ The outlet valve of the aboveground tank bund should be connected to the interceptor.  
➤ All spills on the forecourt need to be washed into the interceptor. |
| **LPG storage** | ➔ LP gas cylinders are not stored in proper cages.  

| ➔ Storage of LPG cylinders should be in accordance with Appendix G of AS/NZS1596:2014. |
| **Improper lights – a potential fire hazard** | ➔ Lights on the forecourt ceiling do not have covers.  
➤ Christmas lights hung on dispensers.  

| ➔ Proper cover needs to be installed.  
➤ No electrical lights should be on the dispenser, as this a potential fire hazard. |
| **Emergency Response Plan (ERP)** | ➔ No ERP available at the site.  

| ➔ ERP needs to be readily available.  
➤ Staff need to be familiar with and know how to follow the ERP during an emergency. |
| **Waste Management Plan (WMP)** | ➔ Site does not have a waste management plan.  

| ➔ A waste management plan needs to be developed outlining the type of waste produced and disposal methods. |
| **Material Safety Data Sheets (MSDS)** | ➔ No MSDS are available for the products that are sold at the site.  

| ➔ MSDS for all petroleum products should be available at the site. |
| **Site plan** | ➔ No site plan displayed.  

| ➔ A site plan that must include:  
➤ Main entry and other entry and exit points to the site;  
➤ Location and identification of tanks and package stores;  
➤ Location of manifest, site drains, fuel and power isolation points;  
➤ Essential fire;  
➤ Nature of the occupancies of the adjacent sites; and  
➤ Legend of symbols and codes used in the plan. |
| **Oil spill equipment** | ➔ No spill equipment available.  

<p>| ➔ Spill kits containing absorbent pillows, booms and granules should be easily accessible to staff. |</p>
<table>
<thead>
<tr>
<th>Identification</th>
<th>Details</th>
</tr>
</thead>
</table>
| Fill/dip point | Fill/dip points are not properly labelled.  
Underground tanks must have colour-coded fill and dip point markers, according to the AS4977.  
Fill/dip containment or spill containment boxes must be free of fuel.  
Any tank overfill should be cleaned up or drained into an underground tank.  
If fuel is present, there is a high fire risk and indicates unacceptable tank filling procedures. If there is any water present, the seals could be faulty and may need replacing. |
| Training | Site staff did not have formal training before beginning work.  
Need refresher training.  
Training should be provided by the fuel supplier. |
| Emergency stop buttons | Emergency stop buttons to cut off flow from the bowsers were present in the console area.  
Staff need to be aware of the location of the emergency stop button and trained how to use them. |
| Vehicle collision protection | Fuel dispensing bowsers were not protected from vehicle collision.  
Bollards or some form of protection needs to be installed to protect the bowser. |

Identified risks are communicated in reports to the national energy office so that they can advise the site owners of issues that need addressing. In addition to training of service station owners, it was also evident that many of the energy officers also needed upskilling in the area of dangerous goods storage and handling.

The biggest challenge so far has been to identify appropriate trainers to deliver this type of training. Recently, Worksafe New Zealand has started working with Petroleum Advisory Services (PAS) to design a course relevant to the Pacific.

Whilst this course has been developed, we continue to provide hands-on training during in-country visits. The petroleum industry cannot be treated like any other business because of the risks associated with it, and one of our priority goals is to raise awareness on safety and environment issues and assist in identifying ways to reduce the risks.

For more information:

Pritanshu Singh  
Assistant Petroleum Officer  
Economic Development Division  
PritanshuS@spc.int
Kiribati and Tuvalu on the way to achieving their clean energy targets

“Kiribati and Tuvalu are among the smallest countries in the world and are among the most vulnerable to the impacts of climate change, yet we are doing all in our power to work collaboratively with our partners to join the global community in reducing our greenhouse gas emissions,” said Mr. Mafalu Lotolua, the General Manager of the Tuvalu Electricity Corporation.

October marks the inauguration of two clean energy plants in the Pacific. On October 13 2015, a 500 kW solar Photovoltaic (PV) power plant was opened on the atoll of Funafuti in Tuvalu. The inauguration of another 500 kW solar plant and water protection project was planned for the following week on the atoll of Tarawa in the Republic of Kiribati. Both solar PV projects are funded by the United Arab Emirates (UAE) and implemented by Masdar, a renewable energy company from Abu Dhabi.

With the opening of the renewable energy power plants, both Tuvalu and Kiribati are proving to make a solid effort to reach their country’s energy goals set for the coming years. In 2012, the Tuvalu Government adopted its Energy Master Plan 2012–2020, where it aims to generate 100% of its electricity generation from renewable energy. The power plant on Funafuti will reduce 570 tons of CO2 emissions and will save the country US $280,000 annually on fossil fuels. Apart from generating up to 783,000 kWh a year to over 800 homes, the Funafuti solar project further includes a 540m2 workshop storage facility and space for office and recreational use.

In Kiribati, the Pacific Community (SPC) and its partners are currently finalizing the Kiribati Integrated Energy Roadmap (KIER) for 2015-2025. The roadmap’s Renewable Energy (RE) and Energy Efficiency (EE) goals encompass the following:

- For Tarawa – a 45% reduction in energy coming from fossil fuels for electricity generation by 2025, compared to Business As Usual (BAU). This goal
will be met through a 23% reduction of fuel use for power generation, and a 22% reduction from improvements to energy efficiency on both the supply and demand side.

- The goal for Kiritimati Island is a 60% reduction in energy, coming from fossil fuels for electricity generation by 2025, compared to BAU. It is anticipated that 40% of this reduction will come from solar energy and biofuels while the remaining 20% will come from improvement to EE on both the supply and demand sides.

- For the outer islands, the goal is to have at least 60% renewable energy by 2025 in rural public infrastructures, (e.g. the Tabiteuea North Hospital and ice plants) and 100% RE for rural public and private institutions.

The solar power plant project in Tarawa will provide 855,000 kWh to 860 homes, reduce 627 tons of CO₂ emissions, cutting annual fuel costs by US $265,000, and will meet the Roadmap’s primary RE goal for Tarawa. Furthermore, the project’s water protection project protects the island’s only aquifer, which has been threatened with contamination due to the growing number of people in the area to a confined space.

The initiative to both projects answers the call to immediate action relief after the United Nations (UN) identified the Pacific as amongst the first to encounter the threatening effects of climate change. The projects are part of the larger United Arab Emirates Pacific Partnership Fund, amounting to US $50 million under the Abu Dhabi Fund for Development. It was established in 2013 with the main objective to develop wind and solar projects across 11 Pacific Island nations to support economic and social development. A total of 6.1 megawatts of RE is to be deployed on the island nations to further showcase Abu Dhabi’s abilities in the field of new sustainable energy.

With these inaugurations, Kiribati and Tuvalu join rank with Tonga, Fiji and Samoa who have already had micro-grid solar plants, wind farms and solar PV installations completed by Masdar.

The CEO of Masdar, Dr Ahmad Belhoul, affirms that both the adoption of RE through sustainable solutions and reduction of pollution are critical in the mitigation of global climate change. “As a strong supporter of COP 21, as well as the energy-related sustainable development goal adopted by the United Nations, Masdar’s efforts to limit the impact of climate change, including our commitment to broaden access to clean energy for a greater number of people, are clearly demonstrated through the delivery of the solar plants of Tuvalu and Kiribati,” he said.

The grand scale Abu Dhabi project will continue with the signing of an arrangement between the UAE and New Zealand for the development of a 1 mW solar photovoltaic power plant in the Solomon Islands in the second week of October 2015. The power plant – to be situated in Honiara, the capital of the Solomon Islands – will be jointly funded, with the UAE funding 400 kW and New Zealand (through the New Zealand Aid Programme) funding 600kW. This power plant will reduce emissions by 1200 tons, meet 7 per cent of the country’s energy needs and save annually 450,000 liters of diesel, which is similar to the project in Kiribati and Tuvalu combined. If the project is produced and concluded according to plan, it will be a large leap towards reducing the Solomon Islands’ carbon footprint, and it will send a positive message to the rest of the Pacific and the world about furthering the prevention of climate change.

For more information:

Samantha Naidu  
Research and Information Assistant  
Research and Information, EDD, SPC  
SamanthaN@spc.int
Funafuti rooftop solar energy project completed

As a project of the New Zealand Aid Programme, Tuvalu’s first rooftop solar energy installation has been completed on the roofs of the government building and the media building.

The New Zealand company Infratec Renewables installed 648 rooftop solar panels with a combined capacity of 170 kWp – 130 kWp at the government building and 40 kWp at the media building – and both connected to the main grid. This will generate enough energy to cover approximately 5% of Funafuti’s annual demand. This clean energy source is expected to reduce Tuvalu’s current reliance on diesel energy generation by around 63,000 litres per year and save around AUD 95,000 per year for Tuvalu.

General Manager of the Tuvalu Electricity Corporation (TEC), Mafalu Lotolua, reported that, during the first two days of operation, 200 litres of diesel fuel was saved. This project is the first step towards helping Tuvalu reach its target of 100% electricity supply from renewable energy sources by 2020.

TEC and the Ministry of Public Utilities and Infrastructure, Public Works Department have been involved in the successful delivery of the project. There has been a significant amount of local involvement, with five Tuvaluans working on the rooftops.

Infratec Renewables, supported by Solar City, designed and installed the system and trained TEC staff to operate and maintain it. Beca International Ltd and IT Power (Australia) Pty Ltd provided project management and quality assurance.

The Funafuti solar rooftop system was part of the New Zealand government’s commitment to Tuvalu following the Pacific Energy Summit in 2013. A further four photovoltaic/diesel hybrid systems are currently under construction on the outer islands of Vaitupu, Nanumaga, Nanumea and Niutao.

For more information:

Mafalu Lotolua
General Manager, Tuvalu Electricity Corporation
mlotolua@tectuvalu.tv / mafaluloto2@gmail.com
## Pacific energy events calendar (January 2016–November 2016)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
<th>Responsible agencies</th>
<th>Officer responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>14–18 March</td>
<td>Energy Supply and Demand Outlook workshop</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC/APEC</td>
<td>Frank Vukikomoala (<a href="mailto:FrankV@spc.int">FrankV@spc.int</a>)</td>
</tr>
<tr>
<td>TBC</td>
<td>Pacific Energy Regulators Forum</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>17–18 May</td>
<td>World LPG Association / SPC Pacific Regional Summit on Liquid Petroleum Gas</td>
<td>Surfers Paradise Marriott Resort, Gold Coast, Australia</td>
<td>SPC</td>
<td>Alan Bartmanovich (<a href="mailto:AlanB@spc.int">AlanB@spc.int</a>)</td>
</tr>
<tr>
<td>21–22 June</td>
<td>Inauguration of the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>23 June</td>
<td>First meeting of the PCREEE Board</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>18–22 July</td>
<td>Sustainable Energy training workshop (under the KfW project)</td>
<td>Vanuatu</td>
<td>SPC</td>
<td>Kuini Rabo (<a href="mailto:KuiniR@spc.int">KuiniR@spc.int</a>)</td>
</tr>
<tr>
<td>15 August –</td>
<td>25th Annual Conference of Pacific Power Association</td>
<td>Nuku’alofa, Tonga</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
<tr>
<td>(tbc)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–22 November</td>
<td>7th Meeting of the Pacific Energy Advisory Group</td>
<td>Suva, Fiji</td>
<td>SPC</td>
<td>Solomone Fifita (<a href="mailto:SolomoneF@spc.int">SolomoneF@spc.int</a>)</td>
</tr>
</tbody>
</table>